Timesharing/Professional Services Workshop: Session 5: Growth in Applications

Moderator:
Burton Grad

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Timesharing/Remote Processing Services
Session 5: Growth in Applications

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Abstract: Besides selling the use of the computer cycles and the use of the timesharing and remote processing operating systems, each of the companies developed certain specialties in terms of markets and applications. This session is aimed at exploring what markets were chosen and what applications were developed or acquired in order to serve these markets effectively. Topics covered include:

- What markets were chosen and why?
- What applications were developed in house?
- What applications were acquired from third parties?
- Did the focus on applications change the market direction or the business profit model?
- What was the balance between engineering/technical and business applications?
- What was done to provide services to programmers in terms of program development, testing and debugging?
- Were professional services provided to support these applications?

Participants

Name	Affiliation
Burt Grad	Moderator, SI SIG co-chair
Dick Bayles	National CSS
Frank Belvin	Interactive Data Corporation
Chris Brook	GE Information Services
Rick Crandall	Comshare
Ann Hardy	Tymshare
Norm Hardy	Tymshare
Mike Humphries	Tymshare

Gary Myers	Tymshare
Dick Orenstein	National CSS
Nick Rawlings	National CSS
Ken Ross	Ross Systems
Dave Schmidt	Tymshare
Jeffery Stein	Online Business Systems
Mike Wyman	Interactive Data Corporation
Thomas Haigh	Historian, Univ. of Wisconsin
Chris McDonald	Historian, Princeton University
Doug Jerger	SI SIG member
Luanne Johnson	SI SIG co-chair

Introduction

Burt Grad: Okay, this session is one some of you have been asking about since we started. You grew the companies not just by more machine time, but by specializing in certain applications, building them, making them work. So I'd like to again do what we've done here. Go around the various companies. What were the things you did in the way of applications? Which ones were successful? Why did they succeed? Which ones failed? One of the things I'll do tomorrow is we want to have the worst horror stories from your company. What's the worst thing that ever happened to you? I'll also ask, "What was the best thing that ever happened?" We've found that that's an interesting approach. What applications did you build yourselves? Which ones did you acquire if you acquired them? Did they work out? Were they too costly? That's what we're going to try and do during this session.

National CSS built a lot of business with RAMIS and with COBOL and things like that. You want to start by telling some of the applications you built and why and how successful they were? I don't know whether Nick [Rawlings], you're the right one, or Dick [Orenstein] or both of you together? Nick, start.

National CSS Applications

Nick Rawlings: Okay, Dick Orenstein mentioned already that we had an optical design package for ray tracing through lenses. That was an early one.

Grad: Where did it come from? How did you get it?

Rawlings: Well, what happened was that we had optical designers at Perkin Elmer and we made sure that our FORTRAN compiler could compile the extensions that we put into the SDS [Scientific Data Systems] compiler. So we put those extensions in so we could compile the Fortran optical design package. It brought us a fair amount of revenue but it wasn't really our application.

Grad: Did you own the thing?

Rawlings: We didn't own it. But we were very supportive of it, and supportive of the development and the debugging of it. We didn't charge the guys who were developing it for the machine time to develop it, but they shared in the revenue.

Grad: Did you pay them?

Rawlings: No. Well, we did charge others who developed language translators and other applications.

Dick Orenstein: We didn't charge them for machine time.

Rawlings: Yes, right.

Orenstein: If I could just [tell] a story about a COBOL debugger which we took to a customer and said "What would you think?" We said "We'll show you in Fortran, but this is what you do in COBOL," and they didn't get it. So they said no, they had no interest in it. So we went back and said "They didn't understand it. We'll write it anyway." And they became one of our largest COBOL debug customers. So that was something we did.

Grad: So you wrote a COBOL debugger?

Orenstein: Yes, but RAMIS was so good that it was just too hard to give up that royalty every month.

Grad: Tell me the story about RAMIS. What did you do on RAMIS?

Rawlings: Well, what happened was that Mathematica had this product that allowed people to get reports off data pretty easily, and so they said they'd like to run it on our timesharing system and we signed an exclusive. A customer couldn't run it on anybody else's timesharing

system, only on ours. And what we did was we monitored the usage and we paid Mathematica a portion of what we got. It started off a small portion and after a while they kept asking for more and more. We really liked it because it was a fairly steady source of revenue and also we had the exclusive and so we ended up writing the reference manuals. We had a bunch of experts in RAMIS and we would teach it to prospects and customers. But Mathematica wanted more and more or they would take their exclusive somewhere else and so at some point we decided that we should develop our own, but part of the deal was that we wouldn't develop our own.

So we took a storefront in Stamford that looked like a flower shop and did a skunkworks project for a couple years and developed a replacement for RAMIS which we called NOMAD. And when we started out we said to our sales force "We don't want to replace the RAMIS business. Don't go and sell this thing to your RAMIS customers. Sell it to new customers." And, indeed, we provided incentives [not to do that]. But nonetheless we were able to sell a fair amount of NOMAD.

And then we were able to… Mike [Wyman] mentioned this, that he could raise the price of a CPU second if he could make the operating system more efficient. Well, we could raise the price of a NOMAD ARU [application resource unit] if we made Nomad more efficient. And so we were able to do that and get more revenue.

Grad: So, fundamentally you could charge the same price even though your hardware costs kept going down?

Rawlings: Yes, customers were typically paying us, you know, $100 to do some unit of work, and if we could get it the next month, maybe our computer costs were going down but they knew that other costs were going up. We'd charge them another hundred bucks.

