Informix Sales Kit

INFORMIX®

INFORMIX-NewEra™

INFORMIX-NewEra

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Positioning Quick Reference

Introduction

The only thing certain about the environment in which businesses operate is that change predominates. Regardless of whether business is conducted in the private or public sector, the ongoing need for an organization to react to internal and external changes introduces a degree of complexity into the business environment that has never been encountered before.

This complexity is manifested in two ways. The first is the one that is facing most business people squarely in the face—how to do more with less. Quicker, better, faster, cheaper, and with fewer resources are words that one hears everyday. This movement is driving the need for more business applications to be implemented across the enterprise. The second is introduced by the ongoing proliferation of new application development technology. This complex new technology results in the creation of more complex applications which, again drives the need for more complex technology, and so on.

Client/server computing has been introduced as a solution to these problems. The first generation of application development tools created for this new computing architecture has been adopted because of its emphasis on graphical capabilities. Many of these first-generation tools have grown from the idea that their primary function was to put a veneer on the basic Microsoft Windows application programming interfaces (APIs) utilizing the Microsoft Windows Software Development Kit (SDK) and other tools. However, organizations are beginning to realize that their application requirements extend far beyond an easy-to-implement and attractive GUI. Although these tools have not failed entirely, there is growing dissatisfaction with the results that they are able to provide.

Organizations now require business-critical applications to be hosted on client/server systems, and a robust development environment to create them. Because an application must live 5 to 10 years, be deployed on many different platforms (some of which do not yet exist!), and possess the same

reliability and availability as the mainframe-based systems that currently serve as the backbone of the business, application developers need a more powerful generation of tools designed specifically with these requirements in mind.

To meet these requirements, Informix has introduced INFORMIX-NewEra. The key appeal of NewEra is its powerful and productive architecture, which enables the efficient development and deployment of highly scalable and extensible applications in an open environment. At the core of this architecture is an object-oriented, high-level programming language. That language is supplemented by class libraries that add additional capabilities to the product and are used to extend application functionality. The class libraries insulate the application code from other elements of the computing environment (e.g., OS, hardware architecture, user interface, data sources), enabling changes to be implemented without disrupting the basic logic of the application. NewEra also includes a set of visual tools that further enhance programmer productivity through the use of pre-built or custom components in application development.

This full-function core language enables NewEra to effectively compete against script-based tools, which though productive, can not be used to develop highly scalable, enterprisewide applications. Visual programming facilities and class library and tools integration extend the power of the environment, providing the user with a broad range of functionality to easily create extensible, component-based applications. No other tool provides scalability, extensibility, productivity, and open systems capabilities in a single, integrated package.

Product Positioning—Key Messages

INFORMIX-NewEra has different messages depending on each audience.

CEO-CFO Level (Level 3)

Primary concerns	- Safety - Stability - Company reputation - Long-term strategy/vision - Trust
Influences	- Market share - Revenues - Stock price - Leadership/CEO - Partnerships - Acquisitions

Messages
- Informix's corporate goal is to integrate established industry experience, a strong organization, and cutting-edge technology to help customers solve critical business problems.

- Informix's tools strategy/vision is designed to help organizations react to ongoing business and technological changes with a minimum of effort and disruption to the organization.

Informix is a strong, dependable partner

1. Informix tools are supported by a $700+ million company with a worldwide reputation for supplying industry-leading technology, including

    - First UNIX DBMS;

    - First and most widely used 4GL on UNIX; and

    - Leading parallel database server technology.

2. Informix's extensive relationships with VARs, ISVs, systems integrators, and other companies provides customers with best-of-breed technology to facilitate business solutions.

3. Informix's world-class customer service organization ensures customer success with a full range of professional consulting, training and support services.

NewEra is designed for your future

1. Since business and technological change are constant and inevitable, NewEra is built around a flexible architecture designed to easily and quickly accommodate such changes.

2. NewEra enables customers to use a combination of build and buy decisions to address changing requirements, reducing cost and technological risk—we provide a core technological infrastructure that can be augmented with business and technological expertise from both customers and partners.

3. NewEra is designed to accommodate the growth of small prototypes into critical "bet-your-business" applications, providing mainframe-caliber scalability and performance in an open, client/server environment.

IT Director Level (Level 2)

Primary concerns	• Business and technology strategy
	• Vendor understanding of their business
	• Potential technical obstacles
	• Risk of failure
	• Staffing/training issues
	• Flexibility
	• Scalability
	• Cost
Influences	• Corporate and technology vision
	• Commitment to product
	• Adherence to standards

Message

- Informix's tools strategy is to provide a stable infrastructure on which IT organizations can build and deploy large-scale applications that can be easily adapted to meet changing business and technical needs.

Productivity - Do more with less

1. NewEra enables more efficient application development and maintenance through visual programming, OO component reuse, a robust tool set, and an application repository.

2. NewEra allows a programmer to use a combination of structured and OO techniques, including visual and programmatic approaches, to develop complete applications—maximizing programmer productivity without requiring any significant retraining.

3. NewEra's cross-platform availability allows the deployment of applications across multiple environments without recoding.

4. NewEra is closely tied to database technology, enabling more effective control of the application and better enforcement of standards.

5. User-driven application development is made possible through the use of SuperViews,™ allowing applications to be developed on business and not technical terms.

Scalability - No limits on the complexity and size of applications

1. NewEra's powerful development language supports the development of complex, highly scalable enterprisewide applications.

2. With three-tier application partitioning, NewEra efficiently employs the resources of both client and server machines for deployment.

3. The partitioning scheme can be modified to accommodate new computing environments across the enterprise without requiring changes to the underlying application code.

4. The use of multiple DLLs minimizes NewEra runtime footprints, allowing the deployment of applications on machines with limited memory resources.

Extensibility - The ability to accommodate changes in domain requirements by adding new functionality to an existing application

1. NewEra enables customer needs to be met more easily and quickly through the use of class libraries to add new functionality to an existing application with prebuilt, pretested technology.

2. Class libraries enable IT staffs to deal with the complexity of existing applications and environments (including OS, processor type, GUI, and data sources) through the use of connectivity products and encapsulation.

3. Class libraries can be reused, modified, or created from scratch by the customer.

4. The availability of third-party class libraries enables organizations to buy business expertise (e.g., business graphics, imaging).

5. Informix is a leader in defining and supporting industry standard APIs.

Technical Level (Level 1)

Primary concerns	• Applicability of NewEra to an application • NewEra as a "hot tool" • Career impact • Standards (de facto, de jure, Microsoft)
Influences	• Customer endorsements • Adopted technology • Image in marketplace

Message

• INFORMIX-NewEra is the leader among hot, new tools to create and deploy enterprise-wide client/server applications.

Productivity - NewEra will allow you to build more complex, sophisticated, and easily maintained applications in less time and with less effort

1. NewEra provides both structured and nonstructured language constructs, so you can incrementally develop your skills with new programming techniques (e.g., visual and OOP).

2. An array of visual development and maintenance tools allows you to generate up-and-running applications with little or no hand-coding and provide high levels of reuse.

3. Application framework class libraries reduce the development cycle time and code maintenance headaches.

4. NewEra applications can be deployed on multiple platforms with little or no effort.

Scalability - NewEra will help you succeed when it comes time to turn a prototype into a deployed mission-critical application

1. In conjunction with partners such as Cadre, NewEra enables organizations to design large applications by using the latest model- or implementation-driven techniques.

2. The NewEra Application Builder and an interface to Intersolv's PVCS support team development. In 1996, this support will be enhanced with an object repository based on the Versant ODBMS.

3. Scalability is provided through three-tier application partitioning and the capability to generate multiple dynamic link libraries (DLLs) in the Windows environment.

4. Dynamic Data Exchange (DDE) and Object Linking and Embedding (OLE) integrate NewEra with other Windows-based desktop applications.

Extensibility - NewEra's class libraries and tools integration provide all the features you'll ever need to get the job done, no matter what management demands from you

1. NewEra enables customers to create their own custom class libraries for business-specific functions, building them from scratch or modifying preexisting class libraries provided by Informix or third parties.

2. The integration of existing C++ class libraries promotes the reuse of existing code and insulates developers from any need to know or deal with low-level languages—all programming is done with the high-level NewEra fourth-generation language.

3. NewEra's capabilities are extended via tools from independent software vendors.

Value-Added Partners

Message
- Informix has the best VAR program in the business, as well as a proven track record in the tools marketplace. Use INFORMIX-NewEra to meet your customer demands for moving your applications into the graphical, client/server world.

1. NewEra's connectivity to other RDBMSs creates opportunities for new customers that use non-Informix databases.

2. Class library and tool vendors help leverage increased sales of your products.

3. NewEra provides the opportunity to sell not only applications, but also components.

4. The INFORMIX-4GL to NewEra migration program reduces the time and cost of migrating your existing 4GL-based products to NewEra.

5. Informix will not compete with partners to develop applications or business-type components.

2.0/3.x Feature/Benefit Roadmap

Productivity	Visual reuse
	Master/detail
	Visual Class Library for Character
	Integrated tools
	Object Repository (3.x)
Scalability	Integration with Westmount/Cadre
	Multi-DLL applications in Windows
	Runtime global language support (2.1)
Extensibility	Business graphics class library
	Repository
	Class Browser (3.0)
	OLE/OCX support (3.0)

NewEra satisfies the key requirements of client/server application development tools

(Based on analysis of Gartner, IDC, Butler Group, Ovum, Codd & Date, and Hurwitz)

1. **Graphical User Interface**

2. **Design Scalability**

3. **Development Scalability**

4. **Deployment Scalability**

5. **Implementation Independence**

6. **Adaptability to Change**

7. **Application Component Reuse**

8. **Vendor Support**

Position of NewEra in the Marketplace

There are currently over 300 application development tools that currently compete for the attention of buyers and users of application development tools. These tools can be split into two categories: low-level and high-level; strategies and tactics for competing with tools in the same category will be similar.

NewEra is targeted for the medium- to high-end application development market segment, since its major advantages are most compelling for large-scale mission-critical applications.

The Competitive Landscape

Low-end tools	High-end tools
PowerBuilder	Uniface
Developer/2000	Forte
Visual Basic	Dynasty
SQL Windows	Smalltalk

There are many more competitors than those listed above, but according to feedback from the field, these are the most commonly encountered in sales situations.

For a more detailed profile of each of these competitors and how to deal with them, see the Competitive Overview/Sales Strategies section of the Sales Kit.

The following section provides a summary "elevator-pitch" of the most important high-level messages for positioning against either low-level or high-level competitors.

30-second elevator pitch against low-level competitors

The only way to build truly scalable, mission-critical client/server applications is to use a tool that is designed specifically for enterprisewide development and deployment, and includes features such as three-tier application partitioning, a compiled development language, and cross-platform availability (including the ability to deploy on character-based terminals). None of the low-end tools provide all of these critical features, although some claim to have enterprisewide deployment solutions (e.g., via OLE or PL/SQL).

Rather than continuing with its plan to develop a scalable tool with Enterprise Momentum, Sybase has instead purchased Powersoft in order to market PowerBuilder, a successful first-generation tool. Though popular, PowerBuilder is not scalable to the enterprise, providing no means for three-tier partitioning. Its GUI emphasis has fueled much of its appeal, but the tool hits the wall when it comes time to address customers' large-scale deployment requirements.

Oracle's long-term plans for Sedona are far from completion, and their interim tools fail to address business-critical application development requirements. Their Developer/2000 product, destined for obsolescence with the release of Sedona, relies upon an inadequate visual PL/SQL approach for partitioning that only supports a two-tier architecture. With the recent release of Power Objects as a low-end competitor to Visual Basic, Oracle is sending out a confusing message to the market about its tools strategy and remains incapable of addressing the high-end requirements for enterprisewide deployment scalability.

Visual Basic is immensely popular, but also suffers from the same inability to scale as do PowerBuilder and Developer/2000. The lack of three-tier partitioning is a showstopper for mission-critical applications. SQLWindows, another great low-end product, can not rely on the vanishing resource base of ailing Gupta to provide the technical enhancements necessary to make the tool appropriate for the high end.

NewEra is the only tool that combines an easy-to-use environment, an open architecture (with plug-in tools and class libraries), and the critical features required to build and deploy highly scalable applications (e.g., three-tier partitioning and a full-featured, compiled development language) into one fully integrated package. For customers with serious development and deployment needs, NewEra provides benefits across the board that can not be matched by the competition.

30-second elevator pitch against high-level competitors

Uniface, Forte, Dynasty, and VisualWorks are all feature-rich high-end tools, but they are supported by weak companies with limited experience in the client/server tools market and questionable corporate viability. Uniface has lost the majority of its development staff, and has little or no sales or technical support in North America. Forte and Dynasty are start-ups with no history in the market, no customers, and weak financials. VisualWorks is supported by ParcPlace-Digitalk, a small firm with a minimal track record in the database tools market and a fraction of the resources that Informix can offer the high-level customer.

Some tools still lack openness, providing little in the way of third-party class library and tools support; others are difficult to use and untested in the marketplace. Yet most important is the risk that a company will take in depending upon these firms to support their critical business functions. When it comes down to it, the most important aspect of a tools investment is the company behind the tool—its reputation, viability, and the vision it brings to the customer to offer winning business solutions.

Informix has a long history as a leader in the tools market with INFORMIX-4GL, the most widely used 4GL on open systems. Building upon this success, we determined that a new architecture was needed to address the needs of client/server applications. Rather than relying on bolt-on technology to augment our old tools, we developed NewEra from scratch, including a hybrid development language incorporating the best of INFORMIX-4GL along with object-oriented constructs. Surrounding this core language is a robust and productive development environment and a wide array of third-party tools and class libraries, all designed to bring the customer the best of today's technology while preserving the flexibility to incorporate tomorrow's. NewEra is supported by an organization with significant financial resources, a world-class service and support organization, and that is recognized as a technology leader by competitors, analysts, and customers alike.

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INFORMIX-NewEra
Market Backgrounder

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Application Development Issues and Trends

The Evolution of Client/Server Tools

Introduction

Two key issues are becoming clear in the business world: change must be managed before it manages the organization, and technology is the means by which change can be managed.

Organizations everywhere are under considerable pressures, driven by a changing marketplace. Customers are demanding better products and services, competitive threats are increasing, and owners and stock holders are demanding lower costs and higher productivity. These pressures highlight a need for changes in corporate IT operations.

In an effort to cope with such changes, corporations have replaced mainframe systems with more flexible, yet equally powerful networked client/server solutions. Their expectation was that such a move would enable more efficient decision-making using systems and applications that could easily be changed to accommodate changing organizational or market requirements.

The flexibility of client/server applications contrasts sharply with legacy applications, which forced the business to conform to their limitations. Change came at great cost to the organization in terms of time and effort, and business processes were adapted to meet the technology, instead of adapting the technology to meet changing business needs.

First-Generation vs. Second-Generation Tools

Since the introduction of client/server technology several years ago, successive generations of tools designed for application development in these environments have been brought to market. The first generation of these client/server development tools, many of which are still sold today, has been largely PC-centric. These tools emphasize strong graphical capabilities, are single-tasking, provide limited team development support, and require that the user place all of the application logic on a Windows-based PC client.

These first-generation tools are typically used to build small event-driven prototypes, where the user pushes a button and the application responds. Batch processing is not possible with these applications, due to the resource restrictions of the PC environment. However, these first-generation client/server applications are still helping companies to move away from structured procedural languages such as COBOL, increasing their receptiveness to more efficient alternatives for development.

The new generation of client/server applications are proving to be far more sophisticated, in direct response to a far more challenging set of demands. They must be mission-critical, scalable, and enterprisewide, and must support many, often geographically dispersed users in heterogeneous computing environments across the organization.

Second-generation client/server tools have been designed to handle such enterprisewide, "bet your business" applications. In addition to the graphical capabilities inherent in first-generation tools, these second-generation tools must provide:

- *Scalability* — to accommodate enterprisewide deployment requirements, including high performance and multiple users;

- *Extensibility* — to meet changing technical and business requirements;

- *Productivity* — to allow programmers to produce more complex applications more easily and in less time (hybrid language, GUI facilities, component-based development, object reuse); and

- *Platform Independence* — to provide users with the freedom to choose the most suitable OS, hardware, and data source for their needs.

Scalability to the enterprise is a major requirement of this new breed of applications, which are replacing mission-critical systems that had previously existed on mainframe and other host-based environments. These bigger, more complex applications require a powerful core development language to accommodate rigorous design demands, the ability to run compiled rather than interpreted to ensure optimal performance, and partitioning capabilities to efficiently utilize available machine resources in a client/server environment.
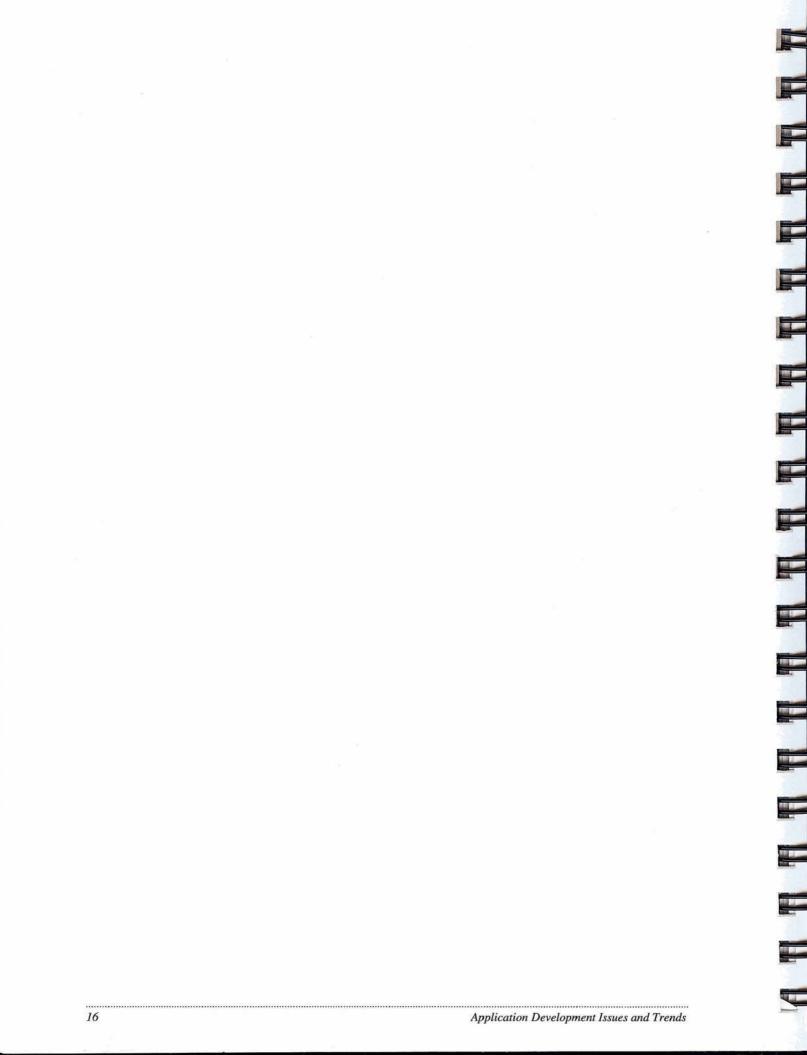
Extensibility is also critical to the success of these applications, since they must change and grow along with business and technical requirements. The need to quickly and easily add new functionality to an existing system is one of the main reasons that mainframe solutions are no longer acceptable to firms today. An open architecture that permits users to reuse/modify existing application objects, add new class libraries, and integrate third-party tools to perform specific tasks is necessary to provide this kind of flexibility.

Third among these key requirements is productivity. As applications become more complex to develop and deploy, the tools that enable their construction must be easy to use. Programmers are under growing constraints to work faster to build bigger, more powerful systems and deliver them on a broad range of platforms. Environments should be object-oriented to enable code reuse and component-based development, and provide visual programming facilities to allow programmers to build applications quickly and modularly. The core development language and debugging facilities, while powerful and full-featured, should also be designed for ease of use.

Lastly, cross-platform support must be available. Both developers and end users want to purchase the best price/performance hardware and operating systems to support their technical and budgetary requirements. Furthermore, individual business units want to retain a high level of independence within the overall computing strategy of the organization.

In order to succeed, a second-generation tool must provide solutions for each one of these requirements. While some tools excel in certain areas, very few meet all these demands with a fully integrated environment that is powerful, extensible, and productive to use.

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Marketing by Industry Segment

NewEra in the Financial Services Industry

On a worldwide basis, the financial services industry is presently experiencing a revolution brought about by deregulation and/or privatization; customer demand for improved levels of service and more sophisticated financial service products; and the rise of customer-driven selection of service delivery channels.

These market forces and the opportunities to capitalize on them have created a highly charged competitive atmosphere. Traditional financial service providers are in danger of losing their premier customers to emerging competitors providing high value, sophisticated wealth products, and discount brokerage services. These new competitors offer improved methods of customer access and support combined with traditional banking services.

In response to these threats, and others posed from traditional competitors, financial institutions are redefining their customer relationships, their products and services, and methods of delivery. Key among these initiatives is the urgent and constantly evolving need for relationship banking—the ability to manage customers from the standpoint of a relationship rather than an account; to set prices, sell, service, and support customers based upon an entire existing or potential relationship.

This competitive landscape therefore imposes a high demand for lower cost information and service delivery solutions that can be brought to market quickly. Many financial firms are therefore inclined to buy rather than build a solution.

This market's skepticism towards objects is fueled by two major concerns: too few class libraries, and extensive time and training for a transition to object-oriented programming. NewEra's hybrid development environment, which provides both OO and structured programming constructs, has significant appeal, since it allows developers to remain productive while migrating to the OO paradigm at their own pace.

Industry Issues	NewEra Enablers
Time to market	• OO/visual development • extensibility • code reuse
Lower cost	• OO/visual development • extensibility • code reuse • character-based deployment
Decision support/data acquisition	• ODBC compliance
Consolidation (mergers and acquisitions)	• connectivity (ODBC compliance) • application partitioning
Technology transition/skill acquisition	• flexible transition to OO programming • visual or programmatic development options • easy cross-platform deployment
Security	• INFORMIX-DCE/NET
Reengineering	• Partners Cadre and LBMS
Heterogeneous connectivity	• ODBC compliance

NewEra in Manufacturing

The manufacturing industry is dominated by several large Enterprise Resource Planning (ERP) vendors and the solutions and tools that they sell. These solutions are sophisticated and often multiplant. They start with the customer order and encompass production and billing. These large $10-20 million systems are typically installed for over 1,000 users and involve 20-to 100-gigabyte databases.

Company	Company Size	Proprietary Tool
Peoplesoft	$500 Million	Peopletools
SAP	$2 Billion	ABAP
SSA	$500 Million	AS\SET
BAAN	$200-$300 Million	TRITON

As a result of their investment in proprietary tools, these solution providers are real competitors in NewEra's target market. It is appropriate to concentrate on the database sale in cooperation with these solution providers. A potential market exists for integrating the ERP vendor's solutions with complementary NewEra applications. NewEra's strengths will still appeal to smaller manufacturing vendors based on nonproprietary tools or on INFORMIX-4GL.

For example, Relevant Business Systems, Inc. has based its mission-critical Integrated Financial and Manufacturing Control System (INFIMACS) on NewEra, and has achieved great success with large customers like Lockheed Martin and Cray Research. Since INFIMACS can be extended and customized with NewEra, it provides benefits above and beyond what some of the larger ERP vendors can offer.

NewEra in Telecom

Competitive pressures from industry deregulation are creating vast business challenges and opportunities. The success of new services introduced in this atmosphere depends on rapid time to market. In order to survive and flourish, telecom organizations must also implement a streamlined and flexible infrastructure that can react to market-driven changes. Business process reengineering—reallocating and reprioritizing resources, including people, time, and other investments—is a fundamental element in this rapidly changing market.

Telecom firms must integrate historically separate applications in order to land new business and provide more responsive customer service—often in as little as six months. NewEra's rapid application development features (visual tools, pretested "plug-in" class libraries, component reuse) and team development facilities (application repository, PVCS integration) provide significant benefits in this regard. Scalability concerning both the number of users and the complexity of an application is also critical to the success of any development tool.

Class library technology of interest to the telecom industry includes computer telephony interfaces (including auto dialing class library), interactive voice recognition, and interactive voice dialing for call centers and customer service.

Competitors: Gupta has gained a market presence due to their early entry into this market.

NewEra in Imaging and Workflow

NewEra's object-oriented facilities allow for the integration of imaging technologies. As a result, companies can develop and deploy enterprisewide applications easily and quickly. Imaging prospects' price sensitivity is very strong, and support credibility is also critical to win and keep accounts.

Class libraries applicable in imaging and workflow include Staffware's workflow class library, TMS' imaging class library, and Lotus' Notes class library.

Competitors: Visual Basic is a very strong competitor, as is Recognition's XDP product. The XDP customers know that there is very little migration path for them.

NewEra in the Data Warehouse Market

NewEra functions as a "data-access tool" in the data warehouse environment, a necessity for both programmers and end users alike. Programmers can use it to create client/server decision-support applications, and end users will need it to easily create ad hoc queries. Data-access tools can be divided roughly into four categories:

- End-user query
- Application development for customized end-user data access
- Relational and multidimensional database OLAP tools
- Data mining

As an end-user query tool, INFORMIX-NewEra ViewPoint can be used along with tools from a great many partners including: Business Objects, Cognos, Andyne, Brio, and others. Please refer to the *Data Warehouse Sales Kit* for detailed information on Business Objects, and to the *Informix Solutions Guide* (Data Access/Report Writer section) for details on other partner products.

NewEra can be positioned as an application development tool, since the NewEra programming environment is designed specifically for developing enterprisewide database applications. Through class library technology, NewEra can incorporate the complex business rules typical in a data warehouse, while still providing a consistent user interface to the warehouse across the enterprise. One example of a pertinent class library is the business graphics class library, which provides charting capabilities necessary for many applications today.

On-line analytical processing (OLAP) is another type of data access gaining significant visibility in the market. OLAP can be broken down into two subcategories—relational OLAP and multidimensional database (MDD) OLAP.

In relational OLAP, a strategic segment for Informix, data is reoriented for multidimensional analysis through a virtual framework layered on top of a standard relational database. MetaCube™ and its supporting tool suite from Stanford Technology Group (acquired by Informix in October 1995) is our preferred tool for relational OLAP. We also continue to partner with other leading vendors in this area (e.g., Information Advantage, MicroStrategy, and Prodea) in order to present our customers with a choice of tools.

In MDD OLAP, data is physically reorganized for multidimensional analysis and stored in a proprietary database. Most MDD products now provide hybrid OLAP—supporting a passthrough connection where a proprietary database can query and retrieve additional detail from the master relational database when the needs of a query are not satisfied by the MDD alone. Products in this category are generally acknowledged to lack scalability, and are rarely considered for data needs exceeding 20 gigabytes. However, they are sometimes selected as data marts. When a customer decides that MDD OLAP is more suitable than relational OLAP, we partner with Arbor as a best-in-class product. We also maintain partnerships with other MDD vendors such as Pilot, SAS, Planning Sciences, Keanon, and others.

Data mining, an emerging technology based on scientific algorithms and artificial intelligence techniques, enables the discovery of new information in the data warehouse—allowing end users to develop hypotheses for further investigation based on hidden data patterns and trends. Informix is currently establishing relationships with partners in this area such as Information Discovery, Information Harvester, Data Mind, Alta Analytics, and others. At present, very few customers are using data mining tools.

Host Marriott is currently using NewEra to develop a data warehouse application that should be complete by early 1996. NewEra was selected to increase programmer productivity, allowing the company to quickly and easily deploy the data warehouse application in the field. NewEra also provides users with the ability to develop customized applications as needed.

In summary, NewEra should be positioned as the end-user query and application development tool within a data warehouse environment, and should not be positioned to compete with the OLAP or data mining tools already on the market. However, with the addition of a MetaCube class library, planned for 1996, as well as other enhancements, NewEra will be able to provide a broad range of data warehouse capabilities in future releases.

NewEra in the Retail Industry

The retail industry is presently going through a growth period in technology spending. Most retailers are increasing their IT spending per year, in order to remain competitive as well as to accommodate growth. In the past, technology supported retailing. Today, technology is at the heart of the business, and will remain there into the twenty-first century. NewEra provides the essential "object-oriented advanced development" capabilities for retailers to develop mission-critical enterprisewide applications for all areas of the retail environment, including corporate applications, in-store applications, merchandising and marketing applications, and logistics and distribution applications. NewEra provides the ability to build scalable, mission-critical applications in increasingly short time frames. A major advantage for retailers lies in the object-oriented capabilities of NewEra, which decrease application development time through component reuse and provide a competitive edge.

NewEra provides data access capabilities with ViewPoint Pro, and can be used with end-user query tools from partners such as MicroStrategy, Nielsen, Business Objects, Andyne, Brio, and others.

NewEra provides data access capabilities for sophisticated retail applications such as category management; efficient consumer response (ECR); mass customization; and frequent shopper systems, etc. NewEra allows both programmers and end users to obtain easy access to data warehouse and decision-support applications, operational applications, and transaction-based applications. With NewEra, retailers can create client/server applications and end users can easily employ these applications, as well as create ad hoc queries through easy-to-use data-access tools.

Industry Issues	NewEra Enablers
Category management (merchandising tool to optimize inventory mix)	Data warehousing, end-user data access & query tools
Efficient consumer response (ECR) (distribution sharing information to increase margins in grocery and wholesale)	Radio frequency (RF), end-user data access & query tools
Quick response (apparel industry distribution information sharing)	RF, end-user data access & query tools
Imaging & BLOB technology	Reusable class libraries
Frame relay; ATM; satellite communications	Reusable class libraries, ODBC compliance, WAN extensibility, code reuse
Data warehousing & decision-support systems	ODBC compliance, end-user data access & query tools
DSD; cross-docking; replenishment and assortment (store-level and warehouse-level supply management)	Query tools, RF
Consolidation & reengineering	Scalability, INFORMIX-4GL migration
Time to market	OO/visual development, extensibility, code reuse
Connectivity	ODBC compliance
Logistics & distribution	RF, imaging, BLOBs, reusable class libraries

Class libraries and technologies of interest to the retail industry include:
- Radio frequency - for logistics & distribution
- Mobile communications - for logistics & distribution, DSD, store replenishment
- Connectivity - for logistics and warehousing
- Groupware - share information functional groups (corporate, in-store, merchandising, and logistics & distribution)
- Imaging & workflow
- Visual class libraries (VCL) - kiosks, catalogs, visual warehousing, World Wide Web
- Inventory management
- Statistics
- Report writers
- Multimedia - kiosks, catalogs, visual warehousing, World Wide Web
- Transaction processing monitors
- Interactive video
- Voice recognition
- Informix 4GL to NewEra - code translation class libraries

NewEra competitors in the retail sector include KnowledgeWare, PowerBuilder, IEF (Texas Instruments), Uniface, and NSDK (France).

INFORMIX-NewEra

Competitive Overview/Sales Strategies

Market Characteristics

The tools marketplace is comprised of hundreds of products and companies, but our primary competition are those tools offered by other database vendors and independent tools vendors. These vendors can be split into two segments: those whose tools serve the low-end application development market (Sybase, Oracle, Microsoft, and Gupta), and those whose tools serve the high-end application development market (Uniface, Forte, Dynasty, and ParcPlace-Digitalk).

Client/server application development tools range from $89/copy desktop products to million dollar enterprise integrated environments. A small number of these tools control the entire industry, accounting for over $1 billion in tools revenue. The average tool seems to be hot for a very short while, usually just eighteen months.

Because customers often rely on benchmarks or prototypes to help evaluate tools products, tools sales cycles are usually very long—averaging six to twelve months. Some vendors have succeeded in reducing this sales cycle by providing ease-of-use and rapid application development features in their products, as well as detailed documentation. In the past, Informix has sold tools and server products together, such as 4GL bundled with INFORMIX-SE, a successful strategy that has resulted in the sale of over 500,000 copies of 4GL to date.

NewEra is well-positioned for the high-end market, since Informix's corporate strengths—financial stability, experience as a tools leader, technology innovation, etc.—and NewEra's strong feature set, including three-tier application partitioning—allow us to successfully compete with both high-end tools vendors (many of which are small firms with little industry experience and few customer references) and low-end tools vendors (many of which have failed to deliver on their promises of scalability and openness to enterprise customers).

Market Landscape

There are 6.75 million copies of development tools installed in the corporate marketplace and used for building mission-critical applications. The number one development tool/language today is COBOL, but Visual Basic, the number two player with over two million licenses, may soon overtake COBOL as the market leader. PowerBuilder, which claims to be the number one client/server tool, ranks number four, just behind C++. Yet, Informix has a well-established foothold in the tools market with over 300,000 copies of INFORMIX-4GL installed. We have a great deal of momentum in this respect, and can use this momentum to our advantage in selling NewEra, especially when selling against smaller players in the market such as Forte and Dynasty. Informix has years of successful experience in the tools market, and has a top-notch development and support organization in place to ensure the success of our customers—a critical consideration for high-level decision makers.

By comparison, the remaining players in the tools market have much smaller customer bases. Gupta, once an aggressive competitor, has become a marginalized player in the market since the shrinkage of its direct sales organization. Still popular in the Western and Midwestern U.S., it is little known outside those areas.

ParcPlace-Digitalk (VisualWorks) has a large number of licenses installed, but many of those are used for non-database application development. A favorite among forward-looking object-oriented developers, Smalltalk has yet to become accepted in the mainstream DBMS market, even though IBM and HP are now delivering Smalltalk-based products. Such tools are restrictive, since they limit the user to developing in the wholly object-oriented Smalltalk language, and have some performance and scalability weaknesses. However, the entry of IBM and HP into the market may help establish broader legitimacy for the language among database application developers.

Oracle's development tools are primarily used by its own server customers, and have very little presence outside dedicated Oracle shops—although the same thing can be said for Informix.

Uniface, a European product, has almost nonexistent market penetration in North America, but they are a strong competitor in Europe with many impressive features. It remains to be seen whether Compuware, which recently acquired Uniface, will help in establishing a U.S. presence for the product.

Forte and Dynasty have both been hyped a great deal by the press, and have used this publicity to help establish themselves as tools vendors of note, but their respective market shares are still very small. Both these products compete with NewEra in the high-end segment of the market. Their key differentiator is application partitioning capabilities, but basic features are still missing from both vendors' products.

Summary NewEra Sales Strategy

With New Era, you must first sell to the high-level audience with compelling business solutions. Then, when high-level approval has been gained, use it as leverage in your tactical pitch to the developers and project managers. Don't assume that just because upper management has signed off on NewEra, developers will actually use it without adequate follow-through on your part!

The following competitive products can be grouped into two broad categories: the lower-tier products (PowerBuilder, Developer/2000, Visual Basic, and SQLWindows), which are used to build non-enterprisewide applications and have the GUI-based appeal of first-generation development tools but provide only limited partitioning and cross-platform deployment capabilities; and the higher-tier products (Uniface, Forte, Dynasty, and VisualWorks), which are designed primarily for enterprisewide application development and deployment and provide sophisticated partitioning (with the exception of VisualWorks) and cross-platform deployment capabilities. For both groups, the general sales strategy should emphasize high-level business solutions, although the specific arguments will vary for each competitor. Against the lower-tier competitors, pitch the business benefits of enterprisewide deployment of mission-critical applications; against the higher-tier competitors, pitch the company strengths of Informix and the benefits of a partnership with us.

