

The Time-Sharing Leader

FOR GE TIME-SHARING USERS



Information
Services

World Leader
In Time-Sharing
Service

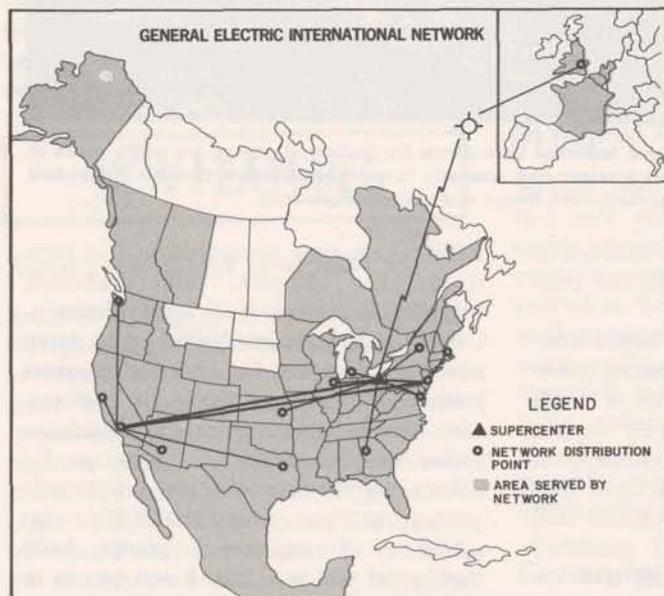
Vol. 3 No. 1

January 1972

BUILD YOUR OWN PRIVATE WORLDWIDE TIME-SHARING NETWORK

A unique business service now enables companies to create and maintain their own private world-wide time-sharing networks complete with customers and detailed program usage statistics.

Through NSS, for example, a headquarters facility may create a proprietary data base and appropriate programs for use by company components or customers spread all over the world, to receive a return on the use of the programs directly proportional to their utilitarian value. For a nominal service charge, detailed monthly reports are returned to the author under a special agreement with General Electric.



General Electric International Network. Make it your own.

Called Network Software Services (NSS), this offering combines the reach and power of the GE Network with extensive reporting capabilities to allow companies to pass on development and maintenance costs directly to those components or customers who utilize their software. NSS is also used for the development of centralized private libraries for firm-wide and/or customer use that eliminates software overlap or duplication.

NSS is receiving enthusiastic endorsement by national firms wishing to provide software support or services to various components or field offices on a "pay-as-you-use" basis. Some companies use NSS to distribute software that complements or enhances some other service or product they sell; e.g. process control equipment manufacturers, numerically-controlled machine tool manufacturers, consulting and accounting firms. The branches or customers of these companies utilize the GE Network to access the special programs created for them in a private NSS library.

Another continually-growing group of NSS clients are experts in specific industry disciplines. They create programs peculiar to their field, and load them on the Network. This arrangement gives the author broad distribution capability and

(Continued on page 2)

NEW MARK II '72

BUSINESS SYSTEMS CAPABILITY WITH TIME-SHARING ECONOMY

Business systems capability with time sharing economy. That's what the new features added in January mean to GE Network Information Service subscribers. Now there are more ways than ever to apply the Network to one of industry's thorniest day-to-day problems: business systems revolving around data collection and reporting.

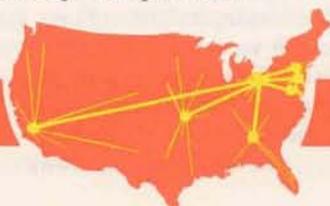
The new features now available concentrate on the following areas of primary concern to the user designing on-line business systems.

Greater operational simplicity — a critical ingredient for anyone considering a network that ties in outlying locations where personnel may have little computer experience.

Business Systems/EDP capability — applications that play a key role in a business' day-to-day operation demand dynamic data protection and control capabilities that go beyond the scope of typical time-sharing needs. Features such as Journalization, LOCK/UNLOCK, SLEEP/WAKE and program controls facilitate this.

Dynamic System Management — anyone committing themselves to an elaborate business system needs controls for security, operation and finance. Through the new programming tools and features of the administrative user program he now has this.

(Continued on page 3)



GENERAL  ELECTRIC

NETWORK RASCAL PLUS COPYING MACHINE SOLVES PEERLESS PUMP QUOTATION PROBLEM

A RASCAL has been added to the sales force of Peerless Pump, a Division of FMC Corp., to help capitalize on the growing industrial pump market. RASCAL — Rapid Access System for Customer order information, Application assistance and Logistic support from engineering — uses its crafty ways on GE's Network to provide top level engineering assistance to salesmen in far flung locations.

"RASCAL is a major step forward in our efforts to provide Peerless customers with competent and fast engineering assistance on a wide range of pump applications," said Jeff Johnson, Western Operations Engineering Manager, Los Angeles.

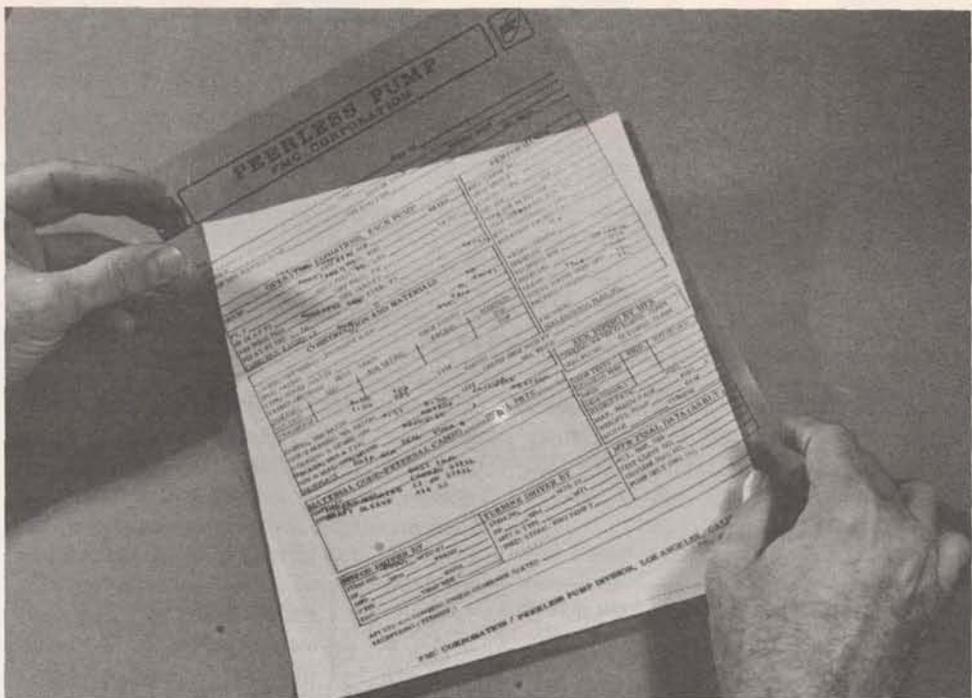
TIME DELAYS ELIMINATED

"The G.E. national network made this system feasible and the efforts of their service representatives made it a reality. The time delays have been eliminated and clerical paperwork significantly reduced," said Johnson. Terminal output, is formatted to permit an order entry form and technical data sheet to be easily generated by running the print-out through a standard copying machine with a clear preprinted form overlay. Engineering personnel are more creatively utilized now because the field salesmen can make up quotations with RASCAL without engineering help. Salesmen can be assured the information is correct and up-to-date since Engineering maintains control over file contents and program logic.

Peerless is one of the largest manufacturers of vertical turbine and horizontal centrifugal pumps for industrial, municipal and agricultural markets. In the past few years business emphasis has changed from the agricultural market to the complex highly engineered industrial and large municipal pump markets. This required more and more top level engineering assistance for field sales personnel from the factories.

LONGHAND EFFORTS LOST BUSINESS

As the field sales engineers begin working with the new marketing efforts, problems started to creep in... long delays in processing requests for quotations and other engineering assistance began occurring. To offset these, many salesmen attempted to do more of their own quotation work, or avoided applications where they could not



Peerless Pump order entry forms and technical data sheets for industrial pumps are easily made at sales offices by running preprinted overlays and specially formatted printouts through a standard copying machine. This method eliminates time delays and reduces paperwork.

immediately respond to the customers' request. As might be expected, lost business resulted.

In 1970, Peerless management began looking for solutions to the engineering assistance problem. It could double or triple the size of factory engineering departments, but that was not economical. It could initiate a massive education program for the field sales engineers and revise product literature and published application data, but this would take too long.

The answer came with the advent of RASCAL. Peerless has used time-sharing services for several years at the factories in design and application problems.

RASCAL CONVERTED FROM IN-HOUSE MACHINE

In early 1971, Johnson asked G.E. to see if a large pump-selection program could be converted to time-sharing use. This program was running on an IBM 360/50 in a batch mode, and two other time-sharing services had been unable to successfully make the conversion. Brian Garnichaud, G.E.'s account representative, working with Sarah Jones, the Peerless programmer, made the conversion and RASCAL was born.

RASCAL is now accessible in five locations: Los Angeles, San Francisco, Indianapolis, New York and Houston. Currently it includes POPS-C — a pump selection program for chemical process pumps, SPEED — a hydraulic performance conversion program for alternative driver speeds, HENRY — program for calculating the impeller and adjustment on deep well pumps, and HISTORY — for selection of engineered pumps built during the past ten years based on one or more specified design criteria.

Expansion of RASCAL is now planned for all major Peerless sales offices.

YOUR PRIVATE NETWORK

(Continued from page 1)

an all-encompassing business mechanism with no front end costs — in essence, sharing in the benefits of General Electric's \$100 million Network investment. Details on the software available from these independent authors is available through your GE Representative.

For more information on how you might create your own private, world-wide time-sharing service, check box 940 on page 4 or contact your GE Representative.

NEW FEATURES INHANCE NETWORK BUSINESS SYSTEM POTENTIAL

NEW BUSINESS SYSTEMS CAPABILITY

(Continued from page 1)

In addition, a variety of new and powerful editing and programming tools are added for greater programmer efficiency plus an economical new storage option.

Consider the new features reviewed below in combination with the inherent economic assets of time-sharing and the reach of the Network to over 80% of the business phones in the U.S. plus Western Europe. And then start thinking about how you can apply them to your company's problems.

For documentation to program these new features and detailed profiles on their capabilities contact your local GE Marketing Representative or check box 107 on page 4 and receive them by mail. If you have an immediate programming need, complete documentation exists on-line in the library as JAN72***. This program features an index allowing you to list only those items of interest.

NEW FEATURES

New Low Cost Storage

Archival Storage provides an auxiliary, storage media for data not requiring direct or immediate access. At the user's request, from his terminal, specified files are duplicated on magnetic tape and stored external from the system. Archival stored files may be retrieved on an overnight basis. Considerable cost savings can be realized where a user has only sporadic, but predictable need for certain large files in his catalog.

Price: \$.02/Archival Storage Unit/month
(ASU = PSU or DSU)

\$5.00/file to store

\$10.00/file to retrieve

Dynamic Data Protection

Journalization is a new capability of recording data into the system in such a way that this record should not be destroyed or altered in any way as a result of any reasonably foreseeable system malfunction, communication failure, program error or user action. The status of the transaction file can be relied upon to provide a means for a user to recreate a current and accurate master file.

