Novell to fill directory gaps

Planned additions said to bring NDS up to par with Banyan’s StreetTalk

By Elisabeth Horwitt

Novell, Inc. plans next spring to fill in many of the more prominent missing pieces in its NetWare Directory Services, a core piece of NetWare 4.01 that forms the foundation for Novell’s enterprise networking services strategy. Planned introductions include utilities for administering legacy NetWare v3.11 directories from NDS and tools to facilitate altering NDS directory structures. Also in the works is initial integration of the NDS directory with Novell’s electronic-mail and third-party SQL database services, a Novell spokesman said last week.

“Novell is finally doing something to help people migrate between 3.11 and 4.01,” said David Strom, president of David Strom, Inc., a Port Washington, N.Y., consulting firm.

Ready to use

Network administrators who have balked at the complexity of NDS will make good use of the promised “tools for manipulating, combining and reshaping [NDS] directories,” Strom said.

Several customers have cited those missing capabilities, most notably the lack of NetWare v3.11 support, as their reasons for holding off on NetWare 4.01 implementation [CW, July 26].

“It is also essential that Novell continue to extend NDS across” all of its major network services so that the global directory “becomes the center of the [NetWare] universe, just like StreetTalk is for Vines,” Strom said.

However, while Banyan Systems, Inc. archi-

X/Open's latest worldwide survey, see the special State of Open Systems supplement that begins on page 87.

THE STATE OF OPEN SYSTEMS '93

I f vendors can’t provide better interoperability than they have so far, users may opt for semi-open systems such as Windows NT. For exclusive results of X/Open’s latest worldwide survey, see the special State of Open Systems supplement that begins on page 87.

THE SHIFT ON

Corporations around the world say they plan to nearly double spending on open systems hardware and software over the next three years (PERCENT OF IS BUDGET)

1993 1996

28% 50%

SPECIAL REPORT

November 1993, Vol. 27, No. 49, 154 Pages, $6/Copy, $58/Year

COMPUTERWORLD

Security woes dull OLE luster

Object embedding opens hacker door

By Michael Vizard

Information systems shops may soon find themselves exposed to security shortcomings as they move to adopt the coming generation of object technology in their networked PC applications.

Objects are intended to provide dramatically improved integration between applications. But deploying technologies such as Microsoft Corp.’s Object Linking and Embedding interface may inadvertently create a back door through which malicious individuals can enter to embed destructive commands, viruses and worms in any number of applications that are distributed via electronic mail or network protocols.

“IS managers should be forewarned that this can be done, but only one in 10,000 users is conversant enough in OLE and electronic mail or networks to accomplish it,” said Joel Diamond, technology director at the Windows User Group Network in Media, Pa.

However, the potential damage OLE, page 8

Chip powers up PowerPC

By James Daly and Ed Scannell

Kaleida Labs, Inc., Motorola, Inc. and Scientific-Atlanta, Inc. last week announced a powerful graphics controller designed to provide splashy multimedia services for the home. And if Kaleida has its way, business use won’t be far behind.

Officials from the three companies positioned the Malibu chip for use with embedded PowerPC-based TV-top boxes. But Motorola and Kaleida also plan to aggressively pursue deals with manufacturers of PowerPC systems — including IBM — geared toward the corporate world, sources close to both companies said.

Karen A. Ashbaugh, manager of Chip, page 16

Amex extending credit for parallel processing plans

By Gary H. Anthes

Saying that parallel processing will give it a competitive advantage, American Express Co. is increasingly turning to high-performance parallel computing for information processing and decision support.

However, the company said the technology must mature considerably before it moves mission-critical, on-line transaction processing applications off its mainframes. In fact, an Amex official said he expects such key applications will remain on conventional mainframes for at least five years.

Meanwhile, Amex is pushing forward with the spadework necessary to make enterprise-wide adoption of parallel processing a reality.

“Parallel processing technology promises to dramatically improve Amex, page 14

Made in the U.S.A.

CIOs, such as former Unum Insurance chief John Alexander, stand by their use of foreign contractors, citing high-quality code and up to 50% cost savings. See story page 133.

THE NEWSPAPER OF INFORMATION SYSTEMS MANAGEMENT

DECEMBER 6, 1993, VOL. 27, NO. 49, 154 PAGES, $6/COPY, $58/YEAR

COMPUTERWORLD
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- CIOs love to hate their consultants, but sometimes there's a cause. Page 79

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### EXECUTIVE BRIEFING

**Parallel processing — the new frontier.** The race is on in the financial services field to claim the competitive edge that this technology yields.

American Express is aggressively experimenting with massively parallel processing but worries that it may already have fallen behind competitors such as Citicorp, AT&T and Bane One. An internal Amex report on the technology highlights its ability to offer targeted products and services to customers in near-real time and talks about its potential to "open up many marketing opportunities that are now unthinkable." Boulders on the path: Lack of software development and systems management tools; inadequate reliability for commercial transaction processing; and a drastic shortage of people who understand parallel processing technology. Page 4

**Mixing and matching.** It takes a combination of several tool sets to manage a distributed system, according to Jim White, vice president of technical planning at Charles Schwab. That's especially true since the company is moving toward a nationwide network of distributed computing resources based on OSF's DCE, for which key pieces are still missing. Schwab has opted for Sun's operating system in place of OSF/1 and Tivoli Systems' Time Management Environment in place of the OSF's DME framework. Page 28

**War stories.** Scratch an IS executive and you'll find a person itching to tell you about a horrific experience with a consultant. What's particularly scary is that the consultants who figure as villains in these tales are not the experts-for-hire. "My definition of 'expert?" he said. "'X' is an unknown quantity and 'spurt' is a drip under pressure." Page 79

**Gold you can manufacture:** Consultant and research analyst Carma McClure estimates that 40% to 60% of new application code could potentially come from libraries of reusable components. And the Penatagon figures it could save $800 million if it could just increase its current level of software reuse by 1%. Interested? Well, here's a tip. Be systematic and develop software with reuse in mind. Experts say the most common mistake organizations make is to think about reuse only when they're in the middle of a project. Page 78

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Network management

SunNet Manager gets distributed

By Lynda Radoshewich

Network managers should see the first distributed object-oriented network management platform from a leading vendor by the middle of next year.

SunConnect, a division of Sun Microsystems, Inc. in Mountain View, Calif., will announce this week that it is licensing distributed object-oriented technology from NetLabs, Inc. to be included in the next version of SunNet Manager, according to sources briefed by both companies.

The distributed technology is structured to address large network management issues such as traffic overload at central control consoles, duplicate and unsynchronized databases and users' inability to manage from any point on the network. The object-oriented aspect should help hide the complexity of underlying network structures from corporate or third-party developers.

"Distributed management will be good, but I have to see the real thing before I can get excited about it," said John Dubiel, manager of planning and technology at Boston Edison Co. and a SunNet Manager user.

SunConnect will obtain the technology from NetLabs' Dimons 3G network management platform (formerly called OverLord) and the related application programming interfaces, neither of which will ship this year. A NetLabs spokesman said a Dimons 3G development kit for corporate and third-party developers will ship this month, and the software itself will ship in the first quarter of next year.

NetLabs is roughly nine months ahead of other vendors in the development of distributed object-oriented network management, according to James Herman, president of Northeast Consulting Resources, Inc., in Boston. The deal, therefore, would allow SunConnect to vault over its main rivals, Hewlett-Packard Co. and IBM, Herman said.

Today, IBM is expected to restate its distributed object-oriented network management plans. Analysts said they anticipate IBM will say it has elements in place and speculated that it would offer a piecemeal solution.

Playing catch-up

While the deal would enable SunConnect to address the widely held perception that HP's designs is falling behind HP and IBM, it is not clear whether the NetLabs version of the distributed technology is robust enough and easy enough to use. That is because NetLabs is not following the same path as the Open Software Foundation (OSF), an industry group that first identified the need for distributed object-oriented network management.

The OSF chose to use the Open Management Group's Common Object Request Broker Architecture specifications, which are general object guidelines. NetLabs is instead using the International Standards Organization's object guidelines, which are specific to network management.

"That means that when you come into the [SunNet Manager/NetLabs] environment as an expert object programmer, you won't know how to program in it," Herman said.

While analysts and users generally applauded Sun's move to object-oriented distributed network management, the technology is not without its downside.

"Instead of having one central management center and a few people with keys, the information is scattered around, so how do you securely delegate tasks?" asked Jill Huntington-Lee, principal at Brandon-Wyndie Network Associates in Cinnaminson, N.J.

Also key to the success of the new SunConnect/NetLabs product is whether third-party developers, which has not yet been established, said Charles Robbins, a director at Aberdeen Group in Boston.

However, Tony Helles, pres. of Concord Communications in Marlboro, Mass., said SunConnect's upcoming object-oriented system should make it more efficient for his company to write its network monitoring applications to that platform. His firm will develop its products for the upcoming object-oriented SunNet Manager, as well as for whatever system HP and IBM develop, he said.

HP's plan for 'post-RISC' raises migration concerns

By Mark Halper

Hewlett-Packard Co., which pioneered "post-RISC" architecture that "sketched out plans for a next-generation "post-RISC" technology at Boston Edison Co. and a SunNet Manager user. HP's new entry, the PA-RISC, is expected to soon merge. After dead-

"Is there a compatibility issue going forward? Is there a price advantage?" asked Craig Sullivan, an analyst at Montgomery Securities in San Francisco.

"I think they need to make some sort of public statement that would reassure not only their customers, but their partners as well, about the compatibility question," said Sam Ellis, associate vice president of information services at Portland Community College in Portland, Ore. "They shouldn't leave any lingering doubts about the 'post-RISC' means."

Anticipating such concerns, Bryan

and portended a huge order-of-magni-

tude performance improvement.

"It's clear they are making some signif-

cant changes in their microprocessor architecture and that they have something that's very significant," Ellis said.

"Playing catch-up"

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Howdy, partner

NetLABs' technology has garnered at least one other partner. In April, NCR Corp. picked NetLABs' technology for one of its StarSentry network management line. StarSentry is used by one large company but lacks the third-party support needed to make it a main player in the market, according to an NCR spokesman.

"Post-RISC" architecture that "sketched out plans for a next-genera-
tion architecture at a seminar in France last summer that would move from PA-RISC and perhaps other archi-
tecture and that they have some-
thing that's very significant," Ellis said.

"Double the performance"

Birnbaum could not be reached to elabo-
rate, but in his prepared remarks he stated that VLIW would permit more than one execution per CPU cycle. "We ex-
pect performance to be as significant of an improvement over the current gener-
ation as RISC was over its predecessor," he stated. He said raw performance rati-
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VLIW, but users and analysts said they expect HP to make it available within
in two years.

Learning from the past

Users and analysts pointed out that HP
probably learned a few lessons from its
rocky migration in the late 1980s, when it moved users from its "classic" archi-
tecture to PA-RISC, then code-named Spectrum. The transition was marred by software incompatibilities as users moved from the classic machines to the PA-RISC models, Ellis said.

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"Double the performance"

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Objective: Have it both ways

The linkup of Sun Microsystems and Next Computer is the latest demonstration of how computing is attempting to move in two seemingly contradictory directions simultaneously.

On the one hand, computer users aspire to employ more complex data in more sophisticated systems to better reflect their business tasks. On the other hand, they want to work with systems that are easier to maintain and easier to use.

This demand for greater simplicity sitting atop higher and higher levels of abstraction is the major competitive force driving the industry today, and companies as divergent as IBM, Sun, Microsoft, Apple and Hewlett-Packard are scrambling to meet it.

To do so, Sun officials have been forced to set aside old differences with what they once viewed as a presumptuous and prepossessing competitor and link up with Steve Jobs’ outfit. Next’s hard-fought advantage in software is now being eroded by Sun’s object-oriented operating systems.

Sun will be able to offer the extensive object class libraries of the NextStep system, something that would take Sun years and millions of dollars to develop on its own.

NextStep is a genuinely different way of doing things — so different that we have few business examples of successful implementations. The object-oriented approach is one of the few ways to deal with different kinds of complex data, not only voice, video and image but also complicated entities and their relationships — building business models that come closer to reflecting the rules and practices of the business.

In contrast, members of the OpenDoc consortium — the Component Integration Laboratory (CIL) — are expected to offer a developer’s kit in the first quarter. OpenDoc is a set of object-oriented specifications based on technology from IBM and Apple Computer, Inc. that has been endorsed by Novell, Inc., WordPerf Corp., Oracle Corp., Taligent, Inc. and Xerox Corp.

Strength in ubiquity

Because it is based largely on the Distributed System Object Model (DSOM) created by IBM, OpenDoc is considered to be a more robust object environment that already supports distributed computing.

However, developers have yet to see any actual OpenDoc code, while Microsoft has already lined up hundreds of developers behind OLE 2.0 running on top of Windows 3.1 and Windows NT.

"Microsoft has got the channels and the [independent software vendors] locked up," said John Fixley, an industry analyst at the Patricia Seybold Group in Boston.

And even the members of CIL have deferred to Microsoft’s dominance.

"The tremendous strength of Microsoft’s OLE is in how widespread it is. It may not be elegant, but it is out there being used. So SOM will have to talk to OLE," said Cliff Reeves, IBM’s program director of object technology products. To accomplish this, WordPerfect is developing technology that will allow OpenDoc applications to exchange objects with OLE applications.

Moving forward

But in the meantime, CIL members said they will push ahead with OpenDoc because they claim OLE is a proprietary technology. "All they have now is a distributed proprietary object solution. And publishing a spec is not the same thing as making source code available," said Scott Handy, program manager for market strategies at IBM’s Personal Software Products group.

For the time being, information systems organizations are generally adopting a wait-and-see attitude.

Money no object

Corporate IS buying plans indicate a growing commitment to object-oriented technologies.

Do you plan to buy the following object technologies? (MULTIPLE RESPONSES ALLOWED)

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Source: X/Open Co. survey of 756 IS managers.

"We have our finger on the pulse and are checking out" Taligent, Cairo and Sun Microsystems, Inc.’s deal with Next Computer, Inc., Jeffrey Oakes, a systems consultant at International Telephone & Telegraph Hartford.

"Strategically, [object request brokers and object-oriented operating systems] are a critical direction for us. But I don’t see a clear winner at this point."

Software reuse offers paybacks. See story page 73.

Object-oriented systems

Microsoft OLE pushes on

By Melinda-Carol Ballou and Michael Vizard

Microsoft Corp. last week took another step in its race with IBM and others toward establishing its next-generation object-oriented operating system.

As part of a technology demonstration with Digital Equipment Corp., Microsoft for the first time showed a distributed version of its Object Linking and Embedding (OLE) interface running on multiple platforms. OLE is the key technology Microsoft will use to build Cairo, its forthcoming object-oriented operating system.

For Microsoft, the demonstration answers criticisms from rivals that OLE works only within a single Windows system, meaning users can’t move objects across a network.

But while Microsoft plans to ship a developer’s kit this month for distributed OLE, the company does not plan to make it generally available until it has the other major elements of Cairo in place in 1996, said Mark Ryland, Microsoft senior programming manager.

Microsoft corporate IS buying plans indicate a growing commitment to object-oriented technologies.

Microsoft OLE...

The specification, called Common Object Model (COM), will include relevant portions of OLE’s Component Object Model, interfaces and a communications protocol based on the Open Software Foundation’s Distributed Computing Environment/Remote Procedure Call.

Digital and Microsoft will be shipping an early developer’s release of the COM specifications during the first quarter of 1994. A version of the distributed OLE developer’s kit will ship this month.

— Melinda-Carol Ballou
Lingering identity crisis stalks DEC

By Craig Stedman

Users hope for a clearly detailed, long-term strategy at DECUS conference

Attendees at this week's Digital Equipment Computer Users Society (DECUS) conference in San Francisco are expected to press Digital Equipment Corp. to lay out a more coherent long-term strategy and to provide some evidence that its client/server message is starting to filter down to the company's sales force.

Digital tried to paint itself in the colors of open client/server computing at a mid-October product introduction meant to be a defining moment. But users and analysts interviewed last week said the company still suffers from a lack of focus compared with rivals such as Hewlett-Packard Co.

Scott Bowes, chief financial officer at Phoenixville Medical Associates Ltd. in Phoenixville, Pa., said his rating of Digital has improved during the last two years. But Bowes, who is planning a new system purchase for late next year, said he would like the company to "come out of its fog a bit and explain itself better."

"It's a fair criticism to say that they're going through an identity crisis," said Bill Stella, senior vice president of information services at Arkwright Mutual Insurance Co. in Waltham, Mass. "Their public strategy appears to be headed in the right direction, but we'll see."

Conflicting messages

"From sales office to sales office, we get a different message," noted Irv Shapiro, president of Metamor Technologies Ltd., a consulting and systems integration firm in Chicago. "They're not predictable and focused, and that makes them a higher risk in an MIS organization."

Steven Tihor, an assistant research scientist at New York University, agreed that getting approvals for VAX or Alpha AXP purchases remains a hard sell because of Digital's directional uncertainties and continued higher pricing.

Management at the university "is more interested in generic Unix," and Digital's DEC OSF/1 operating system still is not flushed out enough to compete with more established Unix vendors, Tihor said.

A Digital spokesman said the company's strategy is centered around client/server technology and Alpha, but he acknowledged that "it takes time for things to spread" throughout the organization.

Edward Lucente, vice president of worldwide sales and marketing, is scheduled to expand on the client/server plans at the DECUS conference, the spokesman added.

Even users who think Digital has become more customer-focused and is making progress toward righting itself are critical of the company for not giving them a better idea of what technologies beyond Alpha hardware are central to its strategy.

"They're saying they're everything; well, nobody can be everything," said Mark Livings, manager of distributed computing services at Quaker Oats Co. in Stamford, Conn., said Digital's framework-oriented software strategy is particularly unclear. It could take most of 1994 to get everyone at the company on the same page, she said. "The further away you get from corporate headquarters, the more confusing this is."

Digital can probably muddle along until then without losing too many customers, but it will be hard for the company to reach out beyond its installed base, which it must do to grow revenue again, Berg noted. "People who have been sort of not thinking about Digital are still not thinking about Digital," she said. "There's just not enough visibility."

Digital's LinkWorks to get key missing link. See story page 51.
Unix International to close

Unix International (UI) will announce today that it will shut down on Dec. 31, Chief Executive Officer Peter Cunningham said late last week. UI’s five-year mission to evolve Unix System V standards and combat the competing Open Software Foundation changed when Unix System Laboratories, Inc., was sold to Novell, Inc. in July; Cunningham said. The March start-up of the Common Open Systems Environment consortium hastened UI’s demise, he added. “A lot of the work UI did can be passed on to X/Open Co.,” which has become the Unix standard bearer, he said. Some UI vendor members will form a UnixWare Technology Group to give vendor feedback to Novell.

Microsoft starts second Chicago alpha

Microsoft Corp. late last week shipped the first copies of its second alpha version of Windows 4.0, code-named Chicago. The alpha has 32-bit networking connections — the first version had 16-bit implementations. It will be more widely distributed at a developer’s conference in Anaheim, Calif., next week.

U.S. Weather Service downsizes system

Hoping to respond more rapidly to next spring’s flood season, the National Weather Service Office of Hydrodynamics is installing a client/server river forecasting system at its offices along the Mississippi River. The service is replacing a mainframe-based system with IBM RS/6000 and Hewlett-Packard Co. Series 750 workstations in Kansas City, Mo., and Minneapolis.

Novell announces NetWare Video 1.0

Novell, Inc. showed its NetWare Video 1.0 last week as expected [CW, Nov. 29]. The initial version, slated for January release, allows a NetWare server to deliver multimedia files across a LAN for replay by a Windows workstation running Microsoft’s Video for Windows. The package is priced at $1,100 for a five-user system. Novell’s next phase of multimedia initiatives will also be delivered on a LAN for distribution.

IBM PC Co. drops PS/2 server prices

IBM PC Co. last week cut prices of its PS/2 Model 85 and 85 models by as much as 19%. Pricing on a PS/2 Model 85 based on Intel Corp.’s 33-MHz 1486SX chip is now $8,090, down from $8,950, while a 25-MHz/33-MHz DSX-based Model 85 is now $5,255, down from $6,105. The PS/2 Co. also said it would ship more PS/2 servers in the fourth quarter of 1993 than in all of 1992, ending its backlog for that family.

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Making A Purchase Based On Price Alone Can Lead To Serious Headaches Later.

Settling for the low-cost alternative when buying remote access routers can cost you a fortune in functionality and scalability. Precisely why you should choose Cisco. We guarantee access without compromise. Cisco's family of remote access products is designed to grow with your network and can be upgraded at any time. So we can meet your present and future needs. Just as importantly, Cisco lowers your total cost of ownership, with exclusive features like AutoInstall, for plug-and-play access. Dial-on-Demand routing. And CiscoWorks, which allows centralized router management of all your remote sites, even if you have thousands of them. Find out why Cisco continues to be the leader in the router market. Give us a call today at 1-800-859-2726. We'll set you up with a flexible, scalable internetworking solution you won't regret in the morning. Access Without Compromise
IBM division at a crawl during first year

By Johanna Ambrosio and Ed Scannell

IBM's dedicated client/server business marked its first anniversary Nov. 23, having made only limited progress signing up customers and relaying its message. Part of the problem, observers said, is of IBM's own making: It had not — until recently — articulated a coherent strategy in the client/server arena [CW, Nov. 29]. Another almost equal burden is one that virtually every vendor faces: trying to make sense of a confused market in which customers themselves do not always know what they want.

"Saying 'client/server' is like saying 'the planet Earth,'" said John Chapman, president of the IBM user group Share. Even in his company, he said, "There are many different views of what client/server means and how it should be used."

IBM's Worldwide Client/Server Computing group is now meeting with large customers to find out what users' needs are, "and IBM is struggling as hard as the users are" to figure it out, he added.

The client/server group, announced with great fanfare a year ago [CW, Nov. 30, 1992] and reorganized in September, combines product development with marketing: It works with all of IBM's other businesses as well as with third-party vendors to develop new products and combine existing ones into client/server solutions.

The group also works with the IBM Consulting group and IBM's Integrated Systems Solutions Corp. to provide outsourcing, programming and other services.

Worldwide Client/Server Computing is making some progress, said Peter Tarrent, director of IBM client/server marketing. The group claims some 100 U.S. customers, including such names as U.S. Air, Ford Motor Co., Prudential Securities, Inc. and Barnett Bank. However, according to Tarrent, IBM counts as a client/server customer any user to which it has sold hardware, software or services.

Still, he said, "We're not as well understood as I'd like us to be. There is definitely confusion" about IBM's client/server message. At least part of that is due to "image" problems, he said. "The outside world thinks of a mainframe company in the client/server world as an oxymoron, and so we have this baggage."

In addition to articulating a strategy — which IBM's announcement of its Open Distributed Computing System blueprint next year will help — it recently completed a 12-city road show on client/server.

Wayne Pattison, director of data center operations at Kansas City Southern Railway Co., attended the seminar in Kansas City, Mo. "I didn't learn a whole lot, but I did learn that IBM is headed toward client/server. I believe them, and I think they're like me: being dragged kicking and screaming."

Users who have looked to IBM for client/server help offered mixed reviews.

Blue Cross/Blue Shield of Minnesota in Eagen worked with IBM's client/server unit about a year ago to develop a PC-based system for tracking and paying pharmacy drug claims. The 300-workstation application, based on an Oracle Corp. database with IBM OS/2 servers and workstations, was designed and developed by IBM.

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"They were extremely responsive," said Jack Yarbrough, chief operating officer at Pharmacy Gold, Inc., a Blue Cross/Blue Shield division. "At one point we had a printer problem, and they took printers off their own employees' desks and brought them out."

But another client/server customer who requested anonymity said that although his company bought its equipment from IBM, he opted for programming services from another vendor: "IBM just charges too much," he said.
We were told it was impossible to develop a client/server application without extensive retraining. Then we talked to Micro Focus.

Mountain Fuel Supply, a division of Questar, is a utility company supplying natural gas to 750,000 customers across Utah, Wyoming, Idaho and Colorado. The company's success is largely driven by its implicit belief that the customer is number one.

Yet, IT also plays its part in that success: client/server architectures and graphical user interfaces (GUIs) have helped Mountain Fuel Supply move applications and information closer to the customers and the employees. All of which has resulted in an augmented level of service being offered to customers.

When Larry Lowder, one of Questar's Systems Architects, set out to build the client/server architecture for Mountain Fuel Supply, he needed solutions, not skepticism. For the first project, a cashiering system, he needed to link workstations with OS/2 to the DB2 database on the host, running CICS.

"We were faced with having to spend up to two years retraining our COBOL programmers in C and API calls. Then we discovered Micro Focus Dialog System. It allowed us to build the client functionality we required, and re-engineer the existing mainframe application as a server."

"Within a week, mainframe programmers were producing GUI screens for COBOL. Within 90 days we had delivered the system. Now we're not only coming in under budget, but also way ahead of schedule."

As Mountain Fuel Supply discovered, the Micro Focus solution lets you make a productive transition to client/server without sacrificing any of the resources you've worked so hard to build.

When the world's leading corporations demand "A Better Way of Programming," they turn to Micro Focus. For a brochure on putting the Micro Focus Client/Server Solution to work for you, call 800-872-6265.
DCE integration: Anemic, but available

By Elisabeth Horwitt

The good news is that the major network operating system vendors are already beginning to provide software that allows their client systems to access resources on the Open Software Foundation's (OSF) Distributed Computing Environment (DCE) servers. The bad news is that these early products provide only limited support for the OSF standard.

And while the quartet of IBM, Novell, Inc., Banyan Systems, Inc. and Microsoft Corp. are each promising more robust integration between their own global services and those of DCE, users will not be able to get their hands on these services for some time, since frames for commercial introductions are at least a year away or nonexistent.

If and when the vendors follow through with their plans for full DCE support, however, their products potentially would fulfill the corporate user's ideal of being able to access and administer a hodgepodge of Unix-, network operating system- and host-based resources through a single, coordinated directory system.