SYBASE

Current Release Level	PowerBuilder Version 4.01
Pricing	Desktop: $200 Team/ODBC: $700 Enterprise: $2700 • No runtime charges
Key Features	• full OO capabilities • strong GUI/Windows look-and-feel • productive scripting language
Next Release Anticipated	Version 5.0, expected 3/31/96 • native compiler • distributed objects support • cross-platform support (Solaris, AIX, HP-UX, PowerMac)

PowerBuilder sales are growing at a lesser rate than before the merger with Sybase, perhaps due to the effect of Sybase's woes on Powersoft. As a result, much of the original sales and presales staff have left Powersoft/Sybase. Several key members of Powersoft's marketing operation are now heading up Sybase corporate marketing, which is viewed as evidence of the further integration of the two companies. As a result, expect a growing focus on mass-marketing tactics (especially price-slashing) to grow market share, along with increased aggressiveness and competitiveness in both the servers and tools segments of the market.

At one time, no Powersoft products were announced until they were almost ready for release. Now, due to increasing competition, Powersoft announces technology over a year before it is available. As a result, Powersoft has developed a reputation for selling vaporware and failing to deliver promised features/releases in an acceptable time frame—thus presenting increased opportunities for Informix.

Powersoft is not the market leader in terms of raw numbers of users, but rather in terms of having the most corporate developers; over 98% of Fortune 500 shops are using PowerBuilder (87% worldwide) for development and deployment, even though they aren't using the product to develop large-scale mission-critical applications. However, PowerBuilder has also suffered several failures and received a great deal of bad press. An example of such a failure is ComDisco, the computer leasing giant, which embarked upon a client/server business reengineering process with Sybase and Powersoft, only to experience inadequate database performance and a severe lack of application partitioning capabilities.

Strengths

- Excellent GUI look-and-feel. It will support many of the new Windows 95 controls in 1996. Designed as a rapid application development tool, it includes many visual features, enabling developers to implement a broad range of functionality without coding.

- Three product versions (Desktop, Team/ODBC, and Enterprise) provide several key advantages:

    1. Individuals can learn key skills with the low-end product in order to secure a development job in the corporate world, where they will continue to use the higher-end versions.

    2. Three separate entry points provide PowerBuilder with a means for comprehensive enterprise coverage.

    3. Low price points and no runtime fees maximize competitiveness, but still allow for profitability.

    4. Product naming conventions convey substance that is lacking in the actual products (e.g., Team and Enterprise versions). This strategy reinforces the emotional appeal of the products.

- PowerBuilder has a network of aggressive resellers who provide consulting and are able to offer product price discounts of up to 35%. In many cases, such resellers will discount PowerBuilder heavily just to sell consulting, sometimes giving it away for almost nothing.

- PowerBuilder has traditionally been strong in the demo arena, even though demos often have little to do with the real-world usability of the product. Their demos are used to show off flashy features that look great upon superficial inspection, thus arousing the emotions of a programmer rather than appealing to his/her rational side—a cornerstone of the Powersoft sales strategy.

- Powersoft has implemented an aggressive third-party vendor recruitment program, in order to provide interfaces from PowerBuilder to third-party products. As a result, PowerBuilder provides some of the best class libraries and interfaces to third-party technology available. Powersoft continues to close any remaining gaps in their interface capabilities, and is currently developing a class library for character applications.

- Powersoft's 30-day sales model forces purchase decisions to be made quickly, taking advantage of PowerBuilder's emotional appeal, and ensuring that its real weaknesses remain hidden until long after the purchase has been made.

- Powersoft has recently strengthened its training and consulting operations, increasing staff by 200% in mid-1995. This should lead to greater profitability and a growing reputation as a "total solution provider," which appeals to the pragmatists, NewEra's potential buying audience. Pragmatists are defined by Geoffrey Moore in *Crossing the Chasm* as the early majority—those practical and prudent users who avoid risks by going with tried-and-true technology and are extremely loyal once won over.

Weaknesses

- *Poor scalability.* This weakness is a major obstacle for any enterprise development. PowerBuilder's current partitioning approach, using C or another 3GL and running all transactions through a TP monitor, does not allow them to efficiently partition applications in a three-tier environment. The lack of compilation capabilities also hampers scalability, although they can perform some tasks faster than NewEra (window painting/GUI-intensive tasks and computation-intensive calculations). Version 5.0 promises to deliver a native compiler, among other features.

- *Limited scripting language.* Many complex business processes cannot be written in PowerBuilder due to the limited capabilities of its scripting language. These business processes instead need to be coded in C, and PowerBuilder's interface does not allow you to embed this code.

- *Limited data source independence.* The Sybase relationship has prevented Powersoft from obtaining the cooperation of other database vendors for integration and testing of multiple data sources. They no longer get beta releases of Oracle for interface testing, and have fallen behind and continue to lose ground in terms of Informix support.

- *Poor delivery track record.* Powersoft has consistently failed to deliver on its promises for cross-platform availability over the last 18 months. While a Solaris version of PowerBuilder is expected by November 1995, other UNIX versions as well as a Mac version are still forthcoming, providing ample opportunity until late 1996 for Informix to play up its reputation for consistently delivering on promised features and functionality and as a leader in UNIX-based tools. But beware—aggressive marketing and pricing will soon establish Powersoft in the UNIX market!

Sales Strategy

Using TAS methodology, you need to flank PowerBuilder and "raise the bar"—sell high in the organization, identifying problem issues and creating value with relevant business solutions: investment protection via character-based deployment; and efficient report generation via batch processing (which requires application partitioning in order to avoid processing the entire job on the PC-based client). Then, when Level 3 approval has been gained, use that approval as leverage in selling to Level 2 and Level 1 audiences. Don't assume that Level 3 approval will guarantee the embrace of developers and project managers.

Setting the Agenda

Use PowerBuilder's weaknesses to set the high-level agenda, citing compelling business challenges and solutions. Avoid price discussions in the initial stages; instead talk about the benefits of successful enterprisewide deployment. These benefits concern hardware and human resource investment protection, how accessible information will be across the enterprise, and how fast that information can be accessed—not to mention Informix's reputation and experience in the enterprisewide market.

Informix has been historically successful in the UNIX application development arena with 4GL. For mission-critical applications, UNIX is a key component of any delivery strategy. Though Powersoft has announced the availability of a UNIX version of PowerBuilder (in 4Q95), their lack of experience with this platform should allow us to introduce the FUD (fear, uncertainty, and doubt) factor well into 1996.

Given PowerBuilder's lack of character-based deployment capabilities, make a strong case for investment protection/savings with NewEra. The ability to deploy an application on existing character terminals will save thousands of dollars in hardware expenses, and has a strong appeal to the budget-wary Level 3 audience. Imagine the expense of upgrading all existing terminal users to high-end PCs! By comparison, NewEra permits organizations to phase in PCs according to their unique individual requirements.

Additionally, for developers with 10 years of COBOL application development experience, retraining will be a major expense. PowerBuilder is a new paradigm, based extensively on visual programming techniques. In contrast, NewEra allows development in different modes: OOP/non-OOP and graphical/programmatic (code-based). This flexibility allows programmers to use NewEra in a manner that is most comfortable and productive for them. Thus, NewEra not only protects existing investments in hardware, but also in human resources.

If your prospect is an INFORMIX-4GL customer, we have an additional investment protection pitch. We offer tools, techniques, and services to help them migrate their applications to NewEra. Most existing 4GL code, especially business logic, can be redeployed in a NewEra application, and provide flexibility for future growth. PowerBuilder offers an all-or-nothing solution.

Because PowerBuilder is incapable of efficient three-tier partitioning, certain business-critical applications, such as batch-based production reporting, are difficult to implement. If production reporting is an issue, then use the following argument. If it's not, **make** production reporting an issue! Ask the customer how many invoices are printed; how purchase orders are handled; how the largest reports are executed. The customer will create the problem for you to solve. Even small organizations will do production reporting.

With PowerBuilder, all data would have to be shipped over the network from the server to a PC for processing, then shipped to a printer in one huge mass. PCs are not designed for such data-intensive work. Using the partitioning features of NewEra, the same task can be accomplished by allowing an application server to handle the bulk data processing, reducing processing time and network traffic. The report is finished more quickly, and the network is free for performing other tasks. Again, a case can be made for saving hardware expenses with an efficient three-tier partitioning solution, since there is no need to upgrade the entire network for datashipping, or to purchase high-end PCs for the entire organization.

Even more importantly, with a three-tier partitioned application, all the business logic resides on a single application server, so maintenance and upgrades are easy and inexpensive to perform—saving valuable human resources. With PowerBuilder, every PC on the network would have to be updated each time the application changed!

A subsequent issue for scalability is efficient runtime performance. PowerBuilder generates only interpreted code, which prevents efficient performance when it comes to number crunching. NewEra offers a robust development language with a compiled code option, thus providing superior performance to PowerBuilder, and enabling it to scale much more efficiently.

What to Avoid

Don't start the sale at a low level. We will lose to PowerBuilder every time if the pitch is based on emotional (feature-based) appeal. The most effective way to beat PowerBuilder is by flanking, and gaining the approval of upper management based on business solutions—then going after the Level 2 and Level 1 audiences. NewEra business value must be built with the upper-level audience to successfully combat the low-ball pricing and snappy features that PowerBuilder offers. Character-based deployment and application partitioning don't appeal to an audience that doesn't care about saving the company money. They simply want to have all the new toys—and if they're less expensive than the alternative, so much the better.

Don't push a prototype with NewEra, unless the audience understands the real business benefits offered by NewEra, and they will commit to training. If, however, a prototype is appropriate, ensure its success by having someone who knows NewEra on hand to help with development. Since this approach is time-consuming and expensive, make sure someone is willing to pay for it ahead of time—otherwise steer clear of prototypes.

Stay away from off-the-cuff demos. Demos should only be given after you've identified those aspects of the product that are most important to your audience, and tied those features to relevant business solutions. Make sure your demo is structured to maximize its effects on the audience by showing off those features important to them. Be sure to understand the objectives of the demo, know the evaluation criteria of your audience (whether Level 1, 2, or 3), and be intimately familiar with the product from a hands-on perspective.

ORACLE

	Developer/2000	Power Objects 1.0
Current Release Level	Developer/2000	Power Objects 1.0
Pricing	$3995/user • no runtime charges	$89 (via WWW) $399 (standalone) $1999 (client/server)
Key Features	• strong GUI • repository • drag/drop partitioning • cross-platform availability	• VB-like scripting language • Object support
Next Release Anticipated	Sedona (1997) • full object orientation • compiler • real partitioning	Power Objects 2.x

Oracle has several separate tools products, aimed at different segments of the market. They have repackaged their old CDE2 product, and split it into 2 separate tools: Designer /2000 (based on Oracle CASE), and Developer/2000 (based on Oracle FORMS), neither of which offer significant new features (the biggest addition is OLE2 support). Developer/2000 is their high-end 4GL product, and NewEra's main competitor. Power Objects, which has only recently been released as a 1.0 version, is their low-end product, and is targeted specifically towards the Visual Basic market. Though Developer/2000 is NewEra's primary competitor, the introduction of the $89 Power

Objects product into some sales situations can derail a potential NewEra sale. With several product offerings and no clear segmentation strategy, Oracle is confusing both its own sales force as well as the customer.

Oracle began a media blitz in late 1995 to hype Power Objects and compete with Visual Basic in the low-end mass market. It will be sold alongside PowerBuilder and Visual Basic in most of the mass market channels, such as retail computer stores. Power Objects might soon overtake Developer/2000 in terms of units sold and number of users. Several books are already being published on Power Objects prior to its first release.

Oracle has announced Sedona as the successor to Developer/2000. It will be fully object-oriented, built from the ground up, and will support true application partitioning (unlike Developer/2000's PL/SQL partitioning approach). With the release of Sedona, which is not planned until 1997, Developer/2000 will be rendered obsolete, as there are already formal migration plans under way for Developer/2000 users. Furthermore, Sedona promises a set of features already available today in NewEra.

Both Oracle and Sybase have taken full-page ads in *PC Week* and other trade journals attacking each other. Obviously, we can use this situation to our advantage, as both Oracle and Sybase are turning their competitive attentions toward each other, leaving a clear opening for NewEra.

Strengths

- Oracle has a marketing machine. They can take a weak feature and turn it into something hot, as they have done with drag-and-drop application partitioning, which simply uses visual techniques to move PL/SQL code around—while PL/SQL is still inadequate for three-tier partitioning, since it is nothing more than stored procedures and can only support two-tier architectures. Thus, Oracle has succeeded in taking a poor solution and dressing it up to look good and fit the market buzz. Moreover, with the introduction of Power Objects and the current anti-PowerBuilder campaign, Oracle is continuing to spend big dollars on tools marketing.

- Both Developer/2000 and Power Objects have a strong Windows look-and-feel and are very user-friendly. They have good connectivity, supporting OLE 2 and DDE, and offer menu bars and database-aware GUI widgets.

- Developer/2000 supports Windows, Windows NT, Windows 95, Motif, Character-based deployment, and OS/2. The pricing structure is very different between each platform. *Motif deployment* still requires runtime charges. Power Objects supports Windows 3.1 and will support Windows 95 soon.

Weaknesses

- *Poor OO support*. Developer/2000 provides limited object-oriented capabilities, with support for only limited inheritance and lacking significant reuse functions. Although Power Objects is promoted as a fully object-based tool, it is essentially a Visual Basic clone with some additional OOP extensions, and still lacks other critical functionality such as function overloading and broad class library availability.

- *Weak partitioning capabilities*. PL/SQL is a weak application partitioning solution. Although the drag-and-drop functionality provides a productivity boost for the developer, the PL/SQL language is difficult to debug and maintain, lacks sufficient features to handle real partitioning, and is not compiled. Additionally, complex business logic is difficult to implement with PL/SQL, because it is not a full-featured development language.

- *Poor performance.* Neither Developer/2000 nor Power Objects is compiled. Developer/2000 and CDE before it have long been criticized for poor performance. Power Objects, though interpreted, provides much faster window painting and execution, but still lacks the raw speed of NewEra when it is compiled or when C code is embedded.

- *Confusing tools strategy/message.* Oracle's multiple tools offerings send developers and managers a confusing message. On one hand they are promoting Developer/2000 against PowerBuilder in the high end of the market, although that product will soon be rendered obsolete by Sedona. On the other, they are pushing Power Objects against Visual Basic for the low-end segment of the market.

- *Oracle applications are not written with their own tools.* Oracle's numerous applications aren't developed with their own tools, a serious indictment of their current technology. In comparison, most (if not all) Informix VAR applications are written in INFORMIX-4GL and/or in NewEra, which reinforces the validity of our tools technology in the real world.

- *Selling futures rather than current product set.* Oracle is trying to compete in the high-end market with Sedona, a tool that won't be available until 1997! This strategy only serves to highlight the weaknesses of their current products with respect to the competition.

- *Limited third-party class library availability.* Developer/2000 had almost no third-party class libraries available. Power Objects is too new to have attracted much third-party interest.

- *Focus on Sybase as competition.* Oracle and Sybase are battling each other, leaving an opening for NewEra. This opportunity will allow us to set a clear agenda without much direct competitive attention. Power Objects is focused on the low end, leaving the high-end enterprise development market an open target for NewEra.

Sales Strategy

An effective way to sell NewEra is to combine an Informix database pitch with a NewEra pitch. If the customer is still deciding between database vendors, we can compete on a level playing field, and use flanking to make a compelling business case for NewEra, as well as generate interest on the part of developers and project managers. Once the customer has purchased an Oracle server, it's likely that they would purchase Oracle's tools rather than NewEra. However, other products with a more significant reputation in the tools market (such as Visual Basic or PowerBuilder) have succeeded in this respect, indicating that with increased acceptance as an independent tool, NewEra can succeed as well.

As with PowerBuilder, the key here is to go in with a strategic plan, selling to Level 3 audiences first with a clear message based on business-case solutions, then approach the Level 2 and Level 1 audiences once Level 3 approval has been gained.

Setting the Agenda

Base a high-level pitch on productivity (since Developer/2000 is weak in the reuse area and does not model complex business logic well) and mission-critical capabilities (Developer/2000 provides poor partitioning and performance). There is a significant window of opportunity to make these arguments, since Sedona won't be released for some time, and Power Objects is an inadequate enterprisewide solution.

An *extremely compelling* low-risk argument can be made for Informix's partnering strategy, since Oracle does not offer extensive integration with the third-party class libraries and case tools. Oracle's attempts to do everything themselves (e.g., CASE, applications) suggests that they will

do none of these things excellently. Informix, by comparison, has a strong partner program that allows us to specialize in those areas where we can achieve the most (database, connectivity, and tools), and rely on the strengths of our partners for additional features and functionality. The audience must be made aware of the potentially dangerous "Oracle as single vendor" issue.

Like the NewEra vs. PowerBuilder strategy, we can win with the batch argument. Inadequate partitioning and interpreted performance prevents the execution of business-critical tasks such as report generation. Even with the recent addition of OLE application segregation, Developer/2000 fails to support mission-critical applications since it is limited to Windows deployment only.

If Power Objects is introduced into the situation as an inexpensive "risk-free" option by Oracle, keep the issues at the high level. A Visual Basic clone is not designed for high-end application development, offering limited scalability and poor object support. Running your business on an $89 desktop product will not sit well with most high-level audiences.

What to Avoid

Avoid runtime pricing issues. If runtime issues arise, build value by stressing enterprisewide benefits. Make sure the customer understands the overall costs of failing to develop an adequate enterprisewide application solution before detailing deployment costs with NewEra. Unless the proper groundwork has been laid, we can get killed on the runtime pricing issue.

Avoid price wars of any sort. Developer/2000 is priced lower than NewEra, and Power Objects costs drastically less. Again, create concrete business value before competing on price.

Avoid hastily constructed prototypes or benchmarks. Prototypes and benchmarks can be dangerous. Carefully design the test case for success, including extensive application partitioning—a major hole in the Developer/2000 product.

As with the pricing issue, steer clear of GUI-specific competitive issues. Both Developer/2000 and Power Objects are very strong with respect to Windows look-and-feel. NewEra is competent in this area, but really shines with respect to openness, partitioning, third-party integration, and OO/productivity issues. Steer the audience toward our strengths.

Don't appeal to the lower-level audiences for validation without first having obtained upper-level approval. As with PowerBuilder, Developer/2000 and Power Objects can have a strong emotional appeal to developers and project managers. Without some influence from upper-level management, we may not be able to beat Oracle in this respect.

Developer/2000 and Power Objects demo very well. They have an entire organization that has put together some very slick marketing demos that are designed to interest lower-level audiences. Don't demo without carefully preparing something targeted specifically toward the audience expectations and concerns, and make sure it's well-rehearsed and bug-free!

MICROSOFT

Current Release Level	Visual Basic 4.0
Pricing	Standard: $99
	Professional: $499
	Enterprise: $999
Key Features	• Windows 95 compatibility
	• Remote Automation (Enterprise version only)
	• 32-bit processing
	• fast performance
	• SourceSafe versioning features
Next Release Anticipated	5.0 (?)

There is significant pent-up demand for Visual Basic 4.0, as Microsoft has promised several key feature enhancements, including Windows 95 look-and-feel. They are anticipating the shipment of over 250,000 copies of Visual Basic 4.0 in the first few months of availability—more copies than the current PowerBuilder install base!

With over 2 million copies in use, Visual Basic is the second most popular development tool in the market. Even though Powersoft and Oracle are hyping their tools products heavily, the power of sheer numbers is in Microsoft's favor. There is little chance that Visual Basic will be unseated in the short term. Microsoft plans to use this argument in upcoming ads, and given Microsoft's marketing strength, expect a significant splash to be made with the release of 4.0.

However, Microsoft, even with the addition of some partitioning capabilities to Visual Basic, is still not competing in the high-end application development market. Rather, they are trying to shore up their dominance in the lower-level Windows 95 and NT development arena.

Strengths

- Fast performance, even though interpreted (Visual Basic is written in assembler).

- Version 4.0 professional and client/server editions include SourceSafe, a feature similar to PVCS, which provides code management features such as check-in/check-out facilities.

- Support for 32-bit application development will provide major performance improvements. Applications will be forward- and backward-compatible between 16- and 32-bit versions.

- Windows 95 optimizations will include OCX controls and general OLE2 compatibility. The client/server version includes an OCX developers kit that contains hundreds of prebuilt Windows widgets.

- Visual Basic is a very easy language to learn, and provides strong support for visual programming (and the ultimate in Windows look-and-feel). The Visual Basic for Applications (VBA) extension language, a subset of Visual Basic, will be integrated into the overall architecture of Microsoft's desktop applications, tying them together at the scripting language level

- The client/server version is bundled with SQL Server 6.0, a strategy similar to that of Powersoft—providing tight integration between a development tool and a true SQL/production database to help overcome the installation problems encountered with most client/server tools.

- Support for ODBC and native DBMS drivers, including a DLL-based "replication" feature (Jet DLL), which uses ODBC to access a DBMS and stores all data in a buffer on either the client or application server. This buffer safeguards the data in case of a server failure, and holds it until the server comes back up on line.

- Partitioning via Remote Automation, which allows the placement of business application logic on the NT server and query processing on the client. However, this procedure is untested and may be slow and unusable for high-end applications. Remote Automation also allows users to access data on any computer, in any OLE-enabled application, permitting users to query word processors, spreadsheets, or Web browsers.

- Excellent third-party integration, especially for Windows widgets and other visual objects.

- Tremendous market momentum, due to version 4.0's release alongside the $250 million (!) Windows 95 launch. A 2 million user install base doesn't hurt either.

Weaknesses

- *No UNIX availability.* Visual Basic, written in assembler and optimized for the Intel chip architecture, is unavailable for high-end (UNIX) hardware platforms. Thus, partitioning must be performed using a Windows-only environment, which is unsuitable for mission-critical applications. It does support deployment in Motif or on any character-based interfaces.

- *No high-end partitioning capabilities.* Visual Basic, like PowerBuilder and Developer/2000, does not provide an adequate batch solution due to lack of partitioning capabilities, so efficient large-scale production reporting is unavailable.

- *Limited language functionality.* Visual Basic requires the use of SQL to gain access to low-level database functionality such as concurrency controls (e.g., locking). Since Visual Basic requires coding directly into the application, it forces the developer to learn and use more than one language, limiting programmer productivity.

- *No object-oriented capabilities.* Visual basic does not support class libraries or code reuse.

Sales Strategy

In order to highlight the strengths of NewEra and the weaknesses of Visual Basic, you must use fragmenting to find a strategic business-critical application (preferably an OLTP application) and use it as a test case. Remember that Microsoft does not employ a direct sales force, so we should have a distinct advantage here. Make a business case with the batch and character-based deployment arguments, then talk about our object-oriented capabilities. Visual Basic does not provide any features designed for the high-end market. Make a point of our application development experience with 4GL. And don't forget the strength of our support organization, which should have vast appeal to high-level audiences.

Fragmenting means letting Visual Basic have the low end, while we take the high end. If you can not find a test application with many users or significant complexity, "reevaluate your presence in the account." High-end enterprise applications are most appropriate for NewEra. After succeeding in that market, we can pursue smaller deals.

Setting the Agenda

Set the agenda above the project and programmer level, making a bottom-line business-case pitch to management. Visual Basic can not perform batch processing on the server, nor does it support deployment outside of the Windows environment (remember that character terminals are still needed by more than 20% of all companies). If pricing issues arise, build value with business-case arguments.

Productivity issues involving development code maintenance can be used to your advantage with Level 2 and some Level 3 audiences. Visual Basic relies on SQL to help with more sophisticated database optimization, and would require any changes to an application's business logic to be implemented on every individual client in a network. Additionally, lack of OOP support means no reuse benefits.

Use the FUD factor to your advantage. Interpreted code, no matter how fast it can perform, still raises red flags with Level 1 and Level 2 audiences, especially when combined with the "lack of partitioning" argument.

What to Avoid

Avoid small deals. It is extremely difficult to justify NewEra to a shop that has no high-end application requirements. Make sure the account is worthwhile before spending valuable time and energy on a well-planned sales strategy.

Like competitive situations with PowerBuilder and Developer/2000, don't start the sale at a low level. Overcome the emotional appeal of Visual Basic by gaining the approval of upper management based on business solutions—then go after the Level 2 and Level 1 audiences. Only business value can successfully combat low-ball pricing and whizz-bang features.

Again, don't use a prototype unless the audience fully understands the real business benefits offered by NewEra, and the deal is big enough to justify the prototype development cost to Informix.

Stay away from off-the-cuff demos. There is a right time and a right place for a demo. Understand the objectives of the demo well, know what your audience wants to see (whether Level 1, 2 or 3), and know the product intimately. A poorly planned or unrehearsed demo is a guaranteed loser. And don't walk into a competitive situation with Visual Basic unless you have the Windows jargon down pat!

Current Release Level	SQLWindows version 5.0
Pricing	Solo: $99 (usually free) Professional: $3995
Key Features	• Windows 95 compatibility • OLE2 support • component repository • visual application builder • Centura application server
Next Release Anticipated	??? • cross-platform availability

Gupta is still bleeding red ink. The company is desperately trying to regroup and protect its embattled position in the 4GL industry. Having lost over $20 million and narrowly avoided a takeover by Oracle in 1994, Gupta in 1995 sold the rights to market and resell its money-making SQLBase database to Computer Associates for $7 million in cash and a $10 million loan.

In 1994, Gupta gave away over 100,000 copies of SQLWindows, (while Powersoft sold 200,000 copies of PowerBuilder), and almost no one upgraded from the free version and purchased the full-featured product. As a result, seeding the market with free product has done nothing to help their short-term profitability. And while they have demonstrated their cross-platform availability for the last two years at user conferences, they have yet to release a product with this capability!

However, on a good note, Gupta has signed an agreement with Microsoft, enabling them to implement a new strategy bundling SQLWindows with SQLServer 6.0.

There is not one industry analyst that does not view Gupta as a takeover target.

Strengths

• SQLWindows has one of the best GUIs on the market with a very impressive look-and-feel. SQLWindows is also considered an industry leader in OLE support, which has been available in the product for over three years. Their close relationship with Microsoft suggests that their strength in this area will continue with Windows 95 and beyond. Gupta is currently promoting SQLWindows as a platform for creating OLE-based components for use with Visual Basic, seeking to capitalize on Visual Basic's market momentum.

• Currently, some functions in SQLWindows can be compiled directly into C, and soon all SQLWindows functions will be compiled into C, enabling fast application performance.

• SQLWindows includes QuickObjects, a visual application builder providing the ability to graphically implement master/detail, MAPI and VIM integration, and other features. QuickObjects enables the rapid development of simple applications and the creation of very impressive demos.

• With many copies of SQLWindows on the street, SQLWindows has a huge North American following. Significant funds are spent on advertisements and developing what are considered the best demos in the industry. It is considered by many to be a better product than PowerBuilder, though not marketed as well.

Weaknesses

- *Desperate financial situation.* Losing money steadily for some time, Gupta has not been able to spend any significant amount on R&D, seriously impacting their competitiveness and long-term future in the market. They are a prime takeover target and have sold what was their only money-maker (SQLBase) to Computer Associates. Anyone considering depending on SQLWindows for business-critical application development should be absolutely concerned about Gupta's financial picture.

- *Untested cross-platform support.* SQLWindows has only recently (4Q95) been released as a UNIX version, having long been restricted to the PC environment. The product does not allow deployment on character-based terminals. These weaknesses, along with a lack of adequate partitioning capabilities, make SQLWindows only appropriate for small, non-enterprisewide application development.

- *No application partitioning.* As with PowerBuilder and Developer/2000, SQLWindows is not able to handle partitioning, presenting problems for batch processing and other business-critical applications.

- *Poor performance of interpreted code.* SQLWindows does not provide the ability to compile everything to C, which has implications for large, performance-intensive applications.

Sales Strategy

Again, sell high in the organization first, using a frontal strategy to roll over Gupta with financial business-case arguments. Show the customer our annual report, implying that a financial analysis of the company is imperative to fully assess the benefits of any database or tools technology. Suggest that any competitor should be prepared to do the same—don't be afraid to play heavily upon FUD. The financial argument should effectively knock Gupta out of the running for any serious, enterprisewide business.

However, project-based developers might still have an emotional attachment to SQLWindows, so be careful to address the concerns of technical recommenders by stressing our unique differentiators.

Setting the Agenda

Emphasize the viability of Informix as a company with respect to growth, money in the bank, investment in technology, and long-term stability.

SQLWindows can not accommodate larger applications, and this weakness knocks them out of the high-end market. Use the same business-case arguments against SQLWindows as are used against PowerBuilder, Developer/2000, and Visual Basic, augmented with the fact that Gupta is financially unsound. Of particular importance are lack of batch processing capabilities, inability to scale to handle large, multiuser applications (including poor performance of interpreted code), and the lack of UNIX or character deployment options.

What to Avoid

Avoid demos, as Gupta is very strong in this respect.

Avoid price wars, and instead build business value.

Avoid OOP feature wars. SQLWindows is very strong in the OOP arena, possessing features such as function overloading and multiple inheritance. NewEra does not stack up in this respect, so stick with high-level business benefits.

Current Release Level	6.1
Pricing	$2,500 - $250,000
Key Features	• cross-platform availability
	• full development language
	• application partitioning
	• character-based deployment
	• application object repository
Next Release Anticipated	??

Uniface is a serious competitor for NewEra outside of North America, but has had trouble in the U.S. market. Since Uniface was purchased by Compuware, sales have dropped 60% worldwide. This problem has been augmented by the departure of 80% of the U.S. sales and marketing staff and much of their development staff as well.

Their Uniface 6.1 product is over a year late, and had been plagued by a bug-ridden beta period that has led to a negative perception of the release in the marketplace.

Uniface, like INFORMIX-4GL, had been a leader in the tools market for some time and provides a large number of strong features, but unlike Informix, Uniface has not opened up their architecture to enable third-party vendor integration, and is especially weak in the OOP arena.

Strengths

• Uniface has been available across a broad range of platforms for a long time. They have had a strong character interface for several years, and provide a GUI look-and-feel for character terminal deployment (a feature lacking with NewEra's class library).

• In keeping with their multiplatform strategy, Uniface has also long possessed the ability to place application logic on a UNIX server, enabling them to provide application partitioning. This capability provides a good batch solution, unlike PowerBuilder, Developer/2000, Visual Basic, and SQLWindows.

• Their Application Objects Repository provides rapid application development and team-based benefits.

• Uniface provides a set of native DBMS drivers, and the ability for the user to build additional customized drivers, enabling data source independence.

• Strong Windows-based reporting features

• Heterogeneous (cross-DBMS) joins

Weaknesses

• *No North American sales or technical support.* There is almost no North American marketing or technical support. Obviously, this weakness makes Uniface a potential nightmare for any serious North American customers. They also have a glaring lack of North American references, which should make it very difficult for them to gain a foothold in the U.S.

• *Poor performance.* Uniface runs only in interpreted mode, which makes for poor performance, and should especially impact high-end application viability.

- *No real object support.* Though they have an object repository feature, it is not really object-oriented, and the lack of class library availability eliminates the possibility of any reusability benefits.

- *No source code editing.* Uniface does not permit users to edit source code for visually created graphical objects, hampering users' ability to perform customized GUI development.

Sales Strategy

Make a bottom-line business case to management based on company strength, openness, and productivity (via OOP/ease of use). Our strong international presence is a definite advantage for high-level presentations. With such drastic employee turnover, their long-term technology and support viability is questionable, since serious product rearchitecture is necessary to implement OO features and integrate third-party tools and technology, and any such changes will require a strong support organization. All these arguments should appeal to the higher-level audiences.

Lower-level audiences should be swayed by NewEra's superior performance (via compiled code), as well as our strong OO features. But such arguments should follow high-level buy-off on business issues.

Setting the Agenda

Stress our corporate stability and viability, especially in the area of technical support.

Product performance is a big win for NewEra, given our compiled code option. Fast application performance translates into quick access to important information for high-level decision makers.

Because Uniface is a closed system, you should also stress NewEra's extensive class library features, and our ability to handle a broad range of application demands. This issue is extremely important for larger customers.

What to Avoid

Avoid demos, since Uniface has several slick demos and has lots of experience giving them. Programmers like the features that Uniface offers, and management can be swayed by their scalability business-case pitch (which obviously ignores company viability and support issues).

Stay away from benchmarks unless we have a very clear advantage. Uniface has been doing benchmarks for a long time and knows how to manipulate them to their advantage, even though they run interpreted.

Don't get into a feature war—instead stress Informix's experience and corporate strengths. Feature for feature they have a very strong product. Introducing FUD will help steer the audience away from a heavily feature-based evaluation.

FORTE

Current Release Level	2.0
Pricing	$4,000 - $6,000/client
	$10,000 - $25,000/server
	• $250 - $750/client runtime charges
	• $8,000 - $20,000/server runtime charges
Key Features	• application partitioning
	• strong OLE support
	• cross-platform availability
Next Release Anticipated	??

Forte has received a lot of attention in the past year or two, but has only just released a product as of January 1995. They have very few real revenue-generating customers (less than 200), and have been running on about $20 million in venture capital. Several of the major players in the computer industry, including Apple, Data General, DEC, IBM, and Sequent, have made substantial investments in Forte.

Forte has very few references, since many of their customers have not yet implemented production systems based on Forte, and some are still experiencing delays due to the long learning curve associated with the product. Their 2.0 release has just been announced, and includes support for Informix and SQLServer 6.0. Their sales strategy is to sell high in the organization, pitching enterprisewide scalability (via sophisticated partitioning capabilities) and cutting-edge technology to those firms unhappy with PowerBuilder and Visual Basic for high-end application development. They have no interest in competing with these tools for the low-end market.

Strengths

• Their 2.0 release supports full DCE, which was lacking in the first release of the product.

• Their OLE support is very good, offering OLE Automation, OCX controls, and OLE integration on both client and server.

• Drag-and-drop dynamic application partitioning is a very impressive feature offered by Forte. This feature combines the ease-of-use benefits of visual programming techniques with the three-tier partitioning capabilities of their product.

• Forte gets a lot of coverage in the press, and as a result, they are considered a major player in the market, despite having such a small install base.

• They are available across a broad range of platforms and have a tight relationship with Apple (one of their key investors). Although their Mac port is a key element of their cross-platform story, it represents only a small subset of their install base.

Weaknesses

• *Limited third-party support.* Currently, no third-party class libraries and few tools support Forte. The product architecture is widely perceived as closed.

• *Minimal product-related revenue.* Forte's 1994 revenue was less than $6 million, much of which came from consulting and training rather than unit sales. This fact is understandable, given their small installed base.

Sales Strategy

The key to beating Forte is again to use flanking—stress the strength and experience of Informix as a company, including the number of years we've been a leader in the tools market, our financial performance and technology vision, our development and support organization, and our strong worldwide presence. The compelling pitch for the high-level audience is positioning Informix as a strong, dependable partner that represents no risk to the customer. No VARs are using Forte to deploy product, while many third-party applications are built with NewEra. Product features should play a secondary role, although openness (class libraries and tools) and productivity should be stressed above other feature-related issues.

Setting the Agenda

Informix's solid financial and technological reputation should be the central theme of your pitch. The dependability of a partner like Informix who can offer a complete development and deployment solution has broad implications to the Level 3 and Level 2 audiences. We have big-name accounts in our customer base, we have an infrastructure in place to support mission-critical applications and provide training and other services, we are tremendously profitable and have plenty of money in the bank, and our product architecture is designed from the bottom up to accommodate the changing requirements of our corporate customers. With Forte, a company will be making a substantial commitment to an untried vendor with new technology, and therefore will be taking a serious risk.