More Economical File Sharing

Simultaneous File Sharing is the key to taking advantage of the Network concept of sharing a single file among a variety of widely dispersed locations, for such on-line applications as inventory management. A new file LOCK/UNLOCK capability now enables one file in a catalog to more efficiently serve multiple running programs simultaneously for both READ and WRITE access.

New Program Controls

Program controls allow a customer to build his own operating system within the GE Network system. Programs can be used to exercise supervisory control over the use of the Network, so that given tasks can be performed automatically and efficiently without operator interaction. These controls provide a means for a system to be self-contained and self-adaptive.

Dynamic File Capability

Scratch Files and called subroutines are two new dynamic file techniques that enable running programs to automatically create the necessary files required during execution. Scratch Files create temporary working space for data manipulation without incurring storage costs or cumbersome operating procedures. Files from dynamically called subroutines have all the properties of standard catalog files that normally require operator interaction to create or purge.

Economy In Multi-inquiries

SLEEP/WAKE subroutines, within the total data processing offering of the General Electric Company, enable the Network Information Service to be used for data processing applications that require one program to interact with another. Typical examples are routing of processed information via a common file, or making inquiries through such a common file to any number of locations having terminals and programs in con-

tinuous operation and retrieving and processing such information. Users do not consume or pay for system resources (CRU's) during periods of program inactivity.

New Calendar Month Billing

Beginning with your January 1972 invoice, GE Network Information Service bills will cover the period from the first day of each month (or the date service was initiated) to the last day of the month, inclusive.

The exact billing period covered will continue to be recorded on your invoice, but this change to calendar month billing should eliminate any overlap between months and hopefully simplify customer budgeting and accounting efforts.

New Programming Conveniences

Master Describe Command for easier file management; programs of any size can now be compiled at any time with RVB; maximum size binary random files increased from 500 to 1000 DSU's, and a more detailed LENGTH command are among these new capabilities. They all add up to increased efficiency and cost savings for the user developing programs for his own use or to be run by others.

More Tedit Improvements

The new editor, TEDIT, introduced in November 1971, providing single letter string or character editing, has been enhanced to further increase productivity and economy for the user. Improvements of a new line finder routine, an abort character to exit from loops, a mode to ignore line numbers, and additional verification modes all can be of value to users immediately.

The Time-Sharing LEADER

Published by the Information Services Marketing Department, Bethesda, Md., for General Electric Time-Sharing customers to inform them of new features and services. Communications regarding items in the LEADER should be directed to your GE time-sharing representative.

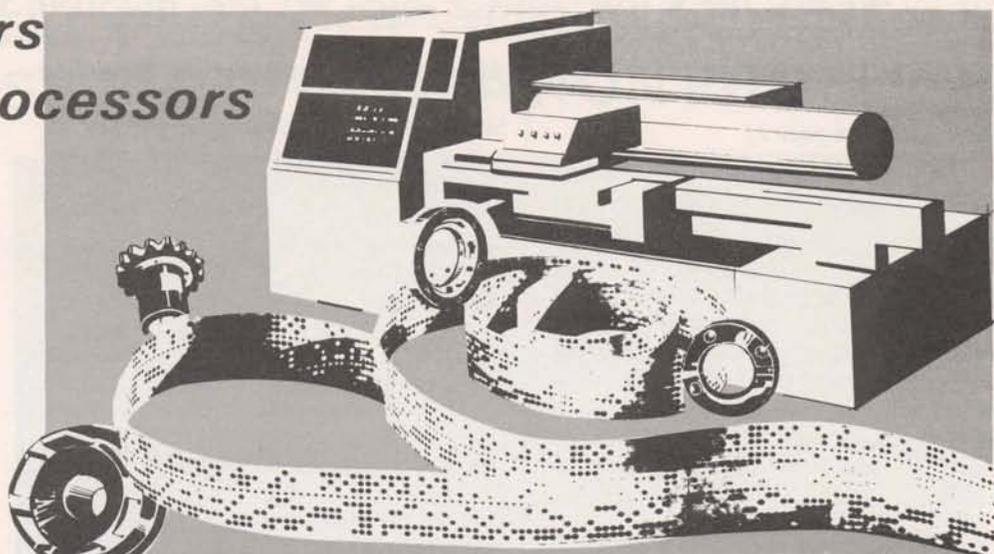
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N/C Tool Builders Network Postprocessors

Numerical Control machine tool builders, seeking to expand the use of their specialized postprocessors to customers throughout the U.S. and Western Europe, are making them available via GE Network Information Service.

As a result, owners of Bridgeport, Jones & Lamson, and Warner & Swasey machines now have direct access to these tool builders' specifically tailored postprocessors through the GE National Metalworking catalog.

Postprocessors programmed, maintained and updated by the machine builder assure greater all round efficiency than most generalized postprocessors can offer the machine end user. Users will save storage costs and pay only when the postprocessors are used.



Currently in the Metalworking catalog are postprocessors for Bridgeport's Series 1 mill with Bridgeport contouring control, the entire line of J & L's TNC machines with Bendix Series 800 and 910 NC systems and Warner & Swasey postproc-

essors for all its SC line of turning machines with GE 100S and various Series 7500 NC systems and the W&S DCC (Direct Computer Control) system.

For additional information check box 930 below.

FOR MORE INFORMATION

For descriptive literature on new and improved System Features and GE Application Library programs, check appropriate boxes below and mail to:

Time Sharing LEADER
General Electric Co.
450 Duane Ave.
Schenectady, N.Y. 12345

NEW MARK II '72 FEATURES profiles and reference manual supplement. 107

N/C BUILDERS' POSTPROCESSORS information on machine tool builder's postprocessors in the GE National Metalworking catalog. 930

NETWORK SOFTWARE SERVICE general description of service offered by GE to software authors desiring to use GE Network to make packages available. 940

STATSYSTEM lets you organize volumes of data on items such as sales, production, population, economic or similar information to do business management forecasting, marketing, production or engineering analysis — all within a single package. 340

AUTOFILE business management tool for record keeping combining reporting and file updating. Processes transactions and generates required periodic reports. 405

miniTAB an economical subset of AUTO-TAB. A report oriented language, designed for periodic tabular reports, e.g. cost analysis, cash flows, budget to actual analyses. 303

FINEX a financial analysis system for quickly and easily analyzing historical data and/or projecting financial statements. A much enhanced version of the library program FINANS\$. 305

FAPP, Financial Analysis of Project Performance, produces fast and economical reports on budget versus actual performance of business projects and items which make up these projects. 310

GPSS General Purpose Systems Simulator significantly improved resulting in considerable cost reductions over previous versions; can process larger problems with Run Big Option. 256

ECAP Electronic Circuit Analysis Program analyzes the AC, DC and transient response of electronic circuits; now has plotting and abbreviated output in AC and transient analyses; more efficient with reduction in cost. 403

DYSIM Dynamic System Simulator for fast, economical evaluation of a systems dynamic performance; allows entry of FORTRAN descriptions of system modules. 273

GETURN provides faster and easier programming of horizontal chucker lathe work. Reduces time and cost by providing computerized machinability and methods planning. 191

Name _____
Company _____
Street _____
City _____ State _____
Title _____ Phone _____

The Time-Sharing

Leader

FOR GE TIME-SHARING USERS

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World Leader
In Time-Sharing
Service

Vol. 3 No. 2

March 1972

Consumers' Guide to Storage:

DATA STORAGE ECONOMY

General Electric Information Services has the most flexible array of options and tools commercially available in tele-processing today. Like any service flexible enough to offer multiple options, the GE user must choose those options intelligently or he ends up paying more than is necessary.

Data storage is a prime example. For the same quantity of data storage space at the General Electric Supercenter*, you can pay anywhere from \$.02 a month to \$1.10 a month. That is a factor of 55. It pays to know the few simple principles behind network data storage.

Man vs. Machine

There is a pervasive dichotomy in the computer industry: human conveniences versus efficient use of the machine's capability. GE's three major categories of information storage — Program Storage, Data Storage, and Archival Storage — are graduated on that principle. Program Storage, [measured in Program Storage Units (PSU) where each unit equals 1280 characters] is the most direct user interaction oriented and consequently the most expensive at \$1.10 or \$.75 per PSU per month. Program Storage is simply GE's name for files stored in ASCII sequential format. ASCII files mean that the information is represented in easily printable symbolic code. They are easily listed, edited, or written to by a single user at the terminal.

(Continued on page 3)

CONTAINER SHIPS' COMPLEX CARGO INFO COMPUTERIZED

One of Europe's newest container shipping companies employs General Electric Information Services for collecting, processing and transmitting information about its ships' loads between Europe and the West coast of North America. The company, ScanStar, operates container ships between ports in Northern Europe — Hamburg, Rotterdam, Liverpool and Clydeport — and on the Pacific — Los Angeles, Oakland, Seattle and Vancouver.



ScanStar processes complex cargo information using the Network — even from dockside.

As a subsidiary of two companies long established in the conventional shipping business, ScanStar has found that the increase in cargo handling efficiency brought about by containerization has been matched by an increase in the complexity of collecting, recording and

transmitting information about each ship's loading and unloading pattern.

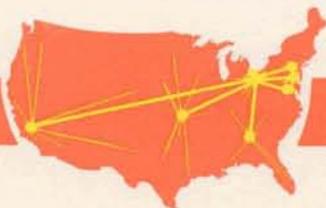
ScanStar's four ships hold an average of 850 twenty-foot containers each. With duplicate containers on shore, nearly 7,000 units are either in transit or at delivery/collection points at any time. The number of possible destination points — the ports — is ten; in addition, cargo is collected from some 20 inland depots and there is an almost unlimited number of destination points inland. The task of compiling and maintaining accurate information about this complex movement of cargo is made more difficult by the speed of the service — the crossing from Clydeport to Los Angeles takes only 16 days — and the shipment of a high proportion of containers which hold cargo for more than one consignee.

ScanStar defined its primary requirements as speed and simplicity, and having decided to use computers 'because it made economic sense', opted for Mark II/Network service.

Speed and Simplicity

Its advanced communications and processing capability allows the shipping company to file information on the system from both London and San Francisco, so that either location can access the processed updated files for information on incoming shipments.

(Continued on page 4)



GENERAL  ELECTRIC

NEW DIMENSION IN INFORMATION SERVICES

General Electric Information Services offers a wide range of products to sell... time-sharing, remote batch processing, an international network, program library, training courses, publications and terminals. Now something new is added to the list, Technical Services.

Established to meet the growing need for consulting, programming services and custom software in various application areas, it is staffed by top computer application personnel from within the Information Services Business Division.

Heading the new organization is Gerhard O. Mueller, the man responsible for managing the organization which developed the popular GE Applications Library. His staff represents over 100 collective years of computer system design and application experience.

Technical Services offers customers an opportunity to have this expertise on a contractual basis for technical assistance in many key areas such as order processing, inventory control, business,

and production systems. They are already pursuing complex system design tasks ranging from a massive order processing system to a feasibility study of a price analysis for a grocery chain. And it is ready to help you —

TECHNICAL SERVICES OFFERS YOU

- * Highly trained personnel with knowledge and experience in sophisticated system design and implementation in key areas, i.e. order entry, inventory control, etc.
- * Optimized time schedule for implementation ...important when money saving application is being developed.
- * Cost savings compared to software houses because our people know our product, can get the cost of running an application down to the barest minimum, and can provide implementation earlier.