Grad: You didn't get push back on that then particularly?

Rawlings: The customers didn’t want us to raise our rates. They didn't expect us to lower them.

Dick Bayles: I think I should make a point here on the computer issue. At least for NCSS [National CSS] and probably IDC, the cost of computing didn't come down. The cost of mainframe seconds, if you want to call it that, didn't come down until IBM announced the [System 370 Model] 168. You're stuck with buying [System 360 Model] 67s at their list price, or leasing 67s at their list price. At one time I think we had…

Rawlings: Five?

Bayles: No, we had five on the East Coast and three on the West Coast. We had eight at one point.

Grad: There was never a competitive machine that you could have bought instead of a 67?

Bayles: We did look. We finally bought an Amdahl instead of the first 168.

Grad: We're staying with the application stories here.

Bayles: Yes, but I just wanted to make the [point that] the cost of computing, the cost of a mainframe second, didn't start coming down until 1974.

Grad: Because it was a step function for you. You were on the 67.

Bayles: Yes.

Grad: Ken, You could migrate with the machines, right, as the DEC machines moved?

Ken Ross: Right.

Rawlings: It's like GEIS [GE Information Services] had a special deal.

Grad: I don't know what the GE picture was. Were you stuck with the [GE] 600 series or did you have new stuff that kept coming out?

Chris Brook: Yes, new NEC stuff. We were lucky because Honeywell sold out to NEC which made the [Model] 6000 as opposed to [the Model] 600 and the price came down.

Grad: But you kept the old machines as well?

Brook: No, I think they all got replaced.

Grad: So you would replace the machines.

Brook: Yes, they got replaced over a period of time.

Grad: Back to applications.

Rawlings: What we did was we took a whole bunch of the people who had been systems programmers on CP/CMS which we had renamed VP/CSS and we developed a group called Product Marketing. We had this outside guy who was really good in marketing and he said we've got to do product marketing. So we had one guy who was in charge of the financial products. Another guy was supposedly in charge of the scientific products, and then there was the programming languages. I was the product manager for the programming languages. So I had C[OBOL]DEBUG and F[ortran]DEBUG and the PL1 and all that stuff.

Grad: Did you acquire any significant applications programs?

Rawlings: No.

Grad: You tried?

Rawlings: We tried. And we signed up a bunch but we never really got any other than RAMIS, I don't think.

Bayles: Infotab.

Rawlings: There was Infotab and some others, and there was a census product called CENSAC.

Orenstein: Yes.

Grad: But they weren't a big part of your revenue stream?

Rawlings: We thought they would be, but they never really amounted to much. RAMIS was the closest. It might have been 15 percent of our revenue.

Grad: One more question on RAMIS and then later NOMAD. People used it to develop applications. Once they built the applications, did they run it on your machine?

Rawlings: Yes.

Grad: Or did they run it on their own machine?

Rawlings: They couldn't run it anywhere else.

Grad: Until you eventually you started to sell NOMAD to them?

Rawlings: Which wasn't until a lot later. Like 1982 or something like that.

Interactive Data Corporation Applications

Grad: IDC, you started with a financial language. What other applications [did you have]?

Mike Wyman: Well, we started with First Financial Language, FFL, and then, as I mentioned before, one of the first products we developed was the portfolio appraisal system, TOPAS or XPORT, whatever you want to call it. Other products that we developed internally were the program development packages, various debugging packages. We developed something which sort of competed with NOMAD and RAMIS, something called XDMS, which was our own fourth generation language. There were some third party packages which we offered on our system.

Frank Belvin: XSIM.

Wyman: XSIM from Dynamic Associates which became a fairly significant revenue contributor. We offered Express on our system. AED ran on our system. What else?

Grad: When you got a third party system, what kind of arrangement did you make with the third party?

Wyman: Typically they'd get a royalty.

Grad: What level?

Wyman: It varied based upon vendor I think.

Grad: Give me a range.

Belvin: Funny, our arrangements with third parties usually ended up with our acquiring them. So we acquired Dynamics Associates after several years, maybe three or four years.

Wyman: We acquired them in the early 1980s I think.

Belvin: Maybe it was longer than three years. Time flies.

Grad: I'm just interested because the models on what percentages were paid in royalties vary all over the place.

Wyman: I believe in the case of XSIM the royalty was probably in the 50 percent range.

Belvin: Right, probably.

Grad: Wow. How do you make money with that?

Wyman: Well, wait a minute. This was a 50 percent premium on top of our normal timeshare.

Grad: So you were just charging extra and giving it to them?

Wyman: Yes, exactly.

Grad: Did you make any money off it other than your machine time?

Wyman: I mean, that's what we were selling.

Grad: My point is you weren't making a premium because you had [this extra capability. How about with RAMIS? The same thing or not?

Rawlings: We called it a surcharge, so instead of charging 30 cents, we charged 40 cents for these same timesharing cycles.

Grad: Did you give the dime to them [Mathematica]?

Rawlings: And we gave the dime to them.

Grad: So you didn't make any extra money on that.

Rawlings: Correct.

Grad: Interesting.

Rawlings: When we had our own NOMAD, we could charge 40 cents and we could keep the extra dime.

Grad: That's a different ballgame. But I'm talking about third party software. So it was just a means of selling more time.

Rawlings: Oh, but it was not just more time. It was an assured revenue. These people were almost guaranteed to run their monthly report next month. It was very steady revenue.

Orenstein: It was a better quality [revenue stream].