DCE comprises a set of security, naming, directory and authentication services that were designed to enable similar resource sharing and communications across heterogeneous distributed systems. Also included is the Remote Procedure Call (RPC), which defines how a query is sent from one system to another over a transport-independent network.

Extent unclear

The OSF standard has gained broad support in the Unix and mainframe communities; however, the major network operating system vendors have been maddeningly difficult to pin down about whether, and to what extent, they will adopt the protocol as a standard.

These vendors will certainly provide gateways between their own servers and DCE, as a way for their clients to gain access to Unix-based resources, said Bob Gill, a vice president at Gartner Group, Inc., a Stamford, Conn., research firm. Less clear is whether the vendors will actually integrate DCE fully into their own global services so that customers can essentially implement one set of services across their heterogeneous environments, Gill said.

The University of Michigan has officially chosen DCE as the basis for a "Future Computing Environment" that will provide the full set of services on the mainframe, including security, directory, authentication, mail and remote dial-in, across an extremely heterogeneous client/server environment, said Larry Gauthier, manager of the technology assessment group in the university's information technology division.

Similar solution

However, because DCE currently does not run across the full gamut of the university's client/server systems, it will probably do what others in similar circumstances are doing: create a "lower-case distributed computing environment" that mixes DCE standards with proprietary networking products, Gauthier said.

Other network administrators, particularly those outside the Unix world, had doubts about DCE's ultimate effectiveness as a standard. "DCE might provide more universal client access, but things are up in the air until the major players reach a truce" on how their systems can talk to each other, said Bruce Evans, network administrator at the National Immunization Program in Atlanta.

Currently, IBM is the only vendor to have publicly committed to implementing the full DCE architecture across its major platforms and to adopting DCE services as the glue for connecting its client/server systems globally. It has been rolling out DCE across OS/2 and AIX.

Banyan plans to implement DCE compliance in its StreetTalk directory, said Bill Johnson, vice president of corporate business development. The vendor plans next year to roll out DCE compliance services, including DCE's security system, X.500-compliant directory and RPC, he added.

Novell directories

Novell is still trying to tie the StreetTalk global directory from the word go, Novell is stuck trying to tie the NetWare 3.X servers to "a millstone of an installed base of old [applications and services] that are not directory-aware," Stimson said.

However, Novell will still be ahead of archival Microsoft Corp., which plans to provide an object-oriented global directory service in Windows NT Advanced Server with Cairo in 1995.

Announced last March with NetWare 4.0, NDS laid the foundation for a single directory service that would allow client applications and users to transparently access resources across the enterprise on NetWare servers — eventually reaching Unix-based servers as well.

We want to "administer NetWare 3.11 and 4.01 servers from one workstation, using NDS, instead of having to go to each 3.11 server manually to change or delete users," said Sheryl Grossman, senior technical analyst at Transamerica Financial Services in Los Angeles.

Novell will deliver those capabilities around the time of its Brainshare developer's conference in March with the announcement of NetSyne and NetWare Administrator, said Richard King, executive vice president and general manager of NetWare Systems Group.

NetSyne allows the user to view and control 3.X servers from "one control point" via a NetWare 4.X server, he added. The software will work in concert with NetWare Administrator, which allows the administrator to make changes to an existing 4.X directory.

Several users said the above introductions are exactly what they were waiting for. The integration of NDS with 3.11 bindery directories "sounds super," and the ability to move branches of the global directory around "would also be helpful to us," said Chuck Rush, a systems project manager at McDonald's Corp.

Staying single

The other big area where NDS has yet to fulfill its promise is in providing a single global directory across major NetWare Loadable Module-based enterprise servers, such as Novell's Global Message Handling Service (MHS) and third-party SQL database servers, said Lorie Mouklias, project leader at Hoechst Celanese Corp. Until that happens, in addition to NDS, companies must maintain "four or five directories that don't work together," each controlling user access to a different type of service.

NDS will eventually provide resource naming and user authentication across the full range of NetWare-based services, including E-mail, fax, database and file management services, said King. Indeed, instead of keying in a password or identification first on NDS and then again for the individual service, the user will be able to say, "Show me fax servers," and he only sees the ones he can access," King said.

For this to happen, however, third-party NetWare service providers need to write to an application programming interface that hooks their software to a public key and naming service within NDS, King said.

On the E-mail front, Novell plans to introduce this spring a version of Global MHS "architected for NDS." Changes made on the MHS directory will automatically propagate to the NDS directory, King said. An auxiliary directory will be used to tie in legacy MHS systems whose directories are based on the NetWare 3.11 bindery. As a result, users can get through NDS to gain access to any MHS-compatible E-mail service, King said.

Meanwhile, Novell and IBM are working to implement software that will integrate DCE directory services with NetWare v3.1i's bindery-based directory, a Novell spokesman said.

Novell and Microsoft are both working on gateways that will enable their clients to log on to a DCE-based host and, consequently, to allow a DCE client to log on to a NetWare or Windows NT server, company spokesmen said.

However, gateway-based interoperability is a poor substitute for "true integration" between DCE and various vendors' proprietary service environments, Gauthier said.

Microsoft's Windows NT and Windows clients can already access DCE through a client version of the DCE RPC, said Erinn Contorer, lead program manager of Windows NT System. Digital Equipment Corp. will ship a full DCE client for NT this spring, he said. Microsoft has no plans for a full Windows DCE client, mostly because DCE takes up too much RAM.

RPC-based access leaves too much too low-level programming to users before their clients can get at DCE services, Johnson said. Banyan hopes to provide a subset of DCE application programming interfaces to enable popular desktop environments to fully access DCE-based services, he added.

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Amex extends parallel plan

CONTINUED FROM PAGE 1

data processing price/performance while providing a level of performance unachievable by conventional computer systems," the $27 billion financial services company said in an internal report obtained by Computerworld. "The scope of the technology is broad. It can be applied to all American Express businesses."

**Mystery machine faster**

Amex recently benchmarked six applications on six platforms representing four basic approaches to parallel processing (see chart). One application creates a file of preapproved potential credit-card members from credit bureau tapes and integrates with existing systems. "Advanced languages and development tools are also lacking in the parallel arena, Mercurio said. And of reliability, he said, "Ninety-percent uptime doesn't cut it in the commercial world."

Vendors of these systems tout their favorable price/performance ratios, but Mercurio said he would pay higher prices for added uptime.

"Amex is not alone in this assessment (see chart). "Definitely, there's a wariness about using this [technology] for mission- or business-critical functions," said David Frankel, director of technology consultancy in Minneapolis. "The management software is still relatively immature if you're running a 7-by-24 operation."

**Training the right people**

Developing expertise is a tough issue as well. "I'm still trying to find people," Mercurio said. "I ask [parallel processing systems vendors] where they find people, and nobody has given me a good answer yet."

Despite these obstacles, the company said parallel processing based on so-called "massively parallel" systems or clusters of more conventional computers will enable Amex to mine competitive gold from terabytes of data in ways not economically feasible with traditional mainframes.

"For example, the ability to quickly process huge amounts of credit-card data would enable Amex to target products and services to card holders in near-real time. "We can mail restaurant or service coupons as soon as travel reservations are made," the company said in its report. "And we can identify products and services available in one region that are hard to find in another."

Amex added that it has both the consumer and provider side of each transaction, it can "offer card members products and services based on their spending patterns, and we can offer service establishments profiles of their customer base."

**Borrowing experience**

Amex also cited bank-holding companies and more recent competitors for the credit-card market, such as AT&T, GTE Corp., and automobile companies, which are already strong in parallel computing. For example, AT&T owns Bell Laboratories and NCR Corp., which owns Teradata. General Motors Corp. owns Compuware, and GMAC owns GTE Systems Corp. and has years of experience in the use of parallel systems.

The Amex report pointed out that Bank One Corp., a leading bank-holding company, has embarked on a $100 million re-engineering effort that will lead to the capture of 12,000 pieces of information on each customer. "As we consider the possibilities, our competitors are acting on them," Amex concluded.

**On the edge**

Amex has already deployed parallel platforms in two areas (see story bottom left). "American Express is very much a leading-edge user of technology," said Howard Richmond, director of high-performance computing at Gartner Group, Inc. in Stamford, Conn. "Their very visionary in their grasp of technology."

But Amex is not resting on this reputation. In fact, the company worries that competitors may have an edge in parallel processing.

For example, Citicorp uses nine parallel processing systems from Teradata Corp. to merge data about checking and savings accounts, credit cards and mortgage applications to provide a complete financial picture of each customer.

There is an obvious solution. The information needed to create . . . business opportunities lies buried in our databases," the report continued. "Right now, even nightly batch processing is beyond our hardware capacity. But parallel processing will open up many marketing opportunities that are currently unthinkable."

Sifting through massive amounts of data is conceptually possible with mainframes, but it is so demanding that multiple mainframes would be needed. Thus, mainframes are not economically viable for such tasks, analysts said.

Conversely, the scalability of massively parallel processor (MPP) architectures makes them attractive for database mining, Frankel said. "You may start with a small MPP, and if the database grows, the system can grow with it."

**Putting MPP into action**

*American Express has done more than write research reports about the feasibility of massively parallel processing (MPP) to support its essential business operations. The company has already deployed at least two MPP applications. The first was with Amex subsidiary Lehman Brothers, Inc., which invested $2 million in a mortgage arbitrage application running on an MPP platform. It has generated $15 million in revenue, according to Amex.*

A larger and more ambitious application, called Quantum, is now being tested by American Express Travel Related Services Co. It is scheduled to go into production in the first quarter of next year. Quantum will be applied against Travel Related Services' huge market database, compressing a week-long batch process to a day. Specifically, it will handle 300G-byte database that receives thousands of queries per week, according to John Peterson, vice president of marketing information technology.

"We knew what we had didn't work, but we didn't know what would work or if the problem was solvable," noted Peterson, who said parallel computing "was generally seen as an obvious solution."

The application — five years in the making — was developed by Amex subsidiary Epillon Data Management, Inc. in Burlington, Mass. Epillon used a 64-processor CM-5 computer from Thinking Machines Corp. in Cambridge, Mass., to act as a number-crunching client to an IBM MVS mainframe acting as a data server via an UltraNetwork Technologies, Inc. 100M-byte link. A 128-processor CM-5 is now being tested at Travel Related Services' global computer processing facility in Phoenix. The application now runs a custom database. Peterson said the kind of database is a secondary concern at the moment. "Getting it to run at all is what's really important now," he said.
In the beginning, Genesis promised much
Years later, project finally yields benefits at Amex

By James Connolly

ATLANTA

Call it a strategic application or a “big-bang” project, American Express Co.’s Genesis Project was intended as a total replacement of the company’s core information systems when it was initiated in 1987 under a cloak of corporate secrecy. Today, after years of work and questions about the project’s merits, a greatly scaled-down Genesis is yielding benefits for American Express’ Travel Related Services Co.

Last week, Albert B. Crawford Jr., executive vice president of strategic business systems, outlined some of those benefits at the Retooling ’93 conference.

Amex assets

Crawford said examples of the reusable assets already developed under Genesis — which American Express plans to complete by the end of 1994 at a revised cost of $120 million — include an enterprise data model, a re-engineering test facility and a user training database.

Computer clusters may be answer

American Express last week declined to give details of the parallel processor benchmark results but said no one architecture is right for all applications (see story at left).

However, American Express programmer/analyst Ian Simpson said he was bullish on the promise of clusters of workstations and/or symmetrical multiprocessors.

“Given pending developments in high-speed communications, the use of computer clusters and custom-built, massively parallel systems will narrow dramatically,” he said.

Simpson said computer clusters may emerge as the parallel solution of choice for all but the most demanding applications. He said the approach is attractive to those familiar with networking and client/server technology, standards are further along, and much of the software exists than for the massively parallel options.

“An interesting concept developing now is not massively parallel processors per se, but workstation farms,” said Omri Serlin, editor of “The Serlin Report on Parallel Processing” in Los Altos, Calif.

“It is possible that rather than have these clever massively parallel architectures, a much simpler approach may emerge for high-performance computing.”

— Gary H. Anthes

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**Interactive multimedia**

**Businesses test-drive info highway**

By Stephen P. Klett Jr.

A new pay-per-view option may be on its way to a cable service near you, and no, it is not "The Best of Bono and Butt-head" or the latest Madonna concert. It is an interactive multimedia network that beta users expect will vastly improve their business processes.

The network, unveiled last week at the Western Computer Show in Anaheim, Calif., is based on bridging technology from Digital Equipment Corp. and LANetix Corp. (CW, May 17). Arizona State University and Times Mirror Cable TV also contributed to its development (see chart).

In its initial implementation, the network connecting large manufacturing companies to their suppliers and subcontractors, McDonnell Douglas Helicopter Co., Modern Industries, Inc. and Tempe Precision Aircraft began beta-testing the network this month in Phoenix.

"If it performs like they say it will, I think businesses will be standing in line to get into it," said Ron Boes, vice president of operations at Tempe Precision in Tempe, Ariz., a McDonnell Douglas parts supplier.

Called ECnet, for Electronic Commerce Network, the network allows cable operators to use their existing fiber cabling to provide Ethernet-based multimedia networks for metropolitan areas.

Able to support digital video data transmission at Ethernet's full 10M bit/sec. transmission speeds, the cable TV infrastructure will enable users to videoconference with one another while sharing applications and database resources. Digital said its Ethernet-to-cable bridge supports communications distances of up to 70 miles over standard cable TV wiring. ECnet will enable engineers at McDonnell Douglas to interact on-line with engineers at Tempe Precision during the development of the company's first commercial helicopter.

**Solves problems in minutes**

Boes said the ability for engineers at different sites to simultaneously access and manipulate the same three-dimensional drawing will solve design problems in a matter of minutes rather than days. This could cut a new part's development cycle from eight months to six weeks, he said.

"We've been trying to develop these interactive video capabilities on our own for some time and haven't been able to do it," he said. "I think this consortium is a very welcome sight." John Harper, research and engineering specialist at McDonnell Douglas, estimated it will cost Tempe Precision $20,000 in hardware to connect its team of three engineers to ECnet, followed by a monthly user fee of roughly $250, which he expects will drop over time.

Both Harper and Boes said that while using a cable supplier to support the mission-critical needs of their businesses raises some reliability concerns, they believe cable technology is mature enough to depend on. The bigger issues of affordability, security and cultural acceptance remain to be resolved, they said.

"We see this as the first step toward developing a national data highway for manufacturing or anyone involved in intensive imaging applications," said Jay Campbell, a consultant for Digital.
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Fact: the OS/2® client/server solution preserves your current hardware and software investment, accessing your mainframes, minis and PCs when necessary and bringing their power and capacity to the desktop level. Fact: the Windows NT™ solution is based on PC servers and desktops and doesn't embrace all your existing resources. That could mean porting applications and data. The only plus that offers is the cost of porting plus the cost of additional PC servers.

Fact: OS/2 2.1 runs DOS, Windows® and more than 1,200 native OS/2 applications. With LAN Server 3.0 or Novell® NetWare,® OS/2 supports DOS, Windows, OS/2 and Mac clients. Fact: it's not likely NT will support all your existing applications. It won't run existing 32-bit applications like WordPerfect® 5.2 for OS/2 and Lotus® 1-2-3® for OS/2. It will require additional software to support DOS, OS/2 and even Windows clients. Worse yet, Infoworld sources report that Windows 3.x applications run 20% slower under NT than they do under OS/2 2.1!

Fact: OS/2 delivers powerful, reliable, client/server applications for data storage and retrieval (DB2/2®, Oracle 7®, InfoPump®), communications (Communications Manager/2, REMOTE OS™ TalkThru®), transaction processing (CICS, IMS Client Server/2 V2), comprehensive network management (LAN NetView; CA-UNICENTER;
Domain/DACS, AlertView, Foundation Manager), and more. Fact: The NT strategy is still Not There, and neither are native client/server applications.

Fact: OS/2 is committed to the industry-accepted Distributed Computing Environment (DCE) standards of the Open Software Foundation. Fact: NT is NoT.

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Operate at a higher level.
Lotus' SmartSuite gains momentum

By Michael Vizard

Microsoft Corp. may have a two-year head start in PC application suites, but Lotus Development Corp. appears to be making up for some lost ground.

Lotus' SmartSuite accounted for 34% of $240.1 million in total sales in the third quarter ended Sept. 30. In that same period a year ago, SmartSuite accounted for less than 10% of $207 million in total sales. In contrast, Microsoft claimed that suite sales account for more than 50% of the PC software units it sells.

Lotus had been unable to effectively compete in the suite space until a substantially improved version of 1-2-3 for Windows became available last summer. Since then, however, the suite market has become one of the fastest-growing segments of Lotus' product line and a key battleground with Microsoft.

"Suites are one of the most important trends in the PC application market, and SmartSuite 2.0 is a very solid offering," said Chuck Stegman, an industry analyst at Dataquest, Inc. "Both Lotus and Microsoft have done very good jobs educating people about the benefits of suites, and it's paying off for both."

In fact, Stegman noted that Microsoft has been able to keep its suite momentum moving although it has yet to ship all of the components for Microsoft Office 4.0, which was announced last fall. Microsoft has delivered Word 6.0, but Excel 5.0 and PowerPoint 4.0 are not scheduled to ship until this month (see story below). Instead, purchasers of Office 4.0 are receiving coupons for free upgrades to the next versions of Excel and PowerPoint. "This hasn't seemed to affect Microsoft sales of Office," Stegman said.

Meanwhile, Lotus successfully pitched SmartSuite to McKesson Corp. in San Francisco and the SSM Health Care System in St. Louis.

Out of a potential base of 2,000 users at McKesson, more than 550 SmartSuite packages have been deployed since April 1, said Bill Vanderlind, senior microcomputer and network specialist there. McKesson chose SmartSuite over three other options — including Office — because SmartSuite is cheaper and its applications share a common look and feel and run on multiple platforms.

Vanderlind said McKesson also looked at a best-of-breed recommendation made by a consulting firm and considered replacing the word processor component of a suite with WordPerfect Corp.'s namesake program.

But in the end, Vanderlind said, the integration between the 1-2-3 spreadsheet, Ami Pro word processor, Freelance Graphics presentation graphics software, CC:Mail and Organizer personal information manager made the full SmartSuite package more attractive.

Meanwhile, SSM Health Care, which manages 17 hospitals, clinics and nursing homes, is beginning to overhaul its office automation applications. The company expects to support as many as 3,000 users with SmartSuite packages in the next two to three years, application specialist Kelly Hible said.

Excel 5.0 delayed

The delivery schedule for Excel 5.0 has begun to slip. Microsoft plans to ship the spreadsheet, originally slated to ship last month, before year's end, a spokeswoman said. Microsoft attributed the minor delay to additional testing. Beta users said providing support for two macro languages in Excel 5.0, which now supports Visual Basic as a macro language, requires Microsoft to go through an expanded testing procedure.

"You have to test Visual Basic side by side with the older XLM macro language to ensure that everything is backward-compatible. It's a monumental project," said Don Baarns, president of Baarns Consulting Group in Sylmar, Calif.

—Michael Vizard
News

WordPerfect Office next to go wireless

By Lynda Radosevich

WordPerfect Corp. will be the latest vendor to offer wireless messaging when it announces a partnership this week with Intel Corp. and RAM Mobile Data to wirelessly enable its WordPerfect Office software.

The partnership mirrors a similar arrangement that Lotus Development Corp. and Microsoft Corp. have with Intel and RAM Mobile Data whereby Intel sells a wireless modem that includes drivers to run electronic mail over the RAM Mobile Data network.

While not the first wireless E-mail offering, Office includes wireless calendar and scheduling and task management capabilities that Lotus and Microsoft do not offer, according to a WordPerfect spokesman.

While working at the office or on the road.

"Before, you had to have two log-ins if you used [an Apple Computer, Inc.] PowerBook and a DOS computer. Now it doesn't matter where you are or what you are on, you only have one mailbox," said Julie Watson, manager of office automation at Iomega, Inc., a wireless Office beta site in Roy, Utah. When users read their messages while on the road, the messages are marked "read" when they return to the office, she explained.

Wireless capabilities for Office Remote for DOS are now available. A Windows remote product for dial-in and wireless connections will ship by year's end, and a Macintosh version will ship in the first quarter of next year, according to WordPerfect. A five-user client pack lists for $495.

For Reed Gilgan, a director of learning support services at the University of Wisconsin in Madison, the Macintosh version means that PowerBook users can dial in directly for their messages rather than manually work through a "Mickey Mouse" arrangement of computing systems, he said.

CDPD plans

Additionally, WordPerfect is talking with wireless Cellular Digital Packet Data (CDPD) providers, such as McCaw Cellular Communications, Inc., but would not provide availability dates. Watson said she is beta-testing Office's CDPD service to supplement RAM Mobile Data's wireless coverage.

Last month, Lotus endorsed McCaw's CDPD technology — which operates over the existing cellular telephone channels — but also has not provided delivery dates for wireless CC:Mail and Notes.

Microsoft has not made any CDPD announcements, but McCaw demonstrated Microsoft Mail operating over a CDPD network at Comdex/Fall '93 last month.

Iomega users will most likely want both types of wireless capabilities because the salespeople already have preferences, Watson said.

Separately, WordPerfect said by the second quarter of next year, small company and remote office users will be able to use a WordPerfect hub installed at MCI Communications Corp.
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When President Clinton signed the Brady Handgun Violence Protection Act last week, he set the clock ticking on a five-year deadline to build a national information system for conducting background checks of would-be gun buyers.

The biggest expected hurdle for building this criminal database is finding enough money for cash-strapped states to automate paper criminal records. The Brady bill authorizes $200 million a year in grants to help states do that, but it remains to be seen whether Congress will appropriate those funds. Can the 50 states make the deadline?

"Five years will get us most of the way there, if Congress approves the money," said Gary R. Cooper, executive director at Search, Inc., a Sacramento, Calif., group of state information systems managers in charge of criminal records.

The new law requires a five-day waiting period for the purchase of handguns, but that provision will expire in five years and will be replaced by an "instant check" system. Gun dealers must use the federal system to see if a customer is disqualified because of a felony conviction.

Dealers who fail to use the federal system can be fined up to $5,000 and lose their gun-selling license.

The national system is likely to resemble Virginia's system, in which merchants telephone the state police agency, which in turn checks state and interstate computer records while the buyer waits at the counter for a decision. Virginia is experimenting with placing dumb terminals at high-volume gun stores for direct access to the system.

The U.S. Department of Justice will choose the ES architecture of the interstate database within six months.

The Search consortium and an influential legislator, U.S. Rep. Charles E. Schumer (D-N.Y.), said the system should piggyback on an existing but unfinished federal database called the Interstate Identification Index, which is a master index of the criminal names stored in state databases.

That master index, run by the Federal Bureau of Investigation, can be turned into the Brady system by "flagging" the names of convicted felons. But the index is incomplete because many states are unable to feed it data.

Time to automate

Search's latest survey found that only 25 states participate in the interstate index and only 15 states have fully automated their criminal files and name index. Four states—Maine, New Mexico, Vermont and West Virginia—have no automated criminal history files.

Moreover, states will have to get thousands of courts to transmit information on the disposition of their cases, as well as standardize data elements and formats. "The Brady bill assumes a greater degree of [data] compatibility and communication than really exists," said Raymond Fonsan, president of OCS Technologies, Inc., a Pleasanton, Calif., software vendor specializing in criminal justice systems.

On the other hand, 16 states already have some system for presale background checks of gun buyers, so they are not far from complying with the new law. Existing state programs are not preempted if they are at least as strong as the federal law.

The statute also requires the Justice Department to write regulations governing the privacy and security of the national information system.
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Users upbeat on RISC-based Mac

New Windows-capable Quadra sets the stage until PowerPC debuts

By James Daly

When Apple Computer, Inc. starts shipping Macintosh PCs running the speedy PowerPC chip early next year, it may find an unusual source of enthusiasm—Windows users.

Apple set the bait last month when it introduced the Quadra 610 DOS Compatible, which runs Macintosh, DOS and Windows applications by means of an unusual pairing: a Motorola, Inc. 68040 chip and an Intel Corp. 1486SX chip on separate cards.

The Windows applications will still tap into the 486 chip, and Apple is somewhat hazy about whether Windows applications will have to be tweaked to run on the RISC chip. However, Apple claims that since the basic operating system and any Macintosh applications will be run on RISC, the advantage accrued by the Windows users is more CPU cycles for the Windows applications—particularly during number-crunching tasks and with graphics applications.

Welcome a board

As PowerPC upgrade boards become available next year, users will have a RISC machine that can run Windows, according to Apple. Until then, the box may especially appeal to users looking for a bilingual machine.

The 68040 serves as the springboard to the RISC-based PowerPC, with Apple and third-party developers expected to provide upgrade boards shortly after the PowerPC Macintosh ship this spring.

Pop in the new board and—voila—the Quadra 610 is a RISC machine that can run Windows. A RISC-based Sun Microsystems, Inc. SPARCstation can run Windows, but it is reportedly very slow.

Windows users say the added computational muscle of a RISC chip may just be the thing they need to thrive on the power-hungry Windows environment.

Windows hashing

"You can never be too rich, too thin or have too many CPU cycles," said Greg Fender, who runs a network of Windows, DOS and Unix machines as an information systems manager at Employer's Resource, Inc., an employee management firm in Boise, Idaho. "Windows is a dog. It's fundamentally very pathetic. Very slow.

If the Quadra 610 DOS Compatible "does everything they say it can do, I'd love to get my hands on it," said William Girson, who runs a network of IBM PC clones as a national support engineer at General Electric Medical Systems in Milwaukee. "I'm not a Mac fan, and I don't want to buy a Mac because I've got I've got DOS and Windows. But a RISC chip is a very powerful processor."

But not everyone sees a benefit on a RISC-based Macintosh for Windows. "If they did it two years ago, we would have been interested," said Charlie Russell, system administrator at New United Motors Manufacturing, Inc. in Fremont, Calif. "But right now there's nothing that I can do on a Mac that I can't do on a PC."