This unusual added service is available for

- * Consultation — Nominal fee plus travel & living expenses

- * Feasibility Studies — Usually several days with the customer plus a written report for him.
- * System Design — After evaluating feasibility study, customer may agree on system study which includes customer visits, flow charting of present and suggested systems, and new system specifications.
- * Program coding and debugging
- * Documentation — Users manual and programmers manual for the application.
- * Implementation — Putting the system in operation in the customers environment.
- * Maintenance Contract — If requested, assures that the programs are kept up-to-date and modifications are made when necessary.

For Technical Services, ask your Marketing Representative how you can best use this new service from Information Services, or check box #950 on page 4.

GE TIME-SHARING SERVICE INAUGURATED IN JAPAN

It seems everyone is going east these days — including General Electric Information Services. General Electric Company, in conjunction with Dentsu Time-Sharing Service, Tokyo, formally introduced Mark I service in late 1971 to Japan before an audience of 300 businessmen representing 180 of that countries largest firms.

A Mark I licensing agreement between the two firms provides for Dentsu to utilize GE's international computer time-sharing services from a GE developed computer system installed in Dentsu's Tokyo headquarters.



During time-sharing service inaugural ceremonies in Japan, visitors witnessed the instantaneous response that Mark I gives to business problems.

Under the terms of the agreement, believed to be the first of its kind involving time-sharing in Japan, GE will provide Dentsu with all system, operating and application software and user documentation — as well as technical support and training assistance.

At the time the agreement was signed, Paul Sage, general manager of Information Services Sales Department commented that "Dentsu is uniquely qualified to pioneer the introduction of GE Time-Sharing in Japan because of its more than 70 years of experience in marketing new services and products to Japanese business and industry."

With the introduction of service in Japan, GE time-sharing is now available in 20 countries outside the United States.

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NEW STORAGE, PROCESSING PRICING OPTIONS

A new Mark II catalog pricing option allowing General Electric Information Services users to select the most economical prices for their particular use is being announced to take effect April 1. The new price option is one which benefits users with large working data bases by allowing them to select lowered data storage prices in conjunction with increased processing prices.

Under the new price option, to be called Option B, charges for General Electric's basic ASCII sequential Program Storage Unit (PSU) will drop from \$1.10 to \$.75 per month. Charges for the standard binary Data Storage Unit (DSU) will be reduced by more than half, from \$.50 to \$.20. Computer Resource Unit (CRU) central processor charges will rise under this option from \$.33 to \$.40. Present prices to be called Option A, will continue for users who do not elect the new option.

New Independent Run Priorities

In addition, independent run jobs will be executable under two new priority options which will offer significant savings on jobs that do not need to be processed immediately. Under DEFERRED priority, jobs will be started at the convenience of the system but generally no later than three hours from the time submitted (unless an even later start time has been assigned by the user). Computer Resource Units (CRUs) will be reduced 40% for DEFERRED priority independent run.

Under OVERNIGHT priority, jobs will be initiated at the convenience of the system. Overnight jobs must be submitted prior to 12 midnight and will generally be completed by 8 a.m. the following morning. Computer Resource Units charges will be reduced 60% for OVERNIGHT priority independent run. This will replace the present special prices for overnight execution.

If neither special priority option is specified, an independent run job will be given full immediate priority and no discount from standard prices will be used.

For the use of extended core memory, an additional charge will be made of 1/11th of a CRU for each 1K in excess of 11K.

DATA STORAGE ECONOMY (Continued from page 1)

The alternative to symbolic ASCII storage is binary storage, the basis for GE's second and less expensive category of storage called Data Storage. Binary storage is measured in Data Storage Units and its cost is \$.50 or \$.20 per DSU per month.



There are "ways to store data" . . .
and then there's data storage!

Unless a GE user is writing a program, preparing text, or otherwise manipulating files directly from the terminal rather than from a program, he should generally be using Data Storage. It is less expensive and he does not need the extra flexibility built into Program Storage.

Within the binary Data Storage classification, there are options which also affect costs indirectly. Data Storage files may be stored for either sequential access or random access. Here the cost efficiency principle comes into play. Genuine random access storage, a feature shared by few time-sharing systems other than GE, is cheaper to manipulate.

Random Access

In all multi-location operations such as order entry applications, random access storage lets the computer calculate exactly where on the disc a single piece of information is stored and go right to it, without searching through the entire file sequentially to locate it. Random access binary files definitely take less computer time to access and manipulate many scattered records of information. For this reason, they are generally cheaper for the user than sequential access binary files in most applications.

An exception is in files where the records vary greatly in length as in consecutive storage of records for reports. There are some instances like these where it is desirable to read files sequentially. In such cases it is cheaper to choose binary

sequential data storage because it makes more efficient use of storage than does random access filing which requires fixed length records stored contiguously on the disc.

The principle involved in choosing between binary random and binary sequential data files, then, is a trade-off between efficiency of access and storage space efficiency.

Most Economical

Finally, there is a third major category of storage available from GE besides Program and Data Storage. Archival storage is GE's name for off-line storage.

If a user needs only infrequent access to historical or back-up files and can wait overnight to retrieve them, they may be stored for only \$.02 per month per Archival Storage Unit (ASU). An ASU is the same size as a DSU or PSU. It does cost \$5.00 to put data into archival storage and \$10.00 to have it put back on line.

Archival storage has the advantage of providing extra protection for the user. Duplicate tapes are made and one copy is kept at the computer center, another off-site. Any of the file formats we have reviewed are permissible with Archival Storage.

File Size Considerations

There is one last principle we have not mentioned in choosing data storage and that is file size. The larger the data file the most cost advantage there is, obviously, to using the cheaper storage methods. This, of course, must also be weighed against the accessibility conveniences needed to manipulate that body of data. The GE storage maximum file size is 250 Program Storage Units (320,000 characters), and 1000 Data Storage Units (320,000 words), the number of files a user can store is virtually unlimited.

With the evolution of business systems capability GE users are moving toward larger data bases. If data storage charges are large in relation to a user's total teleprocessing costs, he should benefit from a periodic review of how he is storing each character on the GE system.

CORRESPONDENCE CODE TERMINALS NOW ACCESS MARK II

Terminals with Correspondence Code may now be used effectively with GE Information Services. This expansion to three terminal codes, ASCII, EBCD, and Correspondence, means users may select terminals from a broader base to satisfy their job requirements.

Among the terminal devices with Correspondence Code which access the system are such as the IBM 2741, and ITEL 1021 and 1051.

To access an Information Services system with a Correspondence Code terminal, at sign-on, type an "h" and a carriage return during the first 5 seconds after the computer acknowledges connection. The system adjusts automatically to both code and speed (14.8 cps).

A word of caution... access only Mark II service. It is not recommended with Mark I BASIC, BASIC I, and RESOURCE services. Correspondence code terminals neither generate or receive ASCII characters representing the 'greater than' or 'less than' symbols. Mark II BASIC has been modified to accept alternate terminology for these symbols.

BASIC programs requiring logical operators can employ the standard FORTRAN operators: < > is .NE., => is .GE., =< is .LE., < is .LT., > is .GT. and = is .EQ.

Other points a user will find helpful are covered in a new Terminal Operations card, #111801, which may be ordered through your local sales office, or check box 252 in the coupon below.

SCANSTAR

(Continued from page 1)

The system merges the information fed in to it and prints out a listing of each ship's container load under a variety of headings: — stowage position; each container's weight, number, security seal number, type (leased, insulated, etc.); bill(s) of lading number(s); port of discharge, and destination; transport requirements at the receiving end; name of local representative responsible for unpacking; remarks as to special cargo, if the contents are refrigerated, or hazardous; constraints on future use (return, damage, or contamination); and exceptions — such as a container missing, wrongly numbered or not reported.



As containers are loaded on ship, details of the cargo are transmitted and processed with GE's Information Services for efficient freight management when the ship arrives.

ScanStar uses Mark II service to produce seven different reports from this highly detailed profile of the ship's load; it enables the company, for example, to advise all receiving ports in good time of those details of each shipment which they need for efficient freight management when the ship arrives.

FOR MORE INFORMATION

For free descriptive literature on new and improved system features and Application Library programs, check the appropriate box and mail coupon to:

Time-Sharing LEADER
General Electric Co.
450 Duane Avenue
Schenectady, N.Y. 12345

NEW MARK II '72 FEATURES profiles and reference supplement on dynamic data protection, sharing file access, dynamic files, multi-program interaction, new program controls, new programming conveniences, and TEDIT improvements. (300017) #107

PREVENTATIVE MAINTENANCE ASSURED WITH T/S SYSTEM. Preventative Maintenance via time-sharing allows users to capitalize on the know-how of an outside specialist at bargain prices and saves time. Reprint from FACTORY Magazine. (530503) #424

AUTOFILER business management tool for record keeping combining reporting and file updating. Processes transactions and generates required periodic reports. (560406) #405

If you would like to talk with a GE Marketing Representative about **TECHNICAL SERVICES**, check this box #950

INDEPENDENT RUN Feature Profile shows options and execution of DEFERRED and OVERNIGHT processing. (350400) #437

CORRESPONDENCE CODE TERMINALS operations card tells how to access the system, any character translations to ASCII, and other suggestions when using such terminals. (111801) #252

Name _____

Company _____

Street _____

City _____

Title _____ Phone _____

The Time-Sharing Leader

FOR GE TIME-SHARING USERS



Information
Services

World Leader
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Service

Vol. 3, No. 3

April 1972

Important Savings Option

Running Independently

Are you taking full advantage of the cost savings options which make the General Electric network your best buy in information services?

General Electric Information Services users who are thoroughly familiar with the feature called INDEPENDENT RUN (IND) are finding that by using IND they can cut costs on a surprisingly high proportion of their total jobs.

Simply stated, INDEPENDENT RUN allows users to enter one or more jobs that do not require on-line interaction to be run automatically at different designated times throughout the day or night. The user can sign off the terminal or use it for other work.

Obvious savings that accrue every time a user specifies IND are terminal connect charges and personal time. If the terminal is signed off or doing another job while the system is running an IND job, there is an immediate savings of terminal connect charges, of course, and there's no "baby-sitting the terminal" either.

Moreover, judicious election of one of three priorities for executing the IND job can mean important savings in Computer Resource Unit charges. The priority option used will depend upon the user's choice of time and cost savings.

EXPRESS priority assigned to an IND job specifies that the job is to be executed just as soon as the system resources are available. This processing is done at standard CRU rates. If neither of the other priorities are elected, the system automatically assumes the IND job has EXPRESS priority.

DEFERRED priority allows the processing to be delayed but started at the

(continued p. 2)

RMS TO YOUR ADDRESS ADDS EDP EFFECTIVENESS

Many firms are growing and expanding their use of data from their EDP systems by integrating it with General Electric's Information Services network through a new development, called Remote Media Service.

Simply, RMS offers an economical and efficient means of converting and transferring data from punched cards or magnetic tape to disc storage on the General Electric system. Conversely, it also transfers disc-stored data from the system onto cards, tape or a high-speed printer listing for those who want to print out files or prepare reports. RMS can process six different code types on 7-track tape.



From the Bethesda Service Point, card data is transmitted to Brook Park for eventual use on Mark II.

"RMS is just one step," said a GE spokesman, "in our plans to encourage easy interaction between company in-house computer systems and the network. RMS enables firms with large batch-oriented processing systems to extend the reach and power of these systems by using the GE network."