Take advantage of strong NewEra references. Informix has many successful high-profile customers, while Forte is still trying to build a reputable base.

Access to class libraries and third-party tools is extremely important, as it also minimizes risk to the customer and highlights the expertise of our own partners. High-level audiences will be receptive to the specialization argument—Informix's strategy to complement the strength of our core database and tools products with superior technology from partners, leaving Informix to do what it does best and maximizing our profitability while providing the customer with best-of-breed products.

Programmers are required to do a great deal of coding for even simple development tasks, which limits productivity as compared with using NewEra's database-aware GUI widgets. As a result, NewEra's productivity advantages should be stressed.

Performance is another key issue worthy of emphasis.

What to Avoid

As with most of our competition, don't get into a feature war. Straying from the high-level strategy will allow Forte to hit us hard with some of their feature-based advantages. As long as company viability and risk issues (including financials, market experience, and openness/partnerships) remain in the forefront of the sale, Informix will compare favorably to Forte. Don't forget to use our references to back up these claims!

In keeping with the strategy to stay away from feature wars, don't get sucked into a demo situation unless you absolutely have to—and make sure you qualify your audience, know your objectives, and rehearse it well. Forte has a great demo with drag-and-drop partitioning.

DYNASTY

Current Release Level	2.0
Pricing	$8,000/developer
	• $12,000 - $22,000 one-time charge per platform for non-Windows deployment
Key Features	• three-tier application partitioning
	• team programming facilities
	• cross-platform portability
	• two-phase commit
	• TP monitor integration (via 3rd party)
	• object application framework
Next Release Anticipated	??

Dynasty is another independent tool vendor that has garnered some publicity in the trade press, but has yet to develop a significant market share in the industry. At present, Dynasty has nine offices with only sixty total employees worldwide. They are presently operating on venture capital, having regularly failed to meet their revenue goals in the past several months.

The product itself, recently released as a 2.0 version, is positioned for the high end, emphasizing industrial-strength partitioning capabilities and team development features.

Strengths

- Three-tier application partitioning features are the most significant strength in the product. Partitioning is provided through object classes that correspond to each of the three partitions. Drag-and-drop capabilities and a partitioning assistant are included, making partitioning easy to implement.

- Team development is supported by version control and check-in/check-out facilities. Several team development features are unique to Dynasty, including staff list maintenance, change impact analysis, project standards maintenance, and source code comparison.

- Cross-platform support is comprehensive, and specific delivery platforms can be selected visually, via a listbox.

- All major RDBMSs are supported, including Informix, Oracle, Sybase, and DB2. ODBC support is also provided.

- Dynasty provides good OO support, including multiple inheritance via its process model extension. An object application framework offers base classes from which the developer can inherit, and prebuilt objects that define typical application components and business processes.

Weaknesses

- *Poor company stability*. Dynasty has been limping along on venture capital for quite some time, and shows no signs of being able to make their sales goals. As a consequence, their long term viability is extremely questionable.

- *Complex, difficult-to-use environment.* The RAD tools, though visual, are difficult to learn. Also, the Dynasty scripting language is 3GL-like, and relies heavily on messaging, which requires a more detailed understanding of the Dynasty application framework than is possible with the lack of useful pertinent information in product documentation and help files. Lastly, the environment lacks a debugger (and does not produce any interpreted code), which further inhibits programmer productivity. This weakness is compounded by limited product documentation, making self-teaching difficult, and forcing the user to rely on Dynasty's support staff.

- *Poor third-party integration.* The only third-party product supported is the Tuxedo transaction monitor. VBX/OCX controls are not supported, nor are any CASE or testing tools. More importantly, no third-party class libraries are provided, seriously limiting the product's flexibility.

- *No report creation capabilities.*

Sales Strategy

Dynasty, like Forte, is a small company with limited resources and a very small install base. For the most part, a frontal strategy should be employed—their financial weakness is a serious question mark for any high-level decision maker. Emphasize Informix's company strengths, including financials, industry experience, technology vision, our development and support organization, and our strong worldwide presence. The compelling pitch for the high-level audience is positioning Informix as a strong, dependable partner that represents no risk to the customer. Product features should play a secondary role, although openness (class libraries and tools) and productivity should be stressed above other feature-related issues.

Setting the Agenda

As with Forte, Informix's solid financial and technological reputation should be the central theme of your pitch. We offer a complete development and deployment solution and have big-name accounts in our customer base. We have an infrastructure in place to support mission-critical applications and provide training and other services, we are tremendously profitable and have plenty of money in the bank, and our architecture and strong third-party partner program are designed to address the changing requirements of our corporate customers. With Dynasty, a company will be making a substantial commitment to an untried vendor with new technology, and therefore will be taking a serious risk.

Take advantage of strong NewEra references. Informix has many successful high-profile customers, while Forte is still trying to build a reputable base.

Access to class libraries and third-party tools is extremely important, as it also minimizes risk to the customer and highlights the expertise of our own partners. High-level audiences will be receptive to the specialization argument—Informix's strategy to complement the strength of our core database and tools products with superior technology from partners, leaving Informix to do what it does best and maximizing our profitability while providing the customer with best-of-breed products.

Remember that the productivity argument can bolster a bottom-line business case, and is especially important given our superiority in support and consulting/training. The Dynasty environment is difficult to learn and use, and documentation is especially poor. Use these weaknesses to your advantage.

What to Avoid

Again, don't get into a feature war. Straying from the high-level strategy will allow Dynasty to emphasize their impressive features, such as drag-and-drop three-tier partitioning. As long as company viability and risk issues (including financials, market experience, and openness/partnerships) remain in the forefront of the sale, Informix will appear a better choice than Dynasty. Don't forget to use our references to back up these claims!

In keeping with the strategy to stay away from feature wars, don't get sucked into a demo situation unless you absolutely have to—and make sure you qualify your audience, know your objectives, and rehearse it well.

PARCPLACE-DIGITALK

Current Release Level	VisualWorks 2.0
Pricing	$4995 (UNIX)
	$2995 (Windows, NT, OS/2, Mac)
	• $495/user charge for UNIX runtime
	• $375/user charge for desktop runtime
Key Features	• excellent OO/reuse support
	• cross-platform availability
	• screen wizards
	• drag-and-drop form and report construction
Next Release Anticipated	??

ParcPlace-Digitalk, recently formed in a merger of the only two Smalltalk vendors in the market, has gained a reputation over the past few years as the "definitive" object-oriented development environment. With a pitch based on a bottom-line productivity argument, ParcPlace-Digitalk has appealed primarily to forward-looking Fortune 500 companies with a need for rapid application development. Lately, with the addition of interfaces to all the major RDBMSs, ParcPlace-Digitalk has successfully re-created its Smalltalk environment (VisualWorks) as a client/server development tool, and positioned the language alongside the other 4GLs and second-generation tools on the market.

ParcPlace-Digitalk has benefitted significantly from its solid reputation in the business community (they have a wealth of impressive references), as well as from the support of HP, and more recently IBM, which has been promoting the language in the marketplace with their VisualAge product. Though it still has far to go before it catches on like PowerBuilder or Visual Basic, Smalltalk is still perceived as a viable language for business application development by many firms, and continues to gain from the object-oriented craze that it has helped to create.

Strengths

• Smalltalk has been successful for years in the application development arena, and ParcPlace-Digitalk can rely on a strong reference base to support its claims. Smalltalk use has grown phenomenally over the past few years, and the language is also widely used in academia for teaching OO concepts and techniques. HP and IBM have both released Smalltalk-based products, helping to legitimize the language in the marketplace.

- VisualWorks provides strong class library/tools integration, including team programming (project management and versioning) facilities, CASE tools, TP monitors, and application server functionality.

- Smalltalk is a pure OO language implementation that provides most, if not all, of the most sophisticated OO features. For many developers with strong object-oriented preferences, VisualWorks represents the ultimate in OO environments—full-featured, straightforward, and elegant. VisualWorks code is highly reusable, and browsers are provided to help users locate and understand the behavior of classes and objects in the VisualWorks class library.

- With VisualWorks and its PC-based companion product, Smalltalk Enterprise for Windows 95, ParcPlace-Digitalk offers excellent cross-platform availability and application portability, including Windows 3.1 and NT, many flavors of UNIX, OS/2, and Macintosh. VisualWorks code is highly portable, and can be run on any supported platform without recompilation or recoding of any kind.

Weaknesses

- *Small organization.* ParcPlace-Digitalk, even after the recent merger, is a small organization compared to Informix. Its products were originally designed as general purpose application development tools, rather than as client/server database development tools. This lack of experience in the industry, combined with limited resources, can make VisualWorks a significant risk for the high-level decision maker.

- *Steep learning curve.* Because VisualWorks' development language, Smalltalk, is a pure OO language, a considerable amount of preparation is required for the user to become proficient in it, even with the visual programming features included in the product. This learning curve can be especially steep for developers with traditional 3GL experience and little exposure to the OO paradigm.

- *Poor performance.* In some cases involving large volumes of data, VisualWorks can be very slow, even though it produces natively compiled code. This weakness will hinder the efficient deployment of mission-critical enterprisewide applications.

- *No support for Informix databases.* VisualWorks only supports Oracle, Sybase, and DB2 database RDBMSs.

- *No OLE, VBX/OCX controls support.* However, there are plans to include OLE support in the near future. For shops with a substantial investment in Windows-based systems, this weakness may be a serious drawback.

Sales Strategy

Position NewEra and Informix to the high-level audience, stressing investment protection (programmer productivity, character-based deployment), support for mission-critical application deployment, and company strengths (including size/financials, industry experience w/4GL). All three of these areas can be used to build a compelling business case for NewEra and to highlight the weaknesses of VisualWorks.

Setting the Agenda

Use VisualWorks' weaknesses to set your agenda—small company, pure OO, and poor performance are all important concerns for the Level 3 audience. Base your business case on NewEra's relative strengths in these areas, and use FUD to your advantage! If competing against IBM or HP, rather than ParcPlace-Digitalk, use the "tools experience and reputation" argument instead of the "small company" argument. Product-related arguments will still hold true.

Relate the tools choice to safety and investment protection. Talk about Informix's reputation and experience, our technology vision and strategy (which is based on the customer's bottom line), and the rock-solid financial stability provided by our tremendous growth over the last few years.

Though VisualWorks is a great OO environment, we can still compete by virtue of our introduction of OO to the masses of inexperienced OO developers. If the OO issue comes up, find out how many programmers are truly experienced with OO techniques—the OO argument will only hold up for ParcPlace-Digitalk if a significant number of programmers are already very familiar with Smalltalk and OO techniques. Otherwise, the steep learning curve will drive programmer productivity down dramatically.

Ask questions that will highlight our strengths such as:

- Do you have character terminals?
- Do you have any batch applications?
- Do you have a large number of users?
- Are you concerned about performance?
- Do you have production reporting needs?
- Can you commit to pure OO development?

If the customer is already an INFORMIX-4GL customer, we can make a strong case for migrating those 4GL applications to NewEra easily and efficiently.

What to Avoid

Don't provide simple "stock" NewEra references—instead, choose your NewEra references carefully. Since ParcPlace-Digitalk can create a very convincing impression with big-name reference accounts, it becomes extremely important to tailor your NewEra references to those business issues that are most important to your customer. Like a demo situation, great care must be taken to make sure that all the customer's needs/concerns are addressed with the reference. Make sure to qualify your customer in detail, then find a NewEra reference that can help convince that customer that NewEra and Informix are the right choice.

Be wary of VisualWorks' class library and tools integration. ParcPlace-Digitalk can make the same argument as Informix when it comes to a strong partners program. Don't assume that VisualWorks can't satisfy a customer's need for things like three-tier application partitioning (for batch processing and production reporting). There are many third-party products that can be integrated into the VisualWorks environment.

INFORMIX-NewEra
Product Detail

Informix Sales Kit

INFORMIX-NewEra

Version 2.0 Technical Overview

What Is INFORMIX-NewEra?

INFORMIX-NewEra is an open, graphical, object-oriented development environment designed explicitly for creating business-critical, enterprisewide client/server applications.

NewEra's highly scalable and extensible architecture offers an impressive set of next-generation features including: a powerful and flexible database application language; facilities for team-oriented and repository-based development; a framework for code/component reuse; the ability to create distributed, partitioned applications; and access to a complete suite of productive visual programming tools—all within a client/server-ready package that supports open connectivity to non-Informix relational databases.

The following overview describes the main features and functionality available within the NewEra development environment.

At the Core: A Powerful, Flexible Database Language

Most GUI-based development tools typically fall short when it comes to moving from the proto-type stage to deploying large-scale production applications—particularly those that require complex business logic and the ability to support hundreds or even thousands of users. At the core of the NewEra development environment is NewEra Language, a high-level programming language that gives developers the utmost in power and customizability—not only through its object-oriented extensions, but also through its flexible syntax.

NewEra Language includes a complete set of object-oriented constructs, providing capabilities such as class creation, single parent/multilevel inheritance, and polymorphism, as well as the ability to easily create and/or integrate reusable application components (i.e., classes and class

libraries). Since the language also allows the development of non–object-oriented programs, IS organizations can adopt object-oriented techniques at their own pace, ensuring that existing developers will continue to be productive.

One of the chief advantages of using NewEra Language is the ability to create complete and customized production applications without having to resort to other languages such as C, C++, or another 3GL or 4GL to complete the job.

With NewEra Language, developers can still use a 3GL within their applications (to embed C code routines for highly specialized device drivers, for example), but we don't force customers to use a 3GL to finish or customize their applications. NewEra Language provides all the power and flexibility they'll require—giving them the added benefit of only having to support one language in their development environment.

Unlike other client/server-based GUI tools, NewEra gives developers the choice of two compile options. The interpreted, p-code option compiles NewEra source code to a p-code format that is read into a graphical runner at execution time. With this p-code option, developers don't waste time waiting for compilations when they could be writing code, which improves their productivity and allows them to develop prototypes and applications more quickly.

The C code compile option produces native executable files by compiling NewEra Language source code into C code, which is then compiled into a native executable program. This native executable performs much faster than interpreted versions of the same program.

Another benefit of the C compiler is that users can create dynamic link libraries (DLLs) that give them the ability to minimize an application's runtime memory requirements—thereby allowing customers to fit very large enterprise applications within the PC-based Windows environment.

Extending Applications Through Class Libraries

A key feature of the NewEra environment is its use of class libraries. Class libraries are the primary building blocks of any NewEra application and can be developer-defined as well as provided by Informix or third-party vendors.

Class libraries are created with NewEra Language, or by integrating existing C code or C++ libraries into the NewEra application environment.

As a result, NewEra class libraries give developers the ability to easily add new functionality into their existing applications without having to code from scratch, overhaul their application, or rewrite legacy code. Instead, customers can quickly create a new class library that is derived from existing classes, or simply "plug in" an Informix-built or third-party class library to their modular application architecture—and that new functionality is ready to implement.

NewEra even gives developers the flexibility to override a class library's original behavior. That way, they can customize certain aspects of a predeveloped class library in order to meet their particular business requirements—without having to touch the rest.

A number of Informix-built class libraries are provided in the NewEra environment, including several visual class libraries (VCLs) and connectivity class libraries (CCLs), the application server class library, application framework, and business graphics class library. A VCL for character-based application development and deployment is available separately.

Visual Class Libraries

The VCL is used by the window painter to generate code for the graphical objects, such as buttons and list boxes, within an application. Because the NewEra architecture is designed to provide multiple GUI support through the use of class libraries—and NewEra's VCLs share an identical application programming interface—NewEra applications are easily portable between Windows and Motif, as well as other graphical environments as they are supported by NewEra.

In addition, the VCL for Character (available for UNIX versions only) allows developers to deploy their NewEra-built applications in a character-based terminal environment running UNIX, providing significant investment protection for those companies with a number of existing terminals.

Connectivity Class Libraries

Two connectivity class libraries are available with NewEra: the Informix-direct connectivity class library (CCL/Informix) and the ODBC connectivity class library (CCL/ODBC).

The CCL/Informix class library provides a direct driver to INFORMIX-OnLine, INFORMIX-OnLine Dynamic Server™, and INFORMIX-SE database servers. The CCL/ODBC class library provides open database connectivity by supporting database drivers that are compliant with Microsoft's ODBC standard—allowing developers to connect their NewEra applications at run-time to non-Informix (Oracle and Sybase) databases.

The CCL/ODBC library also uses an identical application programming interface to the CCL/Informix library, enabling users to easily port their applications between Informix and other database environments.

Application Server Class Library

NewEra's application server class library (ASCL) lets developers extend their applications beyond the traditional two-tiered client/server architecture—where all application logic is placed on the client machine that communicates to a database server machine over the network.

Instead, the ASCL lets customers take full advantage of a three-tiered client/server architecture, where the user interface logic resides on the client machine and the business logic resides either on a single server machine or is segmented across several server machines. Partitioned business logic can either reside on one or more intermediate machines, which in turn communicate with the database server machine, or the logic can reside on the same machine as the database server.

Specifically, the ASCL is a collection of classes and objects that handle all connectivity requirements as well as communication between the client and server application. Communication between application partitions is addressed via events and supports both synchronous or asynchronous messages.

The ASCL's support for asynchronous communication—where application clients send service requests to the application server without having to wait for a response before issuing the next request—gives developers the ability to further optimize their applications' performance by reducing processing time.

Application Framework Class Library

To give customers a head start on developing the user interface portion of their applications, we've provided an application framework class library, which extends NewEra's capabilities through a collection of predefined classes and objects such as tool bars, ad hoc query dialog boxes, status bars, and navigation widgets.

These prebuilt application building blocks are designed to handle much of a NewEra application's basic GUI functionality—for example, defining how the end user navigates through a set of records, displaying which data is valid for users to select, providing context-sensitive on-screen help messages, and much more.

The result? Developers can save valuable time and effort—particularly in the early development stages—by not having to create many of their applications' essential GUI elements from scratch.

Business Graphics Class Library

The business graphics class library is used to incorporate a state-of-the-art business graphics package into a customer's NewEra applications. This class library lets users use over 20 predefined 2D and 3D charts—including bar, line, layer, step, contour, scatter, surface, wire, and pie charts—to assist them in their data analysis and presentation needs.

With access to a variety of drawing tools, users can add lines and other visual elements to the their graphics. Users can even interactively manipulate chart components (e.g., axis, plot areas, series, and data sources).

Third-Party Class Libraries

In addition to the Informix-supported class libraries, NewEra has spawned a growing third-party market for functional class libraries such as accounting, manufacturing, inventory, and shipping, and technology-specific class libraries such as report writers, imaging and workflow, workgroup computing, interactive video, and voice recognition.

These third-party class libraries add both vertical and horizontal functionality to NewEra applications and are being created and supported by companies within Informix's huge partner program. For example, NewEra third-party class libraries either already available or currently under assessment include:

- TMS's ViewDirector, for document imaging and management;

- Soft-tek's GRAFSMAN, for business graphics and charting capabilities;

- Frontec AMT's electronic data interchange software, for electronic commerce capabilities;

- Intelligent Object's SQL Objects, an ODBC alternative to open database connectivity;

- Autodesk/Ithaca Software's 3D graphics software, so you can integrate computer-aide design (CAD) and 3D graphics in your NewEra applications; and

- Lenel Systems' MultiMedia Developer, to provide access to multimedia-based objects within a NewEra application.

Customer-Developed Class Libraries

When specific application functionality is required that's not provided with available existing class libraries, customers can take advantage of NewEra's powerful, yet easy-to-use object-oriented language to create their own class libraries.

NewEra class libraries can be written from scratch via the CLASS statement in NewEra Language, or modified from existing INFORMIX-4GL code or C++ class libraries. To accomplish this task, developers should have some knowledge of object-oriented programming in order to take advantage of the object-oriented syntax and procedures included within NewEra.

NewEra's object-oriented approach to class libraries also gives developers flexibility in choosing how to implement new functionality. For example, existing NewEra class libraries (whether they are custom-built or Informix- or third-party supplied) can be easily enhanced or extended—so customers can modify the basic functionality of a tried-and-tested class library to fit the particular needs of their business environment.

A Complete Suite of Tools

NewEra's client/server development environment includes a suite of visual programming tools: a state-of-the-art window painter, an application builder, an interactive graphical debugger, a module for database administration and data repository management, and a graphical report writer, as well as facilities for on-line, context-sensitive help.

The Window Painter

The window painter is used to streamline the time and effort required to build highly graphical, database-centric applications. The window painter enhances developer productivity not only because it's easy to use, but also because it gives developers freedom and flexibility to reuse whatever objects they create.

Using the window painter, developers simply choose from a palette of graphical user interface (GUI) controls and objects to "paint" the look and feel of each window. This point-and-click, drag-and-drop process allows users to easily define the location of graphical controls, create user menu systems, and assign visual attributes, as well as handle database binding—for example, establishing SQL links between database tables and columns and the various fields and controls within a window.

As you paint the visual elements of an application interface, the window painter automatically generates the required underlying code—saving customers from having to write the bulk of it by hand.

Many of the window painter's default attributes and properties are pulled from the SuperView data repository—which is used in the NewEra environment to define the behavior and functionality of the window painter's SuperTable control.

A properties window is also available for specifying the visual attributes and properties of the window and its components as well as to override the default display, edit, and validation criteria.

The window painter's menu builder gives developers the ability to create sophisticated user menu systems, including main menus, pull-down menus, and slide-off (pull-right) menus. Users simply choose from the tool palette's selection of menu types, from which they can interactively configure their menus' contents and attributes.

Users can also set mnemonic devices and keyboard shortcuts for quickly executing user commands and functions.

The SuperTable Control
A key feature of the window painter is the SuperTable control, which automates much of the effort required to define and manage access to and communication with the database.

The SuperTable control allows users to quickly select and paste SQL-based database tables and columns into their application window. The SuperTable even automatically defines complex, master/detail relationships between database tables and/or columns—even when those master/detail relationships involve links between multiple application windows.

SuperTables are available in two forms:

- "free-form" SuperTables, which allow developers to freely place SQL columns within the window being built; and
- "grid" SuperTables, which provide a scrolling array of SQL rows.

Both the free-form and grid SuperTables allow the end user to browse, insert, delete, and update data from the database.

In addition to default events to handle master/detail relationships, a number of default SQL buttons (precoded to contain all the necessary data manipulation operations) are also available for both types of SuperTables. These SQL buttons can also be freely placed within the window.

How SuperTables Work
The SuperTable is a "database-aware" object—it understands how the underlying database schema is structured and automatically controls the representation of data within the window being created.

Fields within a SuperTable, called SuperFields, bind each text field on the screen to the appropriate database column and control user access to that database table. As a result, SuperTables and SuperFields automatically handle most of the SQL required to manipulate data and navigate through the database schema at runtime.

This means that when developers paste tables and columns into a window, even when they want to define a master/detail relationship between multiple windows, they can concentrate on the look and feel of each window, and not spend time writing SQL code to manage communication to the database.

The SuperTable control gets its information about the database schema either from the schema itself, or from an available SuperView. The SuperView is an extension to the database schema and provides:

- information about the join relationships (one-to-one, one-to-many, etc.) between database tables;
- attribute information about individual database fields (text, font, color, etc.); and
- edit, mask, and validation criteria (e.g., range and the inclusion of list checks).

SuperViews are created and managed via the SuperView builder within NewEra's complementary product, INFORMIX-NewEra ViewPoint™ Pro.

The SuperTable includes over 130 predefined SQL, visual, and programmatic manipulation functions, many of which manage the complexities of database transactions, concurrency, and locking. For example, the default locking model supports either pessimistic or optimistic locking.

The SuperTable also provides over 25 events that allow the developer to manipulate the processing of SuperTables and SuperFields within the window. And because SuperTables and SuperFields are implemented as classes, they can be easily overridden and/or extended in order to meet specific, customized requirements.

Visual Object Reuse

NewEra's window painter lets developers create and reuse "compound visual objects," which are multiple visual controls specifically designed to work together. An example of a compound visual object is a button bar comprised of a number of individual navigational buttons.

Developers simply paint the desired visual objects, and then save them as a single reusable object file (.rof); other developers within the development team will then be able to use and reuse that .rof file—or any other .rof—without writing any new code.

NewEra's visual object reuse feature supports single-level inheritance, allowing any changes made to an original object or .rof to be inherited for use elsewhere—even if subsequent changes have been made to that original .rof.

This true object reusability not only increases developer productivity, but makes NewEra applications easier to maintain over time.

The Application Builder

The application builder provides an easy-to-use graphical interface for defining and managing the various components of an application (source code modules, class libraries, .rof files, etc.) that reside in the application repository.

Typically a large production application comprises multiple projects that in turn are assembled from multiple programs. By pointing and clicking within graphical dialog boxes, developers can define the various elements of their application's design, and the application builder then automatically generates a makefile that can be easily customized. As a result, customers are spared the time and effort required to define and maintain program dependencies or figure out what needs to be recompiled—instead the application builder automatically determines the necessary dependencies before recompiling.

The application builder automates much of the work required when it comes time to compile an application. Users simply choose the appropriate compile option—C code or p-code—and the application builder automatically manages the compiling and linking of multiple application components.

Users can also use the application builder to create multiple dynamic link libraries (DLLs) that can be called from either C code or p-code modules. In such a case, the application builder generates the necessary makefiles to link the appropriate DLLs to the C code or p-code version of the application.

Through the application builder, users can also repair source code should a compilation error occur.

The NewEra ViewPoint Pro Module

As a standalone product, NewEra ViewPoint Pro provides an easy-to-use graphical development environment to simplify the creation of small- to mid-range database applications.

In the NewEra environment, NewEra ViewPoint Pro is used primarily as a database administration tool and to create the SuperView repositories that give developers access to predefined attribute and properties information used with the window painter's SuperTable visual control. Developers also use SuperViews to automatically create and define master/detail relationships between SQL database tables, even if those tables are contained in separate application windows.

NewEra ViewPoint Pro is also used to create graphical reports that can be executed either within the NewEra application environment or from a graphical report runner. These are the same type of reports that can be created with Informix's end-user information access tool, INFORMIX-NewEra ViewPoint.

The Graphical Debugger

NewEra's debugger combines GUI-based, interactive debugging capabilities and object awareness so users can interactively analyze and debug NewEra programs in an easy-to-use, graphical environment. With the interactive debugger, developers can execute a program within a multiwindowed environment and "step inside" the running program to perform their debugging operations.

In this interactive debugging environment, commonly used debugging commands and functions for conditionally suspending program execution are easily accessible through graphical buttons. The interactive debugger's capabilities include:

- controlling the execution of the running program;
- setting break points; and
- viewing contents and definitions of objects and variables.

Context-Sensitive, On-Line Help

With NewEra, customers are never more than a mouse click away from the integrated on-line help facility. This context-sensitive tool provides user assistance for all NewEra tools, utilities, and error messages, as well as access to a number of on-line reference volumes (such as *Graphical and Connectivity Reference, CCL/ODBC Reference, NewEra Class Reference*, and the NewEra Glossary).

An Open Architecture

NewEra is designed to be a fully open development environment—not only through the integration of third-party class libraries, but also though its third-party tool integration, open database connectivity, and support for dynamic data exchange (DDE).

NewEra's open tool integration also allows developers to support the entire application development process—from requirements and analysis to design and development to deployment and maintenance.

For example, NewEra's integration with InterSolv's PVCS, the leading configuration management tool for Windows, enables development teams to utilize version and change control with their NewEra application source code. This PVCS integration lets multiple developers working on the same application check in and out projects or files—which may be comprised of NewEra or C source files as well as C++ class libraries. In addition to check-in and check-out control, NewEra's PVCS integration also supports multiple version labeling.

Open Tool Integration

NewEra's window painter has a published ASCII flat-file interface, called Windows Intermediate Format (WIF), that allows other third-party tools such as form painters, code generators, and CASE tools to be easily integrated within the NewEra environment.

The WIF specification allows users to use any of their favorite third-party tools to create WIF files (instead of generating actual NewEra Language code)—and NewEra will automatically generate the necessary NewEra code based on those WIF files.

DDE Support

NewEra's support for Windows-based DDE gives NewEra applications the ability to dynamically exchange information with other Windows applications, without the need for end-user interaction or intervention. This DDE support enables customers to create applications that automatically send data back and forth between NewEra's text fields and visual controls and those of other applications—such as spreadsheets or graphic presentation packages.

Open Database Connectivity

In addition to direct connection to Informix RDBMSs—including Informix's next-generation parallel processing database server architecture, INFORMIX-OnLine Dynamic Server—NewEra also provides support for accessing multiple RDBMSs within the same application through its compliance with industry standards such as Microsoft's ODBC and IBM's DRDA.

INFORMIX-SE Desktop Database

To give developers even more flexibility and power when developing their NewEra applications, we've included INFORMIX-SE—our easy-to-use, load-and-go database server—with every version of NewEra.

By doing so, NewEra developers and end users are provided access to a local database right from their desktop PC or workstation, which allows for faster prototyping and application testing, as well as improved interaction by the end user.

In Summary

Dynamic business conditions are driving dramatic changes in business applications—and in application development technology. To keep up, customers need technology that enables them to respond to and manage change.

Customers have a choice. They can choose a first-generation tool that "promises" enterprisewide functionality, but fails to go the whole distance.

Or they can choose INFORMIX-NewEra and take advantage of a truly advanced development environment that addresses their business-critical needs and their increasingly diverse technical requirements, some of which can't even be anticipated today.

NewEra and Informix DSA: A Complete Solution

At Informix, we believe the most effective way to address a customer's current *and* future needs is through core product technology that encompasses a complete enterprisewide RDBMS solution. This includes performance and availability with a back-end database server, as well as productivity, scalability, and extensibility with tools used to build front-end database applications.

Our goal is an enterprisewide RDBMS solution that helps customers create next-generation, object-oriented applications accessing powerful parallel databases in an open, heterogeneous client/server computing environment.

Informix's ability to offer a total enterprise solution stems from the combination of NewEra and Informix's Dynamic Scalable Architecture (DSA).

NewEra is client/server, graphical, object-oriented, and team-oriented, and it supports three-tier application partitioning across multiple machines and platforms. Team it up with Informix's Dynamic Scalable Architecture—our powerful parallel processing server technology with high availability capabilities, remarkable price/performance, and ease of maintenance. Deploy it all in an open, heterogeneous world, and customers have a powerful combination for a total enterprise solution.

INFORMIX-NewEra

Product Configuration Matrix

NewEra 1.01/2.0 Product Chart

Product	Features	When to Buy/Notes	Platforms/ Avail	Price	Support
DEVELOPMENT					
1. 2.0 INFORMIX-NewEra for Windows	3-tier Partitioning Multi-DLL Apps FrameWorks CL Master/Detail Business Graphics CL Visual Object Reuse	For NewEra application development on Windows 3.1 –Includes a license of NewEra Application Server (#3) on the available platform of choice	Windows 3.1 **GA:* Q3 95**	$4,495/seat	Openline $810 Assurance $540
2. 1.01 INFORMIX-NewEra for Motif	3-tier Partitioning + all 1.0 Motif features	For NewEra application development on Motif –Includes capability to develop application servers	Motif (HP, Sun, IBM) **GA:* Q3 95**	$4,495/seat	Openline $810 Assurance $540
3. 1.01 INFORMIX-NewEra Application Server	3-tier Partitioning (ODBC included)	For NewEra application server development with NewEra 2.0 for Windows (#1) –Includes base deployment libraries for application servers on the same platform –Purchase when 3-tier partitioning needed on platform other than that ordered w/NewEra 2.0 or Motif 1.01 development - ODBC drivers for **deployment (#11)** sold separately	Motif (HP, Sun, IBM) **GA:* Q3 95 12/95 for Sequent, AT&T, Unisys, Pyramid, (SNI)**	$500/seat per each additional platform	Openline $90 Assurance $60
4. 1.01 NewEra Visual Class Library for Character	Character-based application development	For NewEra Character-based application development –requires INFORMIX-NewEra for Motif v. 1.01 (#2)	Motif (HP, Sun, IBM) **CR:* Q4 95**	TBD	TBD

*GA = General Availability, CR = Controlled Release through Product Management

5. **2.0 NewEra Base*** Deployment for Windows**	Base deployment libraries Connectivity to Informix	For Windows 3.1 deployment –For application server deployment, see application server development	Windows 3.1 **GA:* Q3 95**	$150 per client	Assurance $20 ($55 min)
6. **2.0 NewEra Base*** Deployment for Windows w/ODBC**	Base deployment libraries ODBC**	For Windows 3.1 deployment requiring ODBC –For application server deployment, see application server development	Windows 3.1 **GA:* Q3 95**	$250 per client ($150 base +$100)	Assurance $30 ($55 min)
7. **2.0 NewEra Deployment Libraries for Windows**	Base deployment libraries ODBC** SE for Windows	For Windows 3.1 deployment requiring ODBC –includes all deployment libraries in #5-6 above –For application server deployment, see application server development	Windows 3.1 **GA:* Q3 95**	$350 per client	Assurance $45

8. **1.01 NewEra Base*** Deployment for Motif**	Base deployment libraries Connectivity to Informix	For Motif deployment –For application server deployment, see application server development	Motif (HP, Sun, IBM) **GA:* Q3 95**	$200 per client	Assurance $25 ($55 min)
9. **1.01 NewEra Base*** Deployment for Motif w/ODBC**	Base deployment libraries ODBC**	For Motif deployment requiring ODBC –For application server deployment, see application server development	Motif (HP, Sun, IBM) **GA:* Q3 95**	$300 per client ($200 base +$100)	Assurance $35 ($55 min)
10. **1.01 NewEra Deployment Libraries for Motif**	Base deployment libraries ODBC ** SE for UNIX	For Motif deployment requiring ODBC –includes all deployment libraries in #8-9 above –For application server deployment, see application server development	Motif (HP, Sun, IBM) **GA:* Q3 95**	$350 per client	Assurance $45 ($55 min)
11. **NewEra ODBC Drivers**	ODBC deployment libraries	ONLY MEANT for NewEra Application Server clients requiring ODBC	Motif (HP, Sun, IBM) **GA:* Q3 95**	$100/user	Assurance $10 ($55 min)
12. **1.01 NewEra Base *** Deployment Character**	Character-based application deployment	For UNIX servers running character terminals with NewEra character applications	UNIX (HP, Sun, IBM) **CR:* Q4 95**	TBD	TBD

*GA = General Availability, CR = Controlled Release through Product Management
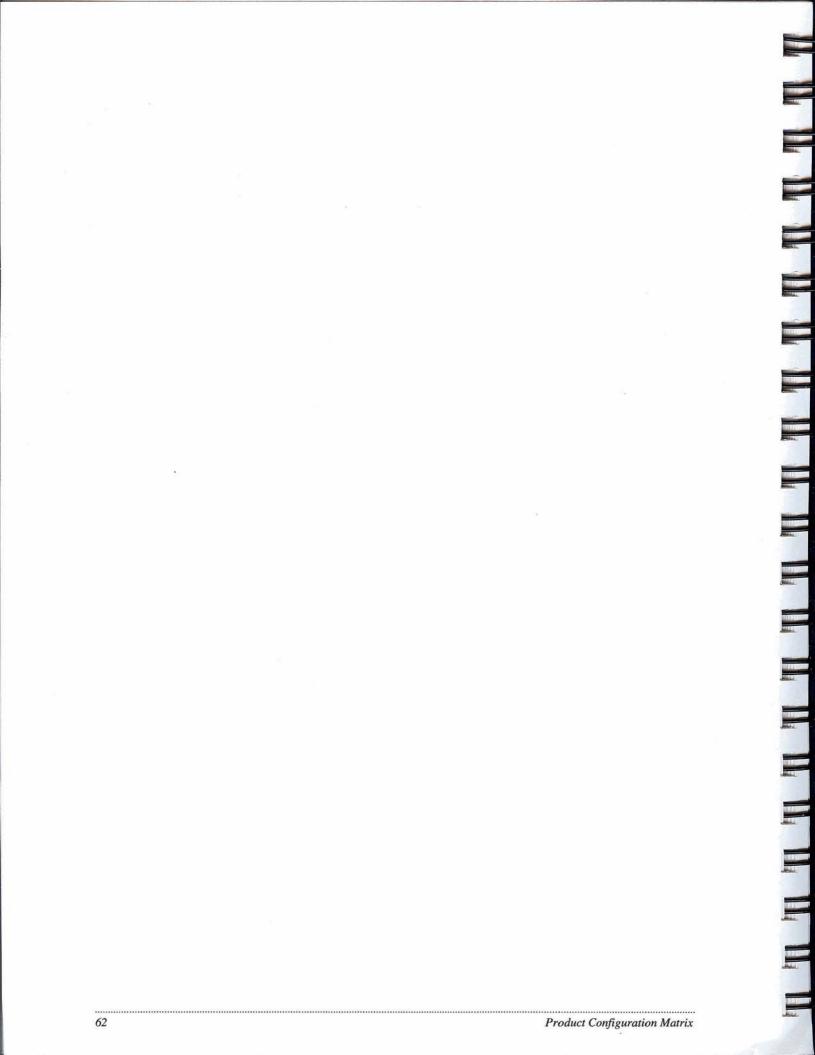** includes drivers for Informix, Oracle, and Sybase
*** Base includes connectivity to Informix and NewEra deployment libraries

NewEra 2.1 Product Chart

Product	Features	When to Buy/Notes	Platforms/ Avail	Price	Support
DEVELOPMENT					
13. 2.1 INFORMIX-NewEra for Windows	**GLS** +2.0 features	For Windows 3.1 development	Windows 3.1 **Q4 95**		
DEPLOYMENT–Windows 3.1					
14. 2.1 NewEra Base* Deployment for Windows**	**GLS +** base deployment libraries Connectivity to Informix	For Windows 3.1 deployment requiring GLS	Windows 3.1 **Q4 95**		
15. 2.1 NewEra Base* Deployment for Windows w/ ODBC**	**GLS +** Base deployment libraries ODBC**	For Windows 3.1 deployment requiring GLS and ODBC	Windows 3.1 **Q4 95**		
16. 2.1 NewEra Deployment Libraries for Windows	**GLS +** Base deployment libraries ODBC** SE for Windows	For Windows 3.1 deployment requiring GLS and ODBC –includes all deployment libraries in #14-15 above.	Windows 3.1 **Q4 95**		

** includes drivers for Informix, Oracle, and Sybase
*** Base includes application partitioning, connectivity to Informix, and NewEra deployment libraries

INFORMIX-NewEra

Product Development Roadmap

Version	Theme	Release	Features date
1.0	n/a	3Q94	NewEra Language Window Painter Application Builder Interactive Debugger Repository Visual Class Library ODBC Connectivity Class Library Class Library Integration Kit
1.1	extend team support	3/95	DDE Support PVCS Integration CASE Integration (Cadre) Testing Tool Integration
2.0	increase scalability enhance usability	10/95	Application Server CL Multi-DLL Support Business Graphics CL Application Framework CL Visual Master/Detail Visual Object Reuse VCL for Character* * note: separate CL product release (4Q95)
2.1	increase scalability	4Q95	Global Language Support
3.0	enable reuse extend tool	2Q96	Repository-Based Tools Partition Services Class Browser Partial Windows 95-Compliance OLE-Based Drag and Drop NewEra as an OLE Container OLE Remote Automation Server

Version	Theme	Release date	Features
???	increase openness extend connectivity	???	Component Painter Enhanced Partition Services Program Browser Nonvisual Object Reuse Full Windows 95-Compliance OCX Support OLE Remote Automation Client

INFORMIX-NewEra

Partners Overview

NewEra and Third-Party Tool Integration

A broad range of application development functionality is required to build large, enterprisewide applications. Specialized capabilities are pivotal in all stages of the development process—from requirements analysis and design, to coding, testing, and finally to application deployment and maintenance. NewEra currently provides excellent native support for the coding and testing phases of application development. Integration with third-party tools will provide the additional functionality needed to support the full software development life cycle. These third-party partnerships will include a variety of tools supporting many different methodologies and life cycle phases, designed for both Windows and UNIX. With this comprehensive set of tools, NewEra customers can pick and choose the products that make the best business sense for them, based upon their unique business and technological requirements.