Wabi is a more likely alternative. I think you'll see a lot more Windows applications than [those] running on a Mac. Pricing for the Quadra 610 DOS Compatible is expected to be less than $2,000 in the various outlets now carrying the Macintosh line. A 486 PC clone is priced in the $1,500 to $1,800 range. A PowerPC upgrade card is expected to cost $1,000 to $1,500, depending on its power. Thus, a PowerPC-equipped Quadra 610 could be bought for as little as $3,000, significantly less than the $5,000 price tag of many RISC workstations.

Brokerage deploys distributed management

By Jean S. Bozman

Charles Schwab & Co. is moving ahead with its pioneering distributed computing architecture, pairing software from Tivoli Systems, Inc. and Hewlett-Packard Co. to handle systems management and network management, respectively.

Schwab is among the first corporations to put the Open Software Foundation's (OSF) Distributed Computing Environment (DCE) into production, the OSF said. On Nov. 8, Schwab started up its first DCE "cell," a portion of a future nationwide network of distributed computing resources that can be tapped from any workstation.

The first cell has some 50 Sun Microsystems, Inc. workstations and several Sun SPARC 10 servers in Schwab's Phoenix office (CW, Nov. 15). Schwab's DCE applications will then expand to seven sites nationwide, serving thousands of users.

Tivoli's Time Management Environment (TME) is being used as an "umbrella" for Schwab's management applications at the Phoenix offices, said Michael Negatu, Schwab's director of systems integration.

Tivoli last week said it had received a two-year, $2.3 million agreement to provide the $750 million brokerage firm with systems management and consulting services.

Schwab's first DCE site hosts a stock quotation application. On-line TME applications send network-wide registration data for user identifications and workstations to Unix file servers and distribute software programs throughout the DCE system, Negatu said.

Tool set immaturity

TME's OpenView, meanwhile, is being used to monitor all the workstations and Unix servers on the network. "They play together," said Jim White, Schwab's vice president of technical planning. He explained that a combination of several tool sets is needed to manage a distributed system, creating a patchwork far less mature than data center tool sets.

Management of the DCE depends on timely coordination of network resources and is built on several software layers. "You enter information in one place in [TME], and it's disseminated to the other products," Negatu explained. "As we move forward, users in a given cell will have their own profile available for quick log-on at any place in the network."

That means that Schwab's brokers could fly across the country, sit down at any location and access their applications and data, just as if they were sitting in their home office.

Original plans called for Schwab to use the OSF's DCE operating system's DCE and Posix-compliant Unix products [CW, April 20, 1992]. The OSF failed to deliver the Distributed Management Environment (DME) framework, which is being rebuilt, and failed to ship all of the promised DME functions, such as print services.

Replacement parts

So, while Schwab uses some DCE products, it uses Sun's operating system instead of OSF/1 and Tivoli's TME instead of the DME framework. It decided to use the Andrew File System software developed at Carnegie Mellon University in Pittsburgh instead of DCE's Distributed File System, and it uses Xhibit Technology, Inc.'s Tivoli instead of distributed print services.

Tivoli was an early developer of the OSF's DME framework, although industry analysts said they believe OSF may never ship its framework [CW, Nov. 15]. Tivoli is now consulting with Schwab to forge links to other vendors' systems management applications.

New applications built by Schwab programmers may also need to reach into legacy systems to access mainframe data.

"There's some customization we're doing here," Negatu said. "There will be some bridging that needs to happen."
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In a pickle

Last week, the Russian who is responsible for preserving Lenin’s body in rather remarkable condition, despite its being dead for 70 years, revealed his secrets.

It seems the Russian may have been motivated by the Kremlin’s cutting of the preservation funding. Now he’s willing to market his services to anyone who’ll spend $250,000 to pickle the deceased.

I suggest he contract with the information technology industry to perform his magic on open systems computing.

Maybe it is a slight exaggeration to say that open systems is dead, or maybe reports of its death are premature. But if you read through our special report on the state of open systems (beginning on page 87) — a report based on our exclusive analysis of X/Open’s worldwide open systems survey — you will conclude that the very least that open systems is, in the purist sense, dead.

Sick and tired of vendors’ squabbles and the glacial movement of consortia-based standards efforts, users are redefining just what “open” really means. Guess what? Inclusion in that definition are some curious features such as SNA, mainframes and Windows NT — technologies and products that would make open systems purists shudder.

How can this be? The Yankee Group’s Howard Anderson summed up the situation thusly: “While users are enticed with the idea of standards, when all is said and done, they go back to what works.” And what still works best for many of them is heavy reliance on things that look and feel quite proprietary.

This is not such a bad state of affairs. After several years of some of the most torrid marketing blizzards ever witnessed, during which users were fed a steady stream of PC-wanderlust, a much more pragmatic customer has emerged. They know mainframes are not worth the pain. Sick and tired of vendors’ squabbles and the glacial movement of consortia-based standards efforts, users are redefining just what “open” really means. Guess what? Inclusion in that definition are some curious features such as SNA, mainframes and Windows NT — technologies and products that would make open systems purists shudder.

Software cure not worth the pain

Steve Epstein’s “Taming wild software country” [CW, Oct. 11] brought to light many interesting points and not a few misconceptions on software quality.

He speaks against a subjective answer to the question, “How safe is this piece of code?” What is Mr. Epstein’s magic number that he will use to judge that software is indeed safe? Mr. Epstein compared the lack of standards to the mostly well-defined standards in civil engineering.

His implication is that we can expect a similar type of standard to evolve for software engineering as it becomes more mature. But are civil engineering and software engineering fundamentally similar? Ensuring safety in a digital domain is inherently much more difficult. If a bridge can be deflected without causing any damage, the civil engineer would reasonably expect it to behave safely when deflected similarly to the left. In digital systems there is no guarantee of symmetry like this. It is as though the software "bridge" is constructed of explosive bricks. The failure of one brick can detonate the entire bridge.

Mr. Epstein says, “The answer is to begin by implementing techniques from the disciplines of software reliability, software system safety and software risk analysis. . . .” But no proof or rationalization is presented that these methods will actually improve software quality.

Much of the effort in software quality assurance goes into producing more documentation and testing. But does more documentation really equal more quality?

Mr. Epstein suggests that “licensing of software engineers may also be part of the answer.” Although blunders by individual programmers are often made, the really spectacular failures come from failures in management. Licensed or not, a team of engineers working 60 to 80 hours every week will eventually make mistakes.

I do agree with Mr. Epstein that the state of software quality needs improvement and is a serious matter of concern. Let’s make sure the cure doesn’t make the problem worse.

Robin Rowe
President
Rowe Technology
Redmond, Wash.

Not mad for RAD

Regarding “Leave analysis be hind” [CW, Oct. 18], David Baum’s contention that rapid application development (RAD) renders the need for regimented methodologies obsolete is ridiculous.

RAD may be fine for developing small throwaway programs but fails miserably for building major enterprisewide information systems. RAD sacrifices system integration for development speed, pacifying the business problem for the moment but creating long-term headaches when the application has to be redesigned to work with other programs.

But instead of RAD, we call it QAD” for “quick and dirty.”

Tim Bryce
Bryce & Associates, Inc.
Palm Harbor, Fla.

Wanted: “Big picture” skills

Regarding “Think big picture for client/server” [CW, Oct. 25]: For every classified ad that uses terms such as “overall client/server architecture and methodology” or “technology planning” or “integrated business and technical skills,” there are literally thousands that are looking for product- and vendor-specific skills.

Where are the jobs that require “big picture” and “conversationsally fluent” skills? Either they are all filled, since no one is advertising for them, or the need is not recognized.

I tend to think it is the latter. Unless we learn to put the cart where it belongs, the problem won’t be fixed.

Carolynn Ranftle
Independent consultant
River Vale, N.J.
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The meaning of certification

Eli E. Hertz

Ideally, certification protects consumers. Certifications such as the UL seal on an electrical plug indicate a meaningful and acceptable standard of performance that is monitored on an ongoing basis. But sometimes certifications can be misleading and provide a false sense of security. That is the case with certification labels created by Novell.

Novell's certification programs have gained quick acceptance in the marketplace. People now perceive Certified NetWare Engineer (CNE) status as a qualifier for network specialists. Similarly, the Novell Independent Manufacturer Supporter Program (IMSP) product compatibility certificate supposedly ensures a smooth-running network. Few question the meaning or value of these certificates.

The CNE designation has become the computer equivalent of a MBA. Most people have one; therefore, those who don't are at a disadvantage. Businesses even specify "CNE a must" in their ads because they feel this will attract the appropriate applicants.

Employers and consumers don't always get what they expect when they hire or buy on the basis of a Novell certification.

There is a widespread impression that certificate holders can handle all network problems and all forms of maintenance. In fact, CNE certification addresses only one aspect of network support — the operating system software — and does not require a demonstration of hands-on skills. Candidates must pass only a series of on-screen tests to qualify. Increasingly, employers are discovering that many CNE holders lack the skills needed to work with network hardware, cabling systems and applications software.

Novell has no incentive to publicize the limitations of its CNE program. Its CNE business is booming. The demand for courses pressured Novell to contract the training to Novell Authorized Education Centers and to expand the program by introducing three new certifications: Enterprise Certified NetWare Engineer, Certified NetWare Administrator and Certified NetWare Infrastructure Specialist.

Similar opportunities exist for Novell through its IMSP product certification program. Novell says it wants to encourage OEMs to integrate their products with NetWare. The cost of this encouragement can be exorbitant, however, averaging approximately $7,000 per computer system.

Getting less

Microsoft and IBM provide to OEMs, for free, preconfigured diskettes with which to conduct compatibility tests. Do you get more for your money with Novell? Actually, you get less.

A Novell sticker on a computer system means only the exact and specific configuration tested is certified. Any change in that computer system, such as revision to the system board, a different add-on board or a small update to software drivers or BIOS, voids the certification. The pace of change in the industry may render a specific configuration obsolete during the eight to 12 weeks it takes to receive a Novell certificate.

As employers expect CNEs to apply for network-related jobs, many purchasing managers require the Novell sticker on hardware they buy. People believe this guarantees compatibility; it's time to read the fine print on the certificate.

Hertz is founder of Hertz Computer Corp., maker of networking products and file servers, and the author of a number of industry-related books. His latest, "Now that I Have OS/2, From My Computer, What Do I Do Next?", was published by Van Nostrand Reinhold.

Enterprise-wide LAN E-mail still a dream

Patricia B. Seybold

If you dream of growing your LAN E-mail systems to handle robust applications across your entire enterprise, Dream on. Are you planning to build E-mail bridges and applications that reach out to customers and suppliers? Don't count your blessings yet.

The good news is that LAN-based E-mail is growing up. The leading packages now run across multiple platforms and support international and de facto messaging standards. They also come with gateways that let you connect relatively seamlessly to host-based E-mail systems and external E-mail services.

Even the skirmishes among the leading players over which firm controls the messaging application programming interfaces for LAN E-mail have subsided so that, within a couple of years, you should be able to write corporate applications for project management, scheduling and work flow that will run across various LAN E-mail products.

The bad news is LAN E-mail products often are not robust enough to support the many thousands of users in large organizations. Important features are lacking — such as reliable end-to-end delivery in a global network, messagetracking, certification of delivery and rock-solid security.

The use of multiple gateways also makes it problematic to send files and rich text without fear of corruption. And it is almost impossible to synchronize E-mail directories across an enterprise, particularly if you have products from more than one vendor. It will take a couple of years before LAN E-mail products are up to the enterprise challenge.

In the meantime, assumptions can be dangerous. It's a mistake to assume, for example, that your LAN E-mail package will serve as an adequate "backup" for all your LAN E-mail systems.

You'll also need directory services, and this is the area where I see most corporate E-mail task forces punting. There's good reason.

Many of the commercial directory services offerings are immature. It is difficult to establish a single corporate LAN E-mail standard. And even if you do, chances are the directory services available from your vendor won't be up to the challenge of keeping the hordes of users in sync as they relocate, spawn new LANs, join and leave project teams and travel the world.

Needless to say, it gets worse if you want to include customers and trading partners in your global directory system.

Be wary of promises of directory synchronization across mixed systems. This is the single most difficult problem in the industry. To solve it will require: distributed database standards — something we're not likely to see soon.

NOTE: In my last column about how the Commonwealth of Massachusetts is using rapid, iterative development, a paragraph was omitted, which I feel was necessary to convey the accomplishments and professionalism of Comptroller Bill Linoff and his staff. The omitted text read: "How can a well-intentioned executive, no matter how visionary he is, make a dent in this car booby of 10 years of fossilized practices? It helps if you have a good track record, as Bill does, in delivering on investment on your project. It also helps if you have put together a hot management team that is eager and willing to tackle the insurmountable."

Seybold is president of the Seybold Group, which helps professionals in the information industry to solve it will require: distributed database standards — something we're not likely to see soon.

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Accounting software tallied up for NT

Microsoft takes little notice of Great Plains Software's latest contribution

By Ed Scannell

Accounting software is usually afforded the same level of respect as an 8-year-old child. It's small, probably even good for you, but it just isn't very exciting.

Since the start of the PC revolution in corporate America, accounting software has not been able to get good public relations. The press and analysts have always found the spreadsheet, word processing and operating systems more interesting.

Accounting software was something that, well, other people wrote.

But as Great Plains enters the client/server market, it might not hurt to have Microsoft say a few nice things about its product. In this new arena, the company expects to go up against some experienced players such as market leader Oracle Corp., Ross Systems, Inc. and newcomer The Dodge Group, that have established reputations at the high end.

“We were somewhat disappointed when Microsoft was promoting some of the 32-bit applications available for NT in other categories but did not mention ours,” said Raymond August, a vice president at Great Plains.

Microsoft currently offers only two “front-end” applications for NT. With about 1,000 customers, Great Plains is the first third-party developer to market a product for NT that runs as an integral part of the operating system.

Great Plains developed Microsoft ProfitPoint, an entry-level, integrated accounting package that Microsoft exclusively markets and Great Plains supports, almost a year ago.

“ITs must be taken seriously by their resellers and customer developers. Most of them have already been doing real client/server stuff and most are really hot for this new product [Dynamics CS+]”, said Jeff Tarrer, editor of "The Software Letter.

Great Plains is pinning most of its hopes for success in the client/server market on its recently shipped Dynamics CS+, which is targeting the package primarily at midrange companies with revenue of roughly $5 million to $100 million a year.

Smart-card technology used in lifesaving work

By Mitch Betts

When the ambulance crew arrives, the patient may be unconscious or incoherent and most family members too distraught to provide vital information about medical conditions, allergies and prescription drugs.

So the ambulance service in Midwest City, Okla., and six area hospitals have teamed up to deploy smart-card technology so emergency personnel have accurate patient data in an instant.

The MediCard system was developed and installed by Advantage Data Systems, a smart-card system vendor in Oklahoma City. The six plastic cards store patient data on an embedded computer chip, the system involves Hewlett-Packard Co.

Adobe typesetting was used in the page layout for this article. The graphics were produced using Adobe Illustrator. The text was converted to PostScript using Adobe Acrobat.

Some observers agree, pointing to the company's network of some 3,000 value-added resellers (VARs), many of which are veterans at creating sophisticated client/server applications.

Almost all of the high-end competitors to Great Plains have sold their products directly to end users and only now are turning to VARs and systems integrators to help build an industry around their products, analysts explained.

**Serious challenge**

"They must be taken seriously by their competition just because of their resellers and customer developers. Most of them have already been doing real client/server stuff and most are really hot for this new product [Dynamics CS+]", said Jeff Tarrer, editor of "The Software Letter.

Great Plains is pinning most of its hopes for success in the client/server market on its recently shipped Dynamics CS+. The company is targeting the package primarily at midrange companies with revenue of roughly $5 million to $100 million a year.

Accounting, page 42
Imagine a desktop printer designed to keep everyone on track.
The DEClaser 1152. The desktop network printer designed to handle Mac and PC users at the same time.

Finally, the Adobe PostScript™ Level 2 printer you've been waiting for has just pulled in. Right on the desktop. And at $699, right on the money.

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Accounting
CONTINUED FROM PAGE 39

Dynamics C/S+ is complemented on the high end by the company's Corporate Dynamics, an enterprise-wide product capable of supporting all of the dominant SQL relational databases. On the low end is Dynamics, a LAN-capable graphical system with shipping versions for both Windows and Macintosh desktop systems.

Last month, Great Plains announced it would deliver Dynamics Release 2 by the middle of next year, which will target companies with 100-employee or fewer. This version will support Novell, Inc.'s Btrieve 6.1 NetWare Loadable Module and improved cross-module consistency.

Smart card
CONTINUED FROM PAGE 39

Of course, the system depends on people actually carrying their smart cards at all times. Local residents obtain their smart cards from participating pharmacies and hospitals and pay a $30 fee for three-year membership in the program. Riley said the hardware is installed and the membership drive will start soon.

The ambulance service serves more than 100,000 residents in the eastern suburbs of Oklahoma City, Riley said, and he hopes to distribute 20,000 cards to people who are likely users, such as the elderly.

Document management

Start-up company adds text-retrieval engine

By Michael Vizard

World Software Corp., a start-up supplier of document management system software in Ridgwood, N.J., plans this month to ship Version 2.0 of its Worldox offering, which will incorporate an index text search function supplied by Odyssey Development, Inc. in Denver.

The addition of the index text search engine will give Worldox text-retrieval capabilities similar to those of rival products from vendors such as SoftSolutions Technology Corp. in Orem, Utah, and PC Does, Inc. in Tallahassee, Fla.

However, World Software seeks to differentiate itself from its rivals by providing a document management system that does not take over all the applications attached to it, according to company President Tom Burke.

For example, while Worldox replaces the File Open and Save As dialogs in an application, it still allows users to upgrade their applications without having to wait for an upgrade to the Worldox product.

For this reason, the Federal Labor Relations Authority in Washington has adopted Worldox in three offices to supplement users of WordPerfect Corp.'s namesake word processor.

"These offices tend to use a lot of documents, and WordPerfect only supports eight-character file names. So with Worldox, we can have expanded file names across a library of documents," said Harold Kessler, director of information resources and research services.

"Price was a backstop consideration. We wanted something that didn't take over our DOS directories," he said.

However, Kessler added that a lack of support staff at the authority is making it difficult for him to deploy Worldox further. "We only have four people supporting 240 people in multiple regions, so we're keeping the rollout limited. But we expect more offices to become interested in it over time," he said.

Worldox, which includes an application programming interface and viewers that allow users to preview documents before calling them, is priced at $229.95.
YOU KNOW HOW SOME THINGS ALWAYS LOOK GOOD FROM A DISTANCE?
As anyone who's ever been in the desert can tell you, things aren't always as they appear. Whether it's an oasis in the sand or a suite of application software in the office.

Unless you look very closely, for example, you'd swear Microsoft® Office was a revolutionary new way to use, manipulate and share business data through integrated software. When, in reality, Lotus® SmartSuite® achieved that distinction over a year ago.

A closer inspection will also demonstrate that not all of Microsoft Office's five applications are designed for general business users. And some new versions aren't yet available at all. Lotus SmartSuite, on the other hand, has five of the leading, award-winning, most usable applications. All of which truly complete the desktop of every Windows™ user.

And while Microsoft claims Office is going to fully maximize cross-product integration and consistency, Lotus is already way down the road to achieving precisely that across all five applications. Sharing the same user interface. With common menus. And SmartIcons® To say nothing of task-oriented functions that cross applications. Collect and Copy for instance. With a single click, it lets users gather data from 1-2-3® and Freelance Graphics® and combine it into an Ami Pro® word processing document.

Of course, you might be just as easily deluded into believing that Microsoft Office is work-
ER TAKE A CLOSER T OFFICE AFTER ALL.

group enabled. When, in fact, Office can only integrate applications. SmartSuite can actually integrate entire groups of people. With Lotus Notes groupware, SmartSuite users can access, share, track and manage business data like never before. Not only can it be routed, it can be revised, stored and accessed concurrently by multiple users working in collaboration.

And right now, you can upgrade from any Lotus or competitive product to SmartSuite 2.1 for just $299. Just visit your Lotus Reseller. Or call Lotus for a demo disk at 1-800-TRADE-UP, ext. 9316. We can assure you, this is one time you really will be able to believe your eyes.

Lotus
Working Together

Software

Intex Solutions, Inc. has introduced Forecast for Lotus Development Corp.'s 1-2-3 Release 4, a product that can be used for applications such as forecasting sales and expenses. According to the Needham, Mass., company, the product was created specifically for 1-2-3 Release 4 for Windows and includes pull-down menus, full mouse support and dialog boxes in a 1-2-3 environment. Forecast for 1-2-3 Release 4 converts a user spreadsheet into a forecasting system, offering features that include time series analysis, statistical analysis, multiple regression analysis, seasonal adjustment and various advanced forecasting techniques. Forecast costs $165.

IntelligenceWare has announced Corporate Vision, a product designed for multidimensional data analysis. According to the Los Angeles company, the product runs on Windows and implements a Hyperinformation Graphic User Interface, providing instantaneous, intuitive and graphic access to vital information required to monitor and control a business. Features include fully customizable windows and dialogs, support for a large number of fields and dimensions and hypergraphs and hyperdata. Corporate Vision costs $899 per copy.

GST Software has announced DesignWorks 2 for Windows, drawing and illustration software. According to the Falls Church, Va., company, DesignWorks 2 is a Windows-based technology that offers enhanced flexibility, speed and control. Features such as custom shape tools, color features, text features, snapshot utility, keypad/font utility, clip art and photo CD browser are included. Object Linking and Embedding support is also provided.

DesignWorks 2 costs $199.95

Financial Decision Systems, Inc. has introduced MasterAgenda, a Windows-based system for corporate tax and financial filing, tracking and analysis. According to the Agoura Hills, Calif., company, MasterAgenda can track, manage and analyze target dates pertaining to filings or events in the treasurer's office or other departments. MasterAgenda offers a Windows-based graphical user interface for ease of use. A query module provides instant access to related activities, enabling users to view, define and analyze data from a variety of perspectives. A single-user version of MasterAgenda costs $795. The networked version is priced at $1,295.

Octel Communications Corp. has introduced DecisionPro, a Windows-based voice processing reporting tool that combines a Windows graphical user interface with an industry standard relational database and a report writer. According to the Milpitas, Calif., company, the product provides users with system information and report customization capabilities. User profiles and event statistics can be downloaded from an Octel voice processing system and stored in a standard database on the user's desktop PC. DecisionPro costs $1,000 per user.

Jensen-Jones, Inc. has introduced Commence Start-Up, an entry-level version of Commence 2.0, personal information management software that operates under Windows. According to the Red Bank, N.J., company, Commence 2.0 offers users an easy way to view, organize, store and share information in workgroups. Commence Start-Up is a stand-alone version of Commence 2.0. Users can organize contacts, manage and automate tasks and projects, dial telephone numbers through a PC, create customized views of information and maintain a calendar with a drag-and-drop scheduler. Commence Start-Up costs $49.95.

PenWare, Inc. and Sharp Electronics Corp. have introduced the PenCell spreadsheet software card designed for the Sharp Pen-cell line of pen-based Wizard electronic organizers. According to Palo Alto, Calif.-based PenWare, the card enables users to access, update and utilize spreadsheet information on their pen-based Wizards. By touching on-screen icons, users can enter data, run spreadsheet scenarios, and do simple budgets and forecasts. Other PenCell features include manipulation of data through pen gestures, multiple levels of Undo and Redo operations, drag-and-drop functions for copying and moving cell data and a shortcut entry method for common formulas.

Each PenCell IC card costs $229.95.

Scitor Corp. has announced Project Scheduler 6 for Windows, a project management system.

According to the Foster City, Calif., company, the product supports all aspects of project planning, tracking, reporting and analysis. Project Scheduler 6 employs object-oriented programming technology and offers an interface designed to streamline project planning with user-configurable spreadsheets, an unlimited Undo/Redo option, graphical Gantt chart dependencies and tool bars for quick access to functions and views frequently used by project managers.

Project Scheduler 6 costs $895.

Computervision Corp. has announced the Revision 6.0 DOS-Extended version of Personal Designer, its two-dimensionally three-dimensional PC computer-aided design software.

According to the Bedford, Mass., company, this version offers more than 100 customer-requested productivity enhancements.

Features include a graphical user interface that allows intuitive interaction via raised buttons, pop-up menus, context-sensitive assist text, relocatable dialog boxes and an expanded Non-Uni-form Rational B-Spline.

Personal Designer is compatible with MS-DOS Versions 5.0 and 6.0. The product costs $8,995.

Hewlett-Packard Co. has introduced the HP DeskJet 310 printer for notebook PCs and the HP DeskWriter 310 printer for Macintosh PowerBooks.

According to the Palo Alto, Calif., company, the printers offer 300 dot-per-inch resolution for black or color, text and graphics. The printers can be powered by a battery or an AC adapter, and they use HP-developed thermal ink-jet technology.

Each printer weighs approximately 4 pounds and costs $379.

Financial Products

Software

Hewlett-Packard

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Financial Decision Systems

Desktop Computing

The 64-bit Vision family includes two multimedia-enabled single-chip graphics accelerators, a companion accelerator called the S3 Vision/VA, the dynamic random access memory-based S3 Vision and a Video RAM-based S3 Vision 964. The single-chip, S3 Vision/VA video accelerator operates with S3Vision/964-based systems. The S3 SDAC peripheral chips support high resolutions.

The S3 Vision/964 costs $45 per 1,000 parts, and the S3 Vision/964 is priced at $75 per 1,000 parts. S3 Vision/VA costs $75 per 1,000 parts, and the S3 SDAC, 110 MHz and S3 SDAC, 135 MHz are priced at $89.81 and $10.56 per 1,000 parts.

S3

Howlett-Packard Co. has introduced the HP DeskJet 310 printer for notebook PCs and the HP DeskWriter 310 printer for Macintosh PowerBooks.

According to the Palo Alto, Calif., company, the printers offer 300 dot-per-inch resolution for black or color, text and graphics. The printers can be powered by a battery or an AC adapter, and they use HP-developed thermal ink-jet technology.

Each printer weighs approximately 4 pounds and costs $379.