Users will find RMS of added value when the volume of data or the need for multiple copies makes it more economical or practical to use than a keyboard terminal.

The new GE service accepts Hollerith 80 column punched card input or seven track magnetic tape input. It produces output in the same media plus high-speed printouts, which are distributed by courier service from 13 service points in major metropolitan areas.

RMS Is Easy To Use

Job requests may be entered right at a terminal, interactively, through a routine called FMP***, or from a running program. Whenever a user requests an RMS job, the phone number of the nearest service point is automatically printed out for the user to call and request courier or mail pick-up of card or tape input. The courier, or in some areas, the postal service, will also deliver any requested output.

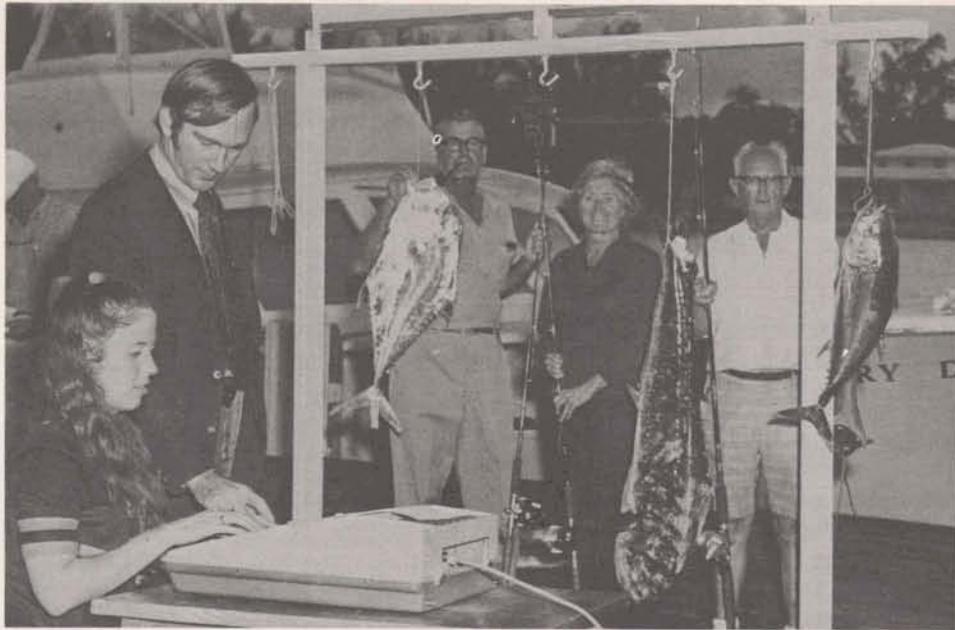
RMS security has been enhanced by making it possible to service only through on-line request. Job status can be checked any time by both the user and the GE operations staff.

Charges are \$15.00 for a tape plus CRU's and \$4.00 per thousand cards going to or coming from the GE system, and \$3.00 per 1000 lines of printout coming from the highspeed printer.

For more information on RMS capabilities, service point locations, and code conversions, check box #445 on page 4 for the feature profile. Remote Media Service.

GENERAL  ELECTRIC

FISH FACTS FURNISHED FAST!



Margie Davis of Price Waterhouse & Co. took along a time-sharing terminal to catch all the 'big ones' in the recent International Light Tackle Tournament sponsored by the Miami Beach Rod & Reel Club. Margie wrote the program and General Electric Information Services provided the results.

Right on the dock, Margie being observed by GE Marketing Representative Joe Ripkin, would enter each fisherman's catch daily on Information Services. At week's end, when the final flounder had finished flopping, the GE Network furnished the fish facts, and the name of the winner appeared at Margie's terminal. Also printed out were his scores and those of the other anglers. That's GE time-sharing... almost anywhere there is a telephone! (Sorry, we didn't get the names of the fishing team... or their friends!)

Running Independently Options *(Continued from p.1)*

convenience of the system, generally no later than three hours from the time of job entry (unless an even later start time has been assigned by the user.) With DEFERRED priority, users get a 40% reduction in CRU's.

OVERNIGHT priority specifies that IND jobs may be processed between 9 p.m. and 8 a.m. the following morning, and jobs will be initiated at the convenience of the system. OVERNIGHT jobs must be submitted prior to 12 midnight. CRU charges are reduced 60% when this priority is elected.

As is GE's custom, INDEPENDENT RUN is replete with user safeguards and extra

features. Maximum PSU and CRU limits which can be specified by a user on a specific IND program to protect the user from program bugs or other errors which could run up costs unnecessarily.

Another option, EARLIEST, specifies the earliest possible starting (by catalog time) that the user wants his IND job to be run. This safeguard is available in case a file is not due to be updated before a certain time of the day or night.

A simple request typed into the terminal gets the immediate status of an IND job for the user. The system replies that the job is running, waiting, being retried, or

ON-LINE INFORMATION KEEPS GE USERS UP TO DATE

Users of the world's largest information services network should also be the world's best informed about what's happening on that network. You can now find out "what's new", quickly, and at no cost with the new on-line Information Service file.

The Information Service file really represents the dynamics of our service to you. Every month there are improvements, new features, and library offerings that are of value and can save you money.

Free literature is available explaining in depth any of the features mentioned. You may easily request this literature through the free user number. And, you can also look at features announced in previous editions of the Information Service.

The sign-on notice of the free user number for the Information Service file, JBB00999,INFO, was first flashed to GE users during the week of March 13. Reports have it that thousands of users have accessed the file since.

Once a month, a sign-on banner running from Friday morning, through the weekend until Monday night will remind users of the monthly update of the file.

not in queue. Most of the Application Library programs and Network Software Services programs can be run in IND mode, i.e. see IND/AUTOTAB.

INDEPENDENT RUN is ideal for applications where the results need not be instantly available, or where large amounts of terminal output such as management and financial reports are standard parts of a business system. The network is capable of compiling a nationwide report almost instantaneously, but users who can plan their report generation on a regular basis often don't need immediate report completion. When reports are ordered the day before, the effective cost of their management information system can be reduced considerably.

Many users are coming to depend on INDEPENDENT RUN to help them make their programs operate at the greatest efficiency and economy possible.

The Time-Sharing LEADER

Published by the Information Services Business Division, Bethesda, Md., for General Electric Time-Sharing customers to inform them of new features and services. Communications regarding items in the LEADER should be directed to your GE time-sharing representative.

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Brook Park to Billingham

MAINTENANCE MANAGED IN MOMENTS AT ENGLISH CHEMICAL WORKS

FLEXIMIS, General Electric's powerful Flexible Management Information System, has spanned the Atlantic Ocean to help one of the world's largest chemical producers, Imperial Chemical Industries, in Billingham, England, deal with urgent plant equipment maintenance problems.

ICI's Agriculture Division factory management there has developed a system using FLEXIMIS which records, analyzes and retrieves information on plant equipment malfunctions.

It may seem strange for the ICI Division to go so far for a computer service (by satellite to the GE SUPERCENTER in Cleveland, Ohio) when it has computers at Billingham. GE's Information Service provides a capability not currently available there. As Peter Semmens, Product Works technical manager, said, "The 'quiz and answer service' has the merits of great speed and direct access to the computer 24 hours a day."

At the Works, information is collected on standard data sheets which are filled in by plant foremen and engineers with the aim of describing each malfunction and its effects in as much detail as possible. The 'profile' of each malfunction is built-up in ICI's FLEXIMIS file in Cleveland under such headings as identification of equip-

ment, and its location in the plant; time and date of occurrence and classification, i.e. electrical, mechanical, etc.

In addition, information is gathered on the effects of the malfunction on the running of the rest of the plant. Did it cause delay, and for how long, or did it cause the plant to be closed? What maintenance action was taken to repair or replace the equipment involved? What was the cost of maintenance? What was the probable loss of profit caused by the failure?

The information put into the computer's data storage is minutely detailed and as time goes on it becomes progressively more extensive. The FLEXIMIS capability which allows management to draw on this information at a moments notice and analyze it is what gives the service its value.

The retrieval capability enables the maintenance staff to quiz the FLEXIMIS system. The system extracts what is asked for from its mass of 'stored' detail data, analyzes it and sends it back in seconds to Billingham. If a question does not fit the standard package designed by ICI, the system will "say" so and the terminal operator must ask the question another way.

The service costs money, admits Tom Kent, Production Works maintenance manager, but this would be covered when, for example, the information supplied by FLEXIMIS enables the Portack granulation plant to run for an extra four hours in a year.

Why not use the Division's own computer? Semmens cited this reason "The Division's computer service is organized so that 10,000 jobs a month can be processed to a schedule - immediate access is not a capability currently provided. Often when maintenance problems arise affecting works production, we need a quick analysis and all we need to do is dial a telephone number to quiz FLEXIMIS via Mark II/Network instantly."

As the development of this project progresses, factory management at Billingham will create a comprehensive file of data on plant failures and their consequences. Using FLEXIMIS to sort and interrogate the file, plant engineers will be able to make accurate analysis and comparisons extremely quickly, producing the sort of information which is central to the management of a complex modern plant.

New Efficient Accounting System

A new accounting package on Mark II, called GFAST\$, can completely automate your General Ledger Accounting needs. It updates accounting files and produces reports with a minimum of time and user effort, and it gives you flexibility in designing the format and contents of these reports.

To give users an opportunity to compare these and other efficiencies of the new GFAST\$ with software already on Mark II, an on-line, GFEXP***, is available.

GFAST\$ files are compatible with other Mark II packages such as AUTOFIL for special report generation and FINEX for historical and financial projection reports. For the User's Guide, ask your Marketing Representative for publication #510110.

IND MAKES AUTOTAB A BETTER BUY

Beginning May 1, AUTOTAB, the tool that has virtually become an industry standard for tabular reporting will feature a new, easy-to-use "front-end" module that makes report generation in the Independent Run mode both easy and economical.

In brief, AUTOTAB produces neatly typed, accurately calculated tabular reports of all kinds including budgets, cash flow, accounts receivable and numerous others. You simply tell AUTOTAB what column and row headings are needed, the numbers you want to start with, and the calculations to be performed - it does the rest!

With the new module, AUTOTAB reports can be generated on a deferred processing basis and take advantage of 40 to 60%

reduction in Computer Resource Unit charges, depending upon which priority is selected (See "Running Independently", page 1).

Moreover, AUTOTAB's new batching capability allows multiple reports to be produced from a single set of commands. So, whether you use AUTOTAB from a single location, or collect and merge reports from multiple locations - you can still save up to 60% in CRU charges by using Independent Run.

Users of AUTOTAB may access the on-line file, AUTIND***, for quick instructions on how to use the new module. Or call your Marketing Representative and ask how AUTOTAB can work economically for you.

Computerized Job Matching

'TASSELS' or 'TWEEZERS' JOB TITLES WERE TEASERS 'TIL NOW

Job titles can be misleading. An employment agency advertised for a "stripper" to remove paint from a ship's hull and one person answered the ad whose talent was making tassels twirl. And, does a "materials handler" run a fork lift truck or run a pair of tweezers in an electronics production line?

To avoid such possible mismatches of people and titles, the computerized matching of jobs and people is being revolutionized with the Cleff Job Matching System. Named after its inventor, industrial psychologist Dr. Samuel H. Cleff, of ADP Personnel Data Systems, Inc., New York, N.Y., a wholly owned subsidiary of Automatic Data Processing, Inc. the job-matching system is accessible on General Electric's Information Services Network.