Current NewEra Tools Partners

The following third-party tools have integrated with NewEra to date. See the *INFORMIX-NewEra Class Library and Development Tools Solution Guide*, Summer 1995, for additional information.

Cadre - *ObjectTeam for OMT* (recently merged with Westmount)
> Object-oriented analysis and design tool that generates NewEra code.
> Available now

Intersolv - *PVCS Version Manager*
> Configuration Management
> Available now with NewEra 1.1 for Windows
> UNIX integration to be available with NewEra 3.0

Mercury Interactive - *WinRunner and XRunner*
> Automated Testing Tool
> Available now

SQA - *TeamTest*
   Automated Testing Tool
   Available now

Segue - *QA Partner*
   Automated Testing Tool
   Available now

Novadigm - *Enterprise Desktop Manager Adapter*
   Electronic Software Distribution
   Available now

Potential Partners

Future integration plans may include these third-party vendors and tools.

Analysis/Design/Data Modeling
   LBMS - Systems Engineer
   Logic Works - ERwin
   TI - Composer
   Rational - Rose
   Popkin - System Architect
   IDE - Software Through Pictures
   Intersolv - Excelerator
   Intellicorp - OMW
   Bachman Information Systems - Ellipse
   CGI - PACBASE
   Asymetrix - InfoModeler
   Objective Spectrum - BridgePoint

Configuration Management
   Atria - ClearCase
   RCS
   SCCS

Software Metrics
   McCabe & Associates
   QSM Associates

Types of Integration with NewEra

Third-party tools can be integrated with NewEra in a variety of ways, including:

- Generation of NewEra code from an analysis/design tool

- Integration with NewEra tools such as the Application Builder, Window Painter, Language Editor, Browser, or Debugger

- Information sharing through the NewEra Repository

- Testing of NewEra applications

NewEra and Class Library Integration

Class Libraries Overview

Through NewEra's core object-oriented language architecture, developers can easily build and/or integrate small-to-large-scale reusable components—class libraries. These class libraries allow developer to effectively model complex business processes (such as accounting rules, inventory procedures, etc.) and, at the same time, incorporate into their application a wide range of functionality (such as multimedia, document imaging, WYSIWYG report writers, etc.).

In fact, not only does NewEra provide the ability to reuse application components, it also provides the framework by which developers can add new functionality and new technology into their development environment without major redevelopment on the part of Informix, the developer, or the end user.

What Is a Class Library?

Simply speaking, a class library is defined as a collection of classes dedicated to performing various application functions. A class is comprised of a set of data with specific methods and variables that share a common structure and a common behavior. An object is an instance (specific use) of a class.

For example, the class "Human" represents characteristics common to all human beings, and "Bill Hedge" identifies a particular instance of the Human class. In this example, "Bill Hedge," "Nancy Li," and "Michael Barber" could be combined to represent the class library called "Tools Product Management."

Class libraries are created via the CLASS statement in the NewEra language, or by integrating existing C++ libraries into the NewEra application environment. A single class can have one or more variables and functions. The variables can be defined to be private to functions within this class, or public, where they are accessible from other classes. This design prevents classes or functions from seeing and tampering with the inner workings of other classes, since a class can only be accessed through its public variables.

The Advantages of Class Libraries

The concept of a class library has a number of advantages over traditional 4GLs, 3GLs, or script-based products. For example, with the syntax found in most 4GLs today, changes to functionality are made first by incorporating grammatical changes into the language to reflect that needed enhancement. These same changes must also be made to the runtime components of the language in order to complete the implementation. As a result, any change in functionality requires two development efforts: one in the language's syntax; and one in the runtime libraries that implement that functionality. Typically, this means changes will occur more slowly and will only be introduced during the next major version release.

Class libraries are a better alternative to enhancing development functionality, because they do not change the grammar of the base language. Therefore, functionality can be enhanced without changing the language syntax—allowing for better response to time-to-market demands. This means new features and functions can be introduced as soon as they are ready, not when the next

release of the compiler software is scheduled. Additionally, class libraries allow compiler development and tool functionality to happen in parallel, improving time to market, competitiveness, and the capacity to assimilate change.

NewEra class libraries also have the added advantage of being protected from inappropriate or reckless use. This security is ensured by the class library developer, who defines protection and privacy schemes in the form of a predefined API, which must be adhered to by all users of that class library. This protection scheme helps to further improve NewEra applications' robustness, reliability, and maintainability.

Types of Class Library Partners

There are three categories of class libraries: Standard, Portfolio, and Software Tools Provider.

Standard class libraries are *included* with every product shipped and supported by Informix. These class libraries are key to the integrity of the product (e.g., Visual Class Library, Connectivity Class Library) or add critical functionality (e.g., Business Graphics Class Library, or Application Framework Class Library.) They may be developed by Informix or a third party.

Portfolio class libraries are *sold and supported by Informix*. They are *options* to NewEra (e.g., VCL for Character.) They may be developed by Informix or a third party.

Software Tools Provider class libraries are *developed, sold, and supported by third parties*. They are an extension of our very successful Informix Partner Program. Informix has built relationships with over 300 partners to date in our Software Tools Provider Program.

Common Questions & Answers Concerning Partner Recruiting

What makes a good class library recruit?

A good class library recruit would be any company with technology providing significant value to NewEra developers. Any technologies pertinent to Informix strategic directions such as multimedia, mobile, imaging, etc. would be appropriate. Industry focus will be important as NewEra matures. Current class library providers, as well as C and C++ developers, are definite prospects. The easiest prospects to work with are companies who have a good knowledge of object-oriented development. Other important criteria are cross-platform availability, existing distribution channel(s), and a sound marketing plan.

How do I recruit or give feedback regarding potential partners, including class library vendors?

If a company looks like they are a qualified prospect and want to join the program, contact the Eastern Account Manager, Cathy Ehrler (cathye) or the Western Account Manager, Ruth Aston (raston) with the lead.

What do we require of a class library recruit?

They must sign up as a Software Tools Provider partner.

What can we provide to a class library or partner recruit?

All of the components of our partner program, including marketing, WWW, lead generation, controlled global coverage, co-marketing, seminar opportunities, joint press releases, and special marketing activities such as product launches and exposure at our user conference.

What is the process for integrating a third-party product with NewEra?

1. Evaluate the partner's product for points of integration. The best integration points are C- or C++-callable groups of functions.

2. Use the Class Library Integration Kit (documentation and CLIK Builder) to build integration with the product. The CLIK is a standard part of the NewEra for Windows documentation set, while the CLIK Builder is an automatic code generation tool designed to assist the class library developer in wrapping C++ code for use in the NewEra environment. A revision that incorporates both Windows and UNIX will ship in the fall.

3. Compile the class library into the NewEra application using the NewEra Application Builder.

4. Recompile class library upon new release of NewEra.

Class Library Screening Questionnaire

The following is an example of a screening mechanism used in evaluating a class library/technology recruit.

Account Manager: _____

Date: _____

Class Library Information Sheet

Name of Class Library Candidate / Product Name: _____

Type of Class Library:

_____

Company: _____

_____

_____

Contact: _____ Title: _____

Telephone: _____ Fax: _____

1. On what platform(s) are your products available?
   ☐ UNIX/Motif ☐ Win 3.1 ☐ Win 95 ☐ Win NT
   ☐ Other, specify: _____

2. What is the version number of the current product? Version #: _____

3. What OS & HW was the software first released on?

   _____

4. Does the software have an API? ☐ Yes ☐ No What is the API's language?
   ☐ C ☐ C++ ☐ OLE ☐ Visual Basic
   ☐ Other, specify: _____

5. If the software is available on other platforms, does it use the same API? ☐ Yes ☐ No
   If not, what?_____

6. Does the software support OLE automation? ☐ Yes ☐ No

   If yes, what type of OLE automation? ☐ OLE as client ☐ OLE as server
   If not, are plans for support of OLE automation? If so, when:

   _____

   If not, why?

   _____

8. Does any of your C++ code rely on function name overloading or operator overloading?
   ☐ Yes ☐ No

9. Does any of your software require VBX support? ☐ Yes ☐ No Describe:

   _____

10. Have you adapted your product to tie tightly with: ☐ PowerBuilder ☐ Gupta SQL Windows
    ☐ Oracle Forms/CDE or Power Objects ☐ Other App Development tool
    ☐ Other _____

11. Is your software ODBC compliant? ☐ Yes ☐ No

    Do you directly support ☐ OnLine ☐ SE ☐ Oracle ☐ Sybase ☐ MS SQL Server
    ☐ Other _____

12. Do any of your current customers also use Informix products?

    ☐ Tools ☐ Servers ☐ Both ☐ Other, specify _____

13. Who are some of your typical customers?

    _____

14. What other standards do you conform to/support? E.g., ☐ CORBA, ☐ OpenDOC, ☐ DCE
    ☐ Other _____

15. What kind of sales or distribution channels do you use for your product?

    _____

16. Do you sell outside the USA? ☐ Yes ☐ No

    Does the software support GLS or non-English equivalents? ☐ Yes ☐ No

    If so, into what geographies and in what languages?

    _____

17. If a NewEra class library was produced, what level of support can your company provide
    customers?

    ☐ Front line (1st tier) support ☐ 2nd tier support ☐ None ☐ All support

18. If a NewEra class library was produced, what level of sales involvement would you be
    interested in?

    ☐ Direct ☐ My own channels ☐ Informix only ☐ Partial mix w/ Informix
    ☐ Third-party distributors

19. If a NewEra class library was produced, what type of marketing assistance do you need
    and/or expect from us?

    _____

INFORMIX-NewEra

Questions and Answers

1.Market

1.1 Revenue and Licenses of NewEra

Q. What are the revenue and licensing figures for NewEra since it first started shipping?

A. Informix's overall tools revenue was $150 million in 1994, making Informix one of the largest tools companies in the world. According to IDC, Powersoft brings in approximately $180 million in tools, and Oracle about $340 million, without their application business.

The number of installed NewEra licenses worldwide is 15,000-18,000. Approximately 3,000 of those are development licenses. Considering that it took PowerBuilder two years to sell 10,000 licenses, that is a very respectable ramp-up.

2. Pricing

2.1 Runtime Pricing

Q. Informix competitors don't have runtime pricing. Is Informix going to continue to have runtime pricing? Why or why not?

A. While some Informix competitors do not charge runtime fees for Windows-based deployment, they frequently charge for UNIX-based deployment. Sybase and Oracle have also eliminated connectivity charges in many cases. Given our high-end product positioning and subsequent sales strategy, Informix will continue to charge for both Windows and UNIX runtime deployment.

2.2 Pricing Restructure

Q. Does Informix plan to lower/restructure NewEra pricing anytime soon?

A. Informix will continue to provide either bundled pricing or options-based pricing for customers' specific deployment needs. Options will include additional ODBC drivers, SE for Windows or Motif runtime, and character-based deployment (VCL for Character.)

2.3 Pricing for 2.0

Q. What does Informix plan to charge for the new features in NewEra v. 2.0?

A. We plan no change in pricing for base development and deployment. However, pricing and configurations for new features, such as Portfolio class libraries will be available at general availability in Q3.

3. Futures

3.1 Migration/Price Change/Windows 3.1

Q. Will NewEra 3.0 only support Windows 95? What will it take for 2.0 users to migrate to Windows 95? Will there be a price change for Windows 95 products? If customers want to stay on Windows 3.1, what can they expect?

A. NewEra 3.0 will only be available for Windows 95, not Windows 3.1. NewEra 2.0 users will need to recompile their applications for 3.0 to support Windows 95. There are no planned price changes for NewEra 3.0 users on Windows 95. If a NewEra customer wants to stay on Windows 3.1, Informix will continue to support them for the designated life cycle of the NewEra product. After version 3.0 is released, there may not be any added features to the 2.0 version, although it will continue to be supported and maintained by Informix.

3.2 Moving to Windows 95

Q. Why is Informix moving to the Windows 95 environment?

A. Informix believes that Windows 95 will be the computing platform of choice for corporate developers and end users.

3.3 Macintosh Clients

Q. Will Informix support Macintosh clients?

A. A Macintosh client platform is currently under investigation.

3.4 Platform Availability

Q. When will NewEra support other platforms like SCO, Unixware?

A. The primary development platforms are going to be Windows 3.1 and Windows 95, not Windows NT. For runtime, Informix's goal is to have the back end—the ability to run a partition on a server—on each platform where the database server is available. The priorities will be driven by customer needs. Back-end availability on additional servers (beyond the 2.0 releases planned on IBM, Sun, and HP) is planned after the 2.0 release.

3.5 Windows NT

Q. What are our plans for NewEra on Windows NT?

A. One of the requirements for Windows 95 compliance is that the product must "gracefully degrade" on Windows NT, which means that Windows 95 tools will work in the NT environment. Currently, Informix is reviewing plans to test and certify NewEra version 3.0 on NT. (Sales should continue to submit business cases for Windows NT development or deployment to Product Management.)

3.6 Windows for Workgroups

Q. Does NewEra support Windows for Workgroups?

A. In NewEra 1.x releases, this configuration is not officially tested and supported. However, the networking functionality in NewEra is provided by INFORMIX-NET and is considered compliant to Microsoft's Winsock 1.1 specifications. Windows for Workgroups will be tested and supported in the NewEra 2.0 release.

3.7 OpenDoc

Q. Will NewEra support OpenDoc?

A. There are no plans to support OpenDoc in NewEra. The strategic commitment is to Microsoft's OLE first. Other standards are being evaluated.

3.8 CORBA

Q. What plans, if any, does Informix have to support CORBA in NewEra?

A. Informix is investigating CORBA support, but there are no definite plans yet. Although CORBA is being assessed, NewEra currently supports access to legacy data through INFORMIX-Enterprise Gateway and INFORMIX-Gateway *with DRDA*.

3.9 OLE

Q. ***To what extent will Informix be providing linked and embedded object support in OLE ? What are our future plans in this area?***

A. NewEra 3.0 will act as an OLE container, supporting OLE embedded objects and enabling drag-and-drop between itself and other containers. Informix is supporting embedded objects instead of linked objects because linked objects imply a single user/single machine context for manipulation and storage on the local PC. Embedded objects, on the other hand, allow data to be stored in an RDBMS in the form of a Binary Large Object (BLOB).

Informix will support OLE Remote Automation Server with NewEra 3.0, and OLE Remote Automation Client in subsequent releases of NewEra.

3.10 Legacy Data/Applications

Q. ***Can NewEra be integrated with legacy applications and data? How?***

A. NewEra can be integrated with legacy data through INFORMIX-Enterprise Gateway and INFORMIX-Gateway *with DRDA*. Support to legacy applications may be possible through INFORMIX-DCE/NET now.

3.11 C++ Compilers

Q. ***Does/will NewEra support any C++ compilers other than Microsoft Visual C++ version 1.5?***

A. NewEra 2.0 will support Microsoft Visual C++ versions 1.5 or 2.0 in the Professional or Standard Edition. No support for others is planned.

4. Technology

4.1 Feature Content of NewEra 2.0

Q. ***What are the new features in NewEra v. 2.0?***

A. **Application Server Class Library** lets you implement a three-tiered client/server architecture where user interface logic resides on the client machine and the business logic resides either on a single server or across several server machines. ASCL supports both synchronous or time-saving asynchronous processing.

Application Framework Class Library provides a collection of predefined classes and objects, which will save time and effort by eliminating the need to build these objects.

Business Graphics Class Library can be used to incorporate state-of-the-art business graphics into a NewEra application, assisting end users in their data analysis and presentation needs.

Visual Object Reuse allows developers to save and reuse multiple visual components that work together to be as a single reusable object file, reducing development and maintenance time.

Multiple DLLs can be created, giving the developer the ability to reduce or minimize your application's runtime memory requirements. This enables large, enterprise applications to fit in the PC-based Windows environment.

Master/Detail relationships are automatically defined in the SuperTable, even those between multiple application windows.

Third-Party Class Libraries are available from our Software Tools Provider partners. For a full list, see Partners section.

Visual Class Library for Character allows deployment of NewEra applications in character environments. VCL for Character will be released in Q4 95.

4.2   Partitioning

4.2.1   Define Application Partitioning

Q.   *What is application partitioning?*

A.   Application partitioning is a means of storing some parts of an application (e.g., presentation logic) on the client side of the network, while other parts (e.g., business logic) are stored on the server side, allowing for more efficient runtime performance. While some tools provide application partitioning capabilities through the use of middleware and stored procedures, NewEra provides a homogeneous development environment on both the client and the server, simplifying partitioning for both development and maintenance.

The application server class library allows developers to take full advantage of a three-tiered client/server architecture, where the user interface logic resides on the client machine, the database logic exists on the main server, and the business logic resides on a separate application server either on a single server machine or distributed across several server machines. Three-tier partitioned applications not only save valuable CPU and memory resources on the end user's PC client, they also further improve application performance by reducing network overhead, which is not possible with a two-tier partitioned application.

For more information on this topic, please see the white paper entitled "Application Partitioning with INFORMIX-NewEra."

4.2.2   Application Partitioning in Phases

Q.   *How will Informix will be rolling out partitioning in phases?*

A.   By rolling out partitioning in phases, Informix gives customers the ability to partition applications today with NewEra 2.0, while planning valuable enhancements for later releases. NewEra version 3.0 and beyond will provide features that further automate the partitioning process, such as an object-based repository and various partitioning services.

4.2.3   Benefits of Partitioning

Q.   *What are the benefits of application partitioning?*

A.   NewEra 2.0 will allow a customer to partition a NewEra application and place the user interface logic on the client side, and business logic on the server side. By partitioning an application in this manner, a customer will be able to realize the following benefits:

1.   simplified development and maintenance by writing both client and server code with a single tool and in a single language;

2. increased runtime performance through the use of server resources for more efficient processing;

3. more efficient use of resources by placing business logic on its own application server, separate from the either the database or the user interface; and

4. lower deployment costs via smaller client footprint and reduced network traffic.

4.2.4 Competition's Claimed Application Partitioning

Q. *How does the competition's application partitioning differ from ours?*

A. Our partitioning capabilities are very similar to **Forte**, with the exception of certain graphical utilities to move objects back and forth between the client and the sever.

Oracle offers partitioning through their stored procedure language (PL/SQL). However, they are only moving their stored procedure language back and forth over the network. This approach does not allow the use of a separate application server (and hence is only two-tier), and is unproductive, since stored procedure languages are notoriously hard to debug and require a second language skill set among programmers. Consequently, training costs are increased and the development process becomes much more complex.

Sybase claims that PowerBuilder will provide OLE-based partitioning (another two-tier approach) in 1996. Until then, PowerBuilder developers must use a TP monitor and drop down to C to store their business logic on the server. Developers just can't work productively in such a complex environment. NewEra can do three-tier partitioning without a TP monitor and can do it in a single language.

4.2.5 NewEra and Stored Procedures

Q. *Does NewEra support stored procedures in addition to application partitioning?*

A. In order to provide the most flexibility for our customers, NewEra also supports stored procedures. Stored procedures can be used in either partitioned or unpartitioned applications. Some customers may choose stored procedures for processes that are tightly integrated with the server.

4.2.6 NewEra Network Protocols

Q. *What network protocol is supported for application partitioning?*

A. Technology taken from INFORMIX-NET performs the communication between NewEra partitions. Therefore, any protocols supported by INFORMIX-NET for Windows will be supported (i.e., TCP/IP and IPX/SPX).

4.2.7 Client Partition Access to Server Partition

Q. *How does a client partition access a server partition?*

A. The client partition accesses a server partition through NewEra events. These events are programmatic events that can be called asynchronously, with a POST statement, or synchronously, with a CALL statement, from the client.

4.2.8 Partitioning and Client Control

Q. *When accessing the server partition, is control given back to the client to perform other tasks?*

A. Access to the server can be obtained synchronously or asynchronously. If a client calls upon a server partition synchronously, it will then need to wait until the server completes the action, when control can then be returned to the client. If a client calls upon the server asynchronously (with a POST statement), control is returned to the client without waiting for the server to complete its task.

4.2.9 Syntax for Application Partitioning

Q. *Do I need to learn a new syntax to use application partitioning?*

A. No. No new syntax was introduced for the application partitioning feature. All the capabilities of application partitioning are achieved through the introduction of four new classes.

4.2.10 Communication between Application Partitions

Q. *Is the communication between application partitions RPC based?*

A. No. NewEra can execute a remote procedure call as well as send asynchronous messaging, but communication is not based on standard RPC mechanisms such as DCE RPC.

4.2.11 Motif Application Access to Application Server

Q. *Can my Motif NewEra application access a server partition?*

A. Motif NewEra client applications will be able to access a server partition in the 3.0 release. NewEra for Motif version 1.01 supports only server partitions but will be extended in future releases.

4.2.12 N-Tiered Architecture

Q. *Can a server partition call another server partition, i.e., can an n-tiered architecture be achieved?*

A. In the 3.0 release, the NewEra application server class library will support an n-tiered architecture. In the 2.0/1.01 release of NewEra, ASCL supports Windows client and UNIX server partitions that allow for a three-tiered architecture.

4.2.13 Client Partition Access to Database Server

Q. *Can the client partitions still access the database server directly or must I use a partitioned server?*

A. Yes, client partitions can continue to access the database server directly.

4.2.14 Application Server Partition Access to non-Informix DBMSs

Q. *Can application server partitions access non-Informix databases?*

A. Yes, application server partitions can access non-Informix databases through CCL/ODBC and ODBC drivers.

4.2.15 Purchases Needed to Implement ASCL

Q.   *What does the customer need to buy to implement ASCL?*

A.   Pricing and product configuration information will be announced near the FCS date.

4.2.16 Purchases Needed to Deploy Partitioned Applications

Q.   *What does the customer need to buy to deploy a partitioned application?*

A.   Pricing and product configuration information will be announced near the FCS date.

4.2.17 Application Partitioning in Versions

Q.   *When and in what version will application partitioning be released?*

A.   The application server class library for Windows clients will be released in NewEra 2.0 for Windows with support for server partitions in NewEra 1.01 for Motif. NewEra version 3.0 will support both client and server partitions on Motif.

4.2.18 Other Tools Access NewEra Application server partition

Q.   *Can another tool access a NewEra server partition?*

A.   In the 3.0 release, NewEra will support OLE Remote Automation Server, which allows any OLE-enabled client tool to access a NewEra server partition.

4.3   Repository

4.3.1   Repository Definition & Availability

Q.   *What is a "repository" and when will it be available?*

A.   A repository is a database that stores information needed to create an application. An application development repository stores metadata—the program definitions, objects, screen definitions, and the relationships between each of these entities. The repository will be available in NewEra version 3.0.

4.3.2   How the Repository Is Used in NewEra

Q.   *How will the repository be utilized in the NewEra development environment?*

A.   The purpose of the repository is to provide support for NewEra application development. Other development environments have tried to do too much with repositories and have failed. Informix concentrated on the developer's need for high performance in a repository and chose an object database to enable very fast retrieval of metadata. By utilizing the repository for a narrow range of tasks, NewEra does not run into the limitations typical of object databases.

Oracle is using their own relational technology as a repository, which is poorly suited for object storage and retrieval. **Powersoft** will probably use Watcom or Sybase for that purpose, which has similar limitations to that of Oracle's approach. **Forte** uses Objectivity (for VMS only) and Gemstone servers for repositories.

4.3.3 Using Versant

Q. *Why is Informix using Versant in NewEra?*

A. Informix looked at the application developer's need for speed in repository storage and retrieval, and knew that performance was key to success. Using an object database like Versant as a repository enables very fast retrieval of metadata, as opposed to a relational database, which is not designed for handling objects. Versant was chosen specifically for its performance in benchmarks on storage and retrieval of objects.

4.3.4 Reliance on Versant

Q. *Is Informix concerned about relying on Versant for the repository in NewEra?*

A. Access to the underlying Versant database is transparent to the user. Consequently, Informix can substitute an alternative database for Versant without any disruption to the customer.

4.3.5 Other Applications Suitable for Object Database

Q. *Why aren't other types of applications suitable for an object database?*

A. Very specialized applications with complex data types (e.g., computer aided design tools and telecom network management systems) are good candidates for object databases, since the strength of an object database is its ability to handle the storage and retrieval of complex information. However, they are lacking a lot of very important features common in the relational database world: recovery, backup, loading, and concurrency controls—which makes putting mainstream applications on object databases unrealistic.

4.4 VCL for Character

4.4.1 Availability of VCL for Character

Q. *When will VCL for Character be available?*

A. VCL for Character will be available in a controlled release in Q4 95. Requests for the release will be handled through Product Management.

4.4.2 How VCL for Character Works

Q. *How will VCL for Character work?*

A. The Visual Class Library for Character will allow NewEra applications developed in a graphical environment to be deployed in a character terminal environment under the UNIX operating system, as long as the development system is Motif-based and is a supported NewEra configuration (Sun, HP, and IBM today, and SCO at a later date). Once the developer has finished the application source code and adapted it to follow some simple user interface guidelines, the developer chooses either character or graphical deployment in the application builder.

4.4.3 Character Terminals Supported

Q. *What terminals are supported by the VCL for Character?*

A. Over 100 terminal models from over 40 vendors are supported with the VCL for Character. A complete list of the initially supported terminals will be made available to the sales force and will be included in the documentation.

4.4.4 Motif and Character

Q. *Can one NewEra program run on both a Motif workstation and a character terminal?*

A. *A compiled program cannot run on both* a Motif workstation and a character terminal. A C-code compiled NewEra application for a Motif and Character deployment would require two (2) executables. NewEra source would either be compiled for character deployment or for GUI deployment.

An interpreted program can run on both a Motif workstation and a character terminal. The developer would create a custom runner for the character application. Therefore, the developer would have one program that uses a custom runner for character deployment and one runner for a Motif deployment.

4.4.5 Partitioned VCL for Character

Q. *Can I have a partitioned NewEra character application?*

A. No. A partitioned NewEra character application requires a UNIX client. The initial release of the application server class library does not support UNIX clients. This is the same behavior that is found in the NewEra Motif product. Later UNIX releases will support a partitioned client.

4.4.6 4GL to Character NewEra

Q. *What is involved when a customer wants to move from INFORMIX-4GL to NewEra VCL for Character deployment?*

A. Starting with a graphical screen in the Window Painter, some changes are necessary to prepare it for compilation to character. The developer will probably want to adapt the screen beyond the minimum required to compile to character. One code set is possible but not recommended since GUI and character version users' needs and expectations should be assessed and one code set cannot maximize usability for both deployment options. Then, the developer chooses character deployment compilation in the application builder screen.

4.4.7 No Character Environment Development

Q. *Can I develop a NewEra character application in a character environment?*

A. No. A developer can only create VCL for Character applications by using NewEra for Motif.

4.4.8 Preview of Character Screen

Q. *Can I see a character equivalent of the graphical window before I compile my application?*

A. No. The developer must compile the application before previewing a character representation.

4.4.9 VCL for Character Platforms

Q. *On which platforms will the VCL for Character be available?*

A. The VCL for Character will be initially available on the same platforms as the NewEra Motif product (Sun, HP, and IBM today, and SCO in Q1 1996.)

4.5 Business Graphics Class Library

Q. *When will we have a business graphics class library for NewEra for Motif?*

A. There are currently no plans to port the business graphics class library code to the UNIX/ Motif platform. Product Management will monitor customer demand for this product and perhaps revisit this strategy at a future time. In the meantime, you are always welcome to submit your business case for this port to Michael Barber.

However, a Software Tools Provider class library will be completed Q4 95 that provides business graphics capabilities on UNIX/Motif platforms. It is the GRAFSMAN product from Soft-tek. Please refer to the *INFORMIX-NewEra Class Library and Development Tools Solutions Guide* for more information.

4.6 Content of NewEra for Motif v. 1.01

Q. *What is in NewEra for Motif v. 1.01?*

A. NewEra for Motif v. 1.01 adds only the ability to partition applications to Motif v. 1.0. No other features from either 1.1 or 2.0 are included in this release.

4.7 VBX

Q. *Will NewEra support Visual Basic VBXs?*

A. VBXs will not be supported in NewEra. VBXs are 16-bit controls that will be superseded by 32-bit OCX controls. OCX custom controls support is targeted for Window Painter and runtime after the 3.0 version of NewEra.

4.7.1 OCX Definition

Q. *What is OCX?*

A. OCX is the term used for OLE controls. These are 32-bit controls that are based on a superset of OLE automation. They are a language-independent function-based replacement for VBXs.

4.7.2 VBX Definition

Q. *What is VBX?*

A. VBX is the term used for Visual Basic Controls. These are 16-bit Windows custom controls adapted to Visual Basic.

4.7.3 OLE Linking of Objects

Q. Why doesn't our OLE support include linking of objects?

A. The concept of linking is not applicable in a multiuser database application. Linked objects imply a single-user, single-machine context for manipulation and storage on the local PC, which is not the aim of a multiuser database application.

4.7.4 OLE Version

Q. Are we implementing OLE 2.0 or 1.0?

A. OLE 2.0.

4.7.5 Wingz/HyperScript

Q. Will there be a Wingz or HyperScript class library to allow current users to upgrade to NewEra?

A. There are no plans for a Wingz or HyperScript tools class library in NewEra, although there are plans for a business graphics class library in the 2.0 release. There are no plans to provide an upgrade from Wingz or HyperScript to the NewEra business graphics class library.

4.8 Wingz Data Regression in NewEra

Q. Does NewEra provide the same data regression and analysis features as Wingz? If it doesn't, will it?

A. There are no plans to include this part of HyperScript/Wingz as a class library in NewEra. A customer will have the capability to perform regression analysis in Microsoft Excel by using OLE automation with the planned 3.0 release of NewEra.

4.9 Application Framework

4.9.1 Definition and Availability of Application Framework

Q. What is the application framework class library and when will it be available in NewEra?

A. The application framework class library boosts application developer productivity by providing a collection of 80 predefined application building blocks or classes. The application framework is a Standard class library included in NewEra 2.0.

Application framework classes include:

Window Application	Auto Report	Internationalization Message Box
Internationalization	Help	Hidden SuperTable
Comments	Menu	Displayed SuperTable
Action States	Status Bar	Window Management
Database Interaction	QBE	Button & Control Bar
Error Handling	Security	Navigation Widgets
Notes Management	Preferences	Mini Browser/List Browser
About...Box	3D Labels	Tabs
Zoom on a Column		

4.9.2 Application Framework and Motif

Q. Is the application framework available in NewEra for Motif?

A. The application framework class library will be included in NewEra for Motif 3.0.

4.9.3 Viewing the Application Framework in Window Painter

Q. Can I use the application framework visually in the Window Painter?

A. The Window Painter will not reflect the visual representation of the application framework class library for the 2.0 release.