Hewlett-Packard

Olivetti North America, Inc. has introduced Quadrino 33, a high-powered version of its Quadrino subnotebook.

According to the Painted Post, N.Y., company, the product is an ultralight PC designed for users who need a portable computer with the power and capabilities of a desktop system.

Quadrino 33 comes equipped with 4M bytes of memory (expandable to 12M bytes) and a 60-leaf drive with an optional 120M-byte.

Preinstalled software includes Windows 3.1, MS-DOS, Microsoft Corp.'s Works for Windows and Lotus Development Corp.'s Organizer.

A Quadrino 33 package costs $1,889.

Olivetti North America

Lexmark International, Inc. has introduced six desktop printers.

The IBM Expolet 4470 printer features optional advanced flash memory scalable fonts and 600-by-300 dot-per-inch printing. The IBM Expolet 4470 SE page printer employs Lexmark's electrophotographic print engine and offers graphics at up to five pages per minute.

The IBM Expolet 4470 SE page printer uses Lexmark's electrophotographic print engine and offers graphics at up to five pages per minute.

The IBM Expolet 4470 SE page printer uses Lexmark's electrophotographic print engine and offers graphics at up to five pages per minute.

Lexmark International

Prepared by: Advance Media, Inc.
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"VPT turns a network printer into a consummate politician, showing whatever face each user wants to see."

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Rob Auster, BIS STRATEGIC Decisions

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The wizardry doesn't stop there, however. For example, these high performance lasers simultaneously support more major network environments than anything else you can buy. They're SNMP compliant. And an optional Adobe® PostScript™ fax modem is available.

To find out more, call at 800-334-3174. Because this is one time when you can definitely believe everything you read.
New tools create an open Notes

By Michael Vizard

Lotus Development Corp. will move this week to shatter the image of its Notes environment as a closed system when it announces a set of alliances with leading providers of application development tools at its Lotusphere conference in Orlando, Fla.

Among those vendors will be Information Builders, Inc., Informix Software, Inc., Powersoft Corp., the Ingres Products Division of The ASK Group, Inc. and Revelation Technologies, Inc. All are expected to deliver Notes support in the first half of 1994. Meanwhile, discussions with Oracle Corp. are ongoing.

"A lot of corporations have the perception that Notes is a closed proprietary environment. Having these tools will go a long way to changing that perception," said Randal Zahora, president of Workgroup Productivity Corp., a consulting firm in Oak Brook, Ill.

Better tools for linking

In general, these agreements will shore up the Notes application development environment, which is hampered by a lack of graphical client/server tools, and give developers better tools for linking Notes with SQL databases.

"We'd expect to see a much cleaner two-way data flow. Right now there are batch products, but for real-time exchange you have to go with the Notes API, which is not as strong as we need it to be," Notes tools, page 56

Digital Equipment Corp. plans next year to add front-end support to its LinkWorks groupwork integration software so it can work with leading PC mail packages. That key capability is missing from the first LinkWorks release, scheduled to ship this month.

Ronni Marshak, editor in chief of the "Workgroup Computing Report," published by Patricia Seybold Group in Boston, described the absence of direct support for Microsoft Corp.'s Microsoft Mail and Lotus Development Corp.'s CC:Mail as LinkWorks' main flaw.

"I'm not sure how useful it is without mail integrated into it," Marshak said. "If people are already using CC:Mail or Microsoft Mail, they're not going to be willing to go backward on functionality." LinkWorks will be "much more attractive" once it can work with those packages, she added.

Users looking for more

"The closer it looks to the things that people are using, the better it will be," agreed Michael Prove, vice president of credit at Bank of Montreal's U.S. operations in Chicago. The bank is implementing LinkWorks in its corporate banking department, where Microsoft Mail is the dominant mail package.

Dilip Phadke, LinkWorks group marketing manager at Digital, said the next release of the groupwork product will tie directly to both Microsoft Mail and CC:Mail. Digital's own TeamLinks mail software will also be supported in that release, which should be ready by "approximately summer," Phadke said.

Initially, LinkWorks has to go across Digital's Mailbus or Mailbus 400 messaging backbones and pass through gateways to hook up with the PC mail packages. It relies on a native X.400 mail client for now, although support is also included for Digital's VM Small product and the Unix-oriented Simple Mail Transfer Protocol (SMTP).

Not fully rounded

Phadke insisted that the mail capability "is not as limited as some people think it is." However, other analysts agreed with Marshak that LinkWorks will not be a fully rounded product until Microsoft Mail and CC:Mail can be accommodated in a more seamless fashion.

"If mail is not one of the things you can link up to easily at first, it would be a knock" against LinkWorks, said David Yockelson, a research analyst at Meta Group, Inc. in Westport, Conn. "You want to play in whatever environment you're used to," he added.

Native X.400 is much more complicated than packaged LinkWorks, page 53

Oracle, Novell pact aids DBMS on networks

Software bundle seeks to simplify administration of Oracle 7 on NetWare

By Kim S. Nash

The bundling of Oracle Corp.'s database with Novell, Inc.'s NetWare and UnixWare operating systems is more of a marketing pact than a technological advancement, observers said. But the packaging is expected to offer some advantages in terms of deploying Oracle 7 databases over networks.

As NetWare gains ground in client/server settings, critics have charged that products from Oracle and other relational database makers are difficult to monitor and maintain over a LAN. Oracle seeks to change that: Packaging the database with NetWare — and UnixWare later in 1994 — is a stab at simplifying the tasks of installing and administering Oracle 7 on a LAN.

Meanwhile, Sybase, Inc., Informix Software, Inc. and The ASK Group, Inc. have all announced that NetWare Loadable Modules (NLM) supporting NetWare 3.12 and NetWare 4.0 will be available for their latest databases during the same time frame.

"There isn't much difference between an NLM and OracleWare, except the single-point support," said Wayne Kerno, an analyst at Aberdeen Group in Boston. "It remains to be seen whether OracleWare will truly be easier to support over Novell because of this bundling."

Shipping this week

Novell and Oracle have promised to ship the first iteration of OracleWare, a database and network operating system bundle, this week to NetWare resellers. Users should be able to get hold of the product two weeks from now, the firms said.

Users will also be able to install Oracle 7 and accompanying tools directly from existing NetWare consoles. That means the database will be easier to administer and maintain because users can monitor it from the network operating system level with a single view.

OracleWare is aimed at department-level client/server setups. Some observers see OracleWare as a thrust to Microsoft Corp.'s parry of a low-priced SQL Server database for Windows NT sold through resellers. Microsoft's $1,495 price tag for a low-end SQL Server for NT setup is "scapegoat of a big concern for Oracle and other database companies," said Michael Corey, president of the International Oracle Users Group.

Indeed, database pricing has to give way next year as NT installations grow, said Bill Shattuck, an analyst at Montgomery Securities in San Francisco.

OracleWare — sold indirectly and aimed at smaller users — partly addresses Microsoft's advances, according to Shattuck.

However, observers noted that a factor in OracleWare's favor is that users rely on Oracle for primary technical support — even for NetWare or, eventually, UnixWare questions. Meanwhile, Novell resellers are learning the ins and outs of Oracle products so that they can answer some database questions.

NLM questioned

Announced in June, various OracleWare bundles are slated for staged release, with a NetWare 3.12 edition due out in two weeks. A UnixWare edition is expected by first-quarter 1994, to be followed by a NetWare 4.0 version by midyear, the companies said.

Some users maintain that LANs lack the power and reliability of a host-based system for large applications, and therefore they are uninterested in either NLMs or OracleWare.

"You'll never get an NLM to perform as well as a database on a host," said Ira Kirschner, director of technology services at J.J. Kenney Co. The New York financial firm intends to switch most of its NLM applications over to a mainframe system, according to Shattuck.

"From the database standpoint, they've always been wondering whether there is a need for it."
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Digital's LinkWorks: Missing key link

CONTINUED FROM PAGE 51

mail products, Marshak noted. "X.400 is a horrible environment for users," she said. "It has all sorts of codes that don't mean anything to anybody except a mail guru. You need a mail front end to hide all that stuff."

About 150 of Bank of Montreal's 1,150 corporate banking employees are using the X.400 mail client as part of the bank's LinkWorks installation, Frow said. X.400 provides "lots of flexibility and very powerful capabilities," such as conditional routing of messages, he added. "But the price you pay for power is complexity, obviously."

Users like functionality

While Microsoft Mail is not as robust as native X.400, employees "are very comfortable and happy with its functionality," Frow said. As a result, Bank of Montreal is interested in using it as a front end into the X.400 mail engine in LinkWorks. "A hybrid is definitely what's required," he said.

Can users cope with little to no control?

A thorny issue that Digital and potential customers face with LinkWorks is how much control individual users should have over their desktop environments.

The balance of power is weighted toward systems administrators for now, but analysts said that goes against the workgroup grain.

"There's typically a demand for freedom in workgroup settings, and [LinkWorks] doesn't allow for that," said Ronni Marshak, an analyst at Patricia Seybold Group in Boston.

"It's kind of at the opposite end of the Lotus Notes spectrum, where everyone can collaborate freely," added David Yockelson, a research analyst at Meta Group. He noted, however, that the top-down approach may be the right one for clerical-oriented applications such as claims processing.

Dilip Phadke, LinkWorks group marketing manager, said LinkWorks has built-in flexibility for allowing users to have some say over their setups, but the power to provide access to those features resides with the systems administrator.

"It's really the choice of the customer," Phadke said.

User manipulation of LinkWorks "is a tough issue to deal with," acknowledged Michael Frow, vice president of credit at Bank of Montreal's U.S. operations in Chicago.

According to Frow, "There's always this paradox between central control and empowerment."

Giving too much control to individuals could make it hard for users to log on to their desktops from other PCs, which is one of the bank's key goals with LinkWorks, Frow said.

The bank, therefore, has a standard approach, but it provides some flexibility and does not shut off access to the Windows program manager, he added.

On the other hand, the States of Guernsey police department in the UK expects to "take a pretty strict approach," said Inspector Mike Burrows. "It's really the choice of the customers," Phadke said.

One of the nice things about LinkWorks is the ability to do anything," Burrows continued. "The system administration capabilities are pretty powerful."

— Craig Stedman

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Database query tools

**Dimensional bolsters tools with report writer**

By Michael Vizard

Dimensional Insight, Inc. in Burlington, Mass., has enhanced its CrossTarget database query tools with a customizable report writer, called the Reporter, and a set of interfaces, called the Selector, that link its tools with SQL databases.

Aimed primarily at giving professionals access to data that has been moved from a mainframe database to a smaller engine supporting multidimensional analysis, the CrossTarget tools also include a facility called Diver, which allows users to do drill-down data analysis. Another capability, called the Data Integrator, allows users to link queries across dissimilar databases.

Taken together, the Dimensional Insight tools let information systems managers download production data to a separate server engine, precluding ad hoc queries from slowing the performance of the transaction processing system with ad hoc queries, the vendor said.

**No slowing down now**

For example, Vetrox/Certained Corp., a fiberglass manufacturer in Wichita Falls, Texas, has deployed CrossTarget on a Macintosh server that is linked to an IBM mainframe.

Every morning, the company downloads data from the mainframe, against which 20 to 30 engineers and other personnel run queries.

"Improving performance as part of a downsizing project was a huge issue for us," said MIS manager Alan Brinkley. "The performance is excellent. Anything that takes more than a second means we have a network problem. And we're running queries over 10,000 records," he said.

According to Dimensional Insight President Frederick Powers, the company is looking to combine the multidimensional database functionality of an executive information system, which traditionally has supported only canned queries, with that of a decision-support system featuring ad hoc queries.

**More flexible**

As part of that effort, Dimensional Insight has created a server engine that can either be deployed on the same system as the company's primary database or on a separate server.

Powers argued that his company's approach is more flexible than deploying multidimensional databases that have larger amounts of overhead and require more systems management to create the prepared queries.

CrossTarget engines and tools run on Macintosh and Digital Equipment Corp. OpenVMS systems. A Windows version will ship this quarter, and a Unix version will be available in early 1994.

Price averages about $1,200 per client, depending on configuration.

---

**Notes tools**

**CONTINUED FROM PAGE 51**

would like it to be," Zahora said.

"Our world has been expanding from Notes to the corporate databases for a longtime now. It's very clear Notes won't stand by itself," added Ron Beck, senior director of technical services at Symetrix Corp., a consulting firm in Wakefield, Mass.

Earlier this year, Lotus addressed these same issues through a pact with Gupta Corp., which announced it will deliver Notes support for its tools in the third quarter of 1994 [CW, Oct. 25].

**Brainstorm takes lead**

Since then, Brainstorm Technologies, Inc. in Framingham, Mass., has announced it will deliver next week an interface that allows applications written with Visual Basic to run on top of Notes (CW, Nov. 1). Lotus plans to deliver its own application development environment, called Notebook, in 1994. Based on Lotus' forthcoming LotusScript derivative of Visual Basic, the Notebook offering is intended to give Lotus a rival offering to Microsoft Corp.'s Visual Basic.

But early adopters of Brainstorm's VB/Link report they can no longer wait for Lotus to deliver Notebook, which Lotus begun promoting earlier this year.

"We'll have to wait and see about Notebook. So far, it's vaporware, and we've given up hope on it," said Greg Burnett, a project manager at Waste Management of North America in Oak Brook, Ill.

Instead, Burnett said he plans to use VB/Link to build electronic forms in Visual Basic that can read and write to a Notes database.

"Visual Basic will allow us to simplify the user interface for Notes and allow us to build some types of forms that we can't build now. We won't replace all our Notes applications with Visual Basic ones, but for some types of applications Visual Basic makes more sense," Burnett said.

---

**Notes gets WAN boost**

E where in Las Vegas, Lotus announced plans to enhance the wide-area networking capability of Notes.

By early next year, through a deal with CompuServe Inc., Notes users will be able to replicate databases through the CompuServe public network beginning in 1994.

Meanwhile, Incoor Corp. will announce the delivery of an X.400 router for Notes that will provide a more robust wide-area network (WAN) for Notes traffic than existing X.25 WANs.

"With the CompuServe deal, you'll be able to replicate databases with anybody using the same CompuServe ID without having to know what their address or location is. But I think most corporations will be more interested in the X.400 WAN service for their internal networks," said Randal Zahora, president of Workgroup Productivity Corp. — Michael Vizard
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Cost of UNIX-to-DB2 Database Connectivity.

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<table>
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<th>Database Vendor</th>
<th>Cost</th>
<th>Products Required</th>
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<tbody>
<tr>
<td>Informix</td>
<td>$25,000</td>
<td>One Product: INFORMIX-Gateway</td>
<td>No</td>
</tr>
<tr>
<td>Oracle</td>
<td>$170,000</td>
<td>Three Products: SQL Connect, SQL Net, Protocol Driver</td>
<td>Yes</td>
</tr>
<tr>
<td>Sybase</td>
<td>$210,000</td>
<td>Two Products: Open Gateway/DB2 Net Gateway for OS/2</td>
<td>Yes</td>
</tr>
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</table>

Source: Datapro Information Services

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Sun Life walks down/upISING line

By Joanie M. Wexler and Stephen F. Klettr Jr.
Wellesley, Mass.

Early this year, networking officials at Sun Life Assurance Co. of Canada's U.S. headquarters realized they needed to rein in a proliferating mass of LANs. The LANs were springing up willy-nilly and creating slow network response times, an unmanageable tangle of wires and a generally nonscalable network environment.

So the $31 billion insurer embarked on a $1 million, 12-month project to revamp its network infrastructure, which is now being challenged to support an influx of client/server applications.

The old unstructured cabling setup "wouldn't allow the network to be redesigned. There were no records as to what [wires] went where," explained John A. Kruk, telecommunications and network services officer.

Three-tiered effort

The thrust of the overhaul has been to better manage resources in three ways: balance processes appropriately between LANs and the corporate mainframe, implement smart switching hubs that allow information systems to reconfigure LANs on the fly and pare communications protocols and equipment (see story page 65).

Previously, by allowing users to link to servers as they saw fit, the firm was trying to run "a Minute- man army with West Point precision," Kruk said. "What we got was a ball of yarn all tangled up."

To untangle the network, Sun Life replaced dumb IBM Token Ring wiring concentrators with 17 Bytex Corp. Series 7700 smart hubs. The hubs provide Sun Life with sophisticated LAN bandwidth management capabilities so users can be reassigned to new servers through software commands rather than manual re-cabling.

Previously, Sun Life users had to go through multiple servers located on a backbone ring to access a variety of applications, which cluttered up the network and drained the servers of processing power, according to Kruk.

For internetworking, Sun Life has gone the route of the collapsed backbone, where a high-end Wellfleet Communications, Inc. Backbone Concentrator Node sits in the data center, allowing building-wide LANs to interconnect through the one centrally managed box rather than requiring routers on every floor.

Wellfleet's technology relationship with Bytex means the two devices can be managed together, said John Scanlon, senior network analyst at Sun Life. However, he said he has concerns about what router vendor Network Systems Corp.'s recent purchase of Bytex [CW, Oct. 4] will mean for that relationship.

Wellfleet and Bytex "are not really going to be able to innovate together because Wellfleet and [Network Systems] are direct competitors," Scanlon said. He said he had no inkling of the buyout when Sun Life chose Bytex as its hub vendor last summer.

Meanwhile, despite doomsday predictions about the fate of IBM Networking Systems' cash cow, the 3745 front-end processor, Novell NetWare.

Payback: Ability to handle 50% of staff moving or changing each year through software; to reap client/server cost benefits while maintaining mainframe advantages where applicable.

Novell one step closer to NetWare distributed manager

By Elisabeth Horwitt

Several users are treating NetWare Management System (NMS) 2.0, which Novell, Inc. began shipping this fall, as a useful intermediate step to the fully distributed, scalable NetWare Distributed Management Services (NDMS) that Novell should start rolling out sometime next year.

Indeed, NMS 2.0 paves the way to NDMS by providing distributed NetWare Loudable Module (NLM) versions of key management services, such as the Remote Network Monitoring (Rmon)-compliant LANalyzer, which monitors and diagnoses LAN traffic, said Steve Dauter, network management product line manager at Novell.

Novell formerly provided LANalyzer only as a stand-alone system that needed to be installed at each LAN it monitored. That approach was both expensive and troublesome, users reported. In contrast, NMS 2.0 provides LAN packet diagnostics in the form of Rmon agents that sit on a NetWare server on each LAN, collect statistics and report back to the central NMS console.

United Parcel Service, Inc. is in the process of deploying NMS 2.0 and is finding the LANalyzer "a phenomenal tool [that allows the administrator] to click on the server, collect statistics, packet rates and figure out the problem," said Ralph Perez, section manager of LAN systems programming at UPS.

However, Perez expressed concern whether real-time collection and analysis of LAN traffic would overload his servers: "Novell, I think, calls it full-impact mode when it is acting as a LANalyzer." UPS is still evaluating impact.

Multiple management

The current NMS architecture requires that a single centralized Windows-based system collect all management information and initiate all management functions. The ability to distribute management functions across multiple NetWare servers, which NDMS will provide, is essential if the platform is to cope with a broad range of applications and data, according to Perez.

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Payback: Ability to handle 50% of staff moving or changing each year through software; to reap client/server cost benefits while maintaining mainframe advantages where applicable.

Novell's NMS 2.0 has picked up strong support from third-party vendors. SynOptics Communications, Inc., for example, recently announced an NMS 2.0 version of its Opityivity hub-based management system.

Opityivity for NMS 2.0 includes an AutoTopology feature that automatically discovers hubs, bridges, switches and end-user devices such as PCs and plots their dynamic relationships, said SynOptics product line manager Tom Dyal.

Also included are NodalViews applications that "take a logical slice through the network and show all users part of the network what traffic is being generated, error conditions and who or what is eating up bandwidth," in a graphical fashion, Dyal said.

The above applications can report into the NMS database, giving network administrators views all the way to the user level, "so they can search for a NetWare user name and see what hub, bridge, port and slot the user's PC is connected to" on a topological map, Dyal said.

The AutoTopology and NodalViews software are very nice," said Brian Gunnell, second-vice president of data processing at Conseco Co., who saw the product demonstrated.

"All of my LAN administrators are in data processing; none [are in] in the user community," Gunnell said. "It's very exciting to be able to enter a user or node ID in the management station, find the user's port and look at the information relating to the user."
### Editorial Calendar (January-June, 1994)

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*Color close also applies to ads within Special Editorial Features and Premium Positions.
Novell takes distributed step
CONTINUED FROM PAGE 61

range of management services and manage the hundreds or thou-
sands of client and server systems that reside at many corpora-
tions, Dubauer said.

The migration of LANalyzer to
NetWare servers is one of the first
steps Novell has taken to move
users from NMS’ centralized archi-
tecture to NDMS’ distributed plat-
form that sets up NetWare servers
as domain manag-
ers for local client/
server networks,
Dubauer said.

Another man-
gement service that has already
been distributed as an NLM is Net-
Explorer, an NMS
discovery service that automatically
determines what
resides on the network.

During the next six to 12 months, Novell will migrate other services
to NLMs, including inventory man-
gement, software distribution, real-time monitoring and analysis of
network traffic and user admin-
istration, Dubauer said.

Migration learns
Users express some fears
about the difficulty of migrating
from a centralized to a distributed
system. “Migration is a concern, especially as we get more depend-
ent on NMS,” said Brian Gunnell,
second vice president of data pro-
ceasing at Conesco Co., a Carmel,
Ind., manufacturer. “If you change
the architecture or if it’s converted to
another environment, it’s a con-
cern,” but [NDMS] is so far in the
future, Novell isn’t saying much to
end users except, ‘Trust me.’”

Novell is smoothing the way for
users to migrate from NMS to
NDMS by preserving user and
application interfaces between the
two platforms, Dubauer said.

However, he said that users may run into
some challenges migrating
their manage-
dment databases off one or
more Windows systems
to a single data-
base structure on
a NetWare server.

The NetWare database, which acts as common
ground for appli-
cations to share data, is a linchpin
for NDMS’ distributed architec-
ture.

Tim Clark, network support
supervisor at Ciba Vision, said he
was concerned about how much
more it would take to set up sepa-
rate domain managers under
NDMS.

NDMS should actually help cus-
tomers keep costs down by allow-
ing them to implement manage-
ment services on existing NetWare
servers, Dubauer said. Then if they
add more users, network devices
or services, they can simply add
more servers to share the load.

Sun Life
CONTINUED FROM PAGE 61

$290,000 on a new 3745 to improve performance over its 3725, which Kruk said was too small
and not as sophisticated as the
newer model.

The insurer wants to run fewer net-
work servers spread across Sun Life’s three-build-
ing campus — combined with the fact that users
weren’t cleaning out their files — made managing LAN-based storage a nightmare,
Kruk said.

Back to mainframe
Then comes the cost of providing separate uninter-
terruptible power supplies and archival
backup and storage — functions that in the
mainframe world come as a package deal.

These factors, plus Kruk’s perception that cur-
rent LAN-based mass storage products lack sophi-
istication and reliability, led the insurer to
to move storage management back to the
mainframe.

In addition, when the firm’s pricing policy
for 1994 changed to allow unbundled fees for
mainframe services, Sun Life realized it could
not beat the mainframe charge of $30 per month
per user for E-mail by running it on a LAN.

Thus, Sun Life’s custom E-mail package once
again resides on the mainframe.

Whittling away
Te be recent company trend of paring
down diverse equipment and commu-
nications protocols to ease manage-
ment headaches is evident on several fronts at Sun Life.

On the LAN software side, the insurer is
easing off its Banyan Systems, Inc. Vines in-
ternet in favor of Novell, Inc.’s Net-
Ware. The insurer wants to run fewer net-
work protocols and opted for NetWare
largely because “mainframe applications
work better to NetWare than to Vines,” said
John Kruk, telecommunications and net-
work services officer.

Meanwhile, the company has standard-
ized on CompuServe Corp. System-
Pro services for stores and has stopped purchas-
ing Banyan CNS servers and IBM PS/2 Model
95s.

To boost power at the desktop, Sun Life is trans-
forming its nearly 900 Intel Corp. 80386
and 80286-based PCs, mostly of IBM origin,
to 1486-based systems, also from IBM. How-
ever, Kruk said he is concerned that this may
cost the mainframe charge of $30 per month
per user for E-mail by running it on a LAN.

Thus, Sun Life’s custom E-mail package once
again resides on the mainframe.

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Enterprise Networking

Pacer Software, Inc. has announced upgraded versions of its PacerShare and PacerPrint file and print servers for Unix systems.

According to the La Jolla, Calif., company, these releases offer Macintosh-based administration and management, enhanced integration with other Unix-based file server products and improved performance.

PacerShare is an Apple Computer, Inc. AppleTalk Filing Protocol 2.1-compliant implementation for Unix host platforms. With PacerShare, Unix volumes and directories can be mounted and used as if they were Macintosh disks.

The products are available for Sun Microsystems, Inc.'s SPARC platforms, Hewlett-Packard Co.'s 9000 700/800 and Digital Equipment Corp.'s RISC Ultrasystems. Pricing is based on the number of simultaneously connected users, starting at $3,000 for a 20-user license.

NetManage, Inc. has introduced NetManage X products, a suite of products that allow Windows PC users to integrate X Window System and Windows in the same environment.

All of the products include an X server and the NetManage TCP/IP protocol.

Source-Comm Corp. has announced its ANS/1010 Server product and Client 3270/5250 software, which together offer remote access for notebook, laptop and desktop PCs to IBM mainframe and midrange hosts.

According to the Valencia, Calif., company, the ANS/1010 Server includes eight asynchronous ports for dedicated or dial-up connection from PCs at up to 19.2K bit/sec., in addition to two synchronous ports for local or remote connection to hosts at up to 64K bit/sec. each.

The Client software offers emulation of both IBM 5250 and 3270 systems and runs on the attached PCs.

The ANS/1010 Server is priced at $3,995, plus $495 for the Client 3270/5250 software with an eight-user license.