From the Network, manpower and personnel managers in various businesses across the country are accessing the Cleff System and data base via time-sharing terminals located right in their offices. They are making meaningful matches of applicants' profiles of preferences and experiences with job profiles in helping place the right people with the right job. The final hiring of course, remains with

the manager, but the System saves extensive testing and interviewing time.

The applicant completes a Self Interview Check List (SICL) of common activities he likes and dislikes and what activities he had done the most and the least. The activities are in 16 work-related categories (i.e. athletic exertion to imagination). This information is then entered by terminal into the system where the applicant's preference and experience profiles are developed.

Fitting Job and Applicant Profiles

Already entered on the system is an ADP-PDS client's register of job profiles using the same common activities for descriptions. The computer then evaluates the applicant's profile and the register of jobs available, and in a short period of time, a job match, showing degree of compatibility is returned at the terminal.

The Cleff System is actually able to predict how well a given individual will like the job and whether he will be able to perform it successfully. Matching people in jobs they can do and would like to do eases the problem of employee turnover—particularly in the semi-skilled area.

The unique system is currently being used in the banking, insurance, communications, brokerage, utility and manufacturing industries as well as in several governmental agencies. Validity studies disclose that the System spots early turnovers with high accuracy. Better matched applicants stay longer, by 150% to 250%, than lower matched. It also accurately predicts who will successfully complete training as well as higher rated job performance. At the same time it has demonstrated its freedom from cultural and racial bias.

Works in Reverse

The System can work in reverse by matching job requests against a register of job seekers. In a state manpower development application, the flexibility of the System became particularly applicable in the placement of disadvantaged applicants who do not have easily definable skills. From the preference and experience applicant profiles, the computer could match individuals with much more reliability. The results of the computer match are also used as a tool for determining the sort of training and individual needs.

FOR MORE INFORMATION

For Free descriptive literature on new and improved system features and Application Library programs, check the appropriate box and mail coupon to:

Time-Sharing LEADER
General Electric Co.
450 Duane Avenue
Schenectady, N.Y. 12345

Remote Media Service feature profile listing capabilities, code conversion, and service point locations.

(371000) #445

AUTOTAB, management reporting system for massive tables and hundreds of calculations i.e. budgets, sales analysis, cash flow, engineering tabulations, proforma statements, statistical tables.

(372051) #304

ADP-PDS Cleff Job Matching system uses network to match the right people with the right job in various locations.

#960

Correspondence Code Terminals operations card tells how to access the system, any character translations to ASCII, and other suggestions when using such terminals.

(111801) #252

FLEXIMIS, FLEXible Management Information System, organize your pieces of management information into meaningful reports according to your needs.

(560302) #105

Independent Run feature profile shows priorities for job execution, options and commands in deferred processing.

(350400) #437

Name _____

Company _____

Street _____

City _____

Title _____ Phone _____



MARK III

What's in a Name?

MARK III is much more than a numeric step function from II to III. As you will see from the pages in this issue of LEADER, MARK III is truly a new concept in computing services. And more importantly, what you see now is just a beginning, comparable perhaps to the first GE-265 time-sharing system going on-line in 1965.

Consider the possibilities of a processed information file accessible to all your company components around the world that is also easily available for routine high-speed interaction with your in-house hardware. Add to that budget control capability that allows you to harness that variable cost on a daily basis; pricing schedules you can tailor to the peculiarities of your application; and savings of 40 or 60% more through Independent Run; a service desk accessible nationally for assistance anytime of night, weekends and holidays; expanded Remote Media Service with new low prices; data handling tools that cut development time in half; a technical service group which will tailor a system exactly to your specifications; cryptographic routines that assure maximum security; more new tools for programming in BASIC and FIV; core image files that are automatically stored as low cost DSU's; and all on a cost competitive basis whether compared to other vendors or in-house time-sharing systems.

World Leader On-Line

MARK III is time-sharing. MARK III is remote batch. MARK III is a worldwide network. But above all, MARK III is a Service. So when you pick up a phone to access MARK III or to call a service desk, the World Leader in Information Services will always be on the line.

GENERAL ELECTRIC ANNOUNCES NEW MARK III SERVICE

The most significant advancement in variable-cost computing since the introduction of time-sharing itself will be available to all customers of General Electric Information Services on November 13, 1972.

Called MARK III, this new concept in computing unifies into a single, integrated environment the economies of internationally accessible time-sharing and the power of large scale remote batch processing. For the first time, from a single supplier and via a common terminal the full spectrum of fundamental data processing requirements is now available to businesses of any size.

With MARK III, a current time-sharing user can now penetrate the normally complex barriers surrounding batch processing with just a basic set of commands. This means the ease of computer access that time-sharing brought to the problem solver is now a reality for those in need of batch processing as well.

MARK III is the threshold of a whole new era in remote computing for you, our customer, and for General Electric.

MARK III BACKGROUND

Batch Processing at your terminal

MARK III Background brings to large scale batch processing the primary benefits of interactive time-sharing: universal ease of access combined with variable cost computing.

Now, from the same easy-to-use time-sharing terminals, customers can set-up and control batch processing applications utilizing the friendly user-oriented Foreground mode for access and control. Thus the typical complexities of remote job entry and batch processing are minimized.

The variable cost concept of MARK III now enables customers to tap at will virtually unlimited computer power and an international network without making a capital investment, paying only for what they use. *(Cont. page 6)*

MARK III FOREGROUND

New Name, New Capabilities for MARK II

MARK II has a new name and many powerful new features. Now known as MARK III Foreground, this aspect of the service will act as the window and link to MARK III Background processing, and continue to serve as the most powerful, reliable time-sharing service commercially available. Present customers will see a change in this service only in the form of enhancements, greater flexibility and more options. No changes in operation or compatibility will occur. New MARK III Foreground features now available include: commands from files, core image files, program overlay, and cryptographic routines. On page 6 is a brief overview of these new features. For additional details check box 355 on page 8. *(Cont. page 6)*

MARK III

2000 Baud At Your Service

MARK III 2000 Baud High Speed Service is now available on a nationwide basis. High Speed Service operates via IBM-2780 or Data 100 remote batch terminals or in an Interprocessing, computer-to-computer mode. Interprocessing enables direct interaction between MARK III and IBM 370's and 360's having appropriate communications adapters and a 2780-like operating interface.

Terminal connect rates are \$16.00/hour and \$.20 per 100 records transmitted (up to 144 characters/record) plus standard CRU and storage charges. Transmissions via toll-free lines can take place at rates of up to 600,000 8-bit characters per hour.

A non-conversational service, HSS will accept a continuous stream of data files and/or commands, process them, and return output. Input from stand-alone terminals is via punched cards; output is to a line printer or card punch. I/O for computer-to-computer applications is directly to/from MARK III through the customers' communications interface.

Users may intermix HSS with low-speed conversational service depending on the application requirements.

Feature Highlights

- I/O Media — 80-column cards and line printer
- Record Sizes — variable up to 80 characters for input, 144 for output
- Code — EBCDIC
- Files — random binary, ASCII, binary or FORTRAN sequential binary
- Code Conversions — Input: EBCDIC to ASCII or GE BCD
Output: ASCII or GE BCD to EBCDIC

FOUR ITALIAN CITIES ADDED TO NETWORK

The total number of cities outside the United States which can access the Network on a toll-free basis has been increased to 31. On October first, four Italian cities (Bologna, Naples, Padua, and Florence) were connected.

MARK III

New RMS Prices, Features

MARK III Remote Media Service now features greatly expanded capabilities with prices reduced by approximately one-third for card and printer activity.

New prices include: \$15/reel, tape to disc; \$1.75/1000 cards, card-to-disc; \$3.50/1000 cards, disc-to-card; and \$1.75/1000 lines, disc-to-printer. All above prices are plus CRU's utilized. All other prices remain the same.

New features include: 7- and 9-track tape with files up to 4000 PSU ASCII files and EBCDIC/ASCII conversion; ASCII, EBCDIC and a variety of BCD codes in card-to-disc and disc-to-cards up to 4000 PSU per ASCII file; one-two-three or four-part paper, 8 1/2" or 14 7/8" x 11" paper for disc-to-printer of up to 4000 PSU ASCII files.

Door-to-Door or File-to-File

MARK III RMS is available for use in Foreground or Background. It is completely compatible with the new 2000 baud High Speed Service so that users have the alternatives of high speed terminal interaction, direct file-to-file Interprocessing between MARK III and in-house machines, or door-to-door courier service. All cities in which GE Information Services sales offices are located will soon offer local courier service.

RMS is designed to enable firms with large batch oriented systems to increase their scope of activity by making interaction with MARK III easy and economical. Security is maximized by making RMS available only through on-line requests by the user. Job status can be checked at any time by the user at his terminal. For more information check box 445 on page 8.

At the same time 30 character-per-second access locations were increased to include all Canadian locations, Brussels, Paris, London, Manchester, Milan, The Hague, and Stockholm.

MARK III

Watch For Us in the Press

The October 17 issue of the Wall Street Journal will launch a major MARK III announcement campaign to the world. A preview of three of the ads appears on pages 3, 5, and 7.

As can be seen, the major emphasis is on the cost savings and better control achievable through some of the new capabilities of MARK III. These messages are naturally directed to current customers as well as prospective ones. The constant goal of General Electric Information Services is to continually provide a more cost effective solution to all of a business's computing needs. If you would like to take advantage of any or all of the new features of MARK III, call your GE Representative, or the number listed in the ads, 800-683-0971.

National Publications

In addition to the *Wall Street Journal*, *Business Week*, *Time*, *Forbes*, *Data-mation*, *Computerworld*, *Financial Executive*, *Management Accounting*, *Sales Management*, *Computer Decisions*, *Finance*, *Harvard Business Review*, *Iron Age*, *American Machinist*, and *Industry Week*, MARK III will also appear in various local papers and the American Airlines, TWA and Pan American magazines.

International Network Highlighted

Order processing and financial consolidation are emerging as two of the most powerful and asked for applications of the MARK III International Network. This is as true for companies with three locations in one state as it is for ones with dozens of offices around the world. Advertisements on these subjects are scheduled for *Sales Management*, *Financial Management*, *Business Week*, and *Time* in the coming months.

Be sure to watch for the ads and consider the possibilities for your company. Your GE MARK III Representative has a fine story to present. Give him a call.

The Time-Sharing LEADER

Published by the Information Service Business Division, Bethesda, Md. for General Electric information service customers to inform them of new features and services. Communications regarding items in the LEADER should be directed to your GE marketing representative.

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GE's new Mark III. It's time-sharing. It's remote batch. It's a worldwide network.

In fact, it's the world's only integral combination of all three powerful capabilities: the response of interactive time-sharing . . . the economy of remote batch processing . . . the reach of a worldwide communications network.

The interactive time-sharing has new features and controls to make time-sharing more powerful, less expensive, and more easily managed. Yet, it is fully compatible with GE's Mark II, today's most widely used service.

Remote batch processing brings you the economies and power of large-scale data processing. With Mark III, you can save one-half or more of your processing costs just by moving your time-sharing programs into remote batch operation. Yet you still have the ease of use and the service quality that are characteristic of GE time-sharing.

The network is a system that gives local phone call access from over 250 locations in North America and Europe. No matter how you're decentralized, all your locations can share a single system, a single data base. And this information processing network can interact directly with your own computers.