4.10 Multiple Connections to Databases

Q. Does NewEra have multiple database connections capability within an application?

A. Yes, provided the RDBMS is supported by INFORMIX-NET to Informix databases or ODBC drivers to Oracle and Sybase. Legacy data can be reached through our Gateway products (INFORMIX-Enterprise Gateway and INFORMIX-Gateway *with DRDA.*)

4.11 Global Language Support

Q. Will NewEra provide support for large variable-length language characters such as Chinese, Korean, etc?

A. Double-byte characters will be supported in NewEra under Global Language Support (GLS). GLS will be phased in with future releases. Efforts will first be focused on runtime requirements, then on development. With runtime support, development tools support English but runtime programs retrieve, display, and manipulate multibyte characters.

4.12 Object Orientation in NewEra

Q. What types of extensions/capabilities to 4GL make NewEra object-oriented?

A. Polymorphism, encapsulation, and (single) inheritance. These capabilities are what make applications object-oriented.

5. Class Libraries/Partners

5.1 How Will Informix Bring in More Class Libraries?

Q. How does Informix intend to bring in more top-tier class library partners/enablers?

A. Informix already has an extensive line of third-party class library partners and enablers who are supported by our Software Tools Provider Program. Some of these partners include Cadre, Excalibur, Lenel, and LBMS, who are very well known in the industry.

All of our class library partners are members of our Software Tools Provider Program and can take advantage of our marketing programs, which include: World Wide Web visibility, lead generation, global visibility, co-marketing, seminar opportunities, and joint press releases, as well as specialized marketing activities such as product launches and the NewEra pavilion at the user conference.

With the proven success of NewEra, which has been enabled in part by our existing partners, Informix will continue to expand the number of partners and available class libraries. Informix continues to rely on customer feedback to identify partners to recruit.

5.2   List of Class Libraries

Q.   Is there a list of class libraries or tools that work with NewEra?

A.   The *INFORMIX-NewEra Class Libraries and Development Tools Solutions Guide* will be available at the Informix Worldwide User Conference. It lists NewEra class library partners, technology partners, and consultants who work with NewEra and will be available at the Informix Worldwide User Conference. (See Class Library/Partner Participation Chart)

5.3   How Are Class Libraries Sold?

Q.   How are the various types of class libraries sold?

A.   There are three categories of class libraries: Standard, Portfolio, and Software Tools Provider.

Standard class libraries are included with every product shipped and supported by Informix. These class libraries are key to the integrity of the product (e.g., visual class library, connectivity class library) or add critical functionality (e.g., business graphics class library or application framework class library). They may be developed by Informix or a third party.

Portfolio class libraries are sold and supported by Informix. They are options to NewEra (e.g., VCL for Character). They may be developed by Informix or a third party.

Software Tools Provider class libraries are developed, sold, and supported by third parties. They are an extension of our very successful Informix Partner Program. Informix has built relationships with over 300 partners to date in our Software Tools Provider Program.

6.   Partners Other than Class Libraries

6.1   Transaction Monitors

Q.   When will NewEra support transaction monitors?

A.   Product Management and Development is assessing the resource requirements to support Transarc's Encina and other TP monitors. Because of NewEra's architecture, this TP monitor functionality will be partially implemented as a class library, allowing it to become available upon completion. The implementation also allows customers to easily migrate from application server class library to their chosen TP monitor for application partitioning. The TP monitor is purchased directly from the TP monitor company.

6.2   CASE

Q.   Does NewEra have CASE integration capability?

A.   Cadre created a version of their Westmount OMT, which generates NewEra application code. ObjectTeam for OMT version 3.1 works with NewEra and is available now. ObjectTeam for OMT version 4.0 will be available sometime in Q4 95.

NewEra provides excellent support for the construction and testing phases of application development, and through strategic partnerships, provides additional CASE integration. Partnerships will provide a variety of tools across Windows and UNIX platforms so that our customers can choose whichever product makes the best business sense for them.

7. Press Review of NewEra

Q. *When will the press be able to review the product?*

A. NewEra 2.0 will be available for press review when the product is in general availability, scheduled for August 1995. At that time Informix will have a complete review program available to review editors, consisting of a NewEra reviewers' guide, on-site orientation given to editors about Informix and NewEra, and a technical support contact. Minor bug fixes will be made during this initial release time frame.

8. Beta Customers

Q. *Where are the beta customers for NewEra 2.0?*

A. Informix has profiles of customers for all versions of the NewEra product. NewEra 2.0 customers are currently in an intense on-site testing program and will be available to press after completing the program.

9. Materials

Q. *What materials will be available to the sales force and when will they be available?*

A. The following materials are listed with their availability status:

White Paper: Migration Planning	Orderable
White Paper: Team Development	Orderable
White Paper: Partitioned Applications	Orderable
White Paper: Deploying Character Applications	Orderable
White Paper: OLE Integration	TBD
Tech Brief for INFORMIX-NewEra 1.1	Orderable
Tech Brief for INFORMIX-NewEra 2.0	Orderable
NewEra 2.0 Technical Presentation	
In Fox /home/mktg/launch/newera/drafts	Orderable
Application Development Trends Presentation	
In Fox /home/mktg/launch/newera/drafts	Orderable
Modules to Be Used with the Above Presentations	
Customer Module	Orderable
Industry Module - Industry info in the Sales Kit	Canceled
Class Library Module	Orderable

10. Demo

Q. *When will the IWUC demo be available to the field?*

A. A demo created for IWUC will be rolled out to the field with a script highlighting the product benefits exhibited in the demo. The demo will be delivered via Fox in the /home/mktg/launch/newera/demos directory and, for those with limited Fox access, via diskettes.

INFORMIX-NewEra
Appendices

INFORMIX-NewEra

Class Libraries & Development Tools Solutions

Introduction

As a next-generation application development tool, NewEra gives you the freedom to concentrate on bigger, more important aspects of your business instead of spending time re-creating every piece of your application from scratch. How? Using NewEra class libraries, you can easily incorporate the features you want, when and where you need them—even modify original functionality—without having to write huge amounts of code or redesign existing applications.

This catalog introduces class libraries and tools offered by Informix and Informix InSync partners. The third-party class libraries can add both vertical and horizontal functionality to your NewEra applications, while the tools will simplify your development efforts. When you use class libraries and tools, you not only make the most of your investment in NewEra, you also use your programming resources most effectively.

Table of Contents

Class Libraries

Tools

Consultants

American NETRONIC, Inc.

VARCHART 3.2

VARCHART is an INFORMIX-NewEra class library for enabling quality graphical business solutions. It allows NewEra application developers to add Gantt Chart, networks, or tree structure functionality.

Product Features

- Enables direct on-screen manipulation of graphical objects

- Provides multiple highlights and layout options

- Easy printing

- Basic scheduling algorithm

Company Profile

NETRONIC Software develops and maintains software for use in graphically depicting business activities. The company, founded in 1975, is privately held. NETRONIC employs over 50 people throughout its distribution channel.

Platforms Supported	*Availability*
Windows	Call for ship date
Windows 95	Q4 1995
Sun, HP, IBM®, OS/2	Now

Package

5 floppy disks, user's guide, tutorial, sample code.

Training

Full range of training on-site or at our site, Europe: Germany, U.S.: Newport Beach. Best implementations when purchased with 1-2 weeks specialized consulting @ $125.00 per day.

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Autodesk, Inc.

HOOPS Graphics System 4.1

The HOOPS Graphics System enables INFORMIX-NewEra applications to display and interact with 2D and 3D objects in industry-standard DWH and DXF CAD files. 3D objects may be rotated, translated, and scaled. They may be viewed using pan, zoom, dolly, and orbit. The selection of an object may also be specified on the vertex, face, edge, single pick, pick by rectangular area, pick by crossing polyline, and pick by enclosing polygon.

Product Features

- File compatibility is assured
- Optimized 3D performance

Company Profile

Autodesk, Inc., founded in 1980, is a publicly held company with 1,700 employees and annual sales revenues of $500 million. Autodesk OEM Sales provides developers software components for enabling 3D visualization and for parsing Autodesk CAD file formats, DWG and DXF.

Platforms Supported	Availability
Windows	Call for ship date
Windows 95	Call for ship date
Sun, HP, IBM	Q4 1995

Package

CD with object code, sample application source code, CAD files, on-line HIML documentation, printed documentation.

Training

Autodesk OEM Sales provides consulting services from basic introductory courses for the HOOPS API to custom design and architecture work with customers. Training can be given at a customer site or in California.

Sales Contact Information

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See North America Contact

Asia/Pacific Contact:

See North America Contact

Soft-tek International, Inc.

GRAFSMAN 4.0

GRAFSMAN 4.0 is a full-featured class library that graphically enables INFORMIX-NewEra applications. With GRAFSMAN, NewEra applications have the ability to graphically represent datasets of unlimited size in a wide variety of chart types, including multichart graphics. Users have extensive display options including selection of colors, fill patterns, line styles, colored borders and backgrounds, and the ability to rotate text and add boxes, lines, and symbols.

Product Features

- Supports both Windows and UNIX®
- Offers hard copy support for a wide variety of printers

Company Profile

Soft-tek International, Inc., founded in 1990, develops business graphics tools for the application developer, making it easy to include graphical representations of data in NewEra applications. The company's flagship product, GRAFSMAN, is used to display any data being collected in a graphical format.

Platforms Supported	Availability
Windows	Q4 1995
Windows 95	Q4 1995
Sun, HP, IBM	Q4 1995

Quotes

"Soft-tek International, Inc. has recognized the importance of NewEra in today's application development market and is committed to providing graphics tools of the same high quality and functionality as NewEra."

Michael Christensen, VP Soft-tek

Package

The GRAFSMAN Development Packages includes software on floppy disk, manuals, and programming examples. The UI module lets users design charts to be used within their NewEra applications.

Training

Soft-tek maintains a support forum on CompuServe in addition to offering unlimited phone support to those customers with support agreements in place.

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See North America Contact

European Contact:
See North America Contact

Asia/Pacific Contact:
See North America Contact

Character Terminal Display

Informix Software, Inc.

VCL for Character

The VCL for Character is a runtime library that enables deployment of NewEra applications in UNIX terminal environments. Developers create their NewEra character applications in graphical mode using the Window Painter. All graphical widgets are translated into a character equivalent. The VCL for Character runtime library is then linked into applications using new options in the Application Builder.

Product Features
 • Enables NewEra application deployment in both Motif and text terminal environments using one source code stream

Company Profile

Informix Software is the leading supplier of high-performance, parallel processing database technology for open systems. Informix products also include application development tools for creating client/server production applications, decision-support systems and ad-hoc query interfaces, and connectivity software that allows information to be shared transparently from PCs to mainframes within the corporate computing environment.

Platforms Supported	*Availability*
HP, IBM, Sun, SCO	Call for ship date

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Optical Technology Group
Application Extender 2.7
Object Utilities 1.1

The OTG class library adds imaging support functionality to INFORMIX-NewEra applications. Application Extender allows developers to manage objects such as black-and-white, grayscale, and color images; OLE objects; sound; and video. Any object can be scanned, stored, retrieved, mailed, printed, and faxed.

Object Utilities adds enhancement and document imaging correction including image scanning and clean-up, line removal, skew correction, binary and file format conversion, reduction, highlighting, and redlining.

Product Features

- Application generation
- Multiple object support
- Multiple interface support

Company Profile
Optical Technology Group is a privately held software manufacturing company founded in 1992. OTG develops Windows object/imaging and Windows NT storage management software. The company provides solutions for domestic and international sales and partner channels specializing in imaging products.

Platforms Supported	Availability
Application Extender 2.7	
Windows	Q4 1995
Object Utilities 1.1	
Windows	Q4 1995

Quotes

"Our products offer dynamic image and object support for extending our database applications and development toolset, seamlessly linking existing applications to provide value-added object extensions."

    John F. Salimbene, VP Sales & Marketing

Package
Diskette, installation manual.

Training
Training and support are handled out of our headquarters in Bethesda, Maryland. Additional training is supported out of Phoenix, Arizona. International accounts are handled out of our partner locations.

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Staffware plc

Staffware 2.0.i for Windows
Staffware 5.1.i for UNIX/Motif

The Staffware class library provides an open interface for NewEra developers to utilize
Staffware's workflow engine, giving them the ability to automate their business processes for
workflow environments. Paper-intensive businesses, such as insurance claims processing, would
benefit greatly with a workflow methodology that dictates how claims are routed from one person
to another for processing. With the Staffware class library, NewEra developers can control these
information processes.

Product Features

- Supports configurable deadlines and conditional routing of information
- Integrates with databases, images, text processing, and e-mail
- Built-in report writer
- Supports workflow sectors: high-volume production, collaborative processes, and work
  management

Company Profile

Staffware is a leading independent workflow automation system, authored and distributed by Staffware plc. A pioneer of computer-based workflow, the company began researching workflow in 1984, releasing the first version of Staffware in 1987. With sales of $10 million in 1994, the company now employs over 60 people in 7 countries and has a reseller partner channel of over 120 companies in 30 countries.

Platforms Supported	*Availability*
Windows	Q3 1995
Windows 95	Q3 1995
Sun, HP, IBM	Q3 1995

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TMS, Inc.

ViewDirector/NewEra 1.0

ViewDirector/NewEra 1.0 enables NewEra applications with scanning and imaging functionality. ViewDirector/NewEra 1.0 is a set of class libraries featuring scanner drivers, imaging compression and decompression, and image manipulation for TIFF group 4 images and other industry-standard file formats (i.e., pan, zoom, rotate, annotate, redline, image enhancement algorithms, print).

Product Features

* Built-in INFORMIX-NewEra Windows user interface featuring an intelligent window for displaying and manipulating images

Company Profile

TMS, Inc. designs, develops, and markets software tools, applications, and services for imaging and CD-ROM publishing. System integrators, VARs, and corporate developers create applications using products that include image-enabled databases, document imaging systems, paperless workflow applications, and CD-ROM publishing.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Call for ship date

Package

Documentation, 10 runtimes, source code to sample applications.

Training

Training is available @ $750.00 a day per person.

Quotes

"We choose to support INFORMIX-NewEra as a class library vendor because, as companies re-engineer their IT systems, many want to image-enable database applications. We also believe that higher level tools such as NewEra and class libraries are the future of software application development."

Gail Bower, VP Marketing, TMS

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Multimedia

Lenel Systems International

MediaDeveloper™ 2.1 for NewEra

MediaDeveloper for INFORMIX-NewEra is a set of reusable multimedia object class libraries and software components that enable NewEra developers to create applications with video, graphics, and audio capabilities.

Product Features

- True client/server OLE automation local server engine operates in a separate address space from the clients

- Component architecture's single, comprehensive API provides a consistent interface accessible to all levels of programmers

- Database links for any multimedia object—graphics, video, animation, and audio—handles access, conversion, and playback

- Features thumbnailing, JPEG compression, file conversion, scaling, continuous plan, and media segmentation

- Supports multimedia industry standards including MPEG

- Allows developers unique device control and video capture capabilities from videotapes, videodiscs, and camcorder devices

Company Profile

Lenel Systems International, Inc. is a privately held company founded in 1990. Lenel develops and markets high-performance, affordable imaging and multimedia technologies used by commercial, government, educational, institutional, and home users. Lenel's product line includes advanced authoring and development tools, custom-written applications, and integration services.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Now

Quotes

"A developer can spend a great deal of time and money acquiring an arsenal of tools to develop a full-fledged multimedia application. Lenel Systems offers a single solution called MediaDeveloper. MediaDeveloper is an excellent choice for professional multimedia development."

Jonathan Waldman, Contributing Editor

"MediaDeveloper automates procedures that would have taken literally hundreds of hours to do manually. It significantly enhances the application with very little effort."

Kate Dressen, Technical Design Manager

Package

MediaDeveloper for NewEra, application software on 3.5" diskettes, illustrated manual, sample files.

Training

Technical support is provided by telephone, fax, CompuServe, and BBS.

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See North America Contact

European Contact:
See North America Contact

Asia/Pacific Contact:
See North America Contact

Crystal Services, Inc.

Class Library: Report Writer

Product Features

- Flexible architecture

- Enhanced graphics

- Powerful built-in export capabilities (Lotus, Excel, Word, .rpt, etc.)

- Fully integrated e-mail

Company Profile

Crystal Services, Inc. is a third-party partner that provides a Report Writer Class Library for INFORMIX-NewEra. Crystal Services' class library provides NewEra applications with the ability to create presentation-quality reports from Informix databases via ODBC. The class library encapsulates Crystal Report's powerful print engine, which allows users to easily generate reports incorporating graphs, images, and OLE 2.0 objects.

Platforms Supported	*Availability*
Windows	Q3 1995
Windows 95	Q3 1995

Quotes

"Crystal recognizes NewEra's strategic development platform for integrating Informix applications and is excited by providing state-of-the-art reporting technology closely integrated with NewEra."

Mark Sochan, Director of Strategic Relations

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Mark Sochan, Director of Strategic Relations

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MITI

SQR3 Workbench

SQR Workbench is an enterprise production client/server report writer. SQR3 Workbench for INFORMIX-NewEra offers Informix developers the ability to easily and seamlessly integrate an SQR report program into a NewEra application. From a NewEra form, an end user can select an SQR report to run, either from a menu or icon, enter runtime parameters for the report, and submit it to execute on either the client or server. The entire SQR reporting process is transparent to the end user, and appears as a normal part of the NewEra application.

Product Features

- Supports tabular report types, cross tab, nested control break, master-detail reports, preprinted forms, mailing labels, and form letters

- Incorporates business graphics such as charts, graphs, bar codes, logos, and signatures

- Reports are executable on either the client or the server

- Can generate reports from millions of records of data

- Multiple reports can be produced from a single pass through the database

- Can access, consolidate, and distribute information across multiple servers and platforms

Company Profile

MITI is a privately held software company founded in 1985. MITI specializes in information retrieval and dissemination tools for relational database management systems. MITI has grown by more than 500 percent over the last three years and continues to rapidly expand its national and international distribution network.

Platforms Supported	Availability
Windows	Q3 1995
Windows 95	Q1 1995
HP, IBM, Sun	Q3 1995

Quotes

"Having SQR3 Workbench available for INFORMIX-OnLine and INFORMIX-NewEra is important to the MITI mission of being the leading production report writer solution for the enterprise market. Since the introduction of On-Line 7.1 Dynamic Scalable Architecture (DSA), Informix is emerging as the database solution of choice for large enterprises. SQR3 Workbench strongly complements INFORMIX-OnLine 7.1 and its suite of enterprise development tools, including NewEra."

Ofir Kedar, President

"MITI decided to offer SQR3 Workbench as a NewEra class library in order to create a total solution for developers building mission-critical enterprise applications. The NewEra class library strategy for integrating third-party solutions allows MITI to easily provide Informix customers with the ability to quickly incorporate complex, high-volume client- or server-based reports into their NewEra applications."

Steve Gross, Director of Business Development

Package

Diskette with software & installation programs, user documentation, sample programs & files.

Training

MITI offers full technical support, training, education, and consulting services through its Technology Transfer Group. MITI is also developing a worldwide network of certified education and consulting partners.

Customer References

Sequent Computer Systems, Inc.

Jeff Maurer, Staff Analyst

"SQR lets me do things that couldn't be done at all with any report writer, like writing nested procedures, each with their own SQL statement. Whenever I have a project that's extremely complex, I always choose SQR."

INTELSAT

Dr. James Rader, Project Manager

"Looking at the life cycle of a program from analysis to maintenance, SQR represents a 10-1 savings. SQR has a big edge over all the competition — it lets you be a hero."

Portland Community College

Ray Grant, Director of Information Services

"We had a backing of 200 programming requests that would have taken us months to finish. Using SQR, we did the work in a matter of hours."

Sales Contact Information

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Steve Gross, Director of Business Development

MITI

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Asia/Pacific Contact:
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Rules-Based Programming

ILOG, Inc.

ILOG Rules 2.0

ILOG Rules is a C++ software component designed to add rules-based modules to INFORMIX-NewEra applications—enabling development of real-time monitoring applications that integrate with legacy code. ILOG Rules is an extension of C++ for rules-based programming. Rules apply directly on the native objects of the target application.

Product Features

- High performance for time-critical applications including network monitoring, process control, traffic monitoring, and trading systems

Company Profile

ILOG provides advanced C++ components, so developers can work at higher levels of abstraction to rapidly solve real-world problems. ILOG's array of high-performance components can be embedded to enable distributed applications, add intelligence to applications, and define and resolve resource allocation and scheduling problems.

Platforms Supported	Availability
Windows	Q3 1995
Windows 95	Call for ship date
HP, IBM, Sun	Q3 1995

Quotes

"As a software development tool provider, ILOG is committed to putting power in the hands of the programmer. The Informix Dynamic Scalable Architecture and, in particular, its core internal parallelism, provides a powerful complement to our tools."
Wendy Shaw, Channel Marketing Manager

Package

Media, access keys, manuals and installation notes, examples and sample files.

Training

ILOG offers training at our facilities across the U.S. once each month, as well as on-site training by arrangement. Our Paris, France office offers regular training in English as well. Maintenance is purchased on an annual basis, and includes hot-line and e-mail support.

Text Retrieval

Excalibur Technologies Corporation

Excalibur TRL™

The Excalibur TRL Text Retrieval Library for INFORMIX-NewEra delivers Adaptive Pattern Recognition Processing (APRP™) advantages to applications that require full-text indexing and retrieval. Excalibur TRL gives integrators and developers the ability to build NewEra applications that automatically index text data, to let people easily and quickly search the contents of unstructured, full-text data using fault tolerant, natural language fuzzy searching. TRL also provides an extensive set of traditional text search functions, including keyword, Boolean, phrase, and proximity searching.

Product Features

- Small index overhead

- Extensible, scalable architecture

- International language support

- An efficient programming environment

Company Profile

Utilizing a breakthrough technology called Adaptive Pattern Recognition Processing, or APRP, Excalibur's line of retrieval software can provide direct access to the native content of digital media, regardless of data type. APRP is modeled from research on the way biological systems use neural networks to process information. Currently, users at more than 600 corporate and government sites around the world are benefiting from the power of pattern recognition with Excalibur Text Retrieval Software products. Excalibur's products are supported by a network of over 130 reseller and distributor partners with offices worldwide.

Platforms Supported	*Availability*
Sun, HP, IBM	Q4 1995

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Analysis, Design, and Methodology

Cadre Technologies, Inc.

ObjectTeam for OMT

ObjectTeam for OMT provides a comprehensive object-oriented software development environment. It helps you model, program, compile, run, and test object-oriented applications. The code generators within the ObjectTeam for OMT environment are tuned to generate INFORMIX-NewEra code and database creation scripts.

Product Features

- Full life-cycle support
- Centralized multiuser repository with integrated version and configuration management
- Code reuse
- INFORMIX-NewEra code generation
- ESQL generation
- C++ class library integration
- Documentation generation

Company Profile

Cadre Technologies, founded in 1982, is a privately held company. Cadre develops and markets products to help manage key aspects of software development, including functional specification, analysis, design, and construction through reuse, reverse engineering, and testing. Cadre's tools offer comprehensive support for object-oriented and structured methods approaches.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Call for ship date
Sun, HP, IBM	Now

Package

Depending on order: floppy disk/CD ROM, on-line documentation or hard copy, installation instructions, models.

Training

Cadre provides a comprehensive training schedule worldwide. Cadre has a distributing channel to provide immediate and comprehensive technical support to customers worldwide.

Sales Contact Information

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Automated Testing

Mercury Interactive Corporation

WinRunner 3.5
XRunner 3.0

WinRunner and XRunner provide automated testing of GUI client applications. They test the application by operating it automatically, as though a human user were at the controls—with dramatically greater speed, accuracy, and repeatability.

Product Features

- Flexible verification
- Visual Testing
- SMARTest (Script Mapping for Adaptable and Reusable Tests)
- Supports NewEra objects

Company Profile

Mercury Interactive Corporation develops, markets, and supports a complete family of Automated Software Quality (ASQ) solutions that automate and manage testing and quality assurance for developers of client/server software and systems. The company's Enterprise Quality Architecture is the core of Mercury Interactive product line integration. It empowers corporate application developers, systems integrators, and independent software vendors to identify software errors more quickly and efficiently than with traditional methods, allowing for all aspects of client/server application deployment.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Call for ship date
Sun, IBM, HP	Now

Package

WinRunner: Floppy diskettes, TSL Reference Manual, Users Guide, TSL Quick Reference, Installation Guide, Reviewers Guide, Tutorial, Release Notes, and Keyboard Template. LoadRunner: Media. TSL Reference Manual, LoadRunner Users Guide, LoadRunner/x Users Guide, and Getting Started.

Training

Mercury Interactive's Product Training Program provides for public and on-site training on the most comprehensive set of Automated Software Quality tools from any single vendor. Courses are designed for use by corporate MIS managers and developers, independent programmers, Quality Assurance departments, and IS personnel. The professional training team presents and manages the delivery of standard and customized training courses. Its mission is to work closely with you to get you up to speed on Mercury Interactive's products. Mercury Interactive's comprehensive ASQ solutions make it possible to deploy client/server systems on time, within budget.

Press, Analyst, and Customer References

Rush Taggart, VP

Chemical Bank

> "Without Mercury's testing tools, we never could have completely tested our new trading floor before deployment. Using WinRunner and Xrunner, we were able to discover those hard-to-find problems and prove the facility worked long before we moved."

Peter Belina, VP

Lehman Brothers

> "Using LoadRunner/UX, we have been able to free support staff from many manual tasks and have the security of knowing that workstations are tested thoroughly and reliably."

Bob Gauthier, Consulting Systems Engineer

American Stores Company

> "Without WinRunner, I wouldn't have had any way to evaluate user response time under different loads because the product we've used in the past to do that is IBM's Teleprocessing Networking Simulator and that's only for SNA applications. For client/server, WinRunner is the only solution available. In fact, prior to contacting Mercury Interactive, we weren't even sure we'd be able to do a benchmark."

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PERFORMIX, Inc.

EMPOWER/CS 1.0
EMPOWER/X 4.0

EMPOWER load testing software creates scripts to represent actual users and their daily, often disparate, operations. EMPOWER captures user activities—including mouse strokes, mouse movements, and SQL requests—and creates emulation scripts. EMPOWER then arranges a mix of scripts to represent users on the system.

Product Features

- Employs simple, fast script development called script-and-go technology

Company Profile
PERFORMIX is a privately held company based in Virginia. The company is a pioneer in load testing software, the process of analyzing the effect of many users on an application. PERFORMIX was the first company to develop load testing software for X-Windows and the first company to release a client/server load testing product.

Platforms Supported	Availability
Windows	Now
Windows 95	Q4 1995
HP, IBM, Sun	Now

Package

Floppy diskette or tape as required, installation manual, user guide, reference guide.

Quotes

"Consumer demand drove us to create a version of EMPOWER/CS for NewEra users. It's a natural fit because many organizations are building large-scale, distributed, three-tier applications with Informix and NewEra. They need to make decisions about how to best deploy them for maximum performance and reliability. EMPOWER/CS is the decision-making tool for them."

Jeff Straathof, president of PERFORMIX

Press, Analyst, and Customer References

Ivan Ruzic, Director of Marketing

Novell TUXEDO Systems Division

"Performance fulfills a critical need in the marketplace, and we're thrilled EMPOWER/CS is now available to our customers. EMPOWER/CS is a load testing tool our customers can depend on to help them gauge the performance of and make intelligent decisions for their critical business applications. It's undoubtedly a best-of-breed solution."

Steve Hayes, President

Ligan Technologies

"Our customers are looking for superior products that test and measure quality and performance, and EMPOWER is the best load testing tool for their mission-critical applications."

Sales Contact Information

North America Contact:

PERFORMIX, Inc.

8200 Greensboro Drive

Suite 1475

McLean, Virginia 22102

703 448 6606

703 893 1939 (fax)

Latin America Contact:

See North America Contact

European Contact:

PERFORMIX Europe

The Atrium Court

Apex Plaza

Reading, Berkshire RG1 1AX

United Kingdom

44 (1734) 795016

44 (1734) 795017 (fax)

Asia/Pacific Contact:

See North America Contact

Segue Software, Inc.

QA Partner 3.0

QA Partner is a complete testing system for the creation, execution, and maintenance of robust, portable, maintainable automated tests. With QA Partner's unique object-oriented architecture, all facets of an INFORMIX-NewEra application's GUI are recognized, enabling robust test scripts.

Product Features

- Uses object-oriented scripting language and architecture
- Creates an object repository of GUI objects, including NewEra controls
- Scripts can execute unchanged across platforms

Company Profile

Segue Software, Inc., of Newton Centre, Massachusetts, was founded in 1988 to address the growing quality assurance problems faced by developers of GUI-based and client/server software. As one of the fastest growing automated software testing companies, Segue Software develops, markets, and supports the QA Partner™ line of testing products, enabling corporate and ISV developers to perform unattended, reusable testing across multiple releases, hardware platforms, and networks.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Now
Sun, HP, IBM	Now

Package

Complete product includes media (floppy or tape), manuals, examples, tutorial.

Training

Segue offers on-site and regional training courses in QA partner, fundamentals, and advanced topics.

Sales Contact Information
North America Contact:
Paul Maguire, VP Sales
Segue Software, Inc.
1320 Centre Street
Newton Centre, MA 02159
617 969 3771
617 969 4326 (fax)
Email: info@segue.com

Latin America Contact:
Phil Sasso, Director of International Sales
Segue Software, Inc.
1320 Centre Street
Newton Centre, MA 02159
617 969 3771
617 969 4326 (fax)
Email: info@segue.com

European Contact:
See Latin America Contact

Asia/Pacific Contact:
See Latin America Contact

SQA, Inc.

SQA Enterprise TestSuite™

SQA Enterprise TestSuite lets users create, analyze, and manage automated tests for enterprise-level Windows client/server applications. Based on a networked test repository, the SQA Enterprise TestSuite integrates a proven test methodology, test planning and creation, defect management, summary reporting and analysis, and network stress testing for INFORMIX-NewEra applications.

Product Features

- Intuitive look and feel

- Extensible script language

Company Profile

SQA, Inc. develops and markets SQA Enterprise TestSuite, automated testing tools of Windows client/server applications.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Call for ship date

Quotes

"SQA's strategy is to partner with companies offering leadership in their respective markets. We're pleased with our new strategic relationship with Informix. Our shared customers can combine Informix leadership in parallel database and development tools with SQA TeamTest to deliver high-quality mission-critical applications with confidence."

Ron Nordin, President and CEO of SQA

Package

Floppy disks, installation manuals, user guides, sample applications, and tutorials.

Training

SQA professional services offer the best in training and consulting focused on all aspects of automated testing, including a proven test methodology—using SQA tools. SQA's professional services can assist you in creating a world-class quality assurance organization.

Sales Contact Information

North America Contact:

William Dedrick, VP Sales

SQA, Inc.

10 State Street

Woburn, MA 01801

617 932 0110 X120

617 932 3280 (fax)

Email: bdedrick@sqa.com

Latin America Contact:

Roger Hodskins, VP, Enterprise Partners

SQA, Inc.

10 State Street

Woburn, MA 01801

617 932 0110 x 103

617 932 3280 (fax)

Email: roger@sqa.com

European Contact:

James Cluchey, VP and Managing Director of European Operations

SQA Europe, Ltd.

Asmec Centre,

Eagle House, The Ring

Bracknell, Berkshire RG42 1HB

United Kingdom

44 1344 382092

44 1344 303192 (fax)

Email: 76544.406@compuserve.com

Asia/Pacific Contact:

See Latin America Contact

Code Conversion

Informix Software, Inc.

CLIK Builder 2.0

The Class Library Integration Kit Builder (CLIK Builder) tool is based on the standards outlined in the Informix CLIK, distributed with NewEra. CLIK Builder is an automatic code conversion tool to allow class library developers and NewEra developers to quickly and easily convert and "wrap" standard C++ code for use in the NewEra development environment.

CLIK Builder reduces the amount of manual code generation, provides consistency in comments and naming conventions, reduces the learning curve of class library development and integration, provides an easy mechanism to leverage existing class library development, and, most importantly, allows the developer to focus on advanced concepts and value-added work.

Product Features

- Allows developers to maintain a large number of projects via MDI (Multiple Document Interface) look and feel

- Intuitive point-and-click graphical user interface (GUI) aids in the design process

- Allows novice and expert class library developers to quickly and easily convert, design, and build NewEra class libraries

- Special AutoRead function automatically reads a C++ class library header file, parses the appropriate information, converts it into the CLIK Builder project format, and generates a CLIK-based NewEra class

- Automatically converts existing code and allows developers to manually add or modify the code base or even to completely generate a NewEra class from scratch

- CLIK Builder class libraries easily check into the NewEra (3.0) Repository

Company Profile

Informix Software is the leading supplier of high-performance, parallel processing database technology for open systems. Informix products also include application development tools for creating client/server production applications, decision-support systems and ad-hoc query interfaces, and connectivity software that allows information to be shared transparently from PCs to mainframes within the corporate computing environment.

Platforms Supported	*Availability*
Windows	Q4 1995
Windows 95	Q1 1996

Sales Contact Information
North America Contact:
Informix Software, Inc.
4100 Bohannon Drive
Menlo Park, CA 94025
USA
415 926 6300
415 322 2805 (fax)
WWW: http://www.informix.com

Latin America Contact:
Informix Software, Inc.
6303 Blue Lagoon Drive
Suite 305
Miami, FL 33126
USA
305 265 7545
305 261 5980 (fax)
WWW: http://www.informix.com

European Contact:
Informix Software Ltd.
Informix House
Littleton Road
Ashford, Middlesex TW15 1TZ
United Kingdom
44 1784 422 000
44 1784 422 020 (fax)
WWW: http://www.informix.com

Asia/Pacific Contact:
Informix Asia/Pacific Ltd.
152 Beach Road
#05-00 Gateway East
Singapore 0718
65 298 1716
65 298 6221 (fax)
WWW: http://www.informix.com

Configuration Management

INTERSOLV, Inc.

PVCS Version Manager 5.2

PVCS Version Manager is a software configuration management tool enabling team development through check-in/check-out, reporting, visual file differencing, and branching and merging. Version Manager provides definition of releases and a mechanism for establishing a life cycle for code development.

Product Features

- Supports controlling and versioning of all types of development objects
- Works identically across a multitude of operating systems
- Integrates with over 50 development tools

Company Profile

INTERSOLV, Inc., founded in 1982, is a publicly held company that markets client/server development solutions for applications that must beat the competition to market yet scale their functionality to enterprise coverage—applications that must operate across heterogeneous platforms and access data housed throughout the organization. The company employs over 600 people and has annual revenues of over $100 million.

Platforms Supported	*Availability*
Windows	Now
Windows 95	Call for ship date
Sun, HP, IBM, OS/2	Now

Quotes

"PVCS enables us to standardize our approach to multiprogrammer development, resulting in lower learning curves and reusability across development projects. The power of PVCS is that it plays across multiple languages and operating systems."

Carol Hall, Supervisor of CSM

"PVCS is light years ahead of anyone else because of the fact that you can use their tool with a variety of languages & development suites."

Jeff Headley, First Union National Bank

Package

Floppy disks include product & guided tour, license diskette, manual set: user guide, command-line reference, installation guide, quick start, and license administration facility reference guide.

Training

Support is through PVCS Answerline—one group is domestic, another is in Great Britain. Free for 30 days, requires support contract thereafter. Training classes available from INTERSOLV domestically and by INTERSOLV and/or resellers internationally.