Delrina Corp. has announced the Delrina Fax Broadcast Server, which allows PC users to broadcast fax messages using any industry-standard modem, Delrina software and MCI Communications Corp.'s Fax Broadcast Service. Cost: $69 for WinFax Lite users and users with competitive products. Delrina, San Jose, Calif. (408) 363-2345.

Locus Computing Corp. has announced PC-Interface for Macintosh, a product that allows users to share Macintosh files, applications and Adobe Systems, Inc.'s PostScript printers on a networkwide basis using IBM's RS/6000 as a nondedicated server. The product provides Apple Computer, Inc. AppleShare protocols on the AIX system when installed on the RS/6000. Cost starts at $720 for a two-user license. Locus Computing, Inglewood, Calif. (310) 670-6500.

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Amdahl users eye open systems strategy

Firm to rely on other vendors' Unix hardware

By Joan S. Bezman
Amdahl Corp. is trying to bridge the widening gap between legacy mainframe systems and open systems, even as many of its 2,000-plus sites worldwide move to Unix systems and client/server computing.

Some of the 82 billion mainframe maker's largest users said they like the new strategy, but many have already launched their move to open systems with the help of other vendors.

Amdahl will continue to sell IBM-compatible mainframes and will build next-generation mainframes with more off-the-shelf components to reduce costs. At the same time, Amdahl said it will resell off-the-shelf components to reduce costs.

At this time, Amdahl said it will resell Sun Microsystems, Inc. Unix servers [CW, Sept. 27] and with Sun to transfer mainframe functionality into Sun's Solaris operating system. To pull enterprise client systems together, Amdahl will provide re-engineering services through its Antares Alliance Group venture with Electronic Data Systems Corp.

As Amdahl downsizes its work force to 5,800, it will do less in-house engineering and may eventually drop its 11-year-old UTS Unix mainframe product, said Jim Cassel, vice president and director of Gartner Group, Inc.'s Large Computer Strategies Group in Stamford, Conn. Amdahl, which has had the three rounds of layoffs and has restructured twice in 12 months, was unprofitable for most of 1992 and 1993.

Holding the line
Despite Amdahl's downfall, many sites are keeping their mainframes online. Frank Stromboe, information services director for the city of San Antonio, plans to upgrade the city's Amdahl 5995 mainframe for at least four more years. He is moving quickly to Unix, having recently tested Amdahl's UTS as a Unix server on the mainframe, and is working with Software AG of North America, Inc. to develop client/server applications for midrange Unix servers.

The advantage of migration is cost: A police dispatching system that uses 20% of mainframe cycles is moving to two NCR Corp. 3450 Unix servers.

While pleased with Amdahl's service and support, Stromboe said he sees Amdahl's dilemma as it tries to please traditional IBM-compatible sites and become an open systems integrator. "It sounds like they need to change direction, but the direction is between a rock and a hard place," Stromboe said.

IBM buys time
At this time, IBM is tied to the tracks at a major junction with trains approaching from all sides. Its best hope for slipping the ropes is to use the CMOS-390 as a delay tactic while the SP-3 Commercial, based on memory-shared PowerPC arrays, is readied for the market.

The importance of the CMOS-390, from IBM's perspective, is that it provides a growth option that does not break MVS culture. It gives IBM and its mainframe loyalists breathing space to prepare for the transition to the PowerPC running AIX or Microsoft's Windows NT Advanced Server. If this strategy is executed in an orderly way, IBM will be able to convert its installed bipolar-based legacy systems into a major (as much as 60%) share of the enterprise server and supercomputer markets.

Water-cooled mainframes are not going out at the rate the New Age press suggests. IBMers say there are Hewlett-Packard "hit teams" coming into VSE accounts and staying until they win the business or are arrested, but there is much less movement in the large MVS machine sector. Customers contemplate the costs of client/server migration, worry about the uncertainties of making mission-critical applications on the network and hesitate to take major new directions.

Familiar ways
The CMOS-390 gives these customers a welcome reprieve from the necessity of drastic decisions. It addresses their key problem — the cost of mainframe hardware — by providing growth at CMOS costs.

As an off-load engine rather than a server, the machine splits functions in a way that's familiar to mainframe culture. It leaves the MVS/DB2 mind-set intact. And, most important, it provides a viable growth path. Customers taking the CMOS-390 can prepare for future moves to the PowerPC by writing applications using DCE, Postix or XP04 that will run on MVS/Open Edition or AIX. Long term, everything will migrate (with guidance and support).

Harold Lorin, page 70

Prudential builds new data center for consolidation

By Johanna Ambrosio
Prudential Securities, Inc. in New York, the safety-net holding company of Prudential Insurance Co., is building a new "21st-century data center of dreams." A consultant, Infra-Structures, Inc. in Brentwood, N.Y., will oversee the $30 million project, which has a two-year completion date.

The data center, which features brand-new equipment as well as fiber optics and backups facilities, replaces a circa-1970 building. "We don't get a chance to do this very often," said Mohamed Mosaad, senior vice president of information systems and telecommunications services at the New York securities firm. The new building was cut over on Oct. 25; the old one has been shut down.

Moving day
In the next year, some 4,500 Prudential employees will move into the new building, one floor of which is the data center, on the tip of downtown Manhattan. The trading floors, brokers, operations facilities — all of the technology-driven departments will join the data center staff.

The new building will serve as Prudential's headquarters for capital markets and investment banking. The company's other headquarters remains near the South Street Seaport, also in Manhattan, and will continue to house some 1,500 employees in the retail and mutual fund areas.

San Antonio has been using Amdahl mainframes for more than 12 years. "They've constantly followed IBM's direction, and the question [now] is, are they going to be a leader or continue to be a follower?" Stromboe asked.

"Clearly, we've had to refocus the company and be very, very efficient in the use of our resources," Chief Executive Officer Joseph Zemke acknowledged. Future Amdahl mainframes will use low-cost CMOS chips to squeeze profits from low-margin CPUs, he said. But consulting and re-engineering services will be equally important. "We have always provided an alternative source of supply, ideas and strategy," Zemke said. "We did go under with the IBM decision, but we're going to continue to do that in this new generation of machines.

For some users, the future means leaving Amdahl behind. The Marshfield Clinic in Marshfield, Wis., has two Amdahl mainframes but is migrating to open systems servers with Amdahl's UTS and its consulting help.

Amdahl, page 70

Prudential decided to make the move as a way of consolidating eight buildings into two. The leases on the eight buildings will expire at the end of next year, and the company wanted to centralize its staff now scattered around Manhattan. In addition, the company was able to negotiate a much lower per-square-foot rate than it is currently paying, according to Rodger Parker, senior vice president and director of administrative services.

He would not provide financial specifics but did acknowledge that the overall cost will still be higher because of the new data center.

"We are making the operational departments much more functional," Parker said. "The programmers are now on two floors, much more functional,' Parker said. An outside consulting firm, Infra-Structures, Inc. in Brentwood, page 71

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THE REAL BREAKTHROUGHS FOR YOUR BUSINESS DON'T COME FROM THE WORLD'S BIGGEST DATABASE COMPANY.

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Rule change

Last June, the Securities and Exchange Commission (SEC) amended the Securities Exchange Act of 1934, Rules 17a-3 and 17a-4, which in effect permits brokers to store financial data on optical discs. The "no-action" ruling, which followed three years of intense lobbying by members of the Securities Industry Association (SIA), allows securities firms to deploy nonerasable and nonreprogrammable (WORM) and magneto-optic technologies for the past six months, is hoping to retire 80% of its microfiche-based storage records by year's end, Malek said.

IBM partners with users to develop unifying application

By Michael L. Sullivan-Trainor

"If you were to name the fiercest rivalries in the past decade, high on the list would be IBM vs. Xerox Corp. in the area of high-performance printers and Bell & Howell Co. vs. Pitney Bowes, Inc. in computerized mailroom processing. But it is still unclear when the SEC rules will go into effect permanently, said Douglas G. Preston, associate general counsel at the SIA in New York and SIA staff adviser to an SIA ad hoc subcommittee that is pushing for the change. In May 1991, the SIA subcommittee submitted a rule-making petition to the SEC to open the amendment to other technologies, as long as they adhere to SEC safeguards requiring security, compatibility and readability, according to Preston. Meanwhile, firms such as Kidder, Peabody & Co. have jumped headlong into the optical disc fray. Kidder Peabody has been using Filetek, Inc. imaging software, Hitachi America Ltd. disk drives and a FileNet Corp. optical disc jukebox to store 1.2 million pages of customer financial statements each month since July.

The key technology in the application, will be the first to implement a production version of the application in the first half of 1994. "We volunteered because we believed that it is the only way to have a better management application," said Tom D'Apicco, manager at the Advantis Dallas Data Center. "We run into headwinds because we don't have all the links between vendors' systems. We spend a lot on overhead in writing code to control the systems locally. Right now it's a maintenance nightmare.

The partnership is shifting the issue of linking systems through a central management application from the users onto the vendors, D'Apicco said. Advantis information systems executives said they expect to achieve the following benefits: control of individual pieces of mail, reduced document rework, more flexibility in mixing different inserts into the mail package and easier application maintenance. "Several of the vendors didn't understand the process from our point of view. It took a while for them to realize that they had to deal with us on their individual pieces. Then a light went on and they saw why we have the requirements we do," said Larry Blomenson, director of the data center.

IBM adds diversity

CONTINUED FROM PAGE 67

Peter Bauer, director of information systems, said the clinic's Amdahl 5965A, purchased used, will probably be upgraded. "This will last us for several years, and we'll probably be in the new world of the RISC boxes," he said. Others were not as quick to dive into Windows NT and Unix, however. "We've been down the heavy discounting in IBM-compatible mainframes, critics said said Adashd should have moved more quickly. "They have not taken aggressive action until the last six months or so when the pressure grew significantly," said Bob Djurdjevic, president of Annex Research in Phoenix.

Not an easy sell

Some longtime Amdahl users are not buying the strategy, saying they want traditional mainframes. "I couldn't care less about Unix," said George Sekely, president of CSX Technologies, Inc. in Jacksonville, Fla., which uses a seven-processor Amdahl 5990M mainframe and client/server systems running on IBM's OS/2 machines. "I wish them good luck. I think it's tremendously important that they stay in business to give [users] a choice in mainframe suppliers."

Amdahl's strongest suit may be its technical support, consulting and educational services — high on the lists of the vendor's longtime customers. Amdahl consultants helped migrate an operation from CSX's Port Elizabeth, N.J., data center to the Jacksonville data center, Sekely said.

But Amdahl will have to bank on its services because the same users still expect it to compete in three-way bids for mainframe hardware business. "If they win on price, one West Coast user said, "they'll win."
Large Systems

Prudential builds new data center

CONTINUED FROM PAGE 67

wood, N.Y., helped Prudential design the new command center. "We told them what we wanted, and they executed it nicely," he said.

"There are a lot of efficiencies to having everyone in one building," he added. Some of these benefits are related to personnel and others are driven by technology. "It's easier and more cost-effective to deliver fiber to everyone in one building. You don't have to build bridges across buildings." Similarly, providing multimedia information to traders will be easier to do in one facility, he added.

Inventory list

Every workstation will be tied to the data center through a LAN, and "that will provide immediate response time to data and much better access to information," Mosaad said. Prudential is using twisted-pair cabling on each floor and a fiber-optic backbone among the floors. In the data center are two IBM ES/9000 Model 962s; 1.6T bytes of disk storage — primarily IBM 3390 Model 3s and some Model 2s; eight Storage Technology Corp. switches; some front-end controllers; and a private branch exchange. All of the data center gear is tied to the mainframes via Escon fiber-optic cables.

In addition, a backup power generator and facilities for the data center, communications and trading floors will ensure no costly outages. Previously, the company had to rent a generator whenever there were power problems. "It's very costly to build multiple facilities for different buildings," Mosaad said.

The move itself took place over a weekend. Although the company did not move much gear because it purchased all new equipment, the largest chunk of time was consumed by building the communications infrastructure. "That was a major undertaking," Parker said. "It took us about six weeks to install the network and then we had to test to make sure every connection works.

Another tricky area was getting the 1.6T bytes of data into the new data center. Prudential opted to do this electronically with programs written in-house. "We took advantage of the computer to help ourselves move and test," Mosaad said. After the data was over, the data center staff selected 500 files and compared them byte by byte to make sure everything transmitted.

All told, the move occurred without a hitch. In fact, Parker said that end users paid them the ultimate compliment: They did not notice that the data center had moved. "A lot of people called once they heard and said they never would have known," Mosaad said.

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Candle supports DB2

Candle Corp. announced support for IBM's DB2 Version 3.0, which will be available when the IBM relational database management system ships Dec. 17. The support was announced at the Guide meeting for IBM users, along with an enhanced version of the Omegamon II for CICS performance monitor that tracks transactions over an enterprise network. Candle's new Transplex Navigation feature, slated to be available by year's end, will support IBM's Common User Access interface, said Janice Roberts, senior marketing manager for Candle's Performance product line.

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Computerworld December 6, 1993 71
Cross Access Corp. has introduced the CrossAccess Data Delivery System, a software product designed for enterprisewide information access in heterogeneous client/server environments.

According to the Oak Brook, Ill., company, features include a single relational update capability and support for a relational approach to data access in IBM CICS on-line transaction processing environments.

Version 1.8 also includes catalog support, enhanced support for multiple versions of TCP/IP, enhanced use of Computer Associates International, Inc.'s IDMS Integrated Data Dictionary and restart capabilities.

CrossAccess Version 1.8 prices start at $100,000 for typical IBM mainframe configurations.

IDEAssociate, Inc. has introduced the IDEAcomm Midrange Client communications software.

According to the Billerica, Mass., company, the software was designed for its IDEAcomm product line, which addresses the networking needs of Windows-based PCs in an IBM midrange client/server environment.

IDEAcomm Midrange Client is available at $395 for a single client, $2,950 for a 10-user site license, $6,875 for a 25-user site license and $12,750 for a 50-user site license.

Appintec Corp. has announced Windows- and Macintosh-compatible graphical user interface (GUI) for its TeleMagic/400 Contact and Activity Management software.

According to the Emeryville, Calif., company, the TeleMagic/400 GUI is an expandable graphical framework that organizations can use to further link marketing, manufacturing, shipping, customer service and other operations.

Version 5.0 features activity plans, To Do lists, activity panels and campaign management.

TeleMagic/400 GUI costs $199 per workstation.

Generic Software, Inc. has announced the Business Management Series, a group of fully integrated and flexible financial applications for IBM's AS/400.

According to the Madison, Miss., company, the series modules include GL 400, a general ledger/financial reporting and budget system; AP 400, an accounts payable system; AR 400, an accounts receivable/credit and collection system; and FA 400, a fixed assets system. The general ledger module provides its own report writer for designing custom financial statements.

The modules support up to 99 companies and divisions. Each can run as a stand-alone system for users who do not need all four applications.

Prices for GL 400 and AR 400 begin at $995. AP 400 starts at $795 and FA 400 begins at $295.
Software reuse plans bring paybacks

By Gary H. Anthes

Talk about payoff: The Pentagon reckons it could save $300 million annually if it increased software reuse by just 1%.

The U.S. Department of Defense sees software reuse as a necessity in these days of the incredible shrinking budget. Corporations, aided by new technologies, are also turning with fresh interest to a seemingly age-old concept.

Software reuse dates to 1944, when a Defense Department programmer wrote a routine to compute the sine of an angle, a useful thing to do when plotting missile trajectories.

Now it has expanded in scope from completing specialized mathematical functions to using libraries of routines written by user organizations, programming with reusable objects and building applications with reusable templates.

Information systems managers might eye their software development backlogs with more enthusiasm if they realized that half of the required code — not to mention designs, test plans and documentation — had already been written. According to Carma L. McClure, research vice president at Extended Intelligence, Inc. in Chicago, 40% to 60% of all new code could potentially come from libraries of reusable components. "Software reuse is one of the best-kept secrets in the computer business today," said McClure, who gives seminars on the subject.

However, she said she has seen interest in reuse rise sharply in the past 18 months. She noted that companies are beginning to establish internal organizations devoted specifically to improving quality through software reuse.

Reuse programs

McClure said companies with aggressive reuse programs have seen handsome payoffs:

- GTE Data Services, Inc. in Tampa, Fla., has gained a 20% to 30% productivity increase from its repository of 960,000 lines of Cobol, C, assembler and PC spreadsheet code. Each year GTE Data's chief information officer raises the target percentage for reused software.
- Canadian National Railway wrote 10,600 lines of new code for a freight-car optimization system, but it used 137,000 lines from its application software library and brought up the complex application with just eight person-months of effort.
- Canadian Airlines International Ltd. bought a frequent-flier application "template" from Trans World Airlines, Inc. and knocked 50% off the time required to code a system from scratch. "More important, it taught them the frequent-flier business," McClure said.

Opportunistic way

According to the U.S. General Accounting Office, users often pursue reuse in an ad hoc or opportunistic way — they get around for code that can be "salvaged" from some other application.

A better approach, counsels the GAO and others, is to put in a systematic, long-term effort.

Application-specific templates

There are two types of software reuse.

"Horizontal" reuse spans applications and includes generic functions such as sorting algorithms or user-interface mechanisms.

"Vertical" reuse looks for functions common to a class of applications, such as a gross-pay-to-net-pay routine in accounting systems.

Software vendors with application-specific "templates" — high-level design patterns such as a gross-pay-to-net-pay routine in accounting systems.

Software vendors with application-specific "templates" — high-level design patterns tied in with computer-aided software engineering tools — can help users with vertical reuse. For example, Texas Instruments, Inc. offers templates for generating general ledger systems and other applications; Andersen Consulting has them for functions such as life insurance and policy administration; and Oracle Corp. recently announced seven industry-specific templates that use business models to help generate applications for pharmaceutical, oil and gna, utilities and other companies.

Other vendors offer products geared more to horizontal reuse. For example, American Management Systems, Inc. in Arlington, Va., offers a collection of reusable software modules for foundation functions such as database interaction, user interfaces and error correction. Software AG of North America, Inc. in Reston, Va., offers a code generator that includes a library of 65 software models for generic functions such as data entry, online browsing and menu selection.

At a lower level of granularity lie specialized pieces of reusable code. For example, the Open Software Foundation offers the OSP/Motif widget set, a library of objects for constructing graphical user interfaces. The objects define functions such as push buttons, text fields, labels and pull-down menus. — Gary H. Anthes
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CA readies Windows-based tool

By Thomas Hoffman

Computer Associates International, Inc. is readying a Windows-based query and reporting tool designed to access data from as many as 20 popular database environments.

CA-Visual Express 1.0, in beta testing and scheduled for delivery early next year, is a combination of several software tools, including CA-Visual Easytrieve and CA-Visual Ramis query languages for hostbased processing.

Because of its simplified point-and-click capabilities, CA-Visual Express does not require end users to have any programming expertise, according to Mark Sokol, CA's director of product strategy. "You can join data from a VSAM file and an IMS database together with no knowledge of how those facilities operate," Sokol said.

Early beta testers of CA-Visual Express 1.0 have lauded the package for its enhanced reporting functionality, compared with its QbyX predecessor. CA-Visual Express beta testers also said they were impressed with the integration of CA's Report Engine Technology, or CA-BET 2.0, a function that has integrated with QbyX, a query-by-example tool for CA's IMS and Datacom host database products.

"Query tools aren't known for their reporting capabilities, so CA-BET is a nice addition there," said James Cene, a database manager at Felt-Pro, Inc., a Skokie, Ill., automotive parts manufacturer that has been testing the package for the past month.

CA-Visual Express is compliant with Microsoft Corp.'s Open Database Connectivity (ODBC) capabilities, allowing users to access localsearch and host-based SQL databases such as CA-Datacom, CA-IDMS, BDM's DBS and Borland International, Inc.'s dBase. CA-Express also utilizes Watcom International Corp.'s Watcom SQL Database server as a choice host database administration at Clemson University.

"The Watcom database allows us to store data locally in PC data database of our own choosing, which is not ODBC-compliant."


dod software reuse

continues from page 73

term, enterprise-wide reuse program, one that develops software with the forward-view that it will be reused. The problem is that it costs significantly more up front to prepare software for reuse because it must be generalized for different uses, certified for reuse and thoroughly tested and documented. A project manager facing a tight schedule or a division head under pressure to meet a quarterly budget may not care that code written today may be useful again in years later.

"Corporate culture and organizational infrastructure must be changed to re-ward reuse and overcome disincentives," McCuller says.

Repositories may include not only code but also application-specific knowledge, such as test data and documentation. Some experts argue that reusing code—which is dependent on language, hardware and implementation approach—is not where the greatest leverage lies. For example, KnowledgeWare, Inc.'s Philip Kiviat, vice president of federal programs in McLean, Va., says, "You should reuse designs, not code. Code is perishable. Reuse components that are reusable by design." Another advantage of centering a reuse strategy around higher-level elements is that those elements may be able to automatically create lower-level components.

Nonetheless, proponents of object-oriented languages point out that big productivity gains are available through the use of reusable objects, with or without reusable designs. "Shared 'black box' objects of prewritten and pretested software code . . . can be used again and again in subsequent generations of an application," said San Francisco-based Montgomery Securities in a recent report on business re-engineering.

Domain analysis

A successful reuse program requires careful "domain analysis," in which one studies a domain such as payroll and determines which components are most suitable for reuse. The analysis is vital, experts say, to avoid a costly and unmanageable approach that seeks to put everything in a reuse library.

The objective is to do systematic and rigorous domain analysis accounts for the failure of many corporate reuse programs, according to Arthur Pystor, chief technology officer at the Software Productivity Consortium in Herndon, Va.

"Five or six years ago there was this naive view you could just assemble lots of parts and the world would be better," he says. "People tried to use those libraries, and they couldn't find what they needed, and they couldn't understand what they got."

Using techniques akin to those in business process re-engineering, IS organizations should do domain analysis to derive reusable architectures—high-level designs—that are far more valuable than reusable code, Pystor says.

It is sometimes possible to extract reusable logic and data designs from existing code by reverse-engineering. Microelectronics and Computer Technology Corp. in Austin, Texas, has tools for "harvesting" reusable software designs from existing applications. Other tools have recently emerged that get more mileage out of old code. For example, Texas Instruments, Inc. and KnowledgeWare just introduced tools that analyze legacy Cobol programs and provide chunks of reusable code into computer-aided software engineering tools for use in new client/server applications.

Raytheon reuse program

Raytheon Co., in Lexington, Mass., has a disciplined reuse program in place since 1978 and said it has per-}
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And find out more about the servers that are almost limitless.
NextStep 3.2 gets DOS, Windows support

By James Daly

Next Computer, Inc. has spruced up its NextStep system software for Intel Corp. processors by adding support for DOS and the Windows environment. Both the single-user and the developer's version of NextStep Release 3.2 will gain DOS and Windows compatibility via Insignia Solutions, Inc.'s SoftPC for NextStep. A version of SoftPC containing both Windows 3.1 and DOS 5.0 will come with each copy of NextStep and work for 30 days after initial boot-up. If NextStep users decide after a month that they want the added DOS and Windows compatibility, they can call Insignia to receive a license number that will unlock an unlimited working version. A single-user license costs $249.

Release 3.2 also includes additional developer support, which increases the number of hardware configurations NextStep can address. New to Release 3.2 is DriverKit, an object-oriented framework that enables developers to write device drivers in less time and with less code than traditional methods of writing Unix drivers, Next officials said.

The updated NextStep also includes application programming interfaces that allow sound, graphics and LAN devices to be supported by dynamically loadable drivers. Also added is support for a variety of new graphics adapters and — for the first time — full support for 32-bit color graphics.

Developer's version

The developer's version of NextStep 3.2 contains a new FileMerge feature. FileMerge is used to compare two directories and show which files have been added, deleted or modified. For a pair of lines that are different, the applications will show them side by side and highlight the differences. The developer can choose to create a third file and selectively merge the files. Using this tool, a developer is able to quickly merge changes from different source branches with only a few mouse clicks.

The developer's release also includes support for Portable Distributed Objects (PDO) — high-level objects that can be transported over a network. With PDO, developers create custom objects that can be deployed in heterogeneous server environments and shared throughout the networks.

Pricing for NextStep for Intel processors and NextStep Developer is $795 and $1,995, respectively. Pricing for upgrades is $195 and $495, respectively.

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Big market seen for objects

Object-oriented programming will be one of the biggest advancements in software development in the 1990s. The market is expected to grow 67% annually to become a $4 billion market by the end of 1997, according to a report released by Datapro Information Services Group, a research house.

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Management

CIOs HAVE A LOVE-HATE RELATIONSHIP WITH THEIR CONSULTANTS.
A FEW TOLD US ABOUT THE DAY THEY HIRED AN EXPERT AND FOUND INSTEAD THEY HAD DONE A DEAL WITH THE DEVIL.

Peter Johnson has a lot to say about his experiences with consultants: "We have plenty of horror stories."

Johnson, who is vice president of information systems at the Dartmouth/Hitchcock Medical Center in Lebanon, N.H., recalls a particularly devilish experience:

"We hired people to help us analyze what other academic medical centers in the Northeast were doing. We run our equipment in a clinical setting; we're a life-and-death operation. That's why we wanted the consultants to come work with us here, but these guys were not particularly sympathetic to that. They felt since they were doing an analytical piece, they didn't have to perform on-site. So they took the work back to Baltimore."

Unfortunately, "they didn't know our procedures. They didn't follow our protocols," Johnson says. The medical center had fail-safe procedures built into its system to prevent major blowouts to databases. Anyone working on software development is authorized to work only on test environments.

"Our consultants should have been working on a test environment, but the programmers thought, 'We'll just dial into the system.' They crossed over to a production environment — on their own reconnaissance. Our practices weren't considered.

"They made changes to software that caused..."
Consultants

"We have a certain awe for 'experts,' and perhaps they have a bit of awe for themselves because they took it upon themselves to tap into the system without asking questions first," Johnson says.

Recurring nightmare

This scarry episode is hardly an isolated case. Although IS managers say that experts hired to help them usually do so in a reasonable time at a reasonable price, consultants' activities often produce precisely the opposite results.