Wyman: I think one of the key things here is if you can get the customer to build an application, use an application that's an integral part of their business, which a lot of these programs typically were, that becomes highly defensible revenue. They can't readily move it someplace else. It's an integral part of their business, so it's a very high quality revenue.

Grad: It's locked in revenue which is good stuff.

Wyman: Exactly.

Grad: Go ahead, Frank.

Database as a Product

Belvin: It's not a product but, you know, the underpinnings for our company was having Compustat data. We also had daily pricing from the stock exchange. I think one of the big applications for XPORT was for mutual funds which had to come up with a net asset value every day according to SEC requirements. They'd do it on our system because they'd have their portfolio [there].

Grad: Did any of the others pick up databases like they [IDC] did?

Rawlings: We tried. We had a financial product called FinInf where we had daily data.

Grad: Did you? Because I don't remember the others. I don't remember Tymshare doing this to my knowledge. Did they?

Mike Humphries: I have a question about your data sets. You mentioned earlier that you charged on a kind of a transaction basis like a price per day from the stock exchange for tracking stock portfolios.

Belvin: That was tied in with what Mike [Wyman] had talked about. We got a charge for each item of data that you access.

Humphries: So here's my question. Did you also have the alternative of an all-you-can-eat annual subscription or anything like that for the data?

Belvin: I don't think we ever did that.

Wyman: I don't recall that. I think it was because it's a variable charge.

Humphries: To your vendor, it was a variable charge.

Wyman: Well, no, to our customer it was a variable charge and to a certain extent a variable cost to us. This was CPU-related. I don't think we had an all-you-can-eat. I remember a "white sale" of data that we had. <laughter>

Grad: Let me follow that. How did you buy the data? What did you pay for it?

Wyman: That's a good question. I think in certain cases of the pricing we ended up acquiring the data source.

Belvin: We ended up buying that part of S&P [Standard & Poor] that did municipal funds.

Grad: Do you remember what the initial arrangement was with S&P? Were you paying them per query or anything?

Belvin: I don't remember.

Wyman: I think we were just buying the data outright but I don't think there was any kickback.

Grad: I see. But you later acquired the company.

Belvin: This was Joe Gal's inspiration. When he was at White Weld, Compustat had just started producing their tapes, and Joe said "We've got to make this available to people in the financial community."

Grad: I think it's a brilliant idea to, in effect, have that kind of database.

Belvin: Oh, yes, that's why IDC is still in business today.

Grad: That's why I'm surprised that none of the other companies seemed to pick that up as a model. There must have been other kinds of databases that would have had significant value to customers.

Dave Schmidt: There were a lot of applications that we wanted to put on while I was there. I don't recall us actually succeeding in that.

Grad: Okay, give me some examples.

Norm Hardy: Tymshare had MAGNUM, their own database system, and RETRIEVE which was sort of a database system.

Grad: But those are systems to get information but they [IDC] had the information itself.

N. Hardy: Oh! You're right.

Humphries: I don't think we had any databases that we bought or sold.

Rick Crandall: We actually did. We had a number of different databases. We had a weather database that was used as the basis for forecasting demand for retailers because we had a retail specialty. We also had a Standard and Poor's data base. I mean, they were just components of applications. They weren't really like a database where we were selling the raw data.

Grad: But you did get some of those and put those online for your clients?

Crandall: Yes, we had a very active program of getting applications whether they had data or not on the system, and the difference for us is whether the application company was selling its products in which case we made no markup. We just sold the time. If our sales force was selling the application which happened in a few cases, then we kept a piece of the premium.

Grad: You [NCSS] were selling the application RAMIS. And you were selling these applications yet you still didn't mark it up other than your raw time. That's the difference – he's saying that where he was selling it, he kept a piece of the increment.

Crandall: We always based it on the pie, of who provided what pieces of the pie in terms of cost, and who got what pieces of the pie. So if the customer support came from us, then we took a bigger piece of the pie. If we sold it, but the customer support came from the application vendor, then they got a bigger piece. So it was all based upon a model that was the pie chart.

Rawlings: We had a fairly substantial professional services consulting business in RAMIS. So we would go to a customer and say "Such a deal we got for you." We can program this application in RAMIS for you and we'll turn it over to you.

Grad: There's obviously no doubt that you got a lot of extra business because of that RAMIS connection and later the NOMAD one so that's good. But it's a little different model.

Thomas Haigh: I'd like to ask why you didn't sell more in terms of providing access to databases online, like this whole other group of companies that were in the business of providing electronic access to things like Lexis, Dialog, those kinds of companies. It seems like some of the technology must be the same. And I know they have their own group, the Information Industry Association.

Crandall: I was very involved with that. They had a really bad attitude towards software companies and timesharing companies, most of them.

Grad: Who had a bad attitude?

Crandall: In general, the information content companies. It was such a bad attitude that when we tried putting the two trade associations [ADAPSO and Information Industry Association] together that failed.

Luanne Johnson: We tried three times.

Crandall: In fact, we finally – this goes a little bit into early 1980s when we became a software company – we did a deal with Dow Jones where we did connect their data to our executive information system, and we did it born out of one of those times when we tried to put the two industry associations together. We wanted to prove that there was a reason why there ought to be a relationship between software companies and information content companies. It never became a huge trend. Their view was if you're not a specialized application that really is primarily data content, information content, then they weren't in your industry.