General Electric introduced the first time-sharing service in 1965. In 1970, GE established the first international information processing network. And now, Mark III.

It's time to make a serious comparison of Mark III with whatever information service you now use. Phone 800-638-0971 or write us at 7735 Old Georgetown Rd., Bethesda, Md., 20014. We're ready to help.

GENERAL  ELECTRIC

WORLD LEADER
IN INFORMATION
SERVICES

FIV-The Most Power Packed Programming Language in Time-Sharing Today

Mark III Foreground users have access to two Fortran languages — FOR and FIV. The difference between the two is a major list of user benefits in favor of FIV, plus a potential cost savings of 85% in some situations over the more standard FOR version. FIV is specifically designed to take advantage of all the features of Mark III Foreground while at the same time remaining compatible with Background FORTRAN. FIV not only meets ANSI standards, it exceeds them. In fact, ANSI FORTRAN is a fully compatible subset of FIV. If you have not taken advantage of the savings and power of FIV, consider the following list of some of its more powerful features.

INPUT/OUTPUT STATEMENT—A special input/output statement provides I/O capability at greatly reduced costs. It permits unbuffered input and output and is substituted for standard FIV READ and WRITE statements. Compared to typical buffered file techniques, this statement can cut users' file processing costs a minimum of 30% to as much as 90% or more, depending on the application.

SYMBOLIC ON-LINE DEBUGGING—A series of options saves important programming time for the user. These SOLD debugging options, with trace capability, allow a user to observe the execution of his program while it is actually taking place, permitting on-the-spot detection of program bugs and errors.

COMPILATION OPTION STATEMENTS—DEBUG and NODEBUG activate and deactivate the SOLD package. NOCHECK, NOWARN and NOLINE capability permit maximum execution speeds with minimum use of system resources. They eliminate the coding of line numbers, the checking of subscript values, and the printing of recurring error messages.

SPECIAL COMPILER CONTROL STATEMENTS—These statements are also time savers for users. They function to avoid certain automatic compiler operations, particularly checking and warning operations, which users frequently wish to ignore during program debugging.

OPERATING SYSTEM COMMAND SUBROUTINES—These subroutines per-

form system commands during the execution of a program, giving the programmer the building blocks of his own operating system within the system, and providing him with extra convenience plus even more time savings. This capability permits users to write programs which begin the execution of other programs; copy, create, and purge files; obtain data on file usage; and control file usage.

For example, a user may obtain a file description from within a running program. He may check to see if a file exists, what its characteristics are, when it was last accessed and/or modified, and other relevant facts.

STRING MANIPULATION—These routines provide an extremely useful capability not previously available in FORTRAN. Users can now easily manipulate strings of characters, regardless of size or how they are stored. This affords particular convenience for data processing applications working with large alpha strings such as names and addresses, titles, etc.

FILE SHARING—Powerful file sharing routines allow a number of users to access the same file at virtually the same time for both reading and writing. This feature will be particularly desirable for applications with many highly dispersed entry points, such as order entry and the like.

JOURNALIZATION—A special routine offers double protection to vital data by simultaneously writing tape and disc copies of the same record. Users will want to employ this feature whenever they must have the ability to recover to the very instant of any program-related error or hardware system malfunction.

BIT AND CHARACTER CONVERSION ROUTINES AND FUNCTIONS—These routines and functions locate and change the internal representation of characters. They are helpful when it is necessary to transliterate from one character set to another, particularly for high-speed terminals, Interprocessing, and Remote Service applications.

EXECUTION CONTROL SUBROUTINES AND STATEMENTS—These subroutines change the conditions under which program execution occurs, provid-

ing users with an extra measure of programming flexibility.

Among the capabilities included are non-standard entry and return from subroutines, Break Return and Break Disable, exit from limited mode, chaining to another program (in FIV, ALGOL, or BASIC) and back again if desired, and chaining with COMMON.

SCRATCH FILES—Additional convenience is provided by the scratch file capability which provides temporary storage for large quantities of data. Users can create and employ the files during program execution. The files automatically disappear at the end of the run. There is no storage charge for scratch files.

BINARY FILES—Random and sequential file access is permitted. File input and output may be executed in internal binary code as well as full ASCII code, at the user's option.

CONVENIENT STATEMENT CONVENTIONS—Relaxed statement conventions make FIV easy to use. Both upper and lower case are acceptable. Users may have multiple statements per line and unlimited continuation lines. In addition, FIV allows implied loops in the input-output list, index retention after DO loops, zero and null initialization of variables, free form input and output including alpha- numerics, encode-decode, and expressions in output (e.g., PRINT, A*B**3.2).

EXPANDED DIMENSION CAPABILITY—FIV permits up to 63 dimensions in a subscripted variable (ANSI standards specify only three).

EXTERNAL SUBROUTINES—Compiled subroutines may be stored and accessed by a number of programs, thus saving core and storage. One or more subroutines may be stored by themselves without a main program. Or users may easily make use of the many techniques provided by GE's FORTRAN system routines.

MORE EXTRAS—FIV provides even more features of interest to FORTRAN users. For details, check box 492 on page 8.

GE's new Mark III gives you real control of time-sharing costs

If you think time-sharing is a good thing gone wild, we have a way to tame it. It's General Electric's Mark III.

Mark III is not just another time-sharing system, but a new approach to information processing. It's a single, unified service that combines the response of interactive time-sharing, the economy of remote batch processing, and the reach of a worldwide communications network.

Mark III has a comprehensive budget control system that lets you allocate computing dollars — by project, department, individual — tailored to your needs. It will automatically administer the allocations. And even give you daily reports at your own terminal.

Mark III not only helps you control costs, but actually reduce them. You can save one-half or more of your processing costs just by moving your time-sharing programs into remote batch operation.

Mark III is an integrated network of nearly 100 interconnected computers.

With a network this size, each computer performs that task for which it's best suited — communications, interactive time-sharing, or batch processing. The result is a service that can tackle all your computing easily, reliably, and economically.

General Electric was first to introduce time-sharing service in 1965. First to establish an international information processing network linking over 250 locations in North America and Europe. And now, with Mark III, first to put you in real control of your computing dollars.

If you're a Mark II user, Mark III offers you major new features and is fully compatible. If you're not, it's time to make a serious comparison of Mark III with whatever information service you now use. Take control. Phone 800-638-0971 or write us at 7735 Old Georgetown Rd., Bethesda, Md., 20014. We're ready to help.

GENERAL  **ELECTRIC**

**WORLD LEADER
IN INFORMATION
SERVICES**

FOREGROUND (Cont.)

Core Image Files

Programs in source form or saved object code can now be stored in core image format to reduce execution time and costs. FIV programs in core image are stored as Data Storage Units at \$.50 or \$.20 per DSU depending on price option of the catalog. The core image file conversion feature is available for FIV source programs or saved object files to which there is read access.

With this new facility users can create and store FIV programs in a completely ready-to-execute format. When the program is RUN, it is loaded directly into core where execution begins immediately. This means the quickest loading at the lowest cost — especially valuable for programs frequently used, with relatively small arrays, with FIV System Routines and Functions, or user library sub-routines.

Core image files, used in conjunction with FIV overlay (discussed below) can eliminate chaining and all of its inherent programming problems. Even when used with chaining, however, each chained program stored in core image format is loaded into core faster to improve terminal response time for the total job.

FIV Program Overlays

Virtually unlimited program size without the restrictions typically encountered with chaining is now possible in MARK III Foreground. A new FIV program overlay technique facilitates faster, lower cost job execution while retaining programming modularity. Two FIV statements have been added to take advantage of core image files and produce this new feature.

Using the overlay feature, a job is broken into segments or links. A main link resides in core throughout execution, calling in overlay links when needed.

Total continuity during job execution is maintained while overlays are being executed. During the course of a job with overlays, files remain open and pointers retained; blank and labeled common residing in the main link remains intact; and user directives such as IFBREAK, WARN, SOPEN and LOCK/UNLOCK remain in effect.

Commands From Files

Now you can EDIT, CREATE, SORT, or RUN a series of programs in MARK III Foreground long after you've gone home from work and save 40 or 60 percent CRU costs at the same time.

A command file, containing one system command per line, automatically issues the commands in the sequence you established. Almost all system commands may be used, from complex TEDIT work to simple file renaming or copying.

User programs can be designed to write command files and/or chain to them. Combining Independent Run with command files makes it possible to have a stream of jobs performed in an order that is determined by the results of prior jobs.

Complex, multi-program jobs and simple, repetitive work can be performed at night, saving CRU charges and freeing terminals for interactive work during regular hours.

A command file cannot contain terminal input that may be required by a program during execution. However, by running the command file in Independent Run, an IND input file can supply input data for the programs run by the command file.

FIV Cryptographic Routine

A new cryptographic subroutine allows maximum security for storage of highly sensitive files.

Two keys are used to encode and decode the file contents, and the keys are known only to the user. In fact, if you forget the keys, there is *no* way for the system to decode the data.

For even greater security a user may cause a key to vary for each record so that no discernible patterns can be established in the encoded data from word to word within a record, or from record to record within a file.

The keys can be constants in a user program, a known element in the data file, an element of data obtained from within the system, or for absolute maximum security should be entered from the terminal during the run.

BACKGROUND (Cont.)

COBOL — 150K Words

Easy access to this supplementary reservoir of computing power means large, production jobs now run in time-sharing can be converted to Background for significant potential savings in computing and storage costs. Also, applications previously impractical due to cost or pure size can now be effectively accommodated. MARK III Background/Foreground compatibility assures not only ease of interaction but continuity as applications expand. Full ANSI COBOL and Fortran IV are available in Background with programs up to 70K words — 150K during off-peak hours — accommodated.

To facilitate large volumes of input and output, Background users can employ Remote Media Service for courier pick up and delivery, high speed terminals, or interface their in-house system directly with MARK III (See 2000 Baud page 2).

MARK III Background, utilizing a Honeywell 6000 series computer, provides all of the basic capabilities normally associated with batch processing. As with time-sharing, these Background resources can be adapted in a multitude of ways to meet a customer's specific requirements.

Single Source to Supplement

MARK III can be used as a company's single source of information processing needs. Or, combined with GE's International network, MARK III can act as a powerful generator, transmitter and distributor of processed information for all of a company's locations.

The combination of MARK III Foreground, Background and Network can be used to create, in effect, a versatile "front end" to in-house facilities. Data can be collected from outlying offices, plants or warehouses, processed in Foreground then transferred to either Background or to an in-house system for batching.

MARK III can also be used as a straight supplement to in-house capability. With full ANSI COBOL and FORTRAN IV, it can handle peak loads and/or development and debugging of programs designed for in-house use.

GE's new Mark III can cut your time-sharing costs by a third

What we're offering is not a miracle, but a new approach to information processing: Mark III. It's a single, unified service that combines the response of interactive time-sharing, the economy of remote batch processing, and the reach of a worldwide communications network.

Your total savings depend on your own applications, but our estimate of one-third may be conservative. For example, with Mark III you can save one-half or more of your processing costs just by moving your time-sharing programs into remote batch operation. In addition, Mark III includes new time-sharing capabilities that can lower your costs dramatically. To tie it all together, a new budget allocation and control system helps you get the most out of each computing dollar.

General Electric introduced the first time-sharing service in 1965. In 1970, GE established the first

international information processing network linking over 250 locations in North America and Europe.