Sales Contact Information

North America Contact:
Michael Scally
INTERSOLV, Inc.
1700 NW 167th Place
Beaverton, OR 97006
800 547 7827
503 629 0186
Email: pvcsinfo@intersolv.com
WWW: http://www.intersolv.com

Latin America Contact:
Hans Bothmann
INTERSOLV, Inc.
Abbey View, Everard Close
St. Albans, Herts AL12PS
United Kingdom
44 1 727 812 812
44 1 727 869 804 (fax)
Email: hans_bothman@intersolv.com

European Contact:
Mark Carlile
INTERSOLV, Inc.
Abbey View, Everard Close
St Albans, Herts AL12PS
United Kingdom
44 1 727 812 812
44 1 727 869 804 (fax)
Email: mark_carlile@intersolv.com

Asia/Pacific Contact:
Dave Parker
INTERSOLV, Inc.
3200 Tower Oaks Blvd.
Rockville, MD 20852
301 230 3200
301 231 7813 (fax)
Email: dave_parker@intersolv.com

Systems Management

Novadigm, Inc.

Enterprise Desktop Manager Adapter

Enterprise Desktop Manager is an object-oriented configuration environment for automating the deployment and ongoing change management of distributed applications across enterprise desktops. The solution includes a management platform that is distributed across 15 platforms and a systems management suite that includes configuration, change, distribution, security, asset, and version management for the desktop. The EDM Adapter automatically deploys changes to INFORMIX-NewEra versions across desktops and servers.

Product Features

- Patent-pending client/server "differencing" process that dynamically discovers the current hardware and software contents on thousands of client desktops and matches them to authorized configuration models residing on a central server. Old or unauthorized application contents are removed; new or updated contents are automatically installed and enabled for user access.

Company Profile

Novadigm, Inc., founded in 1990, is a public company traded on the Vancouver Stock Exchange. Novadigm, Inc. provides enterprise-scale systems management solutions for large enterprise computing environments deploying new client/server systems across large numbers of user desktops.

Platforms Supported	Availability
Windows	Now
Windows 95	Call for ship date
HP, IBM, Sun	Now

Quotes

"We're interested in automating the enterprisewide deployment and management of client/server applications from the leading development environments."
Philip J. Myers, Vice President of Marketing

Services

The company provides comprehensive support services including 24x7 phone support, regional and on-site training, and systems integration services through both Novadigm consultants and a growing network of third-party EDM certified integrators.

Consultants

InfoSoft, Inc.

InfoSoft designs, develops, and implements custom INFORMIX-NewEra solutions.
InfoSoft specialty services in connection with NewEra are:

- Custom decision-support systems
- Up-sizing with client/server computing
- INFORMIX-4GL to NewEra migrations
- Integrating NewEra applications with other data sources and databases

Company Profile
InfoSoft, Inc., founded in 1992, is a privately held company based in Cupertino, CA.

Quotes
"We are committed to bringing the power of true database access with an easy-to-use interface to the desktop. With the release of SQ we are providing a powerful data access tool that allows any NewEra user to access any corporate database with very little effort."
        Chris Jones, President

North America Contact:

Federico G. Hubbard

InfoSoft, Inc.

10670 N. Tantau Ave.

Cupertino, CA 95014-0717

408 366 9545

408 366 1329 (fax)

Email: fred@infosoft.com

WWW: http://www.infosoft.com

NexGen SI

NexGen SI provides consulting services for Informix customers.

Company Profile

NexGen SI, founded in 1990, is a privately held company employing 160 consultants. NexGen SI specializes in Informix and toolsets.

Sales Contact Information

North America Contact:

Don Ganguly

NexGen SI

30 Corporate Park

Suite 410

Irvine, CA 92214

714 476 4097 x322

714 476 0201 (fax)

Asia/Pacific Contact:

Kanu Mody

NexGen SI

Unit 149

SDF-Y

Bombay - 400103

India

91 22 821 4176

91 22 836 1002 (fax)

Email: nexgen@shakti.ncst.ernet.in

Real X, Inc.

Real X provides full life-cycle solutions, both comprehensive and itemized, on an on-site and/or off-site basis. For high-demand, multiuser systems, Real X uses INFORMIX-NewEra to develop the client side; ODBC or native connectivity libraries to connect to the server; and Informix as the RDBMS engine.

Company Profile

Real X, Inc. is a privately held software development and consulting company. The company specializes in Windows products and applications, UNIX and Windows NT clients and servers, and complete RDBMS solutions. The company creates custom solutions for both commercial and business requirements.

Sales Contact Information

North America Contact:

Rani Bornstein

Real X, Inc.

1467 Morton Avenue

Los Altos, CA 94024

408 749 8284

408 736 8324 (fax)

Latin America Contact:

See North America Contact

European Contact:

See North America Contact

Asia/Pacific Contact:

See North America Contact

Sierra Toolworks

Established as a software development and consulting organization with a focus on Informix technology, Sierra Toolworks has a long and proven track record of delivering successful projects. Specializing in object-oriented development, Sierra Toolworks has been the engineering resource behind a number of released INFORMIX-NewEra class libraries.

Company Profile

With experience in developing applications and tools with the Informix product line since 1985, Sierra Toolworks provides design, development, documentation, training, and consulting services for application development needs.

Sales Contact Information

North America Contact:

Jack Suto, President

Sierra Toolworks, Inc.

930 Tahoe Blvd.

Incline Village, NV 89451

702 833 1989

702 833 1968 (fax)

Email: jsuto@aol.com or toolworx@aol.com

INFORMIX-NewEra

CRIS (Customer Reference Information System)

CRIS provides on-line access to customer information for the worldwide field sales organizations. The CRIS customer profile represents one of the most comprehensive sources of customer information at Informix, and includes:

- company information (e.g., annual revenue, number of employees, line of business, etc.);
- installation information (hardware/OS configuration, Informix and partner products used, application type, etc.);
- sales and competitive information (who did we compete against for the deal, what competitive products did we replace, what sales channel made the sale, etc.); and
- collateral information (e.g., success stories).

CRIS is available in both 4GL and NewEra versions, is intended to include profiles for all types of customers, including those customers who may be contacted or used by name as a reference, as well as those customers who may not be contacted, for whatever reason. Customers are identified as either "contactable" or "not contactable."

By including both kinds of customers in the database, all types of "reference" queries become more effective. For example, your prospect may simply need to know whether or not Informix has experience within a particular line of business, or whether we have customers with using certain hardware platforms to run specific Informix products. You may need to substantiate your claim that we do have installations with over 100 gigabytes of data. In these cases, your prospect does not need to actually speak to a customer, but rather needs greater assurance that we can accommodate his or her needs. Providing all types of customer profiles in the database allows you to make these types of queries against a larger base of customers, rather than simply against those high-profile customers who may be contacted.

Sales reps may also find CRIS valuable in developing a sales strategy. For example, if you are in a competitive situation, CRIS may be able to identify existing accounts with similar user requirements or configurations that were successful sales against the same competitor. CRIS information

can point you to the sales reps who were involved in those sales and who may be able to advise you on how they fought the competition in that same environment.

The CRIS database is managed by Falcon Field Support. Falcon is committed to making CRIS a powerful sales tool for the field. Like any system, however, it is only as good as the data in it. In order for CRIS to be a successful and valuable tool for the entire company, the sales organizations must provide the customer and installation information.

Submitting Customer Information to CRIS

Hard-copy CRIS profiles are available in the back of the CRIS User Guide, or from Falcon. Electronic copies of the profile are available on the fox server (look in /home/falcon/CRIS), or from Falcon. Both hard-copy and email versions of a CRIS profile may be sent to Julie Ardire (email: jardire) in Menlo Park.

Accessing CRIS

To access CRIS, you must first have access to one of the Lenexa servers (hera, ceto, libra, scorpio). If you do not have access to one of those servers, send an email request to "quest." To obtain access to CRIS, send an email request to "falcon" requesting access. Once you receive confirmation, you may log into your Lenexa server. At the UNIX prompt, type:

```
cris   <return>
```

If you have any questions, contact Falcon.

Customer Reference Information System

Customer Profile Form

Instructions:
Please complete this four-page form and forward it to Falcon (see last page for instructions). We do not store contact names and phones numbers in CRIS. If you indicate that your customer is "not contactable," the company name will not be displayed but all information regarding the application will be available for statistical analysis. If your customer is listed as "contactable," the requesting rep will still need to contact the sales rep first.

Part I: Company Information

Company name:

_____

City: _____   State: _____   Zip: _____

Country: _____

*Line of business: _____   ❏ Fortune 500?   ❏ Fortune 1000?

Annual revenue (US) : $ _____   Informix customer since: _____

Number of employees: _____

Geographical area served:

_____

Comments:

_____

Is there a success story or other collateral on this customer?   ❏ Yes   ❏ No

If yes, what is the part number   _____

Part II: Informix Installation Information
Note: You may have multiple installations per company

Company division or department:

_____

Informix sales rep:

_____

Email:

_____

Reference Contact Information

Is the customer willing to be contacted as a reference for Informix customers or prospects?
❏ Yes   ❏ No

If the customer is not contactable, please check reason below:
❏ Beta site   ❏ Customer service problem   ❏ Customer unhappy   ❏ Too many calls
❏ Customer too busy   ❏ Government   ❏ Confidential   ❏ Contract restrictions   ❏ Other

Is the customer willing to be contacted as a reference for press and other PR activities?
❏ Yes   ❏ No

Application Information

*Note: * indicates a field that has a lookup code available for use (see User Guide).*
*Application type (i.e., accounting, human resources, manufacturing, etc.):

_____

Application description:

_____

_____

_____

Application addresses the following business requirements *(check as many as appropriate)*:

❏ Data warehousing   ❏ Client/server   ❏ Data replication   ❏ Imaging
❏ Downsizing   ❏ OLTP   ❏ Decision support   ❏ Other _____

Database size (GB) single: _____   Database size (GB) distributed: _____

Number of clients:_____ Number of users:_____ Number of sites: _____

Network Environment Information

LANs in use?   ❏ Yes   ❏ No

Description:
_____

Mainframe connectivity?   ❏ Yes   ❏ No

Description:
_____

Network protocol used?   ❏ Yes   ❏ No

Description:
_____

Additional connectivity information:
_____

Sales/Competitive Information

Purchased from which channel: ❑ VAR ❑ Direct ❑ OEM ❑ Distributor
❑ Other _____

Which database products competed against Informix in the presales cycle?

_____

Migrated to Informix from which products?

_____

Hardware Platform Information

Specify client or server (C or S), Maker, Model, and Operating System.

	C/S	Maker	Model	OS
example	*S*	*IBM*	*RS/6000*	*AIX*
example	*C*	*Intel*	*486*	*Windows*
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Informix Products/Services Used

Check and/or list below all Informix products installed at the application site. Indicate a generic version number (e.g., 5.X, 7.X) next to the product. Please remember to include all servers, tools, and connectivity products. You may also wish to list consulting, maintenance type (e.g., OpenLine Support, Regency Support), and training.

	Version #		Version #		Version #
❑ C-ISAM	_____	❑ I-4GL	_____	❑ I-NET	_____
❑ SE	_____	❑ I-SQL	_____	❑ I-Star	_____
❑ OnLine	_____	❑ NewEra	_____	❑ Gateway w/DRDA	_____
❑ ESQL/C	_____	❑ ViewPoint	_____	❑ Enterprise Gateway	_____
❑ ESQL/Cobol	_____	❑ ViewPoint Pro	_____	❑ TP/XA	_____
❑ Other _____					

❑ OpenLine Support   ❑ Assurance Support   ❑ Regency Support
❑ 24x7 Support   ❑ Training   ❑ Consulting

Partner Products Used

Please list the Informix Partner products used with your application:

	Partner Name	**Partner Product**
example	*SAP*	*R/3*
example	*PeopleSoft*	*PeopleSoft Financials*
	_____	_____
	_____	_____
	_____	_____

Competitive Products Used

Please list all competitive products being used in conjunction with Informix products (e.g., Oracle server, Sybase tool, etc).

Company Name	**Product Name**
_____	_____
_____	_____
_____	_____

Thank you for completing this profile. You may forward this profile to Falcon using one of the following methods:

- Fax to attention Julie Ardire @ (415) 322-2805

- Interoffice mail to attention Julie Ardire, Menlo Park, Building 4300

- Mail to:
  Informix Software, Inc.
  4100 Bohannon Drive
  Menlo Park, CA 94025

If you have any questions regarding the Customer Reference program, please call Julie Ardire at (415) 926-5993.

INFORMIX-NewEra

Customer Profiles

NOTE: Check CRIS for current referenceability of these customers before using these profiles

INFORMIX-NewEra
Domestic Customers

AT&T Network Systems Group
Contact: Steve Brown (sbrown)

AT&T Network Systems Group provides information technology solutions for the Regional Bell Operating Companies such as Bell South, Ameritech, Maritime, and Pacific Bell. AT&T NSG's Bell South Customer Team (BSCT) has developed a sales and expense tracking application using INFORMIX-NewEra for use by three hundred AT&T account executive/support personnel selling to Bell South, the largest of the seven regional Bell operating companies providing telephone services to a nine-state area.

Tom Becker, Productivity Improvement Manager for AT&T NSG, selected NewEra because of its ease of use and full integration with Microsoft Windows. NewEra's capability to develop graphical applications and the ease with which AT&T NSG was able to migrate existing INFORMIX-4GL code to the NewEra environment were other added benefits. AT&T NSG currently uses INFORMIX-OnLine and values the tight integration between the server and the NewEra development environment.

Becker commented, "By allowing AT&T account executives to more easily access their sales and expenses each month, BSCT is better able to forecast revenue and track expenses in a more timely manner. Storing the account executive's photograph in the database was an added benefit because it serves as a human resource function as well."

Citicorp Mortgage Services, Inc.
Contact: George Blatt (gblatt)

Citicorp Mortgage Services is developing a network monitoring system using INFORMIX-NewEra, which, in addition to monitoring Citicorp's extensive network, will make resource allocation decisions to take the guesswork out of predicting where and when the network will need servicing. Smart agents are built into the system to identify system inefficiencies and take action to correct them before they become uncontrollable. Once completed, the system will dramatically improve the cost effectiveness of operations and data processing services throughput.

"NewEra has all the attributes we need in a development environment," said Steve Skinner, Project Lead at Citicorp Mortgage Services. "This project required object-oriented programming, application partitioning, and dynamic partitioning, which are the keys to help eliminate resource reduction and improve service. NewEra was built specifically for this while the other tools we considered were not."

Concepts Dynamic, Inc.
Contact: Joanie Risavy (jrisavy)

Concepts Dynamic, Inc. (CDI), an Informix Premier Value-Added Reseller offering INFORMIX-4GL-based software applications since 1989, is one of the first companies to have utilized INFORMIX-NewEra for developing enterprisewide client/server applications.

CDI worked with Informix and two Informix Value-Added Partners, Relevant Business Systems and TECSYS Inc, to develop a set of more than 50 class libraries called the FrameWorks Class Library. These class libraries are designed to boost NewEra developer productivity through a collection of predefined application building blocks, and are included in NewEra 2.0.

CDI recently announced the release of its second-generation client/server products written entirely in INFORMIX-NewEra—the CDI Control Series, Version 6. Early installations of the Version 6 products have reported that customers are delighted with the functionality and ease-of-use features provided by CDI's NewEra-based applications.

"INFORMIX-NewEra gives us the toolset we need to build true object-oriented, event-driven client/server accounting applications," says Karl Steinle, president and CEO of Concepts Dynamic, Inc. "By using INFORMIX-NewEra as our development environment, we have created a suite of accounting applications with unmatched levels of performance, scalability, extensibility, and data security."

GTE Telephone Operations
NOT TO BE REFERENCED

When GTE Telephone Operations, the largest U.S.-based local telephone company, wanted a graphical client front end that was completely compatible with their Informix database, the company selected INFORMIX-NewEra to develop an asset database of all its internal networks.

The database will track every piece of systems equipment and network elements that GTE has installed in the United States, allowing systems employees to access network information and assign network changes from their desktops. By providing a just-in-time inventory of network

elements, GTE will control expenses by eliminating the ordering of costly equipment already in its inventory.

"Being completely Windows-driven makes NewEra very user-friendly and simplifies end-user training," said GTE administrator, Sonny Rath. "In providing a graphical interface, NewEra bridges the gap to make Informix a true client/server product."

Lockheed Martin Skunk Works
Contact: Matt Brunnquell (mattb)

Lockheed Martin Skunk Works, formerly Lockheed Advanced Development Company, is a government contractor specializing in the design and manufacture of such highly classified and nonclassified military products as the U-2, SR-71 Blackbird, and F117A Stealth Fighter, which performed so well in Desert Storm. Lockheed MSW has chosen INFIMACS-4GL, a manufacturing-based business management system developed by Informix Value-Added Partner, Relevant Business Systems. The INFIMACS-4GL system, based on INFORMIX-NewEra, INFORMIX-4GL, INFORMIX-SQL, and INFORMIX-OnLine Dynamic Server, will give Lockheed the ability to expedite materials resource planning to reduce MRP runtime, improve communication within and between departments, and improve data availability to end users. The system will eliminate redundant paperwork, and replace paper trails and duplication of information with the use of on-line messaging capabilities. NewEra's ability to support multiple platforms, customize applications to meet unique organizational needs, superior functionality and efficient program execution, and an object-oriented development environment were key reasons for selecting the NewEra environment.

Patrick Garrehy, president of Relevant Business Systems, remarked that, "Standardizing on INFIMACS-4GL enables Lockheed to realize significant cost savings in personnel training and vendor relations. They can also leverage their workforces between large and small scale projects."

McCaw Cellular
Contact: Mark Vayda (mvayda)

The largest national provider of cellular communications, McCaw Cellular has used NewEra to develop Performance Systems Database Manager, a graphical front end for their database systems dealing with monitoring of the national cellular network. This application provides a user-friendly environment for system maintenance used by over 200 McCaw employees.

An Informix customer for many years, Jeff Dunsmore, Performance Engineering Lead at McCaw Cellular, felt confident in NewEra's abilities. "With our NewEra-based application, it now takes us less time to monitor our system, giving us added business productivity," Dunsmore said.

Mobile County Commission
Contact: Phil Landry (phill)

The Mobile County Commission runs the daily operations for the county of Mobile, Alabama. The Commission chose NewEra to create a number of applications to ensure the integrity of the county's records in a variety of different departments. A recording program is used to automate all functions of the probate court's documents, including deeds and licenses, as well as voter registration. A payroll and personnel application is being developed that will allow 3,000 county employees to enter their timecard work schedules and track their own work history on line.

Employee photographs and personnel-related correspondence will also be scanned into an Informix database. The Merit System Department will use this data to approve personnel and payroll changes. Additionally, a Motor Vehicle program is planned to renew car licenses, car registration, and driver's contact information and, as a result of the 1994 Motor/Voter Law, allow drivers to register to vote via the Department of Motor Vehicles.

Victor Crawford, consultant to the Mobile County Commission, said, "Many of our county government systems are managed manually. With these NewEra applications, Mobile County becomes the first in the State of Alabama to automate these department workflow processes so that all pertinent records and information are easily accessible by all County employees, saving the County the great expense of keeping track of these records on a manual basis."

Motorola Semiconductor Product Sector
Contact: Steve Salomon (salomon)

The Motorola CSPD Group within the Semiconductor Product Sector manufactures and distributes Motorola's chips for CATV and the wireless telecommunications market. Motorola selected NewEra to interface to a material resource planning application that will evaluate inventory, sales orders, and bills of materials to automate materials planning. Because of its flexibility and compliance to standards, NewEra allows Motorola to share data with others in the company who are using disparate databases.

"We have relied on INFORMIX-4GL as a proven language for many years and see NewEra as the next-generation 4GL. We are impressed with NewEra's Window Painter and object-oriented capabilities," said John Shoemaker, Senior Software Engineer for Motorola. "We value Informix as a standards-based company that has a clear vision of the future with their technology and products."

National Quotation Bureau, Inc.
Contact: Dietmar Nicolai (dietmar)

The National Quotation Bureau collects and distributes over-the-counter stock and bond quotations, selling daily, monthly, quarterly, and annual stock reports to brokers and traders. INFORMIX-NewEra, used as a graphical front end to INFORMIX-OnLine Dynamic Server, enables the Bureau to build a graphical user interface that will allow operators to enter data easily and see the presentation of it more clearly. Data entry operators can now retrieve information in a more timely manner, thereby servicing customers more efficiently.

"We needed the security of a high-performance front-end tool interacting with the database. We are quite pleased with INFORMIX-OnLine Dynamic Server, and NewEra's graphical front-end capabilities will complete the performance package for our entire database system needs," commented Gary Johnson, Programmer Analyst/DBA for the National Quotation Bureau.

Signature Group
Contact: John Rutherford (jford)

A subsidiary of Montgomery Ward, Signature Group manages direct marketing campaigns for the popular retail chain and handles insurance sales campaigns for the company's insurance division. A call processing framework is currently being developed using INFORMIX-NewEra and INFORMIX-OnLine for both inbound and outbound marketing efforts. Outbound telemarketers contact current insurance customers to offer new services, while inbound operators provide

customer service and order support to customers. The system is designed to automate and speed up the time necessary to complete an order, and provide better service to customers.

"Portability between Windows and Motif and the single code stream to support all environments make NewEra the best solution for our development needs," said Jose Buergo, Vice President, Development for Signature Group.

TECSYS Inc.
NO CONTACT NAME AVAILABLE

TECSYS Inc., a leading supplier of application software solutions, consulting, and support services for distribution operations in the durable and nondurable goods industries, has developed a product line, the Elite Series, based solely on Informix products. Recognizing the importance of moving forward in its development to object-oriented event-driven GUI environments, TECSYS selected INFORMIX-NewEra for its excellent scalability, productivity, and extensibility, as well as for the ease with which TECSYS could migrate its 4GL business logic to the NewEra environment. The complete TECSYS Elite Series product line, comprised of 20 modules including Order Processing, Inventory Management, Purchasing & Receiving, Forecasting & Requisitions, Financials, and EIS, is currently being migrated and enhanced using INFORMIX-NewEra.

TECSYS Inc. Senior Vice President, Product, Peter Brereton commented, "INFORMIX-NewEra is the only development environment today with the architecture and the necessary tools to successfully build or migrate large-scale application solutions into the open computing environment."

Utah State Courts
Contact: Tony Hoagland (tonyh)

The State of Utah Department of Administrative Courts has chosen NewEra to enhance its Appellate Court applications. These applications, used by both the Court of Appeals and State Supreme Court, will allow 70 court employees to simplify information gathered during court sessions. With the NewEra system, court employees will have easy access to case management information, automatic docketing, statistical reports, and an accounting system. Court clerks will be involved in designing the screens of the database to ensure ease of use of the system.

"Much of our current court system applications are written in PowerBuilder and INFORMIX-4GL," said Larry Pettit, Assistant Director of Information Technology at Utah State Courts. "NewEra advances us to a graphical environment that will be more comprehensive to our court employees. Plus, NewEra gives us the flexibility to make changes to our applications as our court needs change."

Yakima County
Contact: Joe Levin (joel)

ASIX Inc., an Informix Value-Added Partner located in the Seattle area, is developing a County Assessment and Property Tax system for Yakima County based on INFORMIX-NewEra. The application will integrate the systems of both the County Assessor's and County Treasurer's offices to eliminate the redundant information required by each office and provide a more efficient means for the County to provide public service.

"NewEra provides a unique approach to application development," said Dan Sullivan, Consulting Practice Director at ASIX. "The language contains object-oriented constructs that allow us to reuse code and extend our application development to use class libraries. NewEra also supports a procedural programming approach, so I can put my non–object-oriented programmers on NewEra development projects too and maximize my team of developers."

INFORMIX-NewEra
International Customers

British Aerospace Systems and Equipment
NOT TO BE REFERENCED

A subsidiary of British Aerospace, British Aerospace Systems and Equipment required a secure email application for use between branches of their armed forces. INFORMIX-NewEra will be the user interface to British Aerospace's military message-handling application system, which manages and transmits messages via satellites. NewEra was selected because it allows developers to build applications on Microsoft Windows and deploy on Motif workstations. NewEra's tight integration to the INFORMIX-OnLine/Secure database server was also a key benefit.

Charles Christian
Contact: Joaquim Santos (jsantos)

Charles Christian, a shoe manufacturer and retailer, is utilizing INFORMIX-NewEra as their development environment to build an administration and inventory control management application used for over 30 retail stores throughout Portugal. An INFORMIX-4GL customer for many years, Charles Christian is migrating some of their existing 4GL code to NewEra for a true client/server system.

Cray Systems
Contact: Nigel Turner (nigelt)

Cray Systems, an Informix Partner, is part of the Cray Electronics Group UK, a worldwide company with annual revenues of over $500 million. Cray Systems authors software packages and provides integration services for several divisions of Cray Electronics Group: Cray Systems Travel, Cray Systems Telecom, Cray Systems Publishing, Cray Systems Space, and Cray Systems International. In response to customer demand for a graphical user interface and an open system, Cray Systems has developed an application, ATEL, based on INFORMIX-NewEra. ATEL, an internal telephone billing and monitoring system, is currently being used by 1,000 employees at Vodopage. NewEra's cross-platform deployment capabilities and class library architecture were some of the advantages attractive to Cray Systems.

Crossrail
Contact: Mark Callen (mcallen)

Crossrail, owned by British Rail, London Underground, and Railtrack, is developing a business plan for cross-London rail transportation. POEMS, the Petition Objectors Engineer Management System, will document citizen correspondence regarding the building of the railroad through what is now a residential area. Currently in its pilot stage, Crossrail chose INFORMIX-NewEra as the environment to create the POEMS application because of its graphics capability and architecture.

Diputacion Coruna
NO CONTACT NAME AVAILABLE

Diputacion Coruna provides administrative services for the city of La Coruna, and more than 50 other cities in Spain. INFORMIX-NewEra will be the front-end application for Coruna's Information System, which provides administrative services and information to the region. Developed by the University of La Coruna, this application will distribute budgets from the central government and the European Community and provide approval for public works and urban planning. The system will also be used to track work in progress and inform the Central Ministry of its status. Developers from the university made the move to NewEra because it provides increased developer productivity.

Direccion General de la Policia
Contact: Moises de Andres (moises)

The Spanish Police Department, Direccion General de la Policia, has built a claims and emergency database using INFORMIX-NewEra and INFORMIX-OnLine to manage emergency communication and provide critical data for many emergency service operations throughout Spain. The database offers the department's first completely integrated system to collect and track emergency calls and dispatch officers to the crisis site. Informix's strong reputation and commitment to open systems attracted the department to NewEra.

Eagle Star
NOT TO BE REFERENCED

Eagle Star, an insurance company located in the UK, selected INFORMIX-NewEra to build an auto and home insurance sales system for use by three hundred telesales personnel at two sites. Application partitioning, NewEra's language-based architecture, and its tight integration with INFORMIX-OnLine were all important in Eagle Star's decision to develop their applications using NewEra.

InForm Group Ltd.
Contact: Peter Fletcher (peterf)

InForm Group Ltd., which recently became an Informix business partner in New Zealand, is developing its comprehensive legal software package, Complete Legal Office (CLO), based on INFORMIX-NewEra. InForm Group decided on NewEra as the development environment for its ability to scale from a small to a very large application, depending on individual InForm clients' needs. InForm also chose NewEra because it allows the development of applications in a GUI environment, and supports deployment in a character-based environment.

"We currently run our applications on both Windows and UNIX," said Alan Flitcroft, Director of Research and Development of InForm Group. "What intrigued us most about NewEra was its ability to support deployment of NewEra applications in a character environment. We can build our applications on Windows, but deploy on character-based terminals, alongside and completely compatible with existing systems written in the CQCS language from Cyberscience, also an Informix business partner."

JS Pathology

JS Pathology, a pathology laboratory located in the UK, has chosen NewEra as their development environment for both a laboratory management system as well as an accounting and billing system. JS Pathology is an existing INFORMIX-4GL user who is migrating some of its existing 4GL code to NewEra. The tightly integrated architectures of INFORMIX-OnLine Dynamic Server and INFORMIX-NewEra were important elements in JS Pathology's decision to move to NewEra.

Jubilee Line Extension
Contact: Mark Callen (mcallen)

The Project Management Team for an extension of the London Underground, Jubilee Line, will use INFORMIX-NewEra to develop a customer/correspondence system to manage vendor relations and document citizen correspondence associated with building the extension. The system will protect the Line from possible future litigation. Jubilee Line Extension's decision to develop using NewEra was based on a long history of satisfaction with Informix products.

Kuwait Petroleum
Contact: Ian Lovatt (ianl)

Kuwait Petroleum International (KPI), a London-based retailer of over 6,000 petrol stations, known under the brand name "Q8," has chosen INFORMIX-NewEra to build and deploy their applications on a companywide basis.

The systems will be developed and deployed on a variety of open hardware platforms. NewEra applications will be built for managing KPI's operational and financial systems, retail marketing and sales databases, electronic card systems, executive information, and decision support systems. INFORMIX-OnLine Dynamic Server will be used as the database for these systems.

NewEra will provide KPI with a clear migration path towards a complete object-oriented development environment. Chris Taylor, Coordinator for Information Services at KPI, commented that "NewEra provides a simple migration path from existing INFORMIX-4GL solutions because those applications and NewEra applications can share the same logic code. Migrating existing 4GL to NewEra requires that only the user interface code be rewritten—the logic behind the screens can remain the same." Taylor continued, "This migration approach offers each local KPI company the ability to move to new technology and tools at its own pace—making full use of existing information systems. Informix will also provide training, consulting, and support to assist KPI in getting the best return on this investment. We intend to continue working closely with Informix on future information systems development at KPI."

More O'Ferrall
Contact: David Loveday (davidl), Judy Voisey (judyv)

An advertising site management company located in the UK, More O'Ferrall manages fixed and mobile display sites. More O'Ferrall chose INFORMIX-NewEra to develop both an inventory management system and a GUI-based customer information system as they required rapid application development and a superior graphical user interface.

New Zealand Kiwifruit Marketing Board
Contact: Peter Fletcher (peterf)

As the fruit-buying distribution cooperative for all of New Zealand, the NZ Kiwifruit Marketing Board needed a development environment that would fully integrate with their existing business systems, as well as provide a graphical front end for their users.

"Our user base demands a graphical environment," said Herbert Bremser, information systems manager at NZ Kiwifruit Marketing Board. "NewEra gives us that, but probably even more important is NewEra's ability to coexist with our other current applications, running Microsoft Windows, Accucobol, and Cognos' Powerhouse. That was definitely an asset to us when we selected NewEra."

Pliktverket
Contact: Lars Vikstrom (larsv)

Pliktverket, the National Service Administration of Sweden, handles the administration of all compulsory national service by keeping records of over 3,000,000 people in their Informix database, INFORMIX-OnLine Dynamic Server. The database also keeps records for the Armed Forces and Rescue Forces by handling testing and enrollment of new recruits, call-up for basic military training, and periodic training review. The requirements for a powerful graphic tool with an intelligent interface to the database have prompted Pliktverket to replace their old mainframe system with a new client/server system based on INFORMIX-NewEra.

"With the help of NewEra, we are creating a system that is highly flexible to organizational changes and easily adapts to added groups of users," commented Thomas Saterhed, Technical Project Manager for Pliktverket's VIS Project. "The NewEra system will allow us to tailor it to our users' needs, economize our client disk space and RAM requirements, and distribute updates to the software automatically whenever it is changed."

Prado Museum
Contact: Cesar Albertos (cesar)

Museo del Prado, located in Madrid, is one of the most important museums in the world. They have chosen INFORMIX-NewEra to build a multimedia system to store documentation regarding the priceless artwork for the museum. The system will allow visitors to access information about each piece of art from terminals placed throughout the museum. NewEra's productive development environment was a major advantage for the museum.

Renfe
Contact: Antonio Cortes (antonioc)

The National Spanish Railways Company, Renfe, manages the railway communication throughout Spain. Informix Value-Added Partners, CAP Gemini and AT&T GIS, are developing a Package and Transport Management System using INFORMIX-NewEra, running Windows NT with INFORMIX-SE to save Renfe time and money in the management of their freight business. CAP Gemini and AT&T GIS selected NewEra because of their excellent experience with INFORMIX-4GL and because of NewEra's powerful language-based architecture.

Swiss Life

Contact: Malcolm Calderwood (malcolm)

A Mutual Life Assurance and Pensions Company founded in 1857, Swiss Life is the European leader in the insurance market, offering group and industrial protection, investment, and pension services. In an effort to streamline staffing by acquiring technology that could better automate its processes, Swiss Life has installed Amarta, an application from Informix Partner, Sherwoods. The application, a life insurance and workflow software environment originally written in INFORMIX-4GL, was converted to INFORMIX-NewEra in March of this year and is running on INFORMIX-OnLine Dynamic Server.
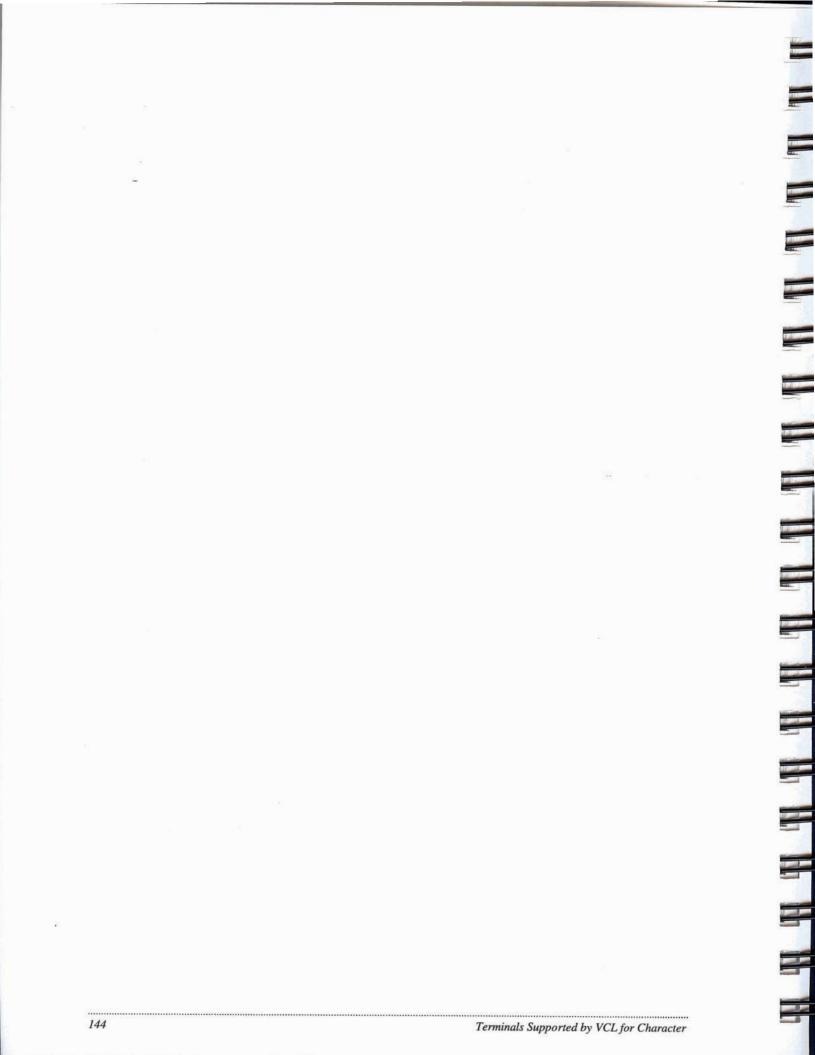
INFORMIX-NewEra

Terminals Supported by VCL for Character

Manufacturer	Model
ADDS	Regent 60
ADDS	Viewpoint 60
ADDS	Regent 100
ADDS	Regent 20
ADDS	Regent 25
ProWin 2.0	model 3XX emulators
ADDS	Regent 40
Forum Internation	All models
Epic Computer Products	Model 14E
Altos	II
Altos	III
CDC	CDC 456
CDC	CDC 722
Cromemco Terminals	3101
Cromemco Terminals	3102
Liberty Electronics	Freedom 100
Datamedia Corporation Terminals	3025
Datamedia Corporation Terminals	1520
Datamedia Corporation Terminals	1521
Datamedia Corporation Terminals	2500
Datamedia Corporation Terminals	3045
Datamedia Corporation Terminals	dt80

Manufacturer	Model
Datamedia Corporation Terminals	dt80132
CIE Terminals	cit 500
CIE Terminals	cit 80
Digital Equip. Corp.	vt100
Digital Equip. Corp.	vt52
Digital Equip. Corp.	vt102
Digital Equip. Corp.	Visual 200
Digital Equip. Corp.	DECwriter II/III/IV
Digital Equip. Corp.	gt42
Digital Equip. Corp.	vt132
Digital Equip. Corp.	gt40
Digital Equip. Corp.	vt2XX Series
Digital Equip. Corp.	vt4XX Series
Digital Equip. Corp.	vt3XX Series
Digital Equip. Corp.	vt50
Digital Equip. Corp.	vt50H
Digital Equip. Corp.	vt100s
Digital Equip. Corp.	vt100w
Digital Equip. Corp.	DECwriter I
Hazeltine	1552
Hazeltine	1552rv
Hazeltine	1500
Hazeltine	1510
Hazeltine	exec80 model 30
Hazeltine	exec80 model 20
Heath Corporation	h19
Hewlett-Packard	hp 2621
Hewlett-Packard	hp 2621k45
Hewlett-Packard	hp 2645
Hewlett-Packard	hp 2648
Hewlett-Packard	hp 2640
General Terminal Corp.	gt100
General Terminal Corp.	Infoton 400
IBM	model 3101
IBM	model 3163
IBM	model 3164
IBM	model 3151
IBM	model 3161

Manufacturer	Model
Lear Siegler Terminals	model adm22
Lear Siegler Terminals	model adm31
Lear Siegler Terminals	model adm42
Ampex	dialogue80
Ambassador	48
Compucolor	II
Datagraphix	model 132a
Soroc	model 120
Mime	vt100
MicroVTec	model M1779
Televideo Terminals	model tvi912
Televideo Terminals	model 912b
Televideo Terminals	model 925
Televideo Terminals	model 950
Tektronix Terminals	model 40XX
Wyse	model adm 31
Wyse	model 50
Wyse	model 60
Wyse	model 350 color
Zentec	model 30
Zentec	Zephyr
Printers	all models
Qume Corporation	Sprint 5
Qume Corporation	Sprint 11
Qume Corporation	QVT-102
Qume Corporation	QVT-109
Sun Microsystems	All workstation consoles
Volker Craig	model 414
Intelligent Systems Corp.	Intecolor 2400
Intelligent Systems Corp.	model 42
Intelligent Systems Corp.	model 3a
Intelligent Systems Corp.	model 5
Intelligent Systems Corp.	model 3a
AT&T	model 510
Envision	model 215
ID Systems Corporation	model 231
ANSI Standard CRTs	
Intecolor	Colortrend 210

INFORMIX-NewEra

Available Marketing Materials

Tech Briefs

Tech Brief for INFORMIX-NewEra 1.1   Orderable
- part number 000-20673-77

Tech Brief for INFORMIX-NewEra 2.0   Orderable
- part number 000-20910-77

Class Libraries Info Sheet

A single sheet that answers the questions: What are class libraries? What advantages do they provide? Where do you get class libraries?