Bad advice, shoddy work and revolving-door personnel all contribute to overruns of time and money. Managers admit that sometimes they deserve part of the blame. But all too often, even when they follow the conventional advice about managing consultants — defining projects carefully, setting up tight time limits and cost controls, insisting on qualified firms and periodic reviews — the results have been disastrous.

Professional advice caused another frightful mess at Reynolds Metals Co. in Richmond, Va. The company was looking for point-of-sale entry inventory systems to track distribution. What it got instead was "a different product," says H. Lynn Hazlett, vice president of technology at Hallmark Cards, Inc. in Kansas City, Mo. "They said, 'Well, you're sort of a paper company, and we kind of did this with another company before.'

"Ninety-eight percent of their slides in their presentation were used the day before with another client; they tried to give us a boilerplate solution for our problems," Hazlett says. "They infiltrated the company and made suggestions to other parts of the organization. While IT was 'looking at outsourcing one way, they were busy soliciting another department to outsource in a way that created cross-functional problems with our organization. There was a total lack of integrity. I wouldn't use them again if they were the last vendor on the planet," Miller says.

"My definition of experts?" says Michael Simmons, former executive vice president of technology and operations at the Bank of Boston: "X is an unknown quantity, and spurt is a drip under pressure."

"Other IS executives offer stronger epithets — some not suitable for print.

Miller says of his experience hiring consultants, "It's probably split 80/20 — 80 were marginal or negative."

Managers who have been to hell and back have come away with a more pragmatic, realistic attitude. "A consultant's mission is to bill you as much as possible for as long as possible," Simmons says. "If you don't realize that going in, you're in for trouble."

"You have to match expectations with reality," Matsey says. "There's a disconnect between the sizzle people expect and the substance of what a consultant can actually accomplish."
William C. Donovan has been named vice president of information technology and a member of the senior management committee at Sea-Land Service, Inc. in Liberty Corner, N.J. Donovan, who has jointly led this function since 1992, assumes full responsibility for the firm’s global information technology group. Prior to rejoining Sea-Land in 1992, Donovan worked at RJR Nabisco, serving in six senior positions in information technology.

Thomas D. Murphy, Sea-Land’s former vice president of information technology systems and co-head of the group, is moving to Kroger Co. in Cincinnati as vice president and chief information officer. Murphy joined Sea-Land in 1990 and has co-managed the information technology group with Donovan since 1992.

Amtrak, the national railroad passenger corporation in Washington, has announced the appointment of Donald G. Gentry as vice president of information systems. He replaces Norris W. Overton, who was promoted to chief financial officer. Gentry was formerly assistant vice president of systems development.

James T. Pollard has been appointed senior vice president and chief information officer at Tech Data Corp. in Clearwater, Fla. In this newly created position, he will report to President and Chief Operating Officer A. Timothy Godwin. Pollard was previously director of information systems at Florida Power Corp. in St. Petersburg, Fla.

Nancy Miracle has been named vice president of operations at NewWorth, Inc. in Irving, Texas. She was previously director of operations and MIS at Fujitsu Personal Systems in California.

Visa International has announced the appointment of William L. Chenevich as group vice president of VisaNet service development, a department that represents one-third of the corporation’s delivery systems organization. Chenevich will be based in San Francisco and will report to Roger Pierce, executive vice president of international delivery systems. He will oversee development of credit, debit and risk control systems. Chenevich was previously executive vice president and director of information systems at Home Savings of America.

The National Association of State Information Resource Executives in Lexington, Ky., has announced several recent appointments and member changes. George Beard, former manager of planning and policy in the Information Systems Division in Oregon, has taken a position in the private sector; Bev Schufl has been named acting director of the Information Policy Office in Minnesota, replacing Steve Gammon; and Pat Urban has been named director of communications and information technology in Vermont. The association also elected Bradley S. Dugger president for 1993-94. Dugger is chief of information systems at the Department of Finance and Administration in Tennessee.

Marcia Lissak has joined Richard A. Elsner & Co., a New York based accounting firm, as director of its apparel consulting practice. Lissak had been director of information services at Donna Karen in New York.

NPRI, Inc., a call center systems vendor in Alexandria, Va., has announced that Louis A. Venezia has been appointed vice president of business operations. As part of NPRI’s companywide reorganization, internal MIS functions and other functions will report to Venezia.
While Computer Sciences Corp. (CSC) emerged as the finalist in the British Aerospace PLC outsourcing sweepstakes in mid-November, it also reported a couple other cork poppers. The El Segundo, Calif.-based services company said it entered a five-year, $80 million outsourcing contract with RAET, a $377 million Dutch Information technology services company. The deals add people and data centers to CSC’s wherewithal, giving it sudden leverage in Europe. The same week, CSC said it won a $10 million contract from the U.S. Department of Defense (DOD) to help move the DOD to open systems.

Source: Computer Sciences Corp.

The deals add people and data centers to CSC’s wherewithal, giving it sudden leverage in Europe. The same week, CSC said it won a $10 million contract from the U.S. Department of Defense (DOD) to help move the DOD to open systems.

Source: Computer Sciences Corp.

New York Times recruiting

The New York Times Co. is offering an interactive system for employers to advertise jobs and candidates to send in resumes.

Information Kinetics, Inc. in Chicago developed and will administer the service, called New York Times FastTrak. An Information Kinetics spokesman said the system is the company’s first in operation for a newspaper, although the company said it signed a preliminary agreement with the Chicago Tribune in June. FastTrak, which began last month, lets job seekers register their resumes in a database at the newspaper for a $40 fee. For six months, they can answer recruitment ads in the newspaper by sending their resumes into a database.

Advertisers will periodically receive updated disks containing the resumes. Companies will also be able to place candidate requests through the system.

Source: The New York Times

The virtually real hotel stay

The Hyatt Corp. hotel chain is experimenting with a “hotel of the future” in Schaumburg, Ill., that could redefine the “quick check-in” concept to “no check-in.” According to Fortune magazine, part of the futuristic vision for the hotel is a wireless technology that allows hotel employees to perform tasks from any location, including checking in guests who prefer not to do so themselves.

The hotel industry is also looking into virtual reality marketing techniques such as helmets with built-in screens that allow prospective customers to see the rooms and facilities of a variety of hotels and resorts in their destination area.

Source: Fortune magazine, Oct. 4, 1993

Profitable companies

Businesses that have seen their profits increase in the last 24 months are more likely to understand and quantify the business benefits of information technology, according to a survey recently released by the Keystone Group, a management consulting firm in Evanston, Ill., that specializes in the strategic use of information technology.

The survey targets chief executive officers who head either “profit-up” companies (profits rose in the past 24 months) or “profit-down” companies (profits decreased in the past 24 months). It addressed the questions of why some companies realize a greater return on their information technology investments and whether there is a correlation between technology return on investment and overall profitability.

Among the survey’s other findings were that 70% of CEOs at profit-up companies said information technology affects business processes vs. 20% of profit-down company CEOs, and 80% of profit-up company CEOs said they will manage cultural change in future implementations vs. no CEOs from profit-down companies.

Source: The Keystone Group

Technology buy-in

Retailers are buying into the improvements that information technology can bring to their service and cost-reduction efforts. According to a study conducted by Computer Sciences Corp., senior business and information systems executives feel the worst of the recession is over. They also perceived technology as a critical part of their efforts to streamline their businesses.

Source: CSC Consulting, Waltham, Mass.
Calendar

JAN. 2-20
Third Annual ShowBiz Expo. New York, Jan. 6-8 — Contact: ShowBiz Expo, Los Angeles, Calif. (213) 600-1811.


JAN. 9-15

JAN. 16-22


Storage & Interfaces '94 International Technology Conference. Santa Clara, Calif., Jan. 19-27 — Nine separate but related forums and seminars will be offered during these dates. Contact: Technology Forums, St. Peter, Minn. (507) 931-0967.


JAN. 23-29


Fourth Annual “Achieving Quality Software” Conference on software quality calls for papers

A call for papers has been issued for the 12th Annual Pacific Northwest Software Quality Conference, which will be held Oct. 17-19, 1994, at the Oregon Convention Center in Portland.

Abstracts on any topic relevant to software quality are invited and should be sent to Sue Bartlett, Tektronix, Inc. MS 63-306, PO Box 1000, 26000 SW Parkway, Wilsonville, Ore. 97070-1000. Deadline for submission is March 7, 1994. For more information, contact Terri Moore at (503) 223-8633.

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SIGNPOSTS ALONG THE ROAD

You've got the whole wide open world in your hands — literally.

This special Computerworld X/Open supplement presents results of the largest and most ambitious global survey on open systems ever done: five continents, 56 user groups and 780 top information systems managers and professionals.

You'll notice a couple of important things about this special report. First, our stories go beyond reporting survey findings. In the pages that follow, IS chiefs from leading firms tell where they're headed, why and how. No vapor. Top experts in the field contribute haze-cutting analysis in four incisive "Perspective" columns.

Second, we've tried to be hard-headed and critical in the best sense of the words. The last thing the industry needs today is more open systems smog.

Finally, our coverage has a distinct U.S. focus. Although globalization is a major strength of the Xtra study, we've opted to tell the story mostly through the eyes and experiences of our own readers. With a topic so complex, exciting and fast-changing, it's the only realistic thing to do. (Full worldwide survey results will be presented at X/Open's annual meeting in Rome later this month.)

Regardless of location, the study shows clearly that the bumpy road to open systems continues to swell with hopeful travelers. Some are fast-laners. Others putt along more cautiously. Most are simply trying to keep pointed in a new direction, adding parts as they go. Ultimately, all seek lower costs and higher performance via the best path they can find.

As you read the following pages, you'll be struck by the sheer determination of companies. The next couple of years will tell whether these journeyers (and you) will make it to more open roads. And whether computer industry vendors will ride in the front seat, backseat or under the wheels.

While we can't tell you exactly how to get there from here, we can give you some valuable signposts for the trip.

Keep on driving.

Joseph Maglitta
Senior editor, corporate strategies

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David M. Sherr is the very model of a modern open systems champion. But you have to look hard to tell. True, as a vice president for investment banking technology at Lehman Brothers, Inc., Sherr is responsible for making certain programmers write to standard interfaces, heterogeneous hardware works together in harmony and his users can choose whatever information systems they need. But what exactly constitutes Lehman Brothers' idea of an open systems environment? "Our 'open systems' have Novell SAA servers on [IBM] Token Rings that go into VM," Sherr says. Beyond that, Novell, Inc. networks and Unix servers link with huge networks of PCs and Unix systems. "Our mainframe people here talk about downsizing," Sherr says. "But they're still planning to quadruple the capacity of the data center."

Welcome to the world of today's open systems, where mainframes and proprietary networks share equal billing with hardware and software that was designed to meet officially accepted formal standard specifications. It's a place where pragmatism, frustration and confusion have replaced philosophical certainty about what "open" means. But it's also where users are getting more real work done using open systems than ever before — in part because they're reshaping their definitions as well as their information systems. "People have moved away from a purist's view," says Burt Rubenstein, a vice president at Cambridge Technology Partners, Inc. in Cambridge, Mass. "They're just being practical about what's really out there."

Vendors draw heat
The X/Open Co.'s new Xtra global survey of 780 high-level IS executives clearly illustrates the frustration that is causing more and more companies to take their open systems fates into their own hands. Respondents blamed vendors and standards-making organizations alike for being stumbling blocks along the open road: vendors for failing to provide compatible, standards-based products and standards groups for producing too many overly complicated specifications (see story page 101).

"If your information technology group was trying to hold the line, waiting for implementations of well-defined open systems, they would..."
OPEN ENOUGH
CONTINUED FROM PAGE 91

be overrun by events. Then frustration sets in
and pragmatism follows," says James F. Sutter,
vice president of IS at Rockwell International
Corp. in Seal Beach, Calif.
Organization pressures are another big
factor. "Our business people are learning to
move ever quicker, and the information tech-
nology people have to be out in front to enable
them to move more quickly than they ever have
before," says Jim White, vice president of tech-
nical planning at Charles Schwab & Co. "We want
more, faster — we need that just to stay
open enough.

As a result, many IS executives are rethinking the usefulness of
both open systems and stan-
dards.

"If you say, 'I can't write my
message-handling system until
X.500 is a reality,' you're never
going to write it," Sherr says. "All
the standards can do is reduce
the amount of work you have to
do. They're not going to do the
work for you."

No longer willing to wait for
standards organizations to fill in
the holes in the open systems
framework, users are creating
their own architectures and populating them
with existing proprietary systems and popular
de facto standards, along with products based
on formal standards.

Ken Rohan, vice president of IS at Nero, Inc.,
an oil, gas and mining company in Portland,
Ore., says, "Bottom line, sooner or later you
need to choose what are going to be your own
internal standards."

Incompatible products
That's a far cry from the open systems ideas of
just a few years ago. Back then, standards
came from standards committees, and by in-
sisting that vendors conform, customers could
choose among many interchangeable, compet-
ing products for each part of their IS architec-
ture — in theory.

But in practice, "standardized" products of-
ten remain incompatible. "The international
standards bodies have created a framework for
open systems, and it's very appealing," Sutter
says. "But if you simply say, 'Well, let's adopt
that framework, let's implement those stan-
dards' — that's very frustrating."

Making matters worse is continued confu-
sion about what "open" really means. Most re-
spondents equate the concept with portability
and vendor independence (see chart previous
page). But even that definition is far from uni-
versonal.

"X/Open wants you to think
open systems is in full swing. But user attitudes are decidedly
pragmatic: If open systems are the best way to drive key
business goals, fine. If not, the next three years will tell
whether open systems benefits outweigh barriers.

EXCLUSIVE RESULTS of a major new X/Open
survey of 780 information systems managers on five
continents reveal that a major global shift to open
systems is in full swing. But user attitudes are decidedly
pragmatic: If open systems are the best way to drive key
business goals, fine. If not, the next three years will tell
whether open systems benefits outweigh barriers.

MAIL SURVEY CONDUCTED BY DATAQUEST, INC.
BETWEEN JUNE AND SEPTEMBER 1993

ABOUT THE RESPONDENTS

TITLE
IS director/manager, 51%; technical support staff, 7%;
CIO or other executive officer, 10%; technical/operations/
applications manager, 13%; chairman/CE0/managing
director, 5%; engineering manager, 4%; consultant/ 
adviser, 4%; other senior executive, 3%; other, 2%;
oner non-IS manager, 1%

RESPONSIBILITY
• Entire company/organization, 50%; one department, 10%; one
subsidiary, 9%; multiple divisions or subsidiaries, 7%; multiple
departments, 7%; workgroup or department, 6%

INDUSTRY
• Other, 12%; manufacturing (discrete), 11%; manufacturing
(process), 11%; professional services, 10%; education, 9%;
government, 8%; communication, 7%; finance, 7%; other
services, 6%; utilities, 4%; transportation, 3%; insurance, 3%;
agriculture/construction/mining, 3%; health care, 2%;
wholesale trade, 2%; retail, 2%

REGION
• Respondents included users from the U.S., Canada, Europe,
Middle East, Japan, Asia, Africa and South America. Final
results were weighted by Gross Domestic Product to reflect the
concentration of information systems usage in various regions.

ANNUAL COMPANY REVENUE (U.S. DOLLARS)
• Less than $5 million,12%; $5 million to $9.9 million, 5%; $10
million to $24.9 million, 7%; $25 million to $49.9 million, 8%; $50
million to $99.9 million, 6%; $100 million to $249.9 million, 10%;
$250 million to $499.9 million, 8%; $500 million to $999.9 mil-
ion, 9%; $1 billion to $10 billion, 22%; over $1 billion, 13%

ANNUAL IS BUDGET
• Less than $500,000, 19%; $500,000 to $999,999, 11%; $1
million to $4.9 million, 20%; $5 million to $9.9 million, 7%; $10
million to $24.9 million, 12%; $25 million to $89.9 million, 17%;
$100 million to $1 billion, 12%; over $1 billion, 2%

ANTICIPATED ANNUAL IS BUDGET GROWTH
(1993-1996)
• Negative by more than 10%, 6%; negative by less than 10%,
10%; flat or no change, 32%; positive by less than 10%, 30%;
positive by more than 10%, 14%

TOP 3 BUSINESS GOALS (1993-1996)
• Improve customer focus and service, 32.3%; improve
operational efficiency, 29.4%; improve innovation and
development, 25.1%

TOP KEY SYSTEMS (1993-1996)
• Design and development, 32.1%; sales and marketing, 29.7%
administrative, 18.3%; manufacturing, 14.8%
MAKING IT WORK

OPEN OR BUST

OPEN SYSTEMS SHIFT

WHAT IS THE PROJECTED SHIFT TO OPEN SYSTEMS OVER THE NEXT THREE YEARS?

PERCENT OF IS BUDGET

- 1993: 28% Open, 72% Proprietary
- 1996: 50% Open, 50% Proprietary

PAYOFFS...

HOW MUCH DO YOU CONSIDER EACH TO BE A BENEFIT THAT OPEN SYSTEMS BRINGS TO YOUR ORGANIZATION?

SPECIFIED TOP CHOICES IN DESCENDING ORDER

1. Easy access to applications anywhere on the network.
2. Interoperability.
4. Availability of many applications.
5. Cost savings in hardware and software.

...AND PAINS

HOW MUCH DO YOU CONSIDER EACH TO BE A BARRIER TO THE ADOPTION OF OPEN SYSTEMS IN YOUR ORGANIZATION?

SPECIFIED TOP CHOICES IN DESCENDING ORDER

1. Vendors that provide proprietary/incompatible versions of open systems.
2. Cost of conversion from existing proprietary systems.
3. Too many competing standards.
4. Difficulty of conversion from existing proprietary systems.
5. Published standards too complicated or confusing.

BIGGEST WINNERS FOR 1996

BASED ON BUYING PLANS

1. Microsoft's Windows NT
2. Object-oriented databases
3. OSI
4. Sun/HP's DOE

BIGGEST LOSERS FOR 1996

BASED ON BUYING PLANS

1. MS-DOS
2. Windows
3. Hierarchical databases
4. Macintosh
5. TCP/IP

OST OBSTRUCTIONS

WHAT ARE THE OBSTACLES TO YOUR ORGANIZATION'S ADOPTION OF OSI?

SPECIFIED TOP CHOICES IN DESCENDING ORDER

1. Benefits of OSI not apparent to organization 47%
2. Installed base of other networks 42%
3. Products not available 36%
4. Lack of awareness of OSI in organization 29%
5. Available products not proved 29%

PERCENT OF RESPONDENTS MULTIPLE RESPONSES ALLOWED
MAKING IT WORK

OFFSHORE UPDATE

EUROPE

AS IN U.S., PRODUCTS LAG USER DEMAND

PERCENTAGE OF COMPANIES THAT MANDATE PURCHASE OF OPEN PRODUCTS COMPLYING WITH INTERNATIONAL STANDARDS:

23%

European information systems managers want open systems to help overcome differences in technical culture. But user concerns about a lack of mature products and applications as well as tight budgets pose major obstacles to adoption.

Too bad, because unlike U.S. firms, European organizations are willing to forego short-term paybacks in favor of strategic benefits, says Alain Fastre, director of European operations at the Open Software Foundation in Brussels.

"Open systems is a good way to build an integrated computer architecture from different proprietary systems," says Christophe Binot, information technology architect at Elf Aquitaine, a French oil and gas group with 780 companies worldwide.

Elf hopes to gain economies of scale from negotiating companywide contracts. Moreover, a standards-based information architecture would give branch operations the autonomy to choose among a range of products that conform to standards, Binot adds.

While major multinationals in Europe are committed to open systems strategies, it's the public sector that is on the bleeding edge. Great Britain's National Health Service (NHS), for example, is considered one of the continent's most savvy user organizations.

The need to communicate among 14 regional health authorities with incompatible systems drove the NHS to an Open Systems Interconnect (OSI)-based architecture, says Seth Mason, senior information technology consultant. "The NHS grasped the nettle, and we've now two years into implementation of a strategy to have a nationwide OSI network for the health service."

The relative immaturity of vendors' OSI products has driven the NHS to set up its own interoperability testing lab. "I don't think we've implemented anything that we haven't had problems with interoperability and conformance to standards," Mason says, adding that vendors aren't testing their products properly.

"When we find problems, they are usually fixable, but I'm a user and I shouldn't have to do that."

Written by Elizabeth Heicher, London-based European correspondent at the IDG News Service.

PACIFIC RIM

JAPAN SLOW, BUT UNIX GAINS FOOTHOLD IN REST OF REGION

PERCENTAGE OF COMPANIES THAT MANDATE PURCHASE OF OPEN PRODUCTS COMPLYING WITH INTERNATIONAL STANDARDS:

42%

In the largest Asian market of all, open systems are only beginning to take root. Japanese computer users have been less inclined to look at open alternatives, thanks to the dominance of proprietary big iron companies such as Fujitsu Ltd., Hitachi Ltd. and NEC Corp.

Another factor: a paucity of LANs. IDC Japan estimates the penetration of PC-based LANs in Japan at only 9% in 1992.

"Only 15% to 20% of our office computer [proprietary minicomputer] users are considering Unix," says Yukio Ono, general manager of open systems marketing at Fujitsu.

"While there are very few cases of customers replacing current proprietary systems with Unix," says Yoichi Kataoka, general manager at NEC's Workstation Marketing Promotion Division, "many are replacing current proprietary systems with Unix systems because it is more cost-effective than adding new mainframe capacity."

JDC Corp., a large-scale construction company and longtime NEC mainframe user, recently built a sales support system with Oracle Corp. and Informix Corp. databases running on an NEC Unix server. "We chose Unix because the start-up and maintenance costs are lower" than a host-based system, explains JDC's director of system development, Masatoshi Tomimatsu.

The predominant view in Japan of Unix as simply a cost-effective solution for implementing new applications differs from the U.S. view.

"In Japan, most companies tend to buy from a single vendor, so there is very little impetus to move to open systems from a multivendor standpoint," explains Takahiko Umezawa, senior analyst at IDC Japan.

Kiyoshi Ohta, an industry analyst at Nomura Research Institute, predicts that open systems will not take off in Japan until 1996 or 1997.

Pacific Rim

Unix and standards-based client/server systems are gaining a strong foothold in major Pacific Rim information technology markets.

Despite "a general shyness about bringing Unix into mission-critical and on-line transaction processing areas," notes Davis Blair, vice president at IDC Asia Pacific, "the advancement of open systems in Asia is definitely progressing." In many places, the spread of Unix is aided by strong government support.

Another boost: Client/server and Unix are well-suited to the small and medium-size operations in the region. Poor telecommunications presents a big stumbling block in some areas, however.

Australia

Industry experts say Unix acceptance is greater here than in the U.S.

IDC Australia predicts that sales of large-scale, multitier Unix systems will increase at a compound annual growth rate of 24% during the next five years, compared to a 7% annual drop for similar-sized proprietary systems.

Popular support appears strong. John Everitt, MIS manager at upmarket retailer David Jones Ltd., explains: "Unix will save us money on software development because we can buy more packages of the shelf."

Taiwan

The government, eager to position itself as a major future exporter to mainland China, is developing a standard Chinese language specification that should result in greater cross-platform compatibility among Unix vendors.

Hong Kong

The island's role as a major financial center requiring centralized processing has slowed Unix acceptance. However, English-speaking buyers have more freedom to pick and choose among products and brands.

South Korea

A government-backed consortium has established a Unix specification. "Ticom" addresses local language issues and serves as a standard for government procurements.

Written by David Kellar, Tokyo correspondent at the IDG News Service. Computerworld Australia, Computerworld Hong Kong, IDG Communications Taiwan and Computerworld New Zealand contributed to this report.
OPEN ENOUGH

CONTINUED FROM PAGE 92

"If what you know is the world of IBM, today's world has got to be frustrating from a lot of points of view," says Nicholas Rudd, chief information officer and senior vice president at Young & Rubicam, a New York advertising agency. "You've got lower cost, but you're not sure if it's going to work with everything else you've got."

Signs of progress

Some users even understand their vendors' fears of turning their products into generic commodities and no longer accuse vendors of dragging their feet when it comes to incorporating standards in their products.

"That was the case even with proprietary systems," acknowledges Lehman Brothers' White, "When I was on an IBM or DEC platform, they told me how much I was going to get, when I was going to get it and how much it was going to cost."

But for all their newfound pragmatism about open systems, many users still have a bone to pick: They wish vendors would stop fighting over minor issues and instead focus on doing what they do best.

"Vendors who have good products in one space are trying to provide total solutions rather than a core product that would fit in an open environment. This is what we've got to get away from," White says. Fortunately, there are signs that vendors are beginning to get that message. Recent announcements such as the Common Open Software Environment, proposed by IBM, Hewlett-Packard Co., Sun Microsystems, Inc. and Novell, and the "Postix 1170" collection of application programming interfaces suggest that suppliers have begun to eliminate some of the low-level inconsistencies among otherwise similar products (see story page 119).

Still, users complain that their most pervasive problem with vendors remains the lack of standards-based products in certain key areas, including system and network management and security.

Trade-offs inevitable

Ironically, one key role of standards is reducing choice. But the hardest choice many IS executives face today isn't which vendors or products but how products will be used. Even standards-based products include extra bells, whistles and other features to make them more attractive and easier to use.

Should you take advantage of those features and risk becoming locked into a single vendor's product? Or should you forego them and risk losing the competitive edge they may give your competitors who use them? Your choice is getting the most either from the product or from the standards it's based on. That's a trade-off — a compromise. But today, the road to open systems is paved with compromises.

Hayes is a Portland, Ore.-based free-lance writer who specializes in Unix and open systems. His Internet address is frankhayes@ixix.com.

HOW DO YOU DEFINE OPEN?

"Ultimately, open systems simply and importantly boils down to having more choices."

EUGENE LUKAC, Vice President of Information Services, U.S. Bancorp, Portland, Ore.

"Open systems create an opportunity to provide a more flexible technology solution to our clients."

MIKE BEILAC, Director of Data Management, Fidelity Fleet America, Hunt Valley, Md.