Grad: We're going to have an interesting discussion tomorrow about when D&B [Dun & Bradstreet] acquires NCSS. What were the reasons for that? Was that because they looked at it as vehicle for communicating data, or was it for totally different reasons?

But [what] about Tymshare? Did you go into the applications business?

Tymshare Applications

Humphries: I think I can at least give a quick answer on that. We never wrote any true applications ourselves except there was one exception called PERS [Personnel Evaluating and Reporting System]. It was a personnel application. We built system tools so we did RETRIEVE, MAGNUM, IML [Information Management Library], all database stuff. We did modeling languages and we did languages in compilers, but we did OEM deals just like you guys did.

Grad: Examples?

Humphries: MANMAN which was the manufacturing shop floor application that eventually became Sandy Kurtzig's company, ASK. We had Express.

Grad: Talk about MANMAN. You were offering that on your machines?

Humphries: And we offered that early. We offered that when it was a two-person company. When Sandy Kurtzig had a slave programmer and herself.

Grad: I thought she built that on HP computers though.

Humphries: It ran on our [Scientific Data Systems] 940 system. And we had another thing called BBL, Business Basic Language. What was the name of that company that wrote that? Was it BBL?

Jeffery Stein: It might have been.

A. Hardy: I don't remember.

Humphries: It was a better version of our TYMTAB which was a spreadsheet application.

Stein: When did the Tymnet revenue kick in to become really noticeable?

Humphries: Late 1970s I would say is when we formed a sales team that was totally separate to sell Tymnet as a network and the email that went with it to other companies. They were totally separate from our group. In fact that's when those of us that were in the timesharing group figured out that all the company's money, attention, and creativity was going to other things than what we were doing.

Grad: So that was really a separation in the company between the Tymnet part and the rest of it? Is that a correct statement?

Humphries: Yes, but we still got to use it. <laughter>

Grad: Gary?

Gary Myers: But let me put it into perspective. Tymnet was a baby contributor of revenue. Tymshare was the cash cow that was really supporting the company, and I would say the next metamorphosis of Tymshare really came when Bernie [Goldstein] and Al [Eisenstadt] came in and started making a lot of acquisitions. Because that's when we started buying companies that offered specific applications like the tax preparation service. We were the second largest tax preparation service in the country at one time.

Grad: This is mid-1970s.

Myers: Well, yes, mid-1970s.

A. Hardy: Late 1970s and early 1980s.

Grad: Bernie is gone by what, 1977?

Myers: No, later than that.

Grad: No, in 1978 he's over at NCSS.

Rawlings: No, no, he didn't arrive at us until a month before we were sold to D&B in 1979.

Orenstein: Oh, I think it was longer than a month.

Rawlings: All right. A month and a half.

Orenstein: It was quick.

Grad: So that was a whole strategy then at Tymshare to start acquiring other companies?

Myers: Let me back up. I think there were generations that really followed the generation of the development of timesharing that really moved from as Mike said "tools" which were languages and databases, to applications and the first of which were manufacturing and personnel, to ultimately buying companies that offered very specific applications like computerized tax preparation, and all that kind of stuff.

Grad: We'll talk tomorrow about the acquisitions, but were they made so that you would have applications to sell more machine time, or were they made as a business proposition in their own right?

Myers: The latter.

Grad: So that's a different model.

Myers: Yes.

A. Hardy: Right.

Grad: Okay, that's all I was trying to get at. That in some cases you were getting access to things because you could boost your regular business. The other was [that it was] a separate [business]. Bob Weissman bought some kind of a retail company or something?

Rawlings: Oh, that was a separate thing. We had four million dollars to make an acquisition so we bought RTW. We got in the rag business.

Grad: You threw it away.

Rawlings: RTW stood for Ready to Wear.

GE Information Services Applications

Grad: Chris? Was there applications growth?

Brook: Oh, yes, we had QUIK-COMM which was our email system which we developed in-house early on and that was huge, you know, because the global email capability was a huge money spinner for us. And then the one that kept going -- in fact that's the only thing that kept Mark III alive until a couple months ago – was EDI*Express, so we were by far the biggest provider of EDI services in the world of all kinds.

Grad: What was its function? What did it do?

Brook: It just acts as a clearing house for EDI interchanges.

Grad: An eCommerce kind of thing?

Brook: Yes.

Crandall: EDI stands for Electronic Data Interchange.

Brook: Right. We had all the auto industry on there, the American one, French one, and so it had lots of business locked up. Once the trade association decided to use EDI Express, which most of them did for an EDI clearing house, then they all had to go on.

Grad: Informatics got into that [EDI] business with what became Sterling Commerce.

Brook: Yes, right. And then there was a big splurge when it suddenly changed its name to B2B [business to business] instead of EDI. It was the same business.

Grad: Same model.

Humphries: What year did you start doing EDI?

Brook: Probably 1972.

Grad: Wow, that's early.

Brook: It was very early on. And it was kind of one of these fortuitous things. Somebody had a requirement and we said "Why don't we go and do it?" QUIK-COMM did a lot of that.

Scientific Applications

Grad: Did any of you do scientific applications, any special engineering scientific packages, linear programming, any of those kinds of things?

Humphries: We offered those things. We had ECAP [Electronic Circuit Analysis Program] and we had structural engineering which I even forget the name of it.

Myers: STRUDL.

Humphries: Yes, and another one.

Grad: COGO [Coordinate Geometry] for civil engineering.

Crandall: I think we both had [I_DEAS] from SDRC [Structural Dynamics Research Corporation].

Rawlings: We had SciCards which was Scientific Calculations Incorporated.