- part number 000-20833-74   Orderable

White Papers

White Paper: Migration Planning   Orderable

White Paper: Team Development   Orderable

White Paper: Partitioned Applications   Orderable

White Paper: Character Applications   Orderable

White Paper: OLE Integration   Orderable

Presentations

Low-level Customer (Technical)   Available on Fox*

Trends   Available on Fox*

*see Fox: home/mktg/launch/newera/present

Articles/Article Reprints

Article, Informix Times, Volume 3
A focus on NewEra 2.0.   Orderable

Computerworld's Client/Server Journal - "Informix Gets Attention With NewEra"
This magazine article surveys four early users of NewEra version 1.0 who rate the product on a one-to-ten scale, giving NewEra an average score of 7.3. The customers were asked to respond to NewEra in the following areas; programming environment, configuration management, testing and debugging, logic flexibility, report generation, security, and technical support.

Overall, the article notes that these customers enjoy Informix's credibility to be supported by third-party partners, particularly class library partners. The article also notes that these customers are learning to take full advantage of the power of the programming language, which may require retraining in some shops. Because this was a review of version 1.0, it was noted that we lacked configuration management capability, but this issue was addressed in a sidebar article in the reprint. Interactive debugging capability was noted as easy to use. Issues about lack of performance monitoring capability were brought up, but a response that this issue would be resolved in the next release of the product was addressed in the article. Technical support was reported as quick and efficient.

* part number 000-20900-78, dated June 1995   Orderable

Butler Report - "Technology Audit; INFORMIX-NewEra"
This reputable UK-based analyst firm summarizes the main components of NewEra, its strengths and weaknesses, market position, and corporate position. Butler's favorable conclusion of NewEra is that it is a tool that comes close to meeting the stringent requirements to support a complete application infrastructure, which includes team working, source code management, deployment management, testing tools, repositories, libraries for encouraging component reuse, and mechanisms for integrating with legacy data and applications already in existence.

* part number 000-20768-78, dated September 1994   Orderable

Aberdeen Group - "Informix Software's NewEra"

This report from a key industry analyst firm summarizes NewEra as a sophisticated tool for developing second-generation client/server applications for robust transaction processing applications. The report outlines the major components of the environment, the Window Painter, SuperTables, Application Builder, and Programmer Tools, and also notes the product's exceptional extensibility. Overall, this is a very positive report and notes NewEra as a 'stand-out' first release.

- part number 000-20700-78 dated July 29, 1994   Orderable

Datapro - "Informix Software, Inc. - NewEra"

This six-page industry report summarizes NewEra 1.1 by product analysis, user interviews, specifications, and pricing. Datapro sees NewEra as a viable player in the enterprise client/server development environment. The SuperTable feature is innovative and the incorporation of class libraries is equally important. The component-based structure of NewEra applications also facilitates creation of multitier client/server applications.

- Part number 000-20970-78   Orderable

Data Management Review - NewEra Product Review, version 1.0

This one-page overview, published in October 1995, covers NewEra's product functionality, product characteristics, product deliverables, strengths, weaknesses, selection criteria, vendor support, documentation. This is a favorable review from a consultant that specializes in repository-based software and information environments.

- Part number 000-20996-78   Orderable

Seybold NewEra Product Review - "NewEra 2.0; Informix Software, Inc."

This is the most thorough review of NewEra, published in September 1995. In summary, the 53-page report covers just about every aspect of the product, its language, class libraries, object orientation, portability. A section on all the tools is profiled from the Window Painter to the debugger. There is also a section on how to develop NewEra applications, the company's product plans, and a features matrix. Seybold's conclusion about NewEra is very favorable. They note that, "NewEra is a young tool with a very promising future. If the company delivers on it's product plans and maintains prices at current levels, it will be a great tool." They further note that the product is fully equipped to support application development ranging from simple, ad hoc departmental applications to complex, modeled, corporate applications.

- part number TBA

Informix Sales Kit

INFORMIX-NewEra
Presentations

INFORMIX-NewEra

Low Level (Technical)

INFORMIX-NewEra
Building Applications
for the Future—Today

Building Applications for the Future—Today

This presentation is targeted towards a technical and managerial audience, and therefore doesn't offer a lot of high-level messages concerning "why" NewEra. It is a fairly detailed "feature-centric" view of NewEra, but not necessarily deeply technical. The presenter may add the appropriate level of technical content.

This presentation has worked well in a seminar-type situation where one person gives the Trends presentation and lays the business and technical justification for second-generation client/server computing, and another gives the technical presentation.

These notes will provide the main points to stress on each slide. Each presenter can use their own style and knowledge to develop an effective presentation.

WARNING: This presentation is long! It will not be necessary or desirable to present all the slides. Use good target selling techniques to tailor this presentation to the needs of the customer.

Application characteristics haven't changed...

The applications we are building today have the same characteristics as the applications we have always built:

- Support the core functions of the business
- Scalable and enterprisewide
- Long lived—5 to 15 years
- Many users
- Performance issues critical
- Operational lapses intolerable
- Must support legacy data, hardware, systems software

Although dramatic changes in the business environment have taken place in the recent past, the applications we are building today to support operations are in many ways the same as those that people have been building for the last 20 years—systems designed to run the business. The big difference is that today's applications involve new technologies.

The fundamental requirements for providing users with the information that they need hasn't changed—what's changed is how those systems are developed and delivered based on the availability of new technologies. Client/server is just one of the technologies that is being adopted in order to build and deploy these new systems.

What's Changed Is the Way We Build Them

Business processes drive application development, therefore applications change more often

- ➤ Graphical user interfaces for end-user access
- ➤ Distributed deployment across the enterprise
- ➤ Multivendor solutions must be available

What's Changed Is the Way We Build Them

One big difference between yesterday's and today's applications is that because of a rapidly changing business environment, business processes are driving application development, and forcing applications to change more often.

The computing environment that enables this new kind of application development—client/server—is very different from the mainframe systems of the past. Client/server has evolved as new application requirements are being imposed by companies, stemming from the need for greater enterprisewide access to corporate data.

A major change is the need for a Graphical User Interface, or GUI, for the application. This change has made computing more accessible to the masses—business managers and other nontechnical employees. The rise of the GUI is largely responsible for Microsoft's dominance in the software industry and its prevalence across the corporate world.

Distributed deployment mirrors the way that businesses are now working. Few environments are centralized. For example, how many people go to the bank at the bank's headquarters? Most use a variety of ATMs around the world to access their money. The same thing happens in business computing—everyone wants access to data from their desktop, no matter where they are located across the company or on what type of machine.

Multivendor computing is becoming a reality as competition increases among hardware and software vendors, opening up more choices for users. It's no longer necessary (or wise) to be locked into a single vendor's strategy for computing. Such competition leads to innovation in the marketplace and helps keep costs down. Through the use of standard APIs, the goal is to develop software that can be run on the fastest, most inexpensive hardware available without having to rewrite the application.

> **INFORMIX-NewEra**
>
> **is an open, graphical,**
>
> **object-oriented**
>
> **environment for developing**
>
> **client/server enterprise**
>
> **database applications.**

INFORMIX-NewEra

NewEra is:

Open—extensible through class libraries and third-party tools, access to multiple databases, and runs on different development as well as display platforms.

Graphical—allows the development and deployment of graphical applications for both Windows and Motif, and also enables deployment on existing character terminals.

Object-oriented—supports component-based system development, which facilitates reuse and flexibility, as well as greater productivity.

Client/server enterprise database applications—designed specifically for client/server environments, can access a variety of heterogeneous corporate data, and has the robustness to support complex, mission-critical applications.

INFORMIX-NewEra

1. Increased Productivity

2. Greater Application Flexibility

3. Highly Scalable Deployment

INFORMIX-NewEra

This presentation is divided into three main sections:

—Increased Programmer Productivity

—Application Flexibility and Extensibility

—Enterprisewide Application Scalability

Our goal is to demonstrate how NewEra satisfies critical technical requirements in these three areas and the importance of these areas to the successful development of client/server applications.

NewEra Language

The architecture of NewEra, while simple, is a critical differentiator with respect to the competition.

At the core of the environment is a powerful, full-featured programming language, providing the flexibility and extensibility required to support today's applications. The language combines both structured and nonstructured capabilities, enabling developers to utilize their existing skill sets while learning to effectively apply new technology, such as object-oriented programming.

Class libraries extend the language and allow new features and functions to be added to the tool. A customer does not have to wait for Informix to develop the functionality, but can acquire it from a third party with domain-specific experience, build it from scratch, or customize an existing class library that will meet a specific set of application requirements. NewEra provides customers with the choice to build, buy, or build and buy such technology.

Third-party tools allow NewEra to satisfy the demands of every stage of the development and deployment process, including requirements and analysis, design, development, testing, and maintenance. Everything the programmer needs is under one roof, and all tightly integrated.

Productive Language Architecture

Traditional INFORMIX-4GL

Object Oriented Extensions

INFORMIX-NewEra
Database Language

Productive Language Architecture

The New Era Language is based on INFORMIX-4GL, which has been used in thousands of organizations worldwide to create mission-critical applications such as reservation, accounting, and distribution systems.

The New Era Language extends the capabilities of 4GL by adding object-oriented technology. Informix is building upon a history of experience and success in the tools marketplace, and delivering a new product that combines the best of 4GL with the latest object technology—not creating a whole new language from scratch.

INFORMIX-NewEra

Increased Productivity:

➤ **Visual Programming Facilities**

➤ **Reusable Application Components**

➤ **Team Development Support**

INFORMIX-NewEra

The presentation discusses the following areas related to NewEra's productivity features/benefits:

—Visual Programming Facilities

—Reusable Application Components

—Team Development Support

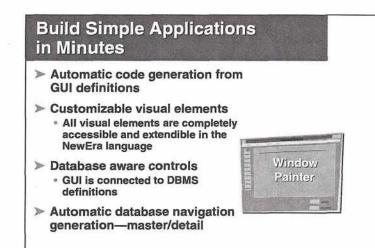# Visual Programming Facilities

Graphical User Interface Issues

What we have heard -

➤ **"Creating GUIs is too time consuming"**

➤ **"My developers create graphical interfaces that look like 1960s vintage hotel rooms"**

➤ **"I would like to use some of the windows I already created, but I can't find them"**

Graphical User Interface Issues

This slide contains some quotes that we've heard from customers. You can either present them or use some quotes that people have actually talked about in the customer account itself.

If the presentation is too long, or this kind of information is not of interest to your customer, this is a good slide to remove from the presentation.

Build Simple Applications in Minutes

> ➤ **Automatic code generation from GUI definitions**

> ➤ **Customizable visual elements**
>   - All visual elements are completely accessible and extendible in the NewEra language

> ➤ **Database aware controls**
>   - GUI is connected to DBMS definitions

> ➤ **Automatic database navigation generation—master/detail**

Build Simple Applications in Minutes

The first visual tool that will be used by programmers is the Window Painter. It allows you to easily and quickly create graphical user interfaces. NewEra's Window Painter provides a number of advantages over writing GUI code from scratch:

1) It automatically generates code from the graphical user interface definitions stored in the NewEra repository.

2) All of these graphical elements are completely customizable by the user. For instance, you could create a password checker for accessing certain data such as personnel information dealing with salary.

3) NewEra understands how GUIs are tied to a database. The use of SuperViews enables programmers to tie Windows widgets to the content of the data in the database.

4) NewEra understands the underlying database schema—thus, it can generate programs automatically including master/detail relationships.
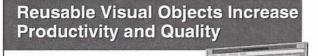
Prebuilt Visual Objects—the Application Framework

> ➤ **Includes toolbars, status windows, browsers, icons, state controls**

> ➤ **All objects written in NewEra language**

> ➤ **All are fully extensible by programmers**

Application Framework

Prebuilt Visual Objects—the Application Framework

NewEra offers more than just automatic code generation. It also includes an application framework consisting of over 90 prebuilt objects that can be assembled by programmers to create applications.

All of the objects are written in the NewEra language and because of this, they can be customized for any given application.

Pre-built graphical user interface objects make it easier to implement a true Windows look-and-feel in your application. They also help to create a "standard" look-and-feel across a set of applications—an important consideration for an organization trying to maintain standard user interfaces.

Reusable Visual Objects Increase Productivity and Quality

> **Create and maintain compound visual objects**

> **Templates allow shared look-and-feel and logic**

> **Easier maintenance of applications**

Visual
Object
Reuse

Reusable Visual Objects

Reusable visual objects eliminate a significant amount of work from development and maintenance of a particular application. This capability is a key element of our productivity message.
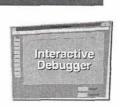
Programmers can create "compound" collections of objects with the Window Painter that can be grouped together for use and reuse. Compound objects make application maintenance a lot easier through a feature called reusable object files.

They can also create templates that allow look-and-feel as well as presentation logic to be shared among applications.
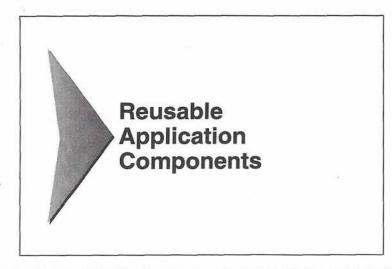
Graphical Debugging Facilities

➤ **Speeds up debugging and maintenance**

➤ **Learning tool for understanding how an existing application works**

Interactive Debugger

Graphical Debugging Facilities

A graphical, interactive debugger is a critical requirement for today's productive development environments. If you ever used write line statements to understand what was in a variable, it's easy to understand the benefits of a good debugger and to see how far development environments have progressed since the old days. As applications become more complex, debugging facilities become even more critical for successful development.

The interactive debugger is a valuable means of understanding how an existing application works. It's also an instructional tool for learning NewEra, which is important given the fact that very few projects have the same team members from start to finish. The debugger can help bring new people up to speed as quickly as possible.

Reusable
Application
Components

Reusable Application Components

The second topic that we'll talk about under productivity is the idea that we can reuse application components in the form of class libraries. This is where we really hit on the build and buy concept versus the old build or buy.

Component-based development will be highlighted as a key issue over the next year or so with NewEra.
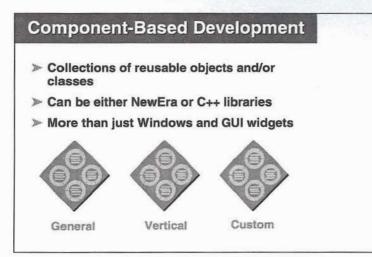
Component Reuse Issues

What we have heard—

- "Reusable code is a dream that will never happen"
- "I want to use this library that I purchased"
- "No one will take time to document my code—that's why no one will use it"
- "This code can't be extended—I have to rewrite it"
- "No standards"

Component Reuse Issues

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Component-Based Development

- Collections of reusable objects and/or classes
- Can be either NewEra or C++ libraries
- More than just Windows and GUI widgets

General   Vertical   Custom

Component-Based Development

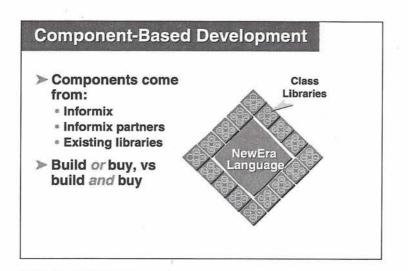NewEra is built around the concept of component-based development via class libraries.

We are positioning component-based development as a major strength of the NewEra language, environment, and overall development concept. Customers no longer have to develop all the application-specific code themselves. Instead, they can purchase specific functionality from "best-in-class" technology providers in the form of class libraries. This capability shortens development cycles and increases application quality.

Class libraries are collections of reusable objects. Class libraries can be written either in the NewEra language or C++. This key advantage allows customers to employ any of the numerous class libraries that are already available in C++, or use NewEra itself to design libraries specifically for use in a particular application or applications.

Class libraries are available as general technology (horizontal applications), vertical (application-specific) technology, or can be customer-built for custom capabilities.

An example is the application framework class library that was built by three of our VARs. But other class libraries go well past simple graphical objects. Class libraries can also encompass the application logic, or provide application-specific functionality, such as business graphics, character-based deployment, and three-tier application partitioning.

Component-Based Development

> **Components come from:**
> - Informix
> - Informix partners
> - Existing libraries

> **Build *or* buy, vs build *and* buy**

Class Libraries

NewEra Language

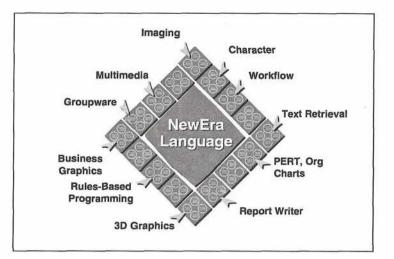## Component-Based Development

The variety of sources for class library technology is another fundamental strength of NewEra. The customer is not dependent upon Informix to provide all the capabilities that they may need for a given application, nor are they forced to build everything themselves.

These components can come from either Informix, Informix partners, or existing class libraries within the customer's own environment, and any of these can be used within a NewEra application.

In the past, "turnkey" systems were popular since they promised to meet a specific set of customer needs. Unfortunately, while many firms shared a core set of application requirements, heavy customization was still necessary to meet company-specific needs. So the expectation that a single package would cover every contingency wasn't generally accurate.

In time, the pendulum swung the other way—companies began building their own entire systems from scratch. This approach led to problems; for example, a bank might be building HR or payroll systems when its core competencies revolved around banking or trading.

The pendulum is now more in the middle where there is a build and buy situation—the best of both worlds. Companies can buy the base technology and tailor individual pieces to meet their specific needs.

The diagram shows a central diamond labeled "NewEra Language" surrounded by technology blocks. Labels around the diamond: Imaging, Character, Multimedia, Workflow, Groupware, Text Retrieval, Business Graphics, PERT, Org Charts, Rules-Based Programming, Report Writer, 3D Graphics.

NewEra Language

This slide is designed to show some of the technology areas provided through class libraries. It is helpful to point out that we are talking about functionality, not specific vendors of class libraries.

Specific vendors will be discussed separately, since there may be multiple vendors providing similar functionality.

Class Library Partners

Partner	Description
Excalibur	Text Search and Retrieval
Lenel Systems	Multimedia
Network Image	Fax, Imaging, Workflow
Sol-Tek	Business Graphics
TMS	Imaging
ILOG	Rules-based programming
MITI	Report writer
American Netronic	PERT, Flow, Org Charts
Staffware	Workflow
Autodesk	3D Graphics
Optical Technology Group	Imaging, OCR, Optical Devices

Class Library Partners

This slide maps the list of previously listed functionality with the vendors providing that functionality. Vendor listings and class library availability will be updated regularly.

NOTE: In particular, EDI and Frontec have been deleted from the list.

OLE Support in NewEra

- ➤ **NewEra as an OLE container**
- ➤ **OLE drag and drop**
- ➤ **OLE remote automation server**
- ➤ **OLE remote automation client**
- ➤ **OCX support**

OLE Support in NewEra

Object linking and embedding (OLE) is also supported in NewEra, and enhances our object reuse capabilities.

OLE support is implemented in a number of different ways. A NewEra application can contain OLE objects such as Excel spreadsheets. Drag and drop provides the capability to use a mouse to move information between OLE objects and NewEra applications.

OLE remote automation server allows a NewEra application to act as a server to an OLE-enabled application on another system. So, for example, an Excel spreadsheet could make a request of a NewEra application from a remote location.

OLE remote automation client allows you to use NewEra to make requests of remote OLE applications.

OCX support provides the ability to use OLE controls for building applications.

These OLE features will be enabled in releases following 2.0. Please refer to Falcon mailing, Monday morning wake-up calls, and other mail for updates.

Team Development Support

Team Development Support

The third and final topic that will be introduced under increased productivity is NewEra's team development facilities.

Team Development Issues

What we have heard—

➤ "My developers don't work well together"

➤ "Does anyone know what version of this program is on this guy's PC?"

➤ "Where's the source code?"

Team Development Issues

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Manage the Building Blocks of Complex Applications

➤ **Automatically manages compiling and linking of application building blocks**

➤ **Integrated with PVCS from Intersolv**

Application Builder

Manage the Building Blocks of Complex Applications

The purpose of this slide is to highlight another of the key tools in the NewEra environment, the application builder.

The application builder automatically manages the compiling and linking of application components written by different developers. Since the application builder manages the organization of application logic, it lessens the cost of maintenance, since the tool tracks dependency structures automatically.

It also includes a fairly deep integration with the PVCS version manager from Intersolv. PVCS integration enables teams to manage different versions of windows, source code, and applications from within the application builder without ever having to separately enter the PVCS product. This is particularly important for large, complex applications where teams of developers demand robust configuration management capabilities.

Object-Based Repository

> **Application definition**
> • Source modules
>   and dependencies

> **Class information**
> • Location and navigation
> • Declaration and definition
> • Members

> **Class library**
> • Hierarchy
> • Components

NewEra
Repository

Object-Based Repository

The NewEra repository is a key piece of the application development environment that will be introduced with NewEra 3.0.

The repository will extend NewEra capabilities through the introduction of an object repository based on the Versant object database. This implementation will provide a finer level of control of the individual class definitions and object definitions within NewEra. A number of companies have tried implementing a repository with a relational database and found that the level of granularity was not sufficient. The most notable was DEC with CDD/Repository.

The repository will be able to manage all types of application objects and class libraries—whether custom-built or obtained from Informix or third parties.

Versant was chosen specifically on the basis of performance. We tested a number of object database implementations and found Versant to have the best overall performance for our purposes.

Browser Facilitates Object Reuse

➤ **Facilitates reuse with class, object, and code browsing capabilities**

➤ **Analyze impact of application component changes**
  - Schemas
  - Forms
  - SuperViews
  - Functions
  - Classes
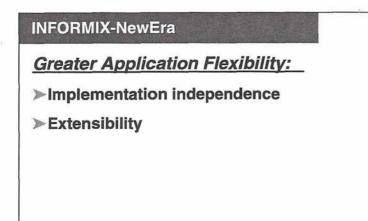 - Variables

NewEra Browser

Browser Facilitates Object Reuse

The browser is an interface to the repository designed for a team of developers to individually access project information—allowing them to determine what objects are available for reuse. Without a browser, the value of the repository and component reuse in general is significantly diminished. Imagine walking into a library to look for a particular book and having to walk up and down each aisle or stack to track it down. Finding it would be virtually impossible!

However, the other major function of the browser will be to analyze the impact of proposed changes on applications and databases for maintenance purposes. Managers need to know the potential impact of particular changes to an application in order to determine when and if a change should be made.

This particular point is important when we are discussing the full life-cycle support provided by NewEra, and can be a differentiator against tools that make development easy and maintenance impossible.

Greater Application Flexibility:

➤ **Implementation independence**
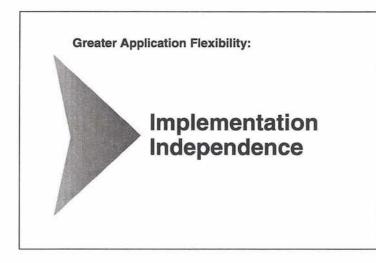
➤ **Extensibility**

INFORMIX-NewEra

This is just a spacer slide that introduces the second main point of the presentation. We will cover application flexibility by outlining NewEra features in the following areas:

—Implementation independence (i.e., data source, display, hardware, and OS independence)

—Extensibility (how an application adapts to change by incrementally adding new functionality)

Greater Application Flexibility:

Implementation Independence

Implementation Independence

The first topic that will be discussed is implementation independence.

Implementation Issues

What we have heard

➤ "I need to run this application against multiple databases"

➤ "Several divisions in my company have different hardware, but we want the same applications"

➤ "I want to develop and run on Windows and Motif"

➤ "I still have character applications that run on my VT220 terminals"

Implementation Issues

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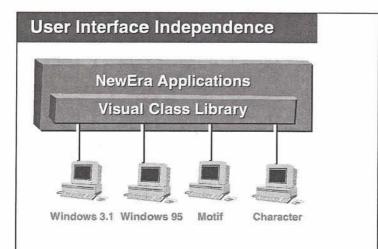
Data Source Independence

Data Source Independence

A NewEra application can access any type of data, from a variety of sources. This capability is important because NewEra is the first Informix tool to be database independent.

With the Connectivity Class Library, NewEra provides interfaces not only to Informix databases but also to Oracle, Sybase, IBM, and other databases. Using Informix gateway products such as DCE/NET, Enterprise Gateway, and Gateway *with DRDA*, almost any data source on any computer can be accessed with NewEra.

A frequently asked question concerns Informix's plans to support native connectivity to other databases. The general answer is no. The ODBC drivers provide a level of performance that most customers find satisfactory.
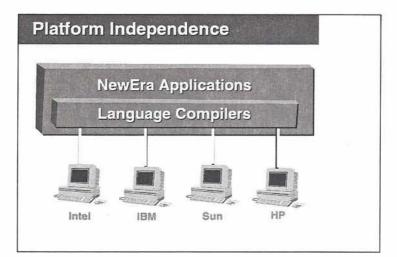
User Interface Independence

A NewEra application can support a number of different display environments from the same core code stream.

Although a different code stream may be preferable, depending on the application and the environment, it is not required. This flexibility eases both development and maintenance, reducing costs.

Please note that NewEra supports deployment on both Windows 3.1, Windows 95, Motif, and character-based development.

There have been a number of questions asked about a Macintosh interface. We are currently in the process of determining the business need for supplying a deployment-only Mac capability.
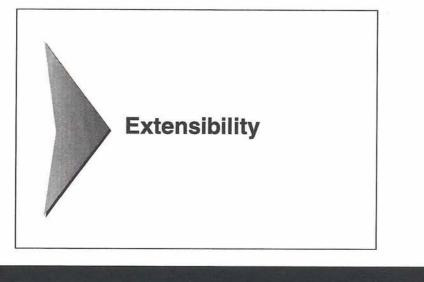
Platform Independence

NewEra Applications
Language Compilers

Intel   IBM   Sun   HP

Platform Independence

NewEra currently runs on a number of different platforms, in keeping with our open systems strategy—giving our customers the freedom to choose their hardware and operating system vendors based upon their own unique requirements.

New platforms are constantly being evaluated.

A frequent question concerns future support for NT. A lot of the work needed to support NT is actually required for supporting Windows 95. Though there is not a formal target date for NT support, it could easily be available around the same time as Windows 95 support.

Extensibility

Extensibility

Introduces the other topic to be discussed under greater application flexibility: extensibility.

Extensibility Issues

What we have heard

➤ "I can't afford to rearchitect my application every time my requirements change"

➤ "I spend too much time on debugging and maintenance each time a new feature is added"

➤ "Why can't I get my application up and running in a character environment?"

Extensibility Issues

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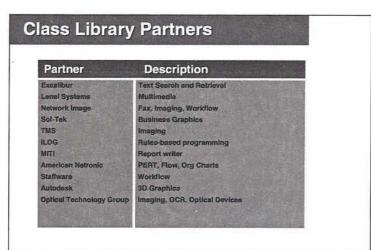
Power of the NewEra Language

- ➤ Insulates applications from platform and behavioral changes—reducing development and maintenance costs
- ➤ Class libraries enable new behaviors to be added to an application

Power of the NewEra Language

The NewEra language insulates applications from low-level platform, network, and behavioral specifics.

Since the application is written in a high-level object-oriented language, it remains a level of abstraction above implementation details concerning target deployment environments and behavior-specific functionality—ensuring a much longer application life cycle. In addition, code maintenance will be dramatically reduced over the life of the application.

Apart from the general object-oriented capabilities of the NewEra language, class library technology allows new functionality to be easily "plugged in" on demand without requiring any rearchitecture of the underlying application logic. This benefit ties into the productivity argument, but is essential for enabling applications to grow and change along with new business and technological requirements.

Class Library Partners

Partner	Description
Excalibur	Text Search and Retrieval
Lenel Systems	Multimedia
Network Image	Fax, Imaging, Workflow
Sol-Tek	Business Graphics
TMS	Imaging
ILOG	Rules-based programming
MITI	Report writer
American Netronic	PERT, Flow, Org Charts
Staffware	Workflow
Autodesk	3D Graphics
Optical Technology Group	Imaging, OCR, Optical Devices

Class Library Partners

This slide again mentions class library vendors providing additional functionality. Vendor listings and class library availability will be updated regularly.

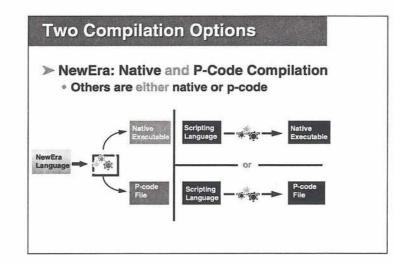NOTE: In particular, EDI and Frontec have been deleted from the list.

INFORMIX-NewEra

Deployment Scalability:

➤ **Compilation options**

➤ **Application Partitioning**

➤ **Multiple DLLs**

INFORMIX-NewEra

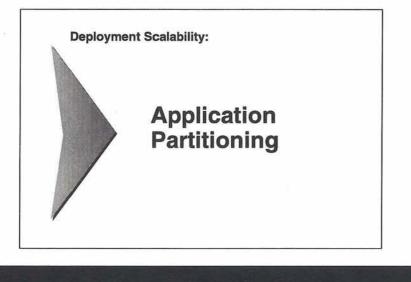Introduces the third and final section of the presentation: deployment scalability.

Two Compilation Options

➤ **NewEra: Native and P-Code Compilation**
  • **Others are either native or p-code**

Two Compilation Options

Before launching into a discussion of NewEra's partitioning capabilities, it's important to highlight its ability to either run in interpreted mode or compiled mode. This is a major advantage over a number of competitive tools.

Interpreted mode is designed to make developing and debugging the program easier—an especially important consideration for complex mission-critical applications.

Natively compiled mode is designed to increase performance when the application is deployed, and is the key to delivering applications that will scale throughout the enterprise.

Deployment Scalability:

Application Partitioning

Application Partitioning

The second topic that will be discussed is application partitioning.
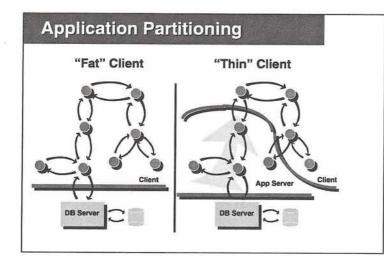
Partitioning Issues

What we have heard

- ➤ "I can't fit this application on these PCs"
- ➤ "Splitting an application into a GUI, 3GL code, and stored procedures is too difficult to do and maintain"
- ➤ "My hardware changed and I need to rewrite the application"
- ➤ "Response time is too slow"

Partitioning Issues

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Application Partitioning

"Fat" Client   "Thin" Client

Client

App Server   Client

DB Server   DB Server

Application Partitioning

Application partitioning allows different parts of an application to be processed separately on either side of the client/server environment.

The advantage of running some parts of an application on a server, close to the database engine, is increased raw processing performance and a reduction in network traffic. Application partitioning allows an application to execute in a way that makes the most sense—according to the resource constraints of a particular computing environment.

For example, with partitioning, you wouldn't need to upgrade all your end users to expensive Pentium machines just to run a new application. You could partition the application so that the display logic is processed on the desktop, and the application and database logic are processed on the server.

And to make partitioning easier, NewEra provides a consistent development environment and toolset for both the client and the server—while PowerBuilder and Visual Basic do not.

Many tools allow you to implement partitioning based on a two-tier architecture where all of the processing logic is on the client and all of the database access is on the server. But the real power of NewEra's partitioning capabilities lies in its ability to perform three-tier partitioning—where the application logic is separate from the database logic, improving performance and maintenance far above what can be accomplished with a two-tier strategy. Note that the application server and the database server could physically be the same machine.

Application Server Benefits

> **The Application Server Enables
> Enterprisewide Scalability**
> * **More powerful than stored
>   procedures**
> * **More productive than using
>   middleware and rewriting in C**
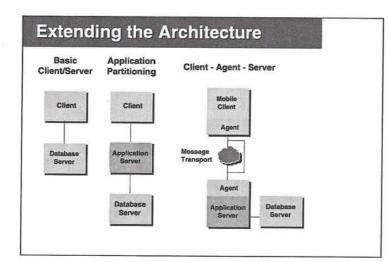> * **Insulation from platform changes**

Application Server Benefits

Since the application server code is written in NewEra, as is the rest of the application, you can write the application as you normally would and then determine how to partition it later. This advantage facilitates the listed benefits.