"Open systems means the ability to pick the best of breed in hardware and software, whether it be spreadsheets, programming tools, databases or any other element. In the past, IS executives could pick the wrong tool or vendor, and the consequences might have been disastrous."

ED ALTMAN, Executive Director of MIS, Paramount Pictures Corp., Hollywood, Calif.
TRAPPED IN THE BODY OF THIS TINY SER

This is a story about a small computer engineered to be so dependable, you won’t think twice about trusting it with your mission-critical applications. And to be this without filling a closet, much less a room. If you haven’t thought of Compaq as an enterprise-critical platform before, we invite you to grab your bifocals and begin. (We’ll be cramming a lot of information into this ad, which, given how much we managed to fit into our new servers, only makes sense.)

If there’s one thing we’ve learned working with our customers, it’s that you’re running more and more mission-critical applications on your network. And if your network goes down, your business goes down. All of which makes the introduction of the new Compaq ProLiant Server even more timely.

The ProLiant is a new family of affordable, high-performance, easy-to-manage servers engineered specifically to provide the high availability you need for mission-critical networks. We’ve designed ProLiant in three different models, ranging from a single-processor configuration to a four-Pentium processor model.

Now, how can you be sure our server is truly a miracle and not a mirage? To begin with, there’s Full Spectrum Fault Management, provided by Compaq Insight Manager technology and software that continually monitors over 800 aspects of the server’s operating status. (For example, Drive Parameter Tracking checks 15 hard-drive parameters.) All of this information is constantly gathered, analyzed and then used to prevent, tolerate or recover from system problems.

If the performance of a monitored component drops below a specified level, our unique Pre-Failure Warranty kicks in. We’ll actually replace a Compaq warranted drive or memory system free. Before it stops working. No downtime. Ringing cash registers. Happy boss.

Still, no network’s perfect. In the unlikely event problems occur, our server exhibits remarkable tolerance. Every ProLiant includes Compaq-designed hot-pluggable drives. ProLiant Models 2000 and 4000 come standard with advanced error-correcting memory and off-line backup processor features (whereby the server reboots automatically to a second processor). And, most notably, the Compaq Smart SCSI Array Controller together with the ProLiant Storage System ensures mission-critical data integrity. Should a network problem bring the server down, the Rapid Recovery Systems of the ProLiant are designed to bring it back up.
VER IS A MAINFRAME WITH AN ATTITUDE.

For example, Automatic Server Recovery 2 uses a historical record of server status and performance to perform an astonishing array of tasks. Like intelligently restarting the server, automatically correcting a variety of problems, and accessing a telephone pager to contact network administrators.

Netware and other major operating systems. To get hooked up to your network operating system, simply call your dealer for an access code, enter it, answer a few questions, and leave. Minutes later—say, after you’ve enjoyed a cup of coffee and a jelly donut—you’ll return to find an integrated OS fully installed and optimized for increased performance and improved management. And we’ll keep you updated via CD when new operating system versions appear.

And finally, to accompany our new line of mission-critical servers, we’re introducing mission-critical support. With ProLiant, we now offer extensive analysis, installation and service through our CompaqCare System Partners, a select group of highly trained systems experts backed by Compaq engineers. You can now choose 4-hour on-site warranty response upgrade* direct from Compaq. Again, there’s our unique Pre-Failure Warranty. And, of course, all Compaq servers come with a 3-year on-site† warranty, and 7-day-a-week, 24-hour-a-day technical support.

All in a surprisingly small box for not a whole lot of money. In fact, a DX2/66 Compaq ProLiant 1000 starts at about $6000‡.

Which may help to explain the look your boss gives you when he hears how much money you’ve saved: stunned admiration. But you’ll get used to that. It goes with the territory. For more information on the new Compaq ProLiant servers, or for the location of an authorized Compaq reseller near you, just call us at 1-800-345-1518. If you’d like to receive model, feature and specification information immediately via fax, select the PaqFax option. Or, if you’d like that information even sooner, just turn the page.

COMPAQ
THE NEW COMPAQ PROLIANT
MISSION-CRITICAL SERVERS

ProLiant 1000
ProLiant 2000
ProLiant 4000

HIGH PERFORMANCE NETWORK SERVERS

<table>
<thead>
<tr>
<th>Processor</th>
<th>DX2/66 or Pentium 60MHz</th>
<th>DX2/66 or Pentium 66MHz</th>
<th>DX2/66 or Pentium 66MHz</th>
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<tbody>
<tr>
<td>Architecture</td>
<td>TriFlex/PC One Processor</td>
<td>TriFlex with up to two symmetric processors</td>
<td>TriFlex with up to four symmetric processors</td>
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<tr>
<td>Network Interface</td>
<td>Up to 12 High-Speed Channels; NetFlex 2 with Packet Blaster Technology Standard</td>
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<tr>
<td>Standard Disk Controller</td>
<td>Integrated Fast SCSI-2 and Smart SCSI Array Controller (selected models)</td>
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<tr>
<td>Storage Capacity</td>
<td>550MB—112GB Internal/external</td>
<td>1050MB—140GB Internal/external</td>
<td>1050MB—140GB Internal/external</td>
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<tr>
<td>Typical Usage</td>
<td>Departmental network services—primarily NetWare</td>
<td>Departmental network application services—NetWare, NT and Unix</td>
<td>Application services for preemptive downsizing—NT and Unix</td>
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<tr>
<td>Transaction Rating</td>
<td>50—150 TPS</td>
<td>200—300 TPS</td>
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<tr>
<td>Estimated Starting Street Price</td>
<td>$6,000</td>
<td>$8,900</td>
<td>$13,900</td>
</tr>
</tbody>
</table>

SERVER DEPENDABILITY AND AVAILABILITY

Management
Second-generation Compaq Insight Manager (standard) combines with innovative hardware design to constantly monitor, assess and report server health and performance

Fault Prevention
Insight Manager alerts you to server status changes in over 800 component parameters, allowing proactive server management backed by 3-Year Pre-Failure Warranty

Fault Tolerance
Standard support for RAID levels 1, 4, 5; hot-pluggable drives; on-line spare drive; off-line backup processor; advanced ECC RAM

Fault Recovery
Standard rapid recovery services automatically return server to full operational status even in the event of a critical subsystem failure

SIMPLICITY, EASE OF OWNERSHIP AND SUPPORT

SmartStart
Standard CD-based intelligent hardware configuration and system software installation, providing simplified server configuration for NetWare, NT or Unix. (CD-ROM drive standard)

System Warranty
Free Three-Year, On-Site Limited Warranty

Pre-Failure Warranty
Three-Year, On-Site Warranty replacement of designated components that fall below preestablished thresholds

4-Hour Warranty Response Upgrade
Optional Three-Year On-Site Warranty upgrade to 4-hour response

Technical Support
Toll-free, 7 x 24 technical phone support from Compaq engineers

CompaqCare System Partners
Highly trained, dedicated, third party professionals who provide systems maintenance and comprehensive technical support

QuickFind / PagFax
Proactive notification and delivery of new technical information/7 x 24 fax response for updated specification, configuration and settings data
DESPITE GRAND PLANS AND INTERNATIONAL GUIDELINES, STANDARDS ARE WHAT SELLS. STILL, IS HEDGES BETS FOR THE FUTURE.

DE FACTO IS DE STANDARD

BY AMY BERMAR

Dean Trilling once thought the Open Software Foundation would provide Cleveland-based American Greeting Corp. with its first open architecture. But after three years of planning long-term strategy to guide the $1.8 billion greeting card company through the next decade, dreams of open systems became a closed book.
OBJECT-ORIENTED BATTLE

By Garry Ray

Hasing out open sys-
tems standards may
seem like genteel de-
bate but pull back the curtain and you'll find fur-
ious politicking rarely seen outside of Wash-
ington. Consider the ongoing jockeying for leadership in object-or-
technology.

The three-way battle pits Microsoft
Corp., the Object Management Group
(OMG) in Framingham, Mass., and an
alliance that includes IBM, Apple
Computer, Inc., Novell, Inc. and other
vendors against one another.

The outcome probably won't be
seen for some time, but the stakes are
high. The winner will dictate object-or-
iented programming interfaces for
years to come.

Each party is a formidable foe.
Formed in 1989, the OMG, which
boasts 100 software vendors, has cobbled
together a series of specifications
for object-oriented technology.

The most important is the Common
Object Request Broker Architecture
(Corba).

Microsoft is pushing its Object Link-
and Embedding 2.0 and Cairo ex-
tensions to Windows. The Apple/IBM
alliance, which began with Taligent,
Inc., is slated to deliver an object-
oriented operating system in 1996.

Will the three pull together or pull
apart?

Observers say Microsoft clearly in-
tends to call its own shots. But lately,
the Redmond, Wash., company has
expressed more interest in the OMG
standards, by definition, are trailing-
biggest payoff. "Official stan-
dards don't dis-
place formal standards," Shaffner
days. Defacto standards have be-
come more important, he says, as
the industry moves to standardize
new technologies such as client/
server, object-oriented program-
ning and DBMS applications.

Risks for users, vendors
What's the long-term impact of re-
lying on unofficial standards? The
biggest drawback for users: The
defacto standard may be based on
an inferior solution that can re-
quire rework to conform when a de-
jure standard comes along.

Moreover, vendors are hesitant
to relinquish even small features
believed to prove competitive
differentiation.

Finally, many observers say pro-
prietary products still deliver the
biggest payoff. "Official stan-
dards, by definition, are trailing-
edge technology," says Rikki Kirz-
er, an analyst at Dataquest, Inc.,
San Jose, Calif.-based market re-
searcher. "By the time something
gets incorporated as a standard,
the technology has moved on...."

Procter & Gamble Co.'s senior
standards-setting strategist could
disagree more. Four years ago,
Frank Caccamo, vice president at
the Cincinnati-based company's
management systems division, said
that X.400 and X.500 would some-
day let him bridge the company's
15 mail packages. Procter & Gam-
bile also plays in EDI and TCP/IP
for internetwork communications.

"The standards we've tried to
make within [Procter & Gamble] are
those we'll try to hang on to,"
says Caccamo, who says he hopes
to eventually reduce the mail load

WE SEE
consortiums
because a
circuitous
process for
each vendor.

This is actually a

militating

weakening

share.

With several hundred "stan-
dards" vying for primacy, users
question which will endure. Some,
including electronic data inter-
change (EDI), X.400, X.500 and
TCP/IP, are generally considered
survivors. Others, including Man-
ufacturing Automation Protocol
Open Systems Interconnection,
have fared worse than expected.

And the kitchen sink nature of
most standards groups means
that standards, when available, of-
ten perform far worse than prop-
erty solutions.

Buying what works
"While users are entranced with
the idea of standards, when all
is said and done, they go back to
what works," notes Howard An-
derson, president of The Yankee
Group, a Boston consulting firm.

"We know we're paying a premi-
urn by going with a proprietary
approach," says Chip Fry, vice pres-
dent of information technology at
Beckton, Dickenson & Co., a medi-
cal supplies manufacturer and a
large X.400 site headquarters
in Franklin Lakes, N.J. "But
rather than waiting for nirvana,
we're in the game now.

If there's a bright spot, Fry and
others note, it's that intermix
activity can hasten the standards-
setting process. "Committees see
what works in the real world. And
even though you may be using a
proprietary platform, the vendor
is influenced by the principles of
what you're trying to do."

True, says John Morris, director
of liaison at the Open Software
Foundation in Cambridge, Mass.
"The standards world is coming to
grips with the market realities and
marketing battles," he says.

"There is an overall consensus
that end users are able to describe
what they need, and this gives ven-
dors and standards organizations
the ability to fill the gaps."

George Shaffner, chief operating
officer at X/Open Co., a standards
body comprising 130 vendors and
users, agrees that unofficial and
dejure standards can work in co-
cert.

"De facto standards don't dis-
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BUYING: 1996
Purchasing plans for the next three years show a marked
shift away from proprietary products

DATABASES
Sharp drop in hierarchical and
SQL as object-oriented takes off.

FRAMEWORKS
X/Open's XPG4 and Posix new
top runners. SAA dives.

GUIS
Windows edges out Motif.

OBJECT TECHNOLOGIES
C++ slips but still dominates
OLE and Corba are fast risers.

SOURCES: XOPEN CO. GLOBAL SURVEY OF 700 IN MANAGERS

6000
2000
4000
8000
12000
16000
20000
XOPEN SYSTEMS
Microsoft's Windows NT rises
to top at the expense of Unix.

All others lose ground, especially DOS and Windows.
Nonstandard procedures

WHY IS IT SO DARNED HARD TO MAKE GOOD STANDARDS QUICKLY?

By Ted Krum

A few years ago, open standards groups and professional bodies promised to lead eager users down smoother, wider and cheaper computing paths. Today, many information systems organizations are wondering if the guides are lost in the bramble.

X/Open Co.'s latest survey shows that the slow, fragmented and political process of creating open systems standards has left many IS chiefs disappointed, bitter and skeptical (see chart).

"As soon as customers show interest in something new, vendors jump on it and fight over it within the standards-setting bodies," laments Eric Firdman, director of strategic IS at Pacific Bell. "By the time standards are approved, they are already obsolete."

He is not alone: Many wonder whether existing mechanisms for defining open systems standards really work or if they matter.

Critics complain that poor user involvement and the sheer number of standards have hindered the spread of open systems, resulting in lost opportunities for users and vendors alike.

Electronic mail is a good example, says Dean Allen, vice president of information and administrative services at Lockheed Corp.

"The X.500 E-mail standard is still up in the air, so we had to develop our own interoperable E-mail capability," Allen says. "Open standards are important to us, but we can't afford to wait for them."

Little wonder, users say, that ad hoc industry groups, proprietary products and make-do solutions have rushed in to fill the vacuum, threatening to make "official" standards irrelevant.

"We don't care about open systems," says George Brenner, vice president of Universal Studios and director of corporate information services at MCA Worldwide. "Real standards would be nice, but the lack of standards hasn't really hurt us."

Brenner says he can accomplish all the interoperability his company needs by using hardware that runs on Token Ring or Novell, Inc.'s NetWare.

Such comments beg the question "What's wrong with the way standards get made?" Most agree on the following problems:

• Too many groups. The biggest obstacle is the decentralized nature of standards making. Hundreds of other large, lesser-known groups are now trying to establish open systems standards. This lack of centralized power, coupled with rapid technological innovation and lack of government regulation, makes discussions of reform difficult if not impossible.

• Differing agendas and styles. Proprietary standards makers and users often vary sharply. The former, for example, do not face the same time-to-market pressures as corporate

De facto may be best

As user investment in de facto standards increases, the de jure standards are under pressure to match the evolving features of market-leading products. But this takes time.

As a result, notes Tom Kucharczyk, president of Summit Strategies, Inc., a Boston consultancy, de facto standards may be the best available solution for users trying to balance the most competitive technology with some level of interoperability.

In many respects, de facto standards are better than open systems, Kucharczyk argues. "They let you consolidate development and give you all the advantages of economy of scale without locking you into something that is inherently less than the most advanced technology available.

Anderson adds that users who grumble about the dearth of more interoperable solutions have only themselves to blame. "Users talk out of both sides of their mouth," Anderson says. "They say they want a standard, but they don't vote with their pocketbook."

Bernard at Corporate Ink in Newton, Mass., writes about the computer industry.
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## HOT ALPHABET SOUP

**A GUIDE TO THE MOST IMPORTANT AND FASTEST-RISING OPEN SYSTEMS STANDARDS**

**UNDOUBTEDLY,** one of the worst things about open systems is that there are too many damned acronyms! Even the most fervent open zealots get goo-goo-eyed at the sheer number and complexity of standards, real and otherwise. To help you sort things out, here’s an opinionated guide to the hottest, most important standards and suites.

**COMPILED BY JONATHAN EUNICE AT ILLUMINATA, A HOLLIS, N.H., CONSULTING FIRM.**

### OPERATING SYSTEM AND SYSTEM SERVICES

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESCRIPTION</th>
<th>KEY BACKERS</th>
<th>STATUS</th>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSIX</td>
<td>Suite of standards describing Unix-like system behavior.</td>
<td>IEEE, all Unix vendors, some proprietary vendors.</td>
<td>Individual standards for core system calls, command interface and utilities ratified and available; many areas (security, GUI, testing, etc.) still under development.</td>
<td>Broad-based effort to specify and improve Unix.</td>
<td>Has taken a long time to deliver results; process continues.</td>
</tr>
<tr>
<td>SAA</td>
<td>Common systems environment for selected IBM systems (MVS, VM, VSE, AS/400 and OS/2).</td>
<td>IBM.</td>
<td>Now almost a decade old, IBM products implement parts of SAA, though certainly not all. SAA plans appear less important than in years past.</td>
<td>Attempt to give a common application environment across important, diverse platforms.</td>
<td>Very slow state of development has significantly reduced user attention and confidence; other standards and approaches have superseded SAA's designs.</td>
</tr>
<tr>
<td>SPEC 1170</td>
<td>Sci of approximately 1,170 system and library calls defining Unix behavior.</td>
<td>Leading Unix vendors, X/Open.</td>
<td>Development recently initiated; being passed to X/Open.</td>
<td>Cooperative attempt is further nail down just what Unix is and should be.</td>
<td>Adds yet another standard, which overlaps with already developed standards such as Posix and XPG.</td>
</tr>
<tr>
<td>WIN32</td>
<td>Description of APIs for writing Microsoft environment programs, especially those for Windows and Windows NT.</td>
<td>Microsoft, IBM (via OS/2), Sun (via Wall).</td>
<td>Products implementing Win32, Win32a and other variants are now available (e.g., Windows NT, Windows 3.1), with more on the way.</td>
<td>Single-vendor definition allows quicker, surer definition with less compromise and confusion.</td>
<td>Single-vendor definition makes it closed and proprietary and also limits what could be valuable outside review.</td>
</tr>
<tr>
<td>XPG</td>
<td>X/Open Portability Guide. Suite of standards describing Unix-like system behavior.</td>
<td>X/Open, most Unix vendors, some proprietary vendors.</td>
<td>XPG obsolete; XPG current and widely implemented on Unix, with parts on some proprietary XPG4 new and implemented by a few vendors (e.g., HP).</td>
<td>Comprehensiveness relative to other open systems standards.</td>
<td>X/Open has been just one of many bodies attempting to standardize and has not had particular moral authority.</td>
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### GRAPHICS AND USER INTERFACES

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<tr>
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<tr>
<td>CORE, CDE</td>
<td>Common Open Software Environment, Common Desktop Environment for Unix and other open systems.</td>
<td>HP, IBM, Sun, SCO, Novell, X/Open.</td>
<td>Now under development. Functional specification released June 1993, with final definition by late 1993 and products in 1994.</td>
<td>Spurred by the threat of Microsoft's Windows NT, Unix vendors finally cooperate on interoperable desktop environment, ending years of bickering that did nothing to help users.</td>
<td>CORE attempts to unify; often without making hard choices between one approach or another. Merged products will do both ways, making them more complex and expensive to develop and use.</td>
</tr>
<tr>
<td>MOTIF</td>
<td>Look and feel for X Window environments.</td>
<td>OSF, most Unix vendors.</td>
<td>Broadly implemented on Unix and some proprietary systems.</td>
<td>Portable, network-aware user interface system.</td>
<td>Defines only a part of the GUI behavior; needs more. Leaves many holes, which causes incompatible and dissimilar implementations.</td>
</tr>
<tr>
<td>X</td>
<td>Distributed, windowed, GUI environment.</td>
<td>MIT, virtually all Unix vendors.</td>
<td>Broadly implemented and supported, especially X11R5 version.</td>
<td>Portable, network-aware user interface system. Has led to whole new classes of devices, X terminals, with benefits of both workstations and terminals. May be good evolution for traditional terminal vendors.</td>
<td>Design does not optimize efficiency or functionality. Interoperability promises often at least partially undercut by subtle differences in configurations and host availability of different products.</td>
</tr>
<tr>
<td>NONSTANDARD STANDARDS</td>
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### INTERCONNECTIONS (COMMUNICATIONS, NETWORKING, ETC.)

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<tr>
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<th>Strengths</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ATM</td>
<td>Asynchronous Transfer Mode: High-speed link interface suitable for creating network backbones (either private or public).</td>
<td>Telcos, networking vendors, systems vendors.</td>
<td>Products beginning to ship now (4Q '93).</td>
<td>Suits needs of backbones and multimedia applications; good fit with teleco equipment will enable good service offerings.</td>
<td>None apparent.</td>
</tr>
<tr>
<td>FDDI</td>
<td>Fiber Channel Standard. Point-to-point high-speed links, primarily over fiber: Type 1 (raw channel) for cluster links; Type 2 (reliable, packetized) for disk links.</td>
<td>Systems and peripheral vendors.</td>
<td>Products beginning to ship now (4Q '93).</td>
<td>High-speed links suitable for shared disk, system clusters and high-availability links; high-end, longer-distance alternative to SCSI.</td>
<td>None apparent.</td>
</tr>
<tr>
<td>IEEE 802.x and FDDI</td>
<td>Low-level definitions of the most important network media, including Ethernet, Token Ring and fiber.</td>
<td>IEEE, ANSI, virtually all network products vendors.</td>
<td>Definitions of Ethernet, Token Ring, FDDI and supporting layers ratified and widely available; definitions of incremental improvements and new network kinds (e.g., 802.6 MAN) in progress.</td>
<td>Networking critically depends on common, interoperable definitions of these networks.</td>
<td>None per se.</td>
</tr>
<tr>
<td>OSI</td>
<td>Open Systems Interconnect. ISO suite of communications and networking standards.</td>
<td>ISO, at least lip-service paid by many systems and networking vendors.</td>
<td>Implementations available for many open and proprietary platforms; not used as much as available.</td>
<td>Highly general, flexible, forward-looking definitions.</td>
<td>Extraordinarily complex; takes longer to implement and often more expensive to use. Despite more than a decade of development, not nearly as mature or proved as competitors TCP/IP and SNA; often treated as a check-off item, not a real must-implement requirement.</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>Internet suite of networking protocols.</td>
<td>All Unix vendors, virtually all network products vendors.</td>
<td>Broadly implemented in both Unix and proprietary systems.</td>
<td>Mature and proved in innumerable implementations; practical inter-environment connections; steady incremental evolution.</td>
<td>Relatively low function; impending shortage of IP addresses; conflicting standards evolution process.</td>
</tr>
<tr>
<td>X.25</td>
<td>Interface for connecting systems to public data networks.</td>
<td>CCITT, telcos, virtually all network products vendors.</td>
<td>Widely implemented in products and services worldwide.</td>
<td>Supports many WAN and inter-WAN connections.</td>
<td>Obsolescence approaching; designed for much slower connections. Designed for virtual circuit, long-haul connections in world that is increasingly packet-switched.</td>
</tr>
<tr>
<td>X.400 and X.500</td>
<td>Extended addressing and directory standards designed for worldwide electronic mail and messaging.</td>
<td>CCITT, many network services and software vendors (at least to some degree).</td>
<td>X.400 broadly but usually partially implemented; X.500 beginning to be implemented; no full implementations yet.</td>
<td>Flexible, future-looking.</td>
<td>Very complicated; slowing development limiting practical use.</td>
</tr>
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### DISTRIBUTED COMPUTING

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<tr>
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<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS</td>
<td>Customer Information Control System. IBM environment for OLTP applications.</td>
<td>IBM, others indirectly.</td>
<td>Very widely implemented in the commercial computing world; now emerging in the Unix world.</td>
<td>Very efficient transaction processing possible; huge body of CICS applications.</td>
<td>Historical design.</td>
</tr>
<tr>
<td>Corba</td>
<td>Common Object Request Broker Architecture. Common framework and definitions for accessing, interacting with and managing object databases.</td>
<td>Object Management Group (OMG), most vendors that follow OMG.</td>
<td>Corba 1.1 definitions available and products being built on this base; opens remain somewhat immature, and development continues with Corba 2.0.</td>
<td>Interoperability in the world of objects (which is already too complex to admit the complexity of 'N competing approaches).</td>
<td>Corba development behind products; continued development required to make Corba sufficient.</td>
</tr>
<tr>
<td>DCE</td>
<td>Distributed Computing Environment. OSF's tool kit for developing distributed and client/server applications.</td>
<td>OSF, most Unix vendors, many proprietary systems vendors.</td>
<td>First versions just now reaching users and developers; few applications use DCE yet.</td>
<td>High-function, distributed computing support components; broad acceptance promotes compatibility.</td>
<td>Long development cycle has caused many developers to look elsewhere for client/server support tools; performance and other productization issues weak.</td>
</tr>
<tr>
<td>NFS</td>
<td>Network File System. Sun-developed file sharing mechanism.</td>
<td>Sun, virtually all Unix vendors, many proprietary systems vendors.</td>
<td>Widely implemented and used on Unix and proprietary systems.</td>
<td>Ultrabroad use makes it a very practical solution.</td>
<td>Performance, security and robustness over long-haul networks very weak; DCE DFS component, not NFS, seen as future of open file sharing.</td>
</tr>
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### SYSTEMS AND NETWORK MANAGEMENT

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>DME</td>
<td>Distributed Management Environment. OSF environment for distributed systems and network management.</td>
<td>OSF, HP, IBM, CA, many others.</td>
<td>First components delivered to vendors late 1993 and to users in 1994 or early 1995. Full DME not to users until 1996 or 1997.</td>
<td>Attempts to address full difficulty of systems management problem; core services such as event notification, software distribution and license management inarguably required.</td>
<td>Full difficulty of systems management problem may be unsolvable in intermediate term; limited completeness and productization throws doubt on value of the enterprise.</td>
</tr>
<tr>
<td>SNMP</td>
<td>Simple Network Management Protocol. Internet protocol for managing network elements.</td>
<td>Virtually all networking vendors.</td>
<td>SNMP widely implemented and used. SNMP Version 2.0 now accepted and moving into implementation.</td>
<td>Lightweight design and broad implementation makes SNMP a very practical tool.</td>
<td>Lightweight design may not be fully scalable and limits functionality; security not good until SNMP Version 2.0 widely used.</td>
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</table>
Maryfran Johnson
Editor, Client Server Journal

Mark Halper
Senior Correspondent

Jean Bozman
Senior West Coast Editor

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PROCEDURE
CONTINUED FROM PAGE 101

customers and are inherently bureaucratic.