And now Mark III—an integrated network of nearly 100 interconnected computers. With a network this size, each computer performs that task for which it's best suited—communications, interactive time-sharing, or batch processing. The result is a service that can tackle your computing needs easily, reliably . . . and, most important, economically.

If you're a Mark II user, Mark III offers major new features and is fully compatible. If you're not, it's time to make a serious comparison of Mark III with whatever information service you now use. Phone 800-638-0971 or write us at 7735 Old Georgetown Rd., Bethesda, Md., 20014. We're ready to help.

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SUPPORT AROUND THE CLOCK

Customer support, 24-hours a day, seven days a week, is now available to all MARK III customers. A National Service Desk (NSD) has been established to augment the support now available through local service desks. Accessible nationally via toll-free 800-321-2330, the NSD will answer questions concerning system status, communications and terminal problems, nights, 6 pm to 8 am, and anytime weekends and holidays.

A new international access directory also lists local phone numbers available in many locations that will be automatically redirected to the NSD. (Check box 246 on the coupon below for your copy.) By year end in most U.S. cities, customers will be able to call the same number for after-hour and weekend service as they use for their local service desk during normal working hours. As this phase of MARK III around-the-clock service is implemented in other areas, local sales offices will notify customers.

DATA BASE MANAGEMENT

A data handling technique which enables the development of record handling programs in about half the time required by completely user-written methods is now available in MARK III Foreground.

Index Sequential simplifies data base design for maximum economy and efficiency so that records can be retrieved for just pennies. Normal housekeeping functions of building and maintaining a data base of up to 40 million BCD characters are virtually eliminated.

Established Technique

Easy to learn and flexible in use, ISEQ is an established batch processing technique. Specific bits of data stored in massive data bases are found by use of index tables of key words. ISEQ allows updating, deletions, and inquiries of the data base in random sequence.

Any large data base used to produce reports or searched for information is a candidate for ISEQ. Payroll, order entry and inventory control systems are a few of the applications in which ISEQ can provide real benefits.

Optimized Operations

Further economies are realized through ISEQ by minimizing the amount of storage space and system resources required. Optimal operations are assured by a routine which provides a description of the current state of the data base. Thus, the user can evaluate efficiency characteristics and determine when to perform maintenance activities.

Check box 523 to receive a descriptive brochure.

FOR MORE INFORMATION

For free descriptive literature on new and improved system features and library programs, check the appropriate box and mail coupon to:

Information Services Document Center
General Electric Company
6625 Iron Place
Springfield, Virginia 22151

NEW FOREGROUND FEATURES MANUAL — reference manual covering Commands from Files and the LOAD command as well as new FIV features.

355

FIV PROFILE — describes the most up-to-date interactive FORTRAN available.

492

RMS PROFILE — lists capabilities, code conversion and service point locations.

445

COMMANDS FROM FILES — complete description of this new Foreground feature.

530

HIGH SPEED SERVICE — profile explains features and benefits.

498

TIME-SHARING TODAY — June 1972 edition, explores GE Information Services' development.

485

INTERNATIONAL ACCESS DIRECTORY — Current deployment of GE Network and telephone access numbers.

246

INPUT/OUTPUT CAPABILITIES — speeds, types, operational modes, and I/O equipment described.

497

FILES & STORAGE — description of Foreground and Background file types, storage methods, and operations.

497

INDEX SEQUENTIAL — profile giving techniques and advantages of GE's record processor

523

SYSTEM ROUTINES — FORTRAN calls, character manipulation, run time functions, etc.

495

SYSTEM CAPABILITIES — overview of Foreground and Background capabilities.

488

Name _____
Company _____
Street _____
City _____
Title _____ Phone _____



New Features Announced For Mark III Foreground

Several new features for MARK III Service have recently been announced for use in data processing activities in the time sharing environment. Users will find the new features particularly beneficial in easing programming and input problems and in reducing costs.

FIV String Handling Breaks FORTRAN Barriers

Traditionally, FORTRAN usage has been directed toward mathematical and engineering applications while the majority of business data processing has been done in the COBOL language. The principal difference has been the latter programming language's ability to manipulate strings of characters of variable length such as in operations working with large alpha strings (names, addresses, titles, etc.) for easier report generation.

Now, String Handling has been adapted to FIV to make this language more universal in application, particularly as regards business usage and report generation. FIV String Handling makes it possible to select, scan and extract portions of text in innumerable applications, altering and changing the individual elements at will.

The particular advantages to the user through the new feature will be in the ease of programming, particularly in the types of applications cited. Previously, some users have been programming such applications in BASIC. The new features will now make it possible to combine the overall advantages of FORTRAN with the new shortcutting steps of String Handling.

(Cont. on Page 2)

You've got salesmen in eight cities selling highly competitive foam and plastic products made in eight different factories. Do your salesmen know what's in inventory? Right now. Can they mortgage inventory? Right now. Can they place an order? Right now. Can they determine delivery date? Right now. Can they get a credit check? Right now. They can if you're the Foam and Plastics Division of Tenneco Chemicals, Inc. and you're on-line with GE's MARK III Information Service.

(See Story on Page 3)

GE Awarded White House Bid

The White House Office of Telecommunications Policy (OTP), has awarded GE's Information Services Business Division a contract for the study of teleprocessing systems and the development of a model to determine the relative cost/performance ratio of various system configurations for data-based teleprocessing systems.

The OTP, under its director Clay Whitehead, is responsible for the study of telecommunications policies, activities and opportunities and the evaluation of computer and communications technologies. It serves to advise the President on telecommunication matters and presents the Administration's view on such matters to Congress and the Federal Communications Commission.

OTP staff members will use the model to examine the short and long term effects of existing and proposed communications policies and programs.

The Time-Sharing LEADER

Published by the Information Service Business Division, Bethesda, Md. for General Electric information service customers to inform them of new features and services. Communications regarding items in the LEADER should be directed to your GE marketing representative.

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New Programs Available for Cutting Tool Accuracy

Manufacturing units using cutting tools in the production of their products can now take advantage of a unique new program for the selection of the best tool for maximum production efficiency. The program has been developed over a period of two decades by GE-Carboly to assure the most effective use of its cutting tools.

Cutting elements, which are used up in the process of removing material to produce a part, have long been a major expense in the metalworking industry. Selection of the right element for each job is an important consideration in the ultimate cost of manufacturing the product. In the past, this choice has been made through costly and time-consuming procedures which are highly dependent upon the individual skill and experience of the person making the decision.

With the Carboly routines, the procedures are systematized and the decision is made quickly and accurately. This permits evaluation of production policies and the lowering of costs by comparing the effects on production of each cutting tool under consideration. A full analysis is printed out at the terminal in less than one minute.

(ED. NOTE: The Carboly Routines are now available on the National Metalworking Catalog. Contact your local GE Marketing Rep or GE-Carboly.)

-INTERNATIONAL- GE Network Gets Tokyo Demonstration

Thousands of Japanese and other businessmen witnessed a demonstration using the GE World-Wide network at the USA-Japan Computer Conference held in Tokyo recently. The demonstration was a joint effort between GE and its Information Services Business Division licensee in Japan, Dentsu Advertising Co., Ltd.

Transmission between the Conference site and the GE SuperCenter in Cleveland, Ohio was by satellite. Preparations for the demonstration included the shipment of equipment and the testing of satellite channels, proving conclusively that Networking to Japan is both technically feasible and of great interest to Japanese businessmen.

Two West European Cities Added

Zurich, Switzerland and Cologne, West Germany have been added to the World-Wide GE Information Services Network, bringing to 33 the number of European cities which have direct toll-free access to all of the new MARK III Foreground features. Through both satellite and undersea cable, the new cities are now connected on-line with the GE computers.

NEW FEATURES (cont.)

Programmers presently using BASIC for string handling will find the new FIV capabilities fully comparable.

Code Conversion Sub-Routines

Also announced are two new sub-routines which enable simplified conversions to and from ABCDIC and ASCII character files. Many new applications, particularly those with large input/output volumes in either code, now become feasible with MARK III's new High Speed Service utilizing the routines. The primary advantage to the user will be

found when storing data in packed numeric form for large-scale efficiencies.

AUTOSAVE Prevents Loss of Data

A new command, AUT, enables a user to specify a file for retention in the event of a communications failure. A "REPLACE" command will automatically be simulated with that file name whenever the user is disconnected because of any communications failure. With this command the user may have far greater confidence that all data within that file at the central system, new or old, will be retained.

Alloy Formulation For Swedish Firm Computed on MARK III

Stora Kopparberg, a Swedish steel producer, is now computing formulas for its alloys on MARK III via trans-Atlantic satellite and cable. Measurements from preliminary tests and data on the desired quality and quantity are being fed into the computer. The resultant printout shows changes to be made to the mix to achieve the desired results. The company reports a significant improvement in the formulations as a result of this application.

Tenneco Finds Edge With Order Entry

(Continued from page 1)



It's an airy business. Your product comes into the factory in a test tube and goes out in a box car, its bulk increased a hundred times over. Among your principal customers are furniture and clothing manufacturers, the bulk of whose business is made to order. They can't keep large stocks on hand and they can't afford to wait long for deliveries. As a result, less than 20 percent of your own sales are from out of stock. For this reason, service, the ability to deliver the product fast, is the competitive edge.

Many of the orders you place go onto the production line and you need to know how soon an item can be delivered. Most of all, you need to get it onto the production line and not have it sit around for a couple of days waiting for the right paper to be shuffled. If it's an in-stock item, you want it out immediately and its stock replacement produced.

Credit checks. You want one before you ship an item in stock, or before you begin to produce a special order item; but you want to have it ready for shipment or production when the questions concerning credit are answered. And, if possible, you want invoicing with shipment to speed up your cash flow.

Three Day Delay

Historically, it's taken you up to two to three days to get an order into production. First to accounting for a credit check, then to the warehouse to check stock, finally to the plant to get an order onto the production schedule if need be. A piece of paper, hand carried, could take forever; but even telephone calls can be iffy.

Add to that your production time, two days for curing which your foam products must have, the interminable time in transit, particularly for a light but bulky item. Soon, you're more than

ready for any system that can speed up your delivery, particularly by as much as two, three or even four days.

The solution, MARK III Information Service. A quick call from the customer's location to the sales office puts the order into action. A five line entry is made into the MARK III system via the office's terminal and immediately the computer reports a credit check, a stock check and begins to factor the order into production if it is out of stock. If there is a credit problem, the sales and accounting office are notified, even as the flagged order goes on through the cycle so that work can begin pending credit approval. With no such problem, a shipment order is placed for a stock item and a production order if the item is not in stock. Quickly the salesman is advised by the sales office of the order's status and the expected shipment date. It may be shipped the next day.

Interprocessing

The order entry system doesn't stop there. Through Interprocessing, via key-tape between MARK III and Tenneco's own 360/40, steps are set into motion to include the preparation of an invoice that night and the updating of numerous other data bases in both systems.

Within the Tenneco system, the sale will be credited to the proper office and salesman, sales by item accounts, and any number of other entries desired by the company. Of course, the sale will also be credited to the customer's account, information which, in turn, will be reported back to the on-line MARK III Service for inclusion into the customer information file which is the basis of the credit check system.

Now, all is ready for another sale with credit, stockage and production data all on-hand for an immediate response.