Stored procedures do not allow for three-tier partitioning, and can result in the FAT SERVER syndrome—overloading the server resources with both application and database logic processing. They are also slower than compiled code, and are difficult to write, debug, and maintain.

Using NewEra's application server class library is far more productive than using a 3GL or some other piece of middleware, which is often difficult to use and not well-integrated into the environment. Consequently, the overall development and maintenance costs for NewEra are lower than with other tools.

And perhaps most importantly, providing three-tier partitioning via class library technology insulates the application from platform changes—allowing hardware to be replaced or changed as needed without necessitating any changes to the underlying architecture of the application—only a simple recompile for the native C compiler is needed.

Extending the Architecture

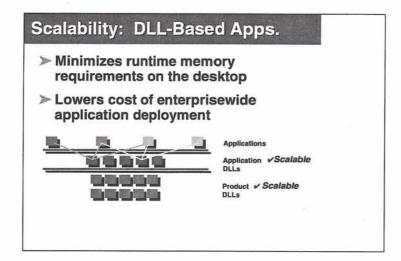| Basic Client/Server	Application Partitioning	Client - Agent - Server
Client	Client	Mobile Client / Agent
Database Server	Application Server	Message Transport
	Database Server	Agent / Application Server / Database Server

Extending the Architecture

You can also use partitioning to extend a NewEra application to support new technologies such as mobile computing. By replacing the standard communications software with special agent technology, applications can run in a mobile or disconnected environment. Developers do not need to deal with the complexity of developing mobile applications—NewEra and the agent technology do it for them.

With application partitioning, you can implement an "n-tiered" application for this purpose. Mobile computing is a perfect illustration of the intersection of extensibility and scalability, and how NewEra provides both of these, a requirement for most mobile applications, in one integrated package.

Scalability: DLL-Based Apps.

➤ **Minimizes runtime memory requirements on the desktop**

➤ **Lowers cost of enterprisewide application deployment**

Applications

Application ✓*Scalable*
DLLs

Product ✓ *Scalable*
DLLs

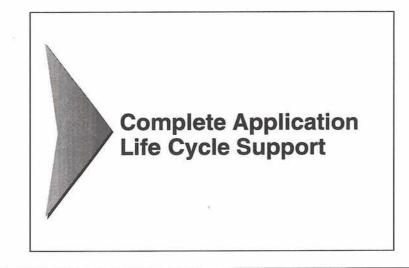## Scalability: DLL-Based Apps.

Since NewEra provides a C-code compile option, it supports multiple Windows-based dynamic link libraries (DLLs), which allow you to minimize the memory requirements of an application by breaking it into a subset of smaller executable libraries. These libraries are called at runtime, and eliminate the need to execute the whole application at once—which would bring most PC-based desktop systems to a halt.

Using multiple DLLs eliminates the need to upgrade end-user machine resources to accommodate larger, mission-critical applications—resulting in lower overall costs and saving valuable administrative resources.

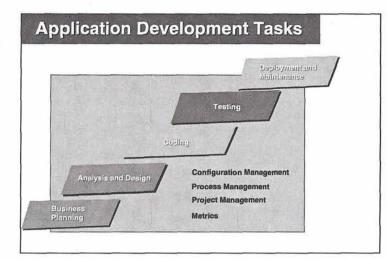# Complete Application Life Cycle Support

Design Issues

What we have heard

- ➤ "My applications are so big and complex that I need a strong data modeling tool that works with my client/server development environment"

- ➤ "I need to automate more of my development process, especially testing and deployment"

- ➤ "Tools need to work together"

Design Issues

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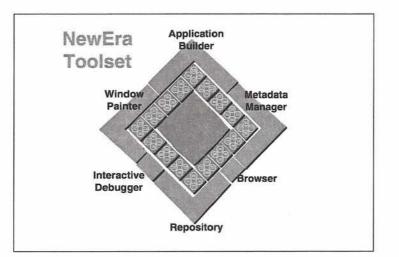
If the presentation is too long, or this kind of information is not of interest to your customer, this is a good slide to remove from the presentation.

Application Development Tasks

There are many different tasks that application developers must accomplish—business planning, analysis, design, coding, testing, deployment, and maintenance. These tasks tend to occur in a distinct, systematic order and usually as part of an iterative process.

Therefore, developers need tools for configuration management, metrics, project and process management, and documentation, among other things.
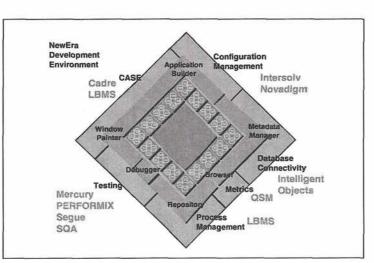
NewEra Toolset — Application Builder, Window Painter, Metadata Manager, Interactive Debugger, Browser, Repository

NewEra Toolset

The core NewEra product addresses only a portion of these activities—design, coding, testing, and deployment. Therefore, other tools are needed to round out the environment for full application life cycle development.

Since NewEra is open, these tools can easily be obtained from third parties (Informix Partners) and integrated into the NewEra environment easily and seamlessly.
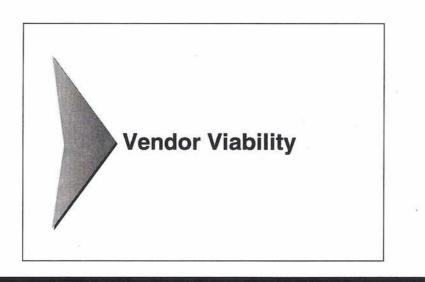
Third-Party Products

The third-party products integrated with NewEra represent best-in-class solutions for specific areas of expertise. A customer can choose from a variety of providers in some areas. This is an important advantage with respect to competitive products that require you to buy an entire, and often inadequate, environment from a single source.

Partner products provide capabilities such as as metrics, process management, testing, case, configuration management, and database connectivity.

For example, Cadre's CASE tool is tightly integrated with NewEra, as are testing tools from Mercury, Interactive, PERFORMIX, Segue, and SQA. Support for configuration management is provided through Intersolv, and deployment management with Novadigm is also currently available.

Vendor Viability

Vendor Viability

Vendor Issues

What we have heard

➤ "My vendor has to have a track record in the tools business"

➤ "There must be 300 tools companies. All of them can't survive."

➤ "Can you support my programmers in a different country?"

➤ "I want a vendor that will protect my existing and future investments"

Informix and the Tools Market

> $470 million revenue in 1994

> $150 million tools revenue worldwide

> Over 500,000 tool licenses sold to date

> 75% of Informix's 5000 partners have applications written in Informix tools

> Tools for application developers, end users, and power users

Informix and the Tools Market

This information serves to illustrate our experience and success in the tools market, which we have extended with NewEra.

Remember to mention our history in the tools business, our financial stature, our international presence, and our emphasis on migration and investment protection.

NewEra Strengths

➤ **Productivity**
  - Code/component reuse
  - Team-oriented, repository-based development
  - Easy to *maintain* and *evolve* applications

➤ **Extensibility**
  - Class libraries and components
  - Multiple database access

➤ **Scalability**
  - Interpreted and compiled code
  - Application partitioning
  - Multiple DLLs

NewEra Strengths

NewEra offers key advantages in terms of productivity, extensibility, and scalability.

In each of these areas it is good to remind the audience of what you are referring to in terms of a NewEra feature in each of the bullets.
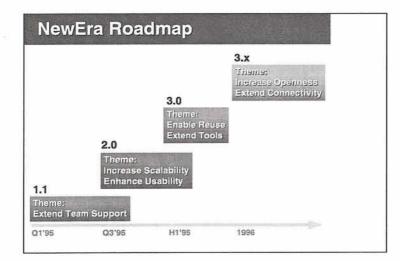
INFORMIX-NewEra

1. Increased Productivity

2. Greater Application Flexibility

3. Highly Scalable Deployment

INFORMIX-NewEra

NewEra satisfies the critical requirements of client/server application development tools:

—Increased Programmer Productivity

—Application Flexibility and Extensibility

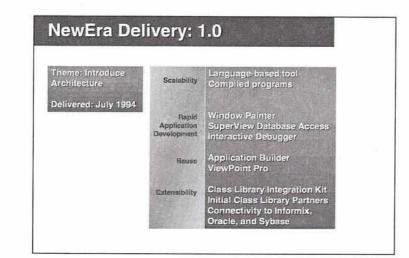—Enterprisewide Application Scalability

NewEra Roadmap

NewEra Roadmap

NewEra time line and release themes.

Note: version 2.1, which offers GLS support, will be available in Q495.

NewEra Delivery: 1.0
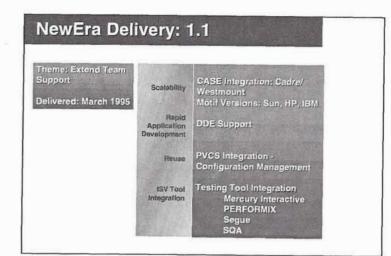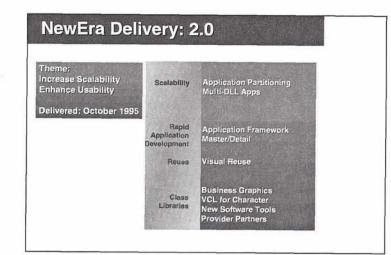
Theme: Introduce Architecture Delivered: July 1994	Scalability	Language-based tool Compiled programs
	Rapid Application Development	Window Painter SuperView Database Access Interactive Debugger
	Reuse	Application Builder ViewPoint Pro
	Extensibility	Class Library Integration Kit Initial Class Library Partners Connectivity to Informix, Oracle, and Sybase

NewEra Delivery: 1.0

NewEra Delivery: 1.1

Theme: Extend Team Support

Delivered: March 1995

Scalability	CASE Integration: Cadre/Westmount Motif Versions: Sun, HP, IBM
Rapid Application Development	DDE Support
Reuse	PVCS Integration - Configuration Management

ISV Tool Integration	Testing Tool Integration
	    Mercury Interactive
	    PERFORMIX
	    Segue
	    SQA

NewEra Delivery: 1.1

NewEra Delivery: 2.0

Theme:
Increase Scalability
Enhance Usability

Delivered: October 1995

Scalability	Application Partitioning Multi-DLL Apps
Rapid Application Development	Application Framework Master/Detail
Reuse	Visual Reuse
Class Libraries	Business Graphics VCL for Character New Software Tools Provider Partners

NewEra Delivery: 2.0

NewEra Plans: 3.0

Theme:
Enable Reuse
Extend Tools

Windows 95
Release

Planned Delivery:
1st Half 1996

Rapid Application Development — Repository-Based Tools, Partition Services

Reuse — Repository-Based Reuse, Class Browser

Technology Integration — Windows 95 Compatibility, NewEra as OLE Container, OLE Drag and Drop, OLE Remote Automation Server

NewEra Plans: 3.x

Theme:
Increase Openness
Extend Connectivity

Planned Delivery:
2nd Half 1996

Rapid Application Development	Component Painter Enhanced Partitioning Services Program Browser
Reuse	Nonvisual Object Reuse
Technology Integration	Windows 95 Compliance OLE Auto. Client OCX Support OLE Remote Automation Client GLS Tools

INFORMIX-NewEra
Building Applications
for the Future—Today!

Building Applications for the Future—Today!

INFORMIX-NewEra

Trends

Trends in Client/Server Application Development

Informix Software

Trends in Client/Server Application Development

Presenter Slide Only!

This presentation is targeted towards seminar audiences (usually DBA and MIS Director level contacts), and seeks to validate their choice of client/server as an IT environment, as well as position NewEra as the most appropriate tool for enterprisewide client/server database application development.

The presentation can, and depending on time, should be broken into pieces that can set the stage for most situations. These sections are: business challenges, Client/Server computing issues, the application development marketplace (and why the evolution of tools), convergence of technology trends, and summary.

Please review the speaker's notes attached to each slide to better understand the purpose of the slide. Each slide is included to express a specific point. The speaker will need to combine the slides in an order that is relevant to the customer situtation.

Presenter Slide Only!

The Challenge of Managing Change!

> ➤ **Firms must automate their operational process**
>
> ➤ **But they must also manage technological complexity**
>
> **Organizational goal:**
>   **Create *new* business opportunities**

The Challenge of Managing Change!

Two things are becoming clear in the business world—you need to manage change before it manages you, and technology is a means of managing that change.

In order to manage this change, firms are looking to automate their business processes. Not only are they looking to set up a foundation from which they can quickly adapt to internal and external changes, they also need to capture the knowledge base of workers so that as they move on, their knowledge is not lost to the organization.

Unfortunately, technology itself is has become so complex that it is driving the business instead of supporting it, which is exactly the opposite of the role that technology should play in the organization. If the organizational goal is to create new business opportunities, it should not be restricted by the technology in use.

The Changing Organization

- Changing management structures
- The rise of "Knowledge Workers"
- Mergers/acquisitions and "right sizing"
- Requirement to meet changing market demands more quickly
- 'Virtual' office

Technological goal:
Create a flexible IT infrastructure

The Changing Organization

If technology needs to support the business rather than constrain it, IT needs to adapt a flexible infrastructure that will enable it to react to internal and external changes quickly and effectively.

In order for this strategy to work, organizational and technological changes must occur in sync with one another. When new technology is applied to "old" organizations, it often fails to achieve its goals. And if a new organizational structure is forced to rely on old technology, the same thing happens.

The point is that it takes both to be successful in today's changing business climate.

Strategic Issues for the Changing Organization

> ➤ **Maintain a competitive advantage and respond more quickly to market demands**
> ➤ **Improve quality of products and services**
> ➤ **Reduce costs**
> ➤ **Increase productivity**

Strategic Issues for the Changing Organization

The pressure is on. The marketplace is constantly changing, and organizations that can't adapt will never succeed. Customers are demanding improvements in the quality of products and services. Competitors are threatening from every side, trying to steal market share. Owners and stock holders are demanding better bottom-line performance through lower costs and higher productivity.

How does management react to these demands? They ask IT to build better, faster, less expensive applications that will enable the organization to compete more effectively.

The Changing Organization and IT Technology

Business Requirements → Computing Architecture → Application Architecture → Applications

➢ **Business Requirements should *always* drive the use of technology**

➢ **The Computing Architecture should support the changing, dynamic business organization**

➢ **Technology should *never* constrain the way a business operates**

The Changing Organization and IT Technology

But old technology was not designed to cope with these kinds of pressures. Instead of enabling effective reaction to change, it prevents it by constraining the kinds of applications that can be implemented—in effect, driving the business.

But technology should NEVER drive the business. For example, suppose that a sales manager wants to add a new field to a sales application screen. The IT department says that it will take three man months to do it and cost a whole lot of money. At that point, most managers will walk away without the change being implemented. Even though there was a good reason for the request, the cost was prohibitive.

The goal today is to make the IT environment flexible enough so that these kinds of changes take days, not weeks or months, to implement and aren't cost-prohibitive.

A Strategy to Meet Changing Business Requirements: Client/Server Computing

- Downsize from mainframes to desktops and midrange servers
- Upsize from PCs
- Purchase packaged application software
- Redesign and rebuild applications for a distributed environment

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A Strategy to Meet Changing Business Requirements

Client/server computing is a way that IT operations can implement a flexible and cost-effective infrastructure. Many of you have already changed over to this paradigm. In fact, an overwhelming majority of companies will be using client/server environments as their primary means of computing by the year 2000.

It allows downsizing from mainframes to desktop and midrange servers so that hardware price/performance can be improved, and new technology can easily be incorporated into the environment.

It enables you to build more powerful and flexible applications that will improve service levels to your customer, both internally and externally.

And often, it allows you to buy Commercial Off The Shelf (COTS) application packages to satisfy specific customer requests instead of building traditional monolithic mainframe applications from scratch.

And most importantly, client/server allows everyone across the enterprise to access corporate data from their own desktop via powerful networked solutions, drastically reducing the use of isolated stand-alone PCs and increasing the likelihood that end users will work within the corporate IT model.

Presenter Slide Only!

The purpose of this section is to outline the issues involved in adopting the Client/Server computing paradigm.

Client/Server consists of a number of technologies that together hold a *promise*—not a guarantee—of more effective computing.

Client/Server is not a fit for all applications. It is important to understand that some applications should remain on a PC or a mainframe. The issue then becomes how best to utilize these applications in a more effective manner, as a part of a larger environment—the enterprise.

This section also points out that the IT department is changing its approach to software applications, moving to a 'build' *and* 'buy' decision from a 'build' *or* 'buy' decision. NewEra accommodates this change in direction, since class libraries can be purchased from third parties and applications can be developed modularly, allowing for new functionality to be added incrementally.

Presenter Slide Only!

IDC Insights About Client/Server Technology

- Global competition, new technology and other factors are <u>forcing</u> companies to change.
- Client/server technology is an attractive tool to build a response to this need for change.
- Moving in this direction without feeling a great deal of pain is the goal of many companies.

- Problems still exist:
  - Scalability
  - Reliability
  - Manageability
  - Technical problem identification and resolution
- Expect the current steady increase in use of client/server apps. to explode as these problems are resolved.

IDC Insights About Client/Server Technology

Independent research organizations confirm that specific factors are leading companies to choose client/server computing in an effort to cope with change, but that client/server is not a "silver bullet" to handling computing problems.

A key point is that client/server implementations are expected to continue to grow, and substantially so, as specific problems with the technology are solved.

Is Client/Server More Cost Effective?

Firms often fail to see the long-term cost justification of client/server computing, concentrating instead on the high up-front costs of developing and deploying client/server applications.

The payback typically comes later as we put the client/server application into production use.

If the application is developed and deployed properly, client/server's greatest potential benefit to the organization is its flexibility—the ability of an environment and/or application to be modified in order to adapt to changing organizational or market requirements.

Keep in mind that you have to set and manage expectations. Your peers, your CEO, end users, and even your own staff may look for payback in the wrong places and too early in the cycle. You really need to look at how well you are addressing your organization's business needs further on down the line.

Is Client/Server More Flexible?

Client/server architecture reduces dependencies and does *not* propagate legacy systems:

- Tight integration (host-based) assumes interdependencies between components
- The user benefits from the ability to replace components as needed
- Cross-platform independence is driven by the economics of client/server components

Is Client/Server More Flexible?

The flexibility of the client/server environment contrasts sharply with the mainframe environment. Components of the client/server environment are both tightly integrated and easily added or removed, and multiplatform computing is a given.

In the old mainframe environment, when a business unit came to the IT department and asked for a few fields to be added to an existing application, hundreds or even thousands of programs impacted by this change had to be modified.

Change therefore came at great cost to the organization in terms of time and effort. Because of these costs, changes were rarely implemented and instead, the existing business processes were forced to accommodate the technology, instead of the other way around.

A computing infrastructure that assumes a state of constant change makes a big difference in IT's ability to meet users' needs.

Is Client/Server Necessary?

Is client/server really necessary?

To find the answer, you need to ask the following questions:

Can I currently design systems that scale both up and down?

Can I currently design applications in a modular, reusable fashion that allows me to constantly adapt to a rapidly changing world and take advantage of my limited development resources?

An increasing number of IT departments worldwide are finding that client/server applications are indeed helping them to meet the challenges presented by the market and their users' demands.

Presenter Slide Only!

This section begins with what companies have said they
want from Client/Server Applications. This then leads
into the application development marketplace. The first
two slides of this section are good to choose if you are
trying to provide a quick foundation for *'why'* NewEra.

The middle portion of this section goes into detail about
the evolution of tools from the 1st generation to the
2nd generation. This is important so that people realize
that an evolution is occurring and they may want to evolve
their applications as well. This transition is accomplished by
showing the good aspects of the 1st generation tools while
pointing out what the weaknesses are - where NewEra shines!

The rest of the section includes details about the characteristics
of 2nd generation tools. These slides can be dropped if time
is an issue. The presenter can just use the "Characteristics of
Second Generation Client/Server Tools" and talk through the
points.

Presenter Slide Only!

What Companies Want From Client/Server Applications

Priority	Objectives
First	• Make users more productive • Give users more access to information
Second	• Integrate multiple environments in the enterprise (surmount the "electronic tower of Babel")
Third	• Facilitate changes to business practices so that users could operate more efficiently.

Source: IDC's The Worldwide Value of Client/Server Computing Study

What Companies Want from Client/Server Applications

Organizations want very specific benefits from client/server, as is indicated in industry research performed by companies like IDC.

The first priority of people implementing client/server applications is to increase productivity and user access to corporate information. That's what client/server really means to organizations—giving people the tools they need to do their job effectively, and in a lot of cases, that means fast and effective access to information.

Organizations need to provide access to a variety of environments that have developed over the years—islands of information. Since nearly all companies have many different database environments, from small workgroups all the way up to the mainframe holding the corporate database, the second priority of people implementing client/server is tying these environments together.

The third priority is the ability to make modifications to either the environment or the application in a fast and effective manner.

Application Development Trends

Five Key Trends in Client/Server Development:
- ➤ Object-oriented programming
- ➤ The "downsizing" of development teams
- ➤ Multivendor computing
- ➤ The need for global data access
- ➤ The GUI as the primary means of human/computer interaction

Application Development Trends

Now that the reasons for the ascendance of client/server are clear, let's take a step back for a moment and look at the market from the developer's point of view. The Software Productivity Group has identified five trends driving the client/server development tools market.

The industry is moving beyond single-user and departmental/workgroup computing to large-scale, enterprisewide applications. In order to tackle these bigger applications, development teams are looking to object-oriented programming for greater productivity and modular application design. Managers are learning how to manage OO developers and teams, and how to select the right hardware and tools to support those teams.

At the same time, these development teams are being downsized. This fact makes increased productivity and reuasble code even more important. The demand for applications has not lessened, even though resources are more scarce.

And organizations are purchasing a variety of hardware and software products that must be integrated across the enterprise. Not only must development tools be available across many computing platforms, they must enable users from anywhere within the organization to access and manipulate data, regardless of where and how it's stored.

And since nontechnical end users are relying on GUI-based systems to access that data from their desktops, client/server development tools must be able to generate graphical applications to support these users.

Characteristics of First-Generation Applications

As client/server computing has evolved, successive generations of tools have been made available for application development. The first-generation tools were not designed for enterprisewide, mission-critical applications. Although they're still used today, these early tools were focused on a different kind of application altogether.

They are used to develop smaller, reporting and decision analysis applications. These applications have a relatively short life cycle and support relatively few users, often in a small department. While the applications offer impressive GUI functionality to these users, suboptimal performance and operational lapses are tolerated, because the applications are not business-critical.

In many cases, these applications were originally developed as prototypes that provided a quick "proof of concept," but were then deployed lacking the necessary functionality to support a more demanding set of requirements.

They rarely touch and almost never update legacy data sources.

These applications are not designed for scalablilty, flexibility, or maintainability. And when the organization needs to depend on these applications in such ways, they fail to deliver.

Characteristics of First-Generation Client/Server Tools

- Ideally suited for small graphical prototyping projects
- Designed for graphical interface into relational database
- Typically single-tasking and single-threaded
- Limited team development support

Characteristics of First-Generation Tools

In evaluating the first-generation client/server development tools, Judith Hurwitz, President of Hurwitz Consulting Group, characterized them as great for prototyping graphical applications, particularly those that access a relational database. However, she maintains that these tools are breaking down as the complexity of client/server applications increases.

Single-tasking, single-threaded operating systems and development environments can not support the more rigorous demands of this new breed of applications.

And as these applications become more complex and mission-critical, development teams are replacing single developers—and these tools do not provide the necessary capabilities to support multiple developers working together.

Why Are First-Generation Tools Failing?

First-generation tools are failing because organizations are trying to use them for things they were never designed to do. This is not to say that first-generation tools do not have a place—but they are simply not designed to produce flexible, component-based, enterprisewide applications.

Another important consideration is that application maintenance costs far outweigh development costs. Application maintenance cost is approximately 75-80% of the total cost incurred for software development. When organizations look to build and deploy mission-critical applications with first-generation tools, the maintenance costs over time will be enormous, even though the up-front costs for development may be low.

Picking the right tool for the right job is the key to success—you wouldn't use a flat head screwdriver on a Philips head screw with much success.
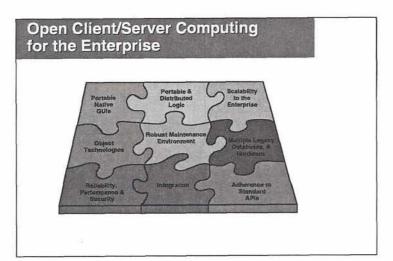
Characteristics of Second-Generation Applications

The new generation of client/server applications is proving to be far more complex. Compare this list with the characteristics of first-generation client/server applications.

These are the mission-critical "run-the-business" applications upon which your company relies for its very existence. They are enterprisewide in nature, have a long life span, and must support many users across the organization, often at various geographic sites.

OLTP performance issues are extremely important and any system downtime will cause considerable pain to users and hamper your organization's ability to function effectively.

And these applications have to access legacy data across multiple hardware and software environments.

Open Client/Server Computing for the Enterprise

This puzzle demonstrates that a single technology is not going to satisfy the requirements imposed by client/server environments.

An effective second-generation client/server development tool must allow you to build applications that provide mainframe-caliber performance and scalability, along with reliability and security. It must also incorporate the strong GUI-centric capabilities of first-generation tools, allowing for productive application development, and combine that with object-orientation. And it must be open, standards-compliant, data source independent, and available across a variety of computing platforms.

Requirements of Second-Generation Client/Server Tools

1. Ease graphical user interface development
2. Support reusable application components
3. Enable team development
4. Generate applications that scale
5. Provide independence in implementation
6. Enable applications to adapt to change
7. Address development complexity

Requirements of Second-Generation Tools

We must identify the requirements—the necessary "check-off" items—for these second-generation tools.

The first point highlights what second-generation tools have inherited from their first-generation predecessors. We want to keep the superior GUI-building capabilities of first-generation tools and add other features that satisfy the requirements for development of these more sophisticated, demanding applications.

The subsequent points list these additional requirements. Support for reusable application components highlights the need for object-orientation. Team development facilities are needed. Scalability is absolutely necessary. Tools must be usable across multiple platforms and access multiple databases. Component-based development provides the flexibility needed for applications to adapt to changing business requirements.

The final point sums up all these requirements—the ability to handle the complexity of developing flexible, scalable, enterprisewide applications—which first-generation tools can not satisfy.

Object-Orientation

- Increases programmer productivity
- Provides framework to support reuse of code
- Enables old and new technology to work together
- Makes applications extensible
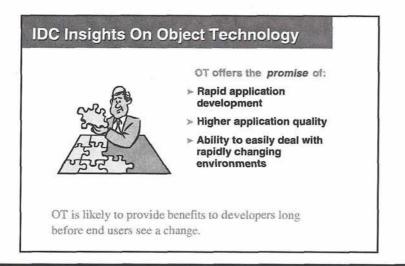- Enables business logic and rules to be combined

Object-Orientation

These next few slides detail some of the most important requirements.

Object-oriented programming promises easier and faster development through the use of a modular approach. It can enable both old and new technology to be utilized in a seamless environment as though they were designed to work together—allowing developers to add new functionality to an existing application incrementally. It enables business logic and rules to be combined in an object or class—dramatically reducing the amount of code required to implement a complex application and allowing for much easier maintenance.

A major productivity benefit is that objects can hide the complexity of a particular problem from the programmer, allowing them to operate at a higher level of abstraction and tie together pre-existing lower-level components in order to implement complex behavior.

Object-oriented environments also enable developers to create reusable software libraries that allow for much easier application creation in the future.

And since object-oriented technology can provide an ideal structure for capturing and storing business rules, it allows an organization to build a model for articulating a consistent way to manage the business.

IDC Insights On Object Technology

OT offers the *promise* of:

➤ **Rapid application development**

➤ **Higher application quality**

➤ **Ability to easily deal with rapidly changing environments**

OT is likely to provide benefits to developers long before end users see a change.

IDC Insights on Object Technology

This slide reinforces the expectation that object technology, like client/server, holds a promise not a guarantee. Technology has to be managed and implemented effectively. It is often effective to point out that management and management practices in place have a lot to do with the successful implementation of any technology.

Scalability to Enterprise

> Provide robust support for design, development, and deployment

> Add complex logic without low-level programming

> Provide seamless team support

> Handle multiple, simultaneous events and procedures without degradation of performance

> Handle increasing numbers of users
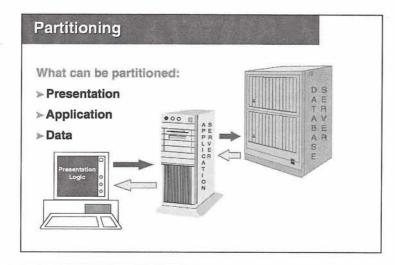
Scalability to Enterprise

These attributes of development and deployment scalability are the same characteristics that users have taken for granted in the mainframe and other host-based environments for the last 20 years.

Many users moving from the mainframe environment to client/server have been dismayed because they have had to settle for less reliability, performance, security, and support than they had in the mainframe environment.

It is important to remember that development teams building client/server applications will require the same system support services as those implementing mainframe applications.

While development scalability is extremely important, the ability to deploy scalable applications is equally so. Application partitioning is a primary means for ensuring that applications will scale to the enterprise.

Partitioning

What is partitioning and why is it important?

Partitioning is relatively simple. In order to implement true distributed computing, you must be able to be split up all application components to conform to technical and business requirements. If you are able to place the graphical, presentation logic of an application on the client side of a system, and the database and application logic on the server side of the system, you are able to use your computing resources more effectively, as well as improve the maintainability of the application as changes are required down the road.

Presentation services almost always reside on the client side of a system—the domain of first-generation client/server tools. Second-generation client/server tools allow data distribution and application logic to be placed on the server side of the system. Effective data distribution prevents multiple and/or conflicting copies of data from spreading across the organization. Application logic implements the complex business rules that are particular to an organization and an application domain.

Application logic partitioning is a fundamental requirement of second-generation client/server computing. Developers must have the option of splitting application logic onto a variety of physical servers in order to ensure top performance, flexibility, and cost effectiveness regardless of the particular computing environment. Without application logic partitioning, both client and server as well as the network itself can be brought to a halt by the processing demands of a business-critical application.
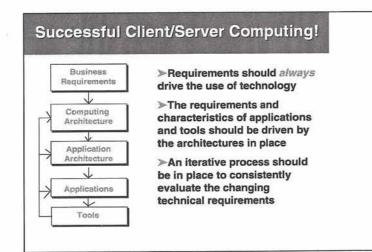
Cross-Platform Support

·Support for multiple platforms is not only important for the purposes of application placement
and partitioning. Users want to be free to purchase the best price/performance hardware, operat-
ing systems that provide the necessary base services, and networks to meet and support their busi-
ness requirements.

Users are no longer willing to tie themselves to one vendor's interpretation of their long-term
business and computing requirements, as well as that vendor's engineering and managerial
whims.

In addition, given the hard-won independence of individual business units in today's organiza-
tions, they will want to retain a high level of independence within the overall computing strategy
of the organization.

Thus, today's open system environments are an ideal and necessary component for the emerging
class of client/server development tools and enterprisewide applications.

Successful Client/Server Computing!

Business Requirements → **Computing Architecture** → **Application Architecture** → **Applications** → **Tools**	➤ **Requirements should *always* drive the use of technology** ➤ **The requirements and characteristics of applications and tools should be driven by the architectures in place** ➤ **An iterative process should be in place to consistently evaluate the changing technical requirements**

Successful Client/Server Computing!

Organizations everywhere are under considerable pressures. These pressures are driven by a dynamic, changing marketplace.

Your customers are demanding constant and sustained improvements in the quality of your products and services.

At the same time, competitive pressures are increasing, requiring a rapid and proactive response in order to remain a potent force in your markets.

The demands of owners and stock holders for bottom-line performance require consistent reductions in your cost structures while increasing the overall productivity of your workforce.

This need for improvement in the organization's services drives the demands that CEOs and CFOs place on their IT operations. And to react effectively, IT must implement a flexible computing infrastructure to handle the demands of changing business requirements. That infrastructure involves a flexible hardware and software environment, like that provided by client/server systems, and an application development tool designed specifically to meet the needs of this environment— an open, graphical, object-oriented, scalable, and extensible tool that will support IT both today and tomorrow—INFORMIX-NewEra.

Presenter Slide Only!

The purpose of this section is to articulate the potential benefits of Client/Server and reinforce the point that a discipline is required, i.e., successful computing strategies and applications do NOT just happen.

The trends in technology that are discussed at various points in the presentation are also articulated. These slides are from IDC and provide some valuable insight to customers that there are a number of technological changes occurring at once. These slides are good for reinforcing the point that Client/Server is one piece of a changing technological puzzle, one that can be mastered by using NewEra.

If the trend slides are used, it is suggested that they be used together. The first lays the foundation for the second. The second is where NewEra can be perceived as making a significant difference to customers.

The "Building for the Future - Today" slide is a summary slide that reinforces the theme of the 2.0 launch.

Presenter Slide Only!

Separate Computing Trends Are Converging

> The forces of Open Systems, Client/Server Technology, Object Technology, and 4GL Languages are combining.

> This combination of these forces is likely to explode in the late 90s, changing the way applications are built forever!

Separate Computing Trends Are Converging

Trends are coming together simultaneously. How companies handle this convergence will determine the overall effectiveness of the technologies within their organizations.

Handling the complexity posed by this convergence will be a key success factor in whether or not companies, and in particular, IT organizations, are successful in meeting their end-user or customer needs.

The way we utilize computing through applications is changing! The old ways will no longer work in the highly competitive, fast-paced global economy. Do not throw out old applications if they are still applicable to the business goals and needs. Instead, develop new flexible applications that can integrate older application functionality and allow for new functionality to be implemented as needs require.

Changes the Convergence Will Bring

The build/buy pendulum has finally reached a middle state.

For a long time, everyone wanted turnkey systems that would meet their specific needs. Turnkey applications often failed to pay off, since many businesses needed extensive (and unanticipated) customization in order for these applications to meet their specific needs.

The pendulum then swung the other way where companies began building custom systems from scratch. This trend led to businesses with limited application development experience attempting to build their own HR or payroll systems when their core competencies lay in other areas.

Now, the pendulum is in the middle where you have a build and buy situation. Companies can buy the core system and build the pieces that are tailored to their specific needs.

Building for the Future—Today

➤ The primary competitive advantage in the future will be the effective use of information

➤ Technology must support the business, not define the business

➤ Standardize on common APIs, databases, and development tools, not hardware or operating system platforms

➤ Common procedures, applications, and tools control Client/Server costs

➤ Client/Server, as a discipline, facilitates the creation of interoperable, transportable, scalable solutions

Building for the Future—Today

In summary, your competitive advantage is determined by how you take advanatage of available business information. Database applications are the means by which you can use and access this information.

In today's constantly changing world, technology must support, not constrain, the business. Old environments, tools, and applications can not satisfy the requirements imposed by constant change. The technology you use must be able to accommodate change—flexibility is key.

Flexibility is delivered by numerous features and functionality in computing environments as well as tools. Client/server is one such flexible environment—and NewEra is the tool specifically designed to leverage the strengths of client/server computing.

But remember that implementing the client/server paradigm requires discipline, and that discipline needs to arise from management. The key to developing applications to drive today's businesses resides not in the technologies that people use, but how they implement them.