Grad: Were they ever significant in terms of revenue?

Rawlings: No.

Grad: For any of you?

Myers: Door openers.

Grad: They were door openers but not big revenue producers. Interesting.

Humphries: We did one weird deal that we undid. NASA had a product that was called RECON which was like Lexis/Nexis. We did the deal to acquire RECON and we named it something on our own. I sold the first copy and the guys I sold it to, EPRI [Electric Power Research Institute], said "I don't know if we want to buy this because you know, you guys are doing this and we're not sure you're going to continue to do this or not." So I took Alden Heintz, our VP of International, who was the father of that one, [out to see them] and he assured them that we'd be in the business for a long time. And then six months later, I was out there with him telling them why we weren't going to have it anymore.

Ross Systems Applications

Grad: RECON, I remember that at Informatics being used a great deal for these big legal cases and for government stuff. They said they were using to compete with IBM STAIRS [Storage and Information Retrieval System]. Interesting. Ken, you made a lot of money out of your applications.

Ross: Right, but there's a whole timing issue here because when we started off in the timesharing business, we were running tools, financial planning, modeling and database tools which we developed ourselves. And then we migrated to applications but not until the 1980s and so the applications were never offered on timesharing. They were an enterprise sale, because the whole industry was changing. The one thing I just realized was that we had one joint venture application on our system that we developed in conjunction with a woman, and it was a stock option application. I don't remember how much revenue, but it was pretty significant because I know Apple was a big user of the application. And also I remember anecdotally that we had jointly developed it and we were working with a woman who was – I won't mention her name – very difficult to deal with. We had some kind of a negotiation with the deal because she wanted to move it to PCs so this obviously must have been early 1980s. I remember we allowed her to do it, but she couldn't put it on a PC with a hard disc. It had to run on floppies only. <laughter>

Brook: It wasn't one of our past CEOs by any chance?

Ross: No, no, no. But she ended up selling the company for a lot of money to E-TRADE. I mean more money than we ever got.

Grad: But the point you're making is that you went into a product business.

Ross: Well, yes, but we had to transition the company to a product business for sure. When we talked about graphs, you know we had a timesharing graph going like that and a software product graph going like that and we had to get them to cross.

Grad: But the point I was asking was the financial products weren't piggy-backed on your timesharing per se?

Ross: No. That was a completely different business. And you can sort of tell even today – I've been in the industry with a lot of companies, still am – that selling an application is always easier than selling a tool. You know you go in and you have your financial planning tool and you say "Do you want to do budgeting? Do you want to do reporting? What do you want to do?

We'll do it." And that's a harder sale than going in and saying "We have a manufacturing system. You want it? Yes or no?"

Online Business Systems Applications

Grad: How about you, Jeffery. Did you ever piggy-back some applications that you sold?

Stein: I don't think so because our business model was different than a lot of the timesharing ones. But early on, our business was always changing because the environment was changing. More and more people were going in-house. There were more people that could program. More people that understood data processing. So I just said that we want to find every excuse we can to keep our computers busy making money and so we had a software products arm and we had an application programming arm. We had transaction processing and remote batch processing. We had time sales. We had a couple software products divisions and we had data entry, and venture capital. These are all just to keep the computers busy making money.

Grad: You had a totally diverse model. You didn't give a damn as long as it made money.

Stein: As long as the computers were busy creating revenue, we were very happy and these were all mousetraps to do that.

Comshare Applications

Grad: Rick, anything further? You ended up doing a lot of applications kinds of things.

Crandall: We did.

Grad: Were they separate businesses?

Crandall: Literally, it was a change in strategy in approximately 1973ish where we decided we needed differentiation. There was plenty of timesharing going on. And we developed some vertical and horizontal specialties. One was called Profiles which was a human resource suite of applications that did very well. Well, reasonably well in relation to our size. Also 411 Systems was information systems for telephone companies. And it got involved in the way they had to allocate revenue across the different operating companies. It was a very specialized application that also did well for a long time. And then Compass Systems which was a specialty for accounting firms that was a grab-bag of stuff and it didn't do very well. We also developed two

proprietary-- I wouldn't call them applications-- but they were tools. One was called Questor which was our sort of 4GL database kind of product and it did extremely well and eventually became a software product, as did System W which was a multidimensional decision support system that got very popular with IBM when we transferred into becoming a software company.

Changes to Marketing Strategies with Growth in Applications

Grad: So those were all parts of it. Did this change your method of marketing or selling when you tried to sell the application use rather than sell the machine use? Is there a difference in how you went about it?

Crandall: Well, I'm sure it did for all of us. It certainly meant for us that we needed some specialists. You couldn't afford to have them at every office so you typically had a more centralized or regionalized set of specialists in the application that you could bring in at some point in the selling process.

Grad: How about with National CSS? Did anything change there?

Rawlings: We had a product which we pushed really hard for a while called SPICE and then we had interactive or ISPICE, and I remember we had some PhDs to explain to us what short channel MOSFETS [metal–oxide–semiconductor field-effect transistors] were all about. This was circuit analysis stuff and we had specialists. Also our tech reps had to become good at the spreadsheet product or the financial product or RAMIS and NOMAD and it wasn't sufficient to just be able to show them how to use the editor and the debuggers. It was quite a portfolio that these tech reps would have to carry around in their valises.

Grad: How about IDC? Did you have to make a shift in your marketing strategies or how you went about it because of these applications?