Coordinated Efforts

The importance of on-line remote order entry and MARK III Information Services to the Foam and Plastics Division of Tenneco lies not merely in passing the word from salesman, to home office, to factory; but in coordinating the efforts of all of them, bringing them, in effect, under one roof. An industry where the majority of products are produced to order is necessarily complex and it is by mastering this complexity that on-line remote order entry gives Tenneco's Foam and Plastics Division the speed that is the competitive edge and the difference between profits and problems.

Don Perry, Foam and Plastics Division Controller outlines the meaning of the on-line order entry system to the company by stressing the plans for the future. "Moving plastics sales onto the system, as well as foam is going to give new emphasis to the inventory management feature which we haven't really utilized and will give us better control over long range production planning.

The most important thing about the system, however, is that we are developing a broad data base through source data capture as an automatic outgrowth of the system. There are so many things we can do with that, truck fleet scheduling, sales planning, profit & loss statements on individual items, an almost endless list of tools for planning that, without the capture of data at the source, would require extensive entry and a large force to accomplish it."

GE's new Mark III lets you create a worldwide order processing network.

Immediately.

Computerized order entry systems are not new. What is new is a complete service that requires no capital investment. A service with local phone access available from hundreds of international locations. A service whose cost is proportional to your use.

It's called Mark III, and it's ready to become your order processing network starting today.

You can tie together your sales office, factories, and warehouses to enter orders and fill them. Many companies are already using this network. Their businesses range from food processing . . . to auto manufacturing . . . to insurance services . . . to chemical production.

Salesmen can instantly verify inventory status, check buyers' credit, place orders, and mortgage

inventory. Capturing the order information in a single data base also opens up other valuable management uses, such as sales control and forecasting.

Mark III is an integrated network of nearly 100 computers, interconnected and accessible from over 250 cities in North America and Europe. This international network has been used commercially since 1970—and it is ready for you right now.

If you use GE's Mark II, Mark III offers major new features and is fully compatible. There's much more to this exciting new opportunity. For the facts, phone 800-638-0971 or write us at 7735 Old Georgetown Rd., Bethesda, Md., 20014. We're ready to help.

291-85

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Little Aetna -

A company that is dedicated to the concept of entrepreneurship and to operating its regional offices as nearly autonomous profit centers must provide its regional management with the information that good planning and thus good management require.

Even a management information system is of little value when the system is at the top of the company while the majority of decisions are being made at the middle of the corporation structure.

Aetna Insurance, an affiliate of Connecticut General Life and one of the country's 25 largest property and casualty insurers has become a leader in its industry in adopting management science techniques for decision-making purposes. Now, "little" Aetna (the little being a prefix Aetna has adopted in spite of over \$400 million in written premiums to distinguish itself from Aetna Life & Casualty, another insurance company) has enhanced its operations control and planning system through an on-line planning model for regional offices called SOLAR (Simultaneous On-Line Accessibility of Regions). The SOLAR System relies upon the speed and economy of GE MARK III Information Services to provide both on-line processing and communications.

Aetna's nationwide and Canadian marketing; 29 regional offices, 100 territories and an independent agency system of about 7000 agents offers over 28 types of insurance products. A complex array, it requires not only sales, but servicing to agents, policy holders and claimants. A need for accurate information is paramount and Aetna maintains a constant search for ways to improve operational control and planning within the 29 regional offices, each a nearly autonomous profit center.

In operation, the SOLAR system may be likened to an independent management simulation system for each regional office. The data base for the system is developed on Aetna's own in-house computer system at company headquarters, the information structured into a modeling environment as set forth within the original programming.

Monthly Update

Each month, the in-house system generates a magnetic tape update of actual information related to all facets of the company's insurance operations such as premium sales, policies in force and frequency and size of claims for each of the 100 territories. This information is then loaded into the MARK III system via GE's Remote Media Service (RMS),

making it accessible on call to the 29 regional managers, either immediately, or intermittently throughout the period.

TermiNet-300's located in each regional office enable the regional managers to call into the system, at his convenience, or in response to particular situations for which he might desire to simulate alternate strategies in his decision making. The highly interactive modeling environment enables the managers to analyze the effect of changes in the mix of business and in the mode of operations, simulating their business with the latest available information.

Fundamental management questions are answered: where are we, where do we want to go and how do we get there? With a given set of assumptions, regional management is able to create a pro-forma income statement and other planning reports required by management on a monthly basis.

Used By Headquarters

"EXSOLAR" (or Executive SOLAR) a subset, gives Aetna's Operations officers access to the region's planning reports and summarizes the reports to produce statements for the divisions. The Operations vice-president for Aetna also has access to planning reports for all divisions via EXSOLAR, giving him both a vertical and horizontal appreciation as well as a pro-forma income statement for the company as a whole.

Planning reports did not come to Aetna with SOLAR or MARK III Information Services, but in an earlier manual system. But, managers did not have the modeling capabilities now available and also spent approximately two to four days each month generating and analyzing the reports. Now, the same is accomplished in 2-4 hours. Also, reports, or 29 sets of them to be exact, that took a secretary approximately 20 to 30 minutes each to type are now printed on the TermiNet-300 in under three minutes apiece.

Most significantly, the planning model allows management greater time for analysis and the additional capabilities of

They're Big On Remote Modeling

testing alternate strategies via the SOLAR system. Today, management still makes the decisions, but with a better understanding of the uncertainties.

Six Month Startup

Designed by AETna personnel under the direction of Prabhuling Patel, Operations Research Analyst, the system was programmed and tested by W.E. Muller of GE's Technical Service Operation in

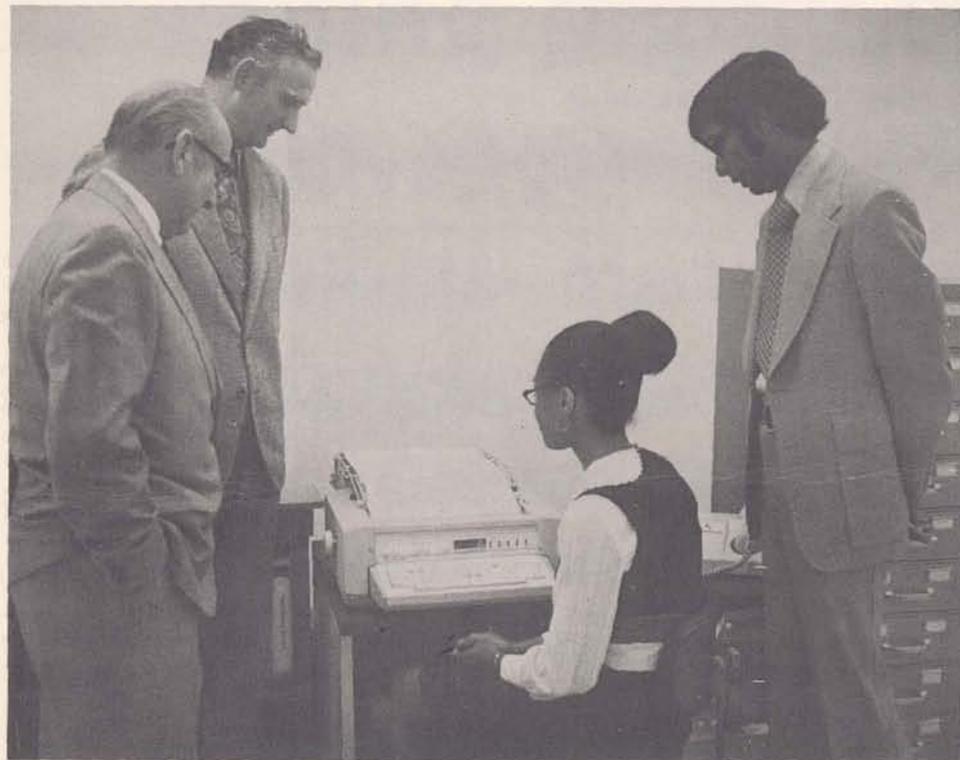
Bethesda. With co-operation from GE Field Sales people all around the country, AETna personnel were able to initiate the project in late April, designing the system, programming and testing the software package and training over 150 regional management people throughout the country to go on-line and operational by late October.

SOLAR has AETna management enthusiastic. For the first time in the

insurance industry, the power of time-shared computing has been made available to decision makers at all levels of management. The results have been good, good enough that AETna has already started to develop the blueprints for extending the system far beyond its present scope.

To AETna, the SOLAR System is a universe of new ideas and new opportunities.

AETna President Fred Watkins (left) and Vice President Bob Kilpatrick had the SOLAR system demonstrated to them by Sherida Bynum, Time Sharing Coordinator of AETna's Actuarial Department as system designer Prabhuling Patel (right) looked on.



programmers notebook

Dear LEADER:

My management wants a daily report on all branch office transactions accumulated up to system sign-off the night before. That's midnight, our time. What with the three hour time differential from coast to coast, I figure I'll have to run it when we first go back on the system at eight o'clock Eastern time. That's five o'clock our time. Otherwise, if I wait until eight, our time, I'll be picking up that morning's data being entered from the East. I'll never get any sleep.

San Fran Insomniac

Dear Fran:

Rest easy, the answer lies in combining Independent Run and the new "commands from files" feature. The result is a *perpetual run* — hands off and with no human intervention. Programmatically, it's a complete circle.

In the following description, NITE and MORN are command files: PROG is a program which prepares the desired report.

The command file, NITE is set up as an IND job to be run at 11:30 pm on Tuesday, December 26. The essential commands in NITE are as follows:

OLD SLEEPER

RUN

IND-100,PROG,,A721226,,EAR(0500)

SLEEPER is a FORTRAN program using the CALL SLEEP command to stop action for a 45 minute period. Thus, the IND

command will not be issued until after midnight, that is, on Wednesday morning. (If the IND command were given before midnight, PROG would be run immediately as the designated earliest start time had already passed.)

At 5:00 am on Wednesday, the 27th, (while you are still slumbering soundly) PROG runs and writes the report on yesterday's activities into the output file A721226. (This file, of course, is named with yesterday's date in the YYMMDD form.)

Keep it going.

PROG then rewrites the command file NITE the same as above, but with tomorrow's output file name (e.g., today's date obtained with the IDAT function). Next, PROG chains to the command file MORN which contains the following:

PURGE NITEOUT

IND-10,NITE,,NITEOUT,,EAR(2330)

Thus, MORN establishes the independent run of NITE, which is the command file that gives the command to run PROG, which chains to MORN. . . and so on, forever . . . and ever . . .

If you want to get really fancy, you can do end-of-month analysis or other date oriented processing automatically by building into PROG a "go-no go" branch decision based on IDAT.

Your LEADER

Contributed by Bob Goldstein, Pacific Zone, GE

PUBLICATIONS ORDER FORM

(Note: This literature is descriptive in nature, not instructional.
Contact your local Marketing Representative if documentation is desired.)

- | | |
|--|--|
| <input type="checkbox"/> 246 International Information — Network | <input type="checkbox"/> 491 Languages |
| <input type="checkbox"/> 325 Optional Pricing | <input type="checkbox"/> 492 FIV — Foreground FORTRAN IV |
| <input type="checkbox"/> 437 IND — Independent Run | <input type="checkbox"/> 495 System Routines |
| <input type="checkbox"/> 444 Administrative User | <input type="checkbox"/> 497 Input Output Capabilities |
| <input type="checkbox"/> 445 RMS — Remote Media Service | <input type="checkbox"/> 502 Files & Storage |
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| <input type="checkbox"/> 488 System Capabilities | <input type="checkbox"/> 930.01 Order Processing |



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