Belvin: Well, XSIM, because it came out of this other company, Dynamics Associates, they did a lot of the marketing themselves and part of their marketing was to mingle with our sales force and sort of train them.

Grad: So it was marketing rather than selling, though? Are you making that differentiation? Marketing rather than selling?

Belvin: Selling.

Grad: So how did they share commissions?

Belvin: I don't remember. I think they probably got their money only on the usage, not on sales. They were adjunct. They were advisors.

Wyman: For a number of our products or applications we had product managers who among their responsibility was sales support. So we had an [IBM] XDMS product management team which was responsible for [that product].

Grad: But the same salesperson was selling that as well as the other sales to that customer. Is that correct?

Mike: Initially, yes. Up until the late 1970s maybe? It was mid- to late 1970s when we started specializing the sales force.

Grad: Tymshare? Any impact? Were they significant enough to make a difference?

Myers: Again, it's a function of the timeline. Early on we sold tools and later we tried to dabble in applications but I don't think any significant revenue came from applications until we made a dramatic shift and started buying companies that had very specific applications.

Grad: That's a shifting ground in the late 1970s.

Myers: Right, yes.

Humphries: And the sales forces were different and I think that's where this all heads. This was a kind of advanced warning on what was going to happen in the enterprise sales area. And that is that it's one thing to maybe be conversant with ten things as a salesman and be successful at selling it, but if it's 25 things and some of them are vertically oriented and it requires a special knowledge you're probably not going to be able to do 25. So there would be a few salesmen that would know something from a past life and they would succeed in that, but it was very hard to succeed across the whole spectrum. And later on we made the same mistake at Oracle. We thought we could take our regular salesmen when we started selling to other industries and it didn't work because they were just the same guys that we had before. So then we had to divide the territories up by that vertical industry.

Brook: Yes, certainly in the EDI area we had a separate development group and one of the big expenses was customer service. We had to have specially trained customer service support people who understand what an EDI was, what an interchange was, what the different standards were. So that was fairly radical.

Grad: So you did split the sales force, then?

Brook: I'm trying to remember, I think sales kind of had support people. The salesmen would go and knock on the door, and nothing. The second tier guy would come in, you know, who could talk EDI.

Grad: Did the salesman own the customer and therefore bring in what he needed to make sales to that customer, or were you assigned the customer based upon what you thought you could sell to it? In other words, if he was a financial customer you gave him a different approach. I gather it wasn't so, at least not to the latter part of the 1970s. What we're doing here is we end up today pretty much somewhere around 1977, 1978 because by the mid- to late 1970s, things were starting to change, correct? Growth has still been very strong. You're big companies, but by 1978 some of things start to change. Some of the models are shifting. You're starting to do some crossover, seeing the enterprise opportunity.

Ross: The Apple II was out.

Grad: 1978 is the Apple II.

Humphries: I saw one of my customers just about ready to go to Prime and buy a mini-computer and leave us for the very reason you guys are explaining. You can keep on charging the same rate even though your hardware cost was going down. That was a mistake I think we all made because some other guys figured out if the hardware costs was going down you could offer a solution for less money.

Haigh: I've got a question then. You'd mentioned previously that an interesting thing about the business was you didn't know month-to-month if the customers were going to stick with it. So did the companies see switching to applications as a way of getting some kind of customer lock in that wasn't there with the other services? And justifying continuing to charge much more for it than you can justify in an environment where the costs of computer power were going down so rapidly?

Crandall: I thought of it more as a provable, more visible value-add than necessarily a lock-in. I suppose it winds up at the same place, but we never thought in terms of lock-in because we never had them locked in. It was really a question of continuing to be able to answer the question, what are you doing for me lately? As it looked as though the hardware costs were coming down, minicomputers were coming out. There were all sorts of things about going in-house. We felt that we needed to come up with some additional values that maybe still didn't get to what Burt was talking about which is pricing for the value delivered but it was at least conveying genuinely additional value than just utility computer time.

Brook: In our case, certainly for EDI, any specialized applications, lock-in came with it. That's why we got into it because by definition once you got the whole EDI community on your system, they're all locked in.

Grad: You had the whole manufacturing community, all their suppliers, everybody else.

Brook: Yes. You get second or third tier, you get the whole thing.

Grad: Sterling Commerce had the drug community. All the drug manufacturers were locked in. You get a community locked and, boy, nobody can go anyplace else. They don't have a choice anymore which isn't bad from a monopoly situation.

Brook: No, it's great.

Ross: Yes, but in the end as technology moves forward, you can't fight the process and so no matter how you have people locked-in with applications, whether the minicomputer was coming or the PC was coming, they were all coming. Hardware costs were going down, and by the end of the 1970s, the timesharing business was changing inexorably.

Grad: Interestingly enough, the eCommerce business seemed to lock communities in for very long periods of time like 20 years.

Ross: Right, it was networking and then the next shift was when the Internet came and hit EDI.

Brook: That's what B2B was. They went direct instead of going through a middle man.

Ross: Exactly.

Grad: Good point.

Brook: [It changed] where it could go direct. In some cases, it wasn't feasible because you needed the clearinghouse because there was so much stuff, so many tiers of suppliers and sub-suppliers and so on.

Grad: One of the interesting things [we'll discuss] tomorrow is how long can you expect a new technology, a new model to work? And if we know that in advance, should we plan our businesses differently? Is ten years reasonable?

Crandall: The question is more complicated than that because some of these models are illusory. They don't exist in the first place, even though you think they do. You have to define what's real. Client-server wasn't really a new business model, I suppose, it was a new technology. But it never really delivered the results that we all claimed it was going to deliver.

Grad: But timesharing did have a life.

Crandall: Timesharing did. I'm just saying there's different…

Grad: My point is eCommerce had a life. There was a definite period where that was a significant model. But your other point is it can be an imaginary model.

Ross: The minicomputer life, honestly, in the business market was five years. The timesharing business was going strong from the mid-1960s to the late 1970s. The minicomputer had a five-year heyday and that was it.

Rawlings: The other thing is the timesharing business didn't really end. It went in-house for many customers.

Grad: The timesharing usage [continued] but as a business proposition, it was a different…

Rawlings: As a business proposition it died but not as a technology. The minicomputer on the other hand…

Stein: Well, you know, today SaaS [Software as a Service] is nothing more than timesharing. Rick might not totally agree with me.

Humphries: With a better interface.

Ross: With a better interface, yes.

Brook: Timesharing itself disappeared because you weren't doing the old classic timesharing anymore. It all morphed into remote applications which is really what it became.

Grad: But everybody does timesharing in a sense.

Brook: Right, oh yes.

Grad: It's just not an independent third party type business anymore.

Brook: Because what we ended up doing was timesharing but it's not the same functionality.

Shift from Scientific and Technical Applications to Commercial Applications

Grad: We're going to get to that tomorrow afternoon. Next question I have. A lot of your initial business was either programmers or technical users in a number of your cases. That shifted I gather during the course of the 1970s to more commercial type applications, more commercial users as against engineering and scientific. Is that a true statement or not a true statement?

You talked about debugging COBOL and Fortran being an initial significant thing. You talk about selling to the engineers and technical people. That's where a lot of you in the 1960s, 1970s got started. I got the impression that by the 1973, 1974 timeframe, to grow your businesses you had to go outside that scientific engineering and programming community. You had to appeal to other people to do other kinds of things. Is that true?

Brook: Certainly we were selling big applications. We were doing billing for phone companies, all that kind of stuff. Yes, plain old timesharing was very rapidly shrinking.

Crandall: Well, the engineers disappeared in 1970. They were out of work. That was the aerospace recession. They were just out of work. So I mean we just ran out of users.

Grad: There were other engineers besides aerospace, weren't there?

Brook: Yes, there were a lot of financial people doing it. We had a lot of specialized type people who were still using timesharing for problem-solving. Not just aerospace.

Crandall: Okay, I'm just saying our user base up to 1970 were all engineers. And a significant percentage of those were out of work in 1970. Not all of them but a significant percent.

Grad: That's a good question. Was aerospace the single largest customer set?

Multiple voices: No. No. AT&T.

Crandall: I say aerospace, but there was a broad engineering job loss in that 1970 recession. I can't remember specifically why but I remember it that way.

Brook: As I said before, we had a significant growth in business during the recession because all the business people were off-loading in-house stuff because they couldn't afford to buy equipment anymore and they couldn't get the work done. So we had this big blip.

Crandall: Well you had a sales force that could talk to them. We didn't.

Brook: No, I think it was just Mother Nature. It was a way for the data processing managers to still put their work through without spending so much money. They couldn't afford to buy machines anymore. They weren't allowed to buy machines anymore. So they went to their third party vendors.

A. Hardy: I think our business did something very much like that. Dipped when the recession hit, but then our sales force managed to sell to the business community and it took off again.

Grad: This is my point. There seems to have been a shift over that 1970s period as to who the clients were and where the money was coming from. IDC, did you have a lot of engineering customers to start with or not? That was not your market, was it?

Wyman: No, definitely not.

Belvin: I would characterize IDC, at least the period I was there, as moving gradually more to the model that Joe Gal had of servicing the financial community and all this business about interactive debugging, program development was just an adjunct. It was additional business to help get us started. I doubt that they do any of that anymore at all.

Wyman: I don't know. I hope not.

Grad: An odd question related to that. You all referred to this earlier. You had a lot of excess capacity at night. Did all of you sell machine time on a batch basis at night?

Belvin: Offered it. Very rarely accepted.

Grad: You didn't do it. How about NCSS?

Rawlings: We had the capability to say this is a process I'd like my virtual machine to start up, run it at a lower price, no connect charge. Here's the exec [execution deck of cards] I want to run.

Grad: Was there much business there?

Rawlings: No.

Orenstein: Not much.

Grad: So when you were doing your pricing models, you had to consider not a 24 hour day.

Orenstein: Oh absolutely not.

Rawlings: Ten-hour day if we're lucky.

Orenstein: You talk about pricing, you talk about models as though there was a financial department. <laughter>

Grad: You didn't do that?

Orenstein: And I used to say "If I had to pay for the service, I wouldn't pay for it." When I used it.

Brook: We had the same issues. One thing, as I said, we'd take the Japanese traffic and run it to Amsterdam. We take the East Coast to the West Coast and fill in the gaps. And then the other thing we did was we started the service called GEnie [General Electric Network for Information Exchange] which was competing against Quantum [Computer Systems] and they did really well with the whole market, all text. But that was explicitly put in place because we said "Oh, we've got all these machines, and a lot of them are not doing anything after six o'clock at night."

International Sales

Grad: During the 1970s do the international communication costs drop enough that you could afford to run in the U.S.?

Brook: No.

Grad: Still hasn't dropped by that point. Okay.

Crandall: Well we also found another phenomenon which was we weren't credible in Europe unless we had a data center over there. So there was a political issue in our view.

Grad: But you set up something, in the UK was it? Where did you set up?

Crandall: Yes, we had a very large center in the UK.

Grad: Were they more successful there than you were in the States?

Crandall: Define "success".

Grad: In terms of selling timesharing and making money.

Crandall: The growth rate was higher at times although initially on a smaller base of revenue. But I'd say comparably successful. I mean it grew to where our non-US revenue became 55 percent of the total.

Grad: That's what I meant.

Crandall: But that included Asia as well.

Grad: How about the rest of you? International sales a big part of your sales, any of you?

Brook: Europe was.

Grad: [In the] Seventies?

Humphries: Well for Tymshare, I don't know the percentage. Gary, do you remember?

Myers: It was pretty small and it was a function of the fact that we didn't really have captive organizations. We set up an outfit in France called Cegos-Tymshare, and they kind of fumbled and stumbled and they didn't do anything. We didn't have anything in England and we tried to do something in Japan. But it was more a function of the people we applied here to try to get those guys started and that was a very low-level effort so, no, we didn't enjoy much revenue at all.

Grad: GEIS? Do you have any idea what the percentage?

Brook: Yes, Europe was very big. Japan is tricky because you have the issue of who you deal with, whether you deal with what they call zaibatsu or something. We went with a third party where nobody was aligned with any of the banking groups. They were an advertising outfit. God knows it's weird but they just took to it and it sold very well. We did well in Japan. It was Japan and then all of Europe. Europe did really well.

Professional Services to Support Applications

Grad: One of the things, again, that's fascinating, the software products models, professional services models, and the processing services models, are all very different in this regard. Software products companies by the end of the 1970s were getting close to half their revenues, I believe, from non-US sales. All of them were expanding heavily. A great deal of energy and effort was being put into non-US. Professional services had their own companies in Europe and they were starting to make friends there. This is a different model entirely. It's interesting, each of these business segments had some very different characteristics and how it developed. Next question I had was on professional services being offered in support of the work you were doing. You mentioned it in terms of RAMIS. Tymshare, did you have much professional services work?

Myers: We set up a separate organization and it was to build applications that would run on our machines, but to answer your question, we used this as a loss leader to get more timesharing revenue but not really as a standalone P&L center. Wonderful people. They were very effective. They built applications that were quite successful. Customers loved them, but again, a pretty skinny portion of our total revenue.

Grad: Someone mentioned about MANMAN. I would have thought there's a lot of work usually to get a MANMAN system to work. It's not just running the code as it is, right? Most manufacturing systems take quite a bit of professional services. Was that significant?

Myers: No, we didn't really have anybody that was that in depth with MANMAN. Most of our professional services people were familiar with our tools, our programming languages and database applications so that's really where we as marketing people tended to focus their attention to get that multiplier effect of applications.

Grad: How about IDC? Did you do anything significant in the professional services?

Belvin: I don't think it was a significant part of revenue. It was a significant part of effort because we had several organizations that we ended up acquiring. There were lots of people

who came and said "We would like to offer these professional services." I don't know any of them that really blossomed into anything major.

Wyman: Carl Friedman was running the professional services group for a while. I don't recall how much success.

Belvin: I don't remember a big piece of revenue coming from that.

Wyman: You definitely run into a situation where you're offering capability to build applications to your customer, and the customer says "I don't have the resources to build it. Would you build it for me?" And we'd bring in this professional services group and say "Yes, we'll build it for you." And you know, how much we charged was probably a function of the effort involved, plus how much revenue it was going to bring in in the long term.

Grad: So you weren't trying to run that as an independent business so much?

Wyman: I don't think it was ever run as an independent business, no, but it was a capability that we offered.

Ross: One of the things is, though, in the business you've got to control your own destiny so if you've got a customer that wants an application, if they're going to build it themselves, it will never get done because their people are typically stretched out. So if you have a professional services organization, they can do it rapidly then you're going to get that business rapidly. I don't remember the percentage of our business, but we were very careful to separate the building and the bundling so that we tried to bill out the professional services people at some normal billing rate. I also remember that we charged the customer for the computer time that our own professional services people used. And it turns out it was a lot of money, right? It was a good profit center.

Grad: We're going to bring this to a close. Rick, did you have some comments about professional services as well?

Crandall: When we adopted the strategy for having specialized applications, at that time we also decided to unbundle the professional services that had been bundled with the normal timesharing offerings. And we were shocked at how willing people were to pay for that. It was just like manna from heaven so it was a way of getting the price increased without increasing the price of the machine time.

Grad: Any further comments on this area?

Brook: We did a similar thing. It was a breakeven group. I think, though we probably didn't make much money from it but the pull-through was pretty significant. Just like you said, you get the applications up quickly. They can probably be a lot more complex than if the guys wrote them themselves.

Grad: Now at a later point in time, GEIS becomes very heavily professional services.

Brook: Yes.

Grad: But that was for a different purpose and a different set of objectives, not to build use of the machine time.

Brook: The idea was to be an independent profit center.

Grad: So it had its own goals at that point in time.

Brook: Absolutely, yes.

Grad: We're going to bring this session to a close. We're into the latter part of the 1970s. Tomorrow morning we start in the 1980s and it's not quite as much fun in a sense as the 1970s were when you were growing the businesses like this. Please all of you, before you go off to the tour, Doug, will you help gather them together so we can get some pictures taken of the whole group, please? And we'll enjoy the tour and then we'll all enjoy dinner. Thank you very, very much.