"Success" for standards groups, says Mary Lynne Nielsen, senior project editor for Posix standards at IEEE in Dun Ellen, N.J., means achieving broad consensus, coordinating with other standards bodies and creating specifications that don't need much future revision.

"If the standards committees are guilty of anything," adds Lorraine Kevra, a co-chair of an ISO advisory group on open systems and standards makers are largely volunteer bodies. A 35-person staff coordinates the work of volunteer committees for the group's activities, including some 600 standards publications.

Lack of resources. Nielsen notes that IEEE standards makers are largely volunteer bodies. A 35-person staff coordinates the work of volunteer committees for the group's activities, including some 600 standards publications.

Unfortunately, the reforms users say they want — faster progress and more user input — are at odds. Even so, Jim Johnson, chairman of The Standish Group, a South Yarmouth, Mass., consultancy, says greater user involvement is a must. "Only users can separate the standards process from vendor politics," he says.

Because companies let vendors spend the time and money, Johnson continues, "the pace and results benefit vendors, not users."

There are precedents for users driving standards, including the pivotal roles played by General Motors Corp. and The Boeing Co. in helping standardize Ethernet and Token Ring.

Allen adds, "Only the biggest, most valuable customers can have real influence." Lockheed, Allen notes, is working through the Aerospace

HOW COULD THE PROCESS BE IMPROVED?

THREE CHOICES PERMITTED

1. Faster adoption and implementation.
2. Fewer competing standards.
3. All vendors should be forced to conform to the same set of standards;
   fewer standards organizations.
4. Users should have more input into the standards process.
5. Standards should be implemented further into the development cycle.

Industry Association's Technology Committee to gain additional leverage.

More user involvement is fine with George Shaffner, chief operating officer at X/Open, an international standards certifying group. "Customers always tell me they vote when they buy products. But by then it's too late."

Even critics of today's standards processes recognize their looming future importance. "We can't handle all of this activity with point solutions. Sooner or later, the industry will need to lay the pipe for truly seamless connectivity."

Krum, based in Stamford, Conn, conducts independent research, consulting and free-lance writing.  

* Lockheed's Dean Allen: 'Open standards are important to us, but we can't afford to wait for them' 

AN OPEN PROPOSAL

When it comes to defining and implementing a structure and methodology to achieve industrywide open systems, intelligent and rational professionals go on vacation and the Keystone Kops take over.

Users complain that there are too many competing standards coming from too many standards bodies.

Michael Goulde is editor in chief of "Open Information Systems," a newsletter published by the Patricia Seybold Group in Boston.

X/Open could also coordinate the work of informal groups with the efforts of formal standards bodies such as the IEEE. There is no other organization as well-positioned as X/Open to assume this role.

And we certainly don't want a new consortium. A coordinating body could squelch duplicative efforts and initiate work in areas where it was lacking. A new charter would enable X/Open to be free to move into some of the more advanced areas of technology, such as distributed object computing, and help set standards there so the industry can move ahead more quickly.

It is critical that X/Open remain permanently insulated from proprietary interests. User support is a critical component in ensuring neutrality. Funding is a critical issue. Branding fees are important, but there may also need to be an X/Open fee built-in and assessed as part of the purchase of branded products — a kind of open systems tax.

The X/Open User Council was given control of the X/Open requirements process in 1992.

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The X/Open User Council was given control of the X/Open requirements process in 1992. If users are going to have control and achieve the benefits of open systems, then maybe the users need to pay something to help reduce X/Open's dependency on vendor fees.

Goulde is editor in chief of "Open Information Systems," a newsletter published by the Patricia Seybold Group in Boston.
NONSTANDARD STANDARDS

HOW STANDARDS (REALLY) GET MADE

ILLUSTRATION BY DAVID CLARK; CONCEPT AND TEXT BY MICHAEL COHN

COMPUTERWORLD DECEMBER 6, 1993
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Like pioneers who settled the open plains, open systems adventurers learn to work around hardship and eventually get where they are going. But not without detours, bumps, bruises and an occasional serious injury.

"I've stepped on so many land mines, I've got pegs for legs," quips David Pensak, a consultant who advises users on open systems and networks at Du Pont Co.'s research division in Wilmington, Del. Among typical trials: Disk drives that crash in the wee hours of the morning, overnight database back-ups that stop halfway through, software vendors that disappear into thin air and development tools that won't fit together.

While users have been learning lessons for sidestepping such hazards since the 1980s, other complex problems persist, slowing the shift of mainframe applications to distributed servers and networks. Information systems managers frequently complain, for example, that open systems consoles and management tools are far less evolved than those for proprietary mainframe environments. Security and integration are also big problems, along with support (see story page 117).
Jumping to a new technology merely because of marketing hype or because it is the “in” thing won’t necessarily boost your career or help your firm. "We look at Unix as a technology, and it must prove its business value for our shareholders before we will embrace it," says Stuart Galter, director of MIS at the Avery Division of Avery Dennison in Diamond Bar, Calif. Indeed, IS executives should take a deep breath and calmly look at the real trade-offs before putting Unix and Unix-based applications into their environments. A problem for Unix is the need to support an online transaction processing (OLTP) environment. "Though progress has been made in OLTP support, the bulletproof transaction processing business demands are not yet all there," says Larry Panatera, division of MIS at Dr Pepper/Seven-up Co. in Dallas. "The emphasis of a Unix transition should be on simultaneously enhancing GUI capabilities and making system access for users easier than ever."

Unix can make life easier or much harder for your users. If you require users to learn a new command (or new project teams), they can become disillusioned. "Users should never need to know that they are running on Unix," says John Stevenson, vice president of MIS at Dr Pepper/Seven-up Co. in Dallas. "The emphasis of a Unix transition should be on simultaneously enhancing GUI capabilities and making system access for users easier than ever."

Because of the many installation problems, customized code rewrites and new system designs, any attempt to ramrod Unix into a commercial environment will alienate staffers and users. It also could cause hiccups that might lose precious corporate data. Instead, a graduated approach can lead to success, Panatera adds. "If done properly, Unix can make life easier or much harder for your users. If you require users to learn a new command (or new project teams), they can become disillusioned. "Users should never need to know that they are running on Unix," says John Stevenson, vice president of MIS at Dr Pepper/Seven-up Co. in Dallas. "The emphasis of a Unix transition should be on simultaneously enhancing GUI capabilities and making system access for users easier than ever."

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First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp. First Boston Corp. views its move to distributed computing as a competitive advantage that gives its traders faster access to data feeds and powerful desktop analysis capabilities. But migrating applications from IBM mainframes to 1,000 Sun workstations and Sun Microsystems servers also swelled the cost of each workstation seat from $4,000 to $15,000, says John Bennett, a vice president of IS at First Boston Corp.
tion of separate packages— is another problem. Swanson is eagerly awaiting the arrival in 1994 of several "framework" products that would unite network and systems management tasks.

Associated Grocers
Like First Boston, Associated Grocers, Inc. in Seattle did not wait for open systems to mature before taking the plunge last year. The $1.2 billion grocery cooperative installed a network of a dozen Unix servers to manage mission-critical warehouse inventory and distribution systems.

The goal was to base efforts on the Open Software Foundation's Distributed Computing Environment (DCE) standard, explains Richard Lester, vice president of IS. That meant a three-layered software approach in which user interface, database and application software are handled separately. DCE acts as the "glue" that links clients to servers.

The firm took a staff of Cobol programmers and retrained them to work in C, C++, Microsoft Corp.'s Visual Basic and Informix Software, Inc.'s Informix 4GL database application builder.

"I've leaned toward hiring a few key people with Unix and open systems backgrounds who are going to seed that knowledge into my organization," Lester says. "I'm still committed to retaining as many of the existing staff as possible and helping them to become technically proficient in this new world."

To reduce programming burdens, Associated Grocers bought Unix accounting packages as well. An avid supporter of open systems, Lester says he still sees a few holes in his strategy. He, too, has not saved as much money as he would have liked — and the systems management tools are few and far between. For example, Associated Grocers had planned to cut its IS budget in half, down to just 0.5% of sales.

But the higher "soft" costs of architectures for client/server and open systems plus extra training, development and implementation costs have kept spending steady.

There were other disappointments: Lester says IBM RS/6000s running AIX installed in the early 1990s did not perform as well as Hewlett-Packard Co. HP 9000's in his environment. Since then, he has stopped buying the IBM workstations and begun buying HP servers.

"We were one of the very first users of RS/6000s," he explains. "When we put the order-entry system on it, we had to make an investment in duplicate hardware and backup systems."

A second setback arose from the need to carry out backup and restore operations on distributed Unix servers. Associated Grocers cleverly simplified the task by re-grouping the warehouse servers in its central data center.

"Because of the immaturity of system tools, it's most convenient to run your core machine functions in a centralized place because of the operators there," Lester advises.

In the end, migrating to open systems has meant reassembling pieces of the fragmenting mainframe data center, but with a new set of building blocks.

"Right now, the vendors have 25% of what you need and 75% promises," Lester says. "Somebody has to go out there with 50% and we'll jump at it."

Myke Miller, a client/server manager at Andersen Consulting in Minneapolis, advises IS groups to sidestep conflicting standards by implementing their own application-specific interfaces. "You need to insulate yourself with a very thin layer of architecture," which can help prevent chaos, he says.

Gene Friedman, vice president of applied technology at The Chase Manhattan Bank NA, agrees that attention to architecture makes sense. Friedman advises picking a standard tool set and a vendor-independent framework.

Upcoming shows

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  - Boston, Jan. 10-13
  - (508) 870-6700

- **CLIENT/SERVER CONFERENCE & EXPOSITION**
  - San Jose, Calif., Jan. 18-21
  - (516) 562-7460

- **COMNET '94**
  - Washington, Jan. 24-27
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- **SIM/COMPUTERWORLD EXECUTIVE TECHNOLOGY SUMMIT '94**
  - Tarpon Springs, Fla., Feb. 2-4
  - (312) 644-6642

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  - Washington, Feb. 8-10
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YOU MEAN WE GOTTA SUPPORT IT, TOO?

BY ALAN RADDING

Sky-high support demands nearly deflated Spalding Sports Worldwide's open systems game plan. When the Chicopee, Mass., manufacturer of sporting goods equipment began a migration from a proprietary Hewlett-Packard Co. 992/200 host to PC networks and HP Unix servers, it expected its data center staff to pick up support for the systems. But the 60-person centralized group lacked the right skills and tools for the 9000 Series 800 and HP/UX environment, says Chief Information Officer Bard White. "We were naive at the beginning," White acknowledges. "We saw the cost savings of open systems, but we didn't understand networking and Unix."

Indeed, consultants say many firms focus so intensely on the design and development that support problems catch them off guard. "Most companies assume that service and support will be absorbed within their existing setup — that the help desk will pick up the load and central IS will manage everything," says Robert Walsh, principal at Practice Corp., an open systems consulting firm in Mansfield, Mass. "But it doesn't work out that way."

For many, it's an expensive surprise. A recent study of support costs by Forrester Research, Inc. in Cambridge, Mass., found that the average cost for running a 5,000-user LAN/internet network was nearly three times higher than that of a comparable SNA network — $63.3 million.

"The sheer breadth of products borders on chaos," says Carter J. Lusher, program director at Gartner Group, Inc. in Stamford, Conn. The diversity of the open systems environment, he says, makes support more difficult.

Supporting multiple protocols without robust mainframe administration tools requires new skills and tools, adds Chip Steinmetz, chief technology officer at CS First Boston, Inc.

Others complain about staffing strains. "We have 650 stores, each fully automated, running critical applications but without anybody with computer experience," says Lee Rizio, vice president of information services at Jenny Craig, Inc., a Del Mar, Calif.-based chain of weight-loss clinics.

At Au Bon Pain, a Boston-based chain of 150 bakery/coffee bars, MIS director Mark Factor faces a similar dilemma. "Essentially, we support 150 data centers that don't have any skilled technicians. There is no central place to go for support."

Clever planning

The strain of retraining staff to maintain complex open systems comes when the information systems group is under cost-cutting pressure. Still, such pressures have forced companies to develop innovative strategies.

Jenny Craig, for example, still maintains a centralized IS help desk. But many calls are forwarded to Computerland Corp., a Pleasanton, Calif., computer resale chain. But Rizio warns that outsourcing field support has limitations: For starters, the outsourcer doesn't know the company's business.

At Au Bon Pain, Factor combines outsourcing from NCR Corp. in Dayton, Ohio, with tools that allow his central IS support group to control the remote system and resolve the problem. The chain also standardizes on products with the biggest market share because more third-party support is available.

Spalding, too, outsourced its PC help desk because it lacked in-house expertise. But to ensure that the contractors understood Spalding's business, White insisted the vendor dedicate the equivalent of three full-time staffers to work inside his IS group.

"We will bring service and support back in-house once we get our staff trained," he adds.

If there's an upside, it's that IS managers say now is a good time to ink open systems support deals with outside vendors. A broad range of outsourcing suppliers are slashing prices to capture market share.

In November, for example, Bell Atlantic Business Systems Services, GE Capital Computer Leasing and Sungard Recovery Services, Inc. announced they will bundle their respective service specialties: equipment service, leasing and disaster recovery.

Bottom line: IS managers say it's wise to avoid piecing together a last-minute open systems support strategy.

"View support as important as system engineering," Steinmetz advises, "and make sure that support is appropriately staffed before you deploy the new system."

Rizio's advice: Get multiple bids and avoid long-term contracts.

Jenny Craig's Lee Rizio: Outsourcing support eases burdens but avoid long-term deals

THE COST of managing and maintaining a 140-user client/server system with custom software totals $559,000 over four years, says Forrester Research, Inc.

OPEN SUPPORT: GULP!

Architectural diversity can make open systems support a nightmare. Consider the mathematics of this worst-case scenario:

4 PLATFORMS x 3 GUIs x 4 DBMSs x 4 COMM PROVIDERS x 3 PRODUCTIVITY ENVIRONMENTS x 4 UNIX VERSIONS x 3 OLTP SYSTEMS = 6,012 COMBINATIONS

SOURCE: ANDERSON CONSULTING, CHICAGO

Radding is a free-lance writer in Newton, Mass.
Open and shut

The open vs. proprietary debate, as any information systems manager awake for the last decade knows, is hardly black and white. Freelance writer Alice LaPlante asked top IS executives Rich Malone at Edward D. Jones & Co. and Jim Stikeleather at Kash n' Karry Food Stores, Inc. about the pros and cons of each approach.

Both in business and technology, Edward D. Jones marches to the beat of a different, conservative drummer. When financial services companies dove into Unix, open systems and client/server computing in the late 1980s, Edward D. Jones held to its centralized strategy. Malone says the $500 million firm, which specializes in serving individual investors, will eventually include distributed components in its IBM mainframe-based architecture — but only slowly and cautiously.

Edward D. Jones recently announced that it would replace six IBM Series/1 minicomputers handling front-end communications controllers with two IBM RS/6000 PowerServers. The company plans to have 10,000 North American offices by the year 2000.

Kash n' Karry Food Stores has grown at a 6.2% annual rate since 1986. In early 1991, the Tampa, Fla.-based chain decided to move to the forefront of retail grocering by implementing an open, distributed architecture.

Today, the company boasts both development and production networks containing a mixture of Sun Microsystems, Inc. SPARCstations and IBM RS/6000 servers alongside several Intel Corp.-based systems connected via Fiber Distributed Data Interface and a parallel 10Base-T network.

The chain is currently working to replace proprietary point-of-sale store systems with Unix processors and is using standards-based electronic data interchange.

Remarks from Malone and Stikeleather, combined from separate interviews, follow.

STIKELEATHER: Without an independent steering body, such as exists in the open systems world, your proprietary vendor can determine what, when and how changes to the system are to be implemented and rolled out. Pricing is determined by the vendor alone, not the market. If your vendor doesn't provide a solution, you might be forced to implement a costly, unintegrated or inefficient workaround.

And information about the underlying architecture and internal workings of a product is often a closely guarded secret, making customization and integration beyond that anticipated by the vendor impossible.

STIKELEATHER: I can't honestly say there was an objection to proprietary systems as much as there was an attraction to open systems.

We were concerned that proprietary vendors wouldn't be able to maintain the quantity, quality and availability of technical support and remain competitive with what was happening in the marketplace.

There were also the issues of depth, breadth and variety of hardware and software technologies available in both the commercial and public domain.

Finally, we wanted to control our own destiny. We used to joke about the annual visit of our [proprietary] vendor rep to tell us what our budget for the next year was going to be.

MALONE: Open systems vendors often don't have the knowledge of underlying standards. We often have to go out and find people who know one particular thing in the open systems world — Distributed Computing Environment, for example — and there is no one place to go for information on how that works. You just don't call a single vendor.

In addition, the need to maintain open application programming interfaces can mean extra code is included in the software, as it tries to be all things to all people. Rather than just having to talk to a single platform architecture, you have to talk to the whole universe of possible architectures. That's a lot of extraneous code that takes up memory and disk space.

STIKELEATHER: Open systems is no bed of roses. If anything, it's more work than a proprietary approach. With open systems, you are your own systems integrator, or you spend money on consultants to perform systems integration for you.

Secondly, if you're doing it right, there are a lot of up-front costs and time spent building an open systems architecture infrastructure. With so many vendors in the market, most decisions require more evaluation and thought than you'd require with a proprietary approach.

Third, you can't rely on your vendors the way you used to with proprietary environments. You literally control your own destiny. Finally, the transition is very difficult. You have to keep the legacy functioning while building your new architecture.

Frankly, you need a higher quality of staff. You can't just look in the manual or call a vendor for a solution. Open systems has a short-term negative impact on turnover, productivity and morale. A highly paid professional does not want to become a "traineep again."

Q Do you find there are cost advantages to be found with open systems?

MALONE: You're basically just shifting your costs from one place to another. If you want to move to distributed, open computing, it should be because your long-term business vision requires it.

STIKELEATHER: With an open systems-based distributed network, we have a finer granularity of resource addition. We can add another machine, upgrade a machine or spread upgrades around the network. This, coupled with the competition among vendors in the open systems world, gave us better incremental cost control than a proprietary approach could offer.

Q What would be the worst-case scenario for your firm, given the technology route you've taken?

MALONE: The worst-case scenario would be to invest a considerable amount of money and time in transitioning our proprietary environment to a distributed architecture, with no appreciable payback. There'd be a loss of credibility with our users.

STIKELEATHER: The inability to attract and keep the staff we need. Open systems really pushes your staff. There's a shortage of qualified people. But the issue facing an IS executive is whether but when to switch over.
IS BEING HALF OPEN LIKE BEING HALF PREGNANT?

BY MICHAEL VIZARD

It's time, users say, for racy talk about open systems to end and labor pains to begin. Pressured by impatient customers and a swelling threat from Microsoft Corp., leading computer industry suppliers have set out to give birth to the Common Open Software Environment (COSE), their latest open systems wonder child.

But heard-it-all-before users and analysts are reserving their oohs and aahs until gestation progresses a bit. They say vendors must deliver more mature open systems products that offer true interoperability and portability. "[One] of the biggest problems we have is running the same software on different platforms," says Glenn Smith, a vice president at J. P. Morgan Investment Services in New York. "It's doable, but it's difficult."

While major suppliers such as IBM, Digital Equipment Corp., Oracle Corp. and many others have for years sworn their support of "open" products and computing, many buyers remain skeptical of seller commitment.

The latest evidence: Respondents in X/Open Co.'s latest global survey cited "vendors provide proprietary/incompatible versions of open systems" as the single biggest barrier to open systems adoption.

Also cited as a major stumbling block was a widespread belief that vendors place their own interests above the interests of users in the standards-making process.
HOW OPEN IS OPEN?

MAJOR UNIX VERSIONS COMPARED

WHO'S MOST OPEN?

NOT ALL 'OPEN' OPERATING SYSTEMS ARE CREATED EQUAL.

AN EXCLUSIVE COMPUTERWORLD USER COMPARISON SHOWS

BIG DIFFERENCES IN FEATURES AND SUPPORT.

SCALE: 1 = NOT OPEN AT ALL, 6 = VERY OPEN

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<tr>
<th>DIGITAL'S OPENVMS</th>
<th>HP/UX</th>
<th>IBM'S MVS/POSIX/AIX</th>
<th>MICROSOFT'S NT</th>
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"OpenVMS is a proprietary operating system. You can't mount an NFS file on it, and that is just one of a million things that is proprietary about OpenVMS. OpenVMS is really not open, but using the name 'open' probably helps DEC sell another 5% of products."

MICHAEL HIGGINS

"DEC doesn't care what the end user thinks. They are more interested in selling hardware and not about what the end users need."

JOHN ALLEN

"We have found that all of the [app] vendors have been willing to port to either SCO or AIX.... The toughest problem was getting the Token Ring connected from the mainframe to AIX and to get it to run at a respectable speed. We found answers very difficult to get out of IBM... We hope we do not have to go to MVS for two major reasons: the cost and the other is that our staff is trained on VM and VSE."

SAM SOBHANI

"HP/UX is not as mature as the MVS XA scheduling, tape management and debugging tools we use in our company."

RUSS QUARTARARO

"[HP/UX] has a lot of good utilities included in the operating system, such as scripts that make life easier for the user. More specifically, a script called SAM provides good basic administration capabilities. Another strength of HP/UX is that HP is providing the Posix shell in its operating system... Most applications written for OpenLook don't quite work on Motif... HP is more in compliance with the rest of the industry, in terms of standards, but I think Sun is realizing that and is trying to change."

SAM SOBHANI

"We are very happy with OpenVMS. We like it better than Unix, but the world is going to Unix. For the average user working with OpenVMS, it is very hard to move from English commands to the cryptic commands found in Unix. In interoperability, Unix is better than OpenVMS. When we try to port over to VMS, we have to rewrite the application."

TOM GUNN

"HP/UX is a step behind in networking features... We will welcome [MVS/Posix] tools since we are running Hitachi mainframes that are compatible with IBM. We have Posix-compliant tools on other systems."

JOHN ALLEN

"“I don’t think we would move to Microsoft Windows NT to do our mission-critical applications. We may use NT as we use Windows on the desktop for office automation.”

RUSS QUARTARARO

"In some sense, Windows NT is about as proprietary as you can get: There are no standards committees. From another standpoint, it is pretty open because of all of the applications and things that will run on it. Strictly speaking, Windows NT is not open, just as DOS is not open, but both have all of the efficiencies as if they were open."

DAVID CARLSON

"I’m not anxious to move toward NT at all. As NT matures and as applications... become available, we will certainly be open to incorporating them into an open computing environment."

MIKE PRINCE

"Microsoft lacks a true spirit of openness. It is open wallet, not open systems."

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NOTES: Digital's growing push into open systems also includes OSF/1, AXP 1.2 and Ultrix 4.3 as main thrusts.

NOTES: Based on Unix System V Release 3 and Ultrix 4.3 technology. Strong in distributed management.

NOTES: AIX to IBM's version of OSF/1. Predictably strong on RS/6000 workstations and servers.

NOTES: Not truly open, but it may not matter.

1993 REVENUE SOURCES FOR THE CHARTS ON THESE TWO PAGES ARE COMPUTER INTELLIGENCE/INFOCORP AND COMPANY REPORTS

18% DOWN 1.7% FROM 1992

UNIX $1.4 BILLION

100% Proprietary

TOTAL $57 BILLION

1993 REVENUE

33% Proprietary

67% OPEN SOURCE FROM 1992

UNIX $2.8 BILLION

TOTAL $13.5 BILLION

1993 REVENUE

5% OPEN SOURCE FROM 1992

UNIX $1.1 BILLION

TOTAL $5 BILLION

1993 REVENUE

100% Proprietary

TOTAL $27.5 BILLION

UNIX $3.1 BILLION

1993 REVENUE
In a separate survey conducted by the Computerworld Database Division in late October, 164 information systems managers were asked to rate the relative openness of several major "open" operating systems they were familiar with.

Respondents were asked to judge on the basis of several criteria, including the following: compatibility with standard interfaces; application portability across different hardware platforms; support for open communications standards; interoperable support for heterogeneous environments, independent of a given vendor's strategy; more than one supplier of the primary technology; third-party support and applications readily available; publicly defined technology interfaces; and a published set of public or de facto standards, scalable across different-size hardware platforms.

Compiled by Lee Bruno, a free-lance writer in San Francisco.

### NOVELL'S UNIXWARE

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<th>USER OPENNESS RATING</th>
<th>3.3</th>
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"Because UnixWare came from USL and Novell, it has the utilities to make a great centralized server. It is a vanilla type of Unix, and that is really what users are looking for. We need to work with the vanilla-type operating system to cut down on production and training costs."

**JOHN ALLEN**

"We wanted to access the Unix systems through Windows but didn't want to go to another protocol. UnixWare gave us this capability. The ability it gives us to look down the Unix pipe at NetWare file systems really helps us in relating our databases. We have, however, had a lot of problems trying to get some of UnixWare's basic functions to work. I still cannot print properly and get us to look down the Unix pipe at NetWare file systems really helps us in relating our databases. We have, however, had a lot of problems trying to get some of UnixWare's basic functions to work. I still cannot print properly and..."

**RICHARD HENRY**

**NOTES:** Legal descendant of original AT&T Bell Laboratories Unix. Marketed as Unix System V Release 4.2 by new Unixel unit.

### OSP'S UNIX

| USER OPENNESS RATING | 4.3 |

"OSF was truly the beginning of openess. So much water has passed over the dam that its importance has passed."

**JACK HANCOCK**

"The ideas behind OSF are good, clean and simple, and that is smart. The problem is that it doesn't exist anywhere. It has the right idea, but it isn't available."

**JOHN ALLEN**

"We ended up debating whether to purchase OSF/1 or OpenVMS. As it turned out, because of the applications we are planning to buy for a GIS, we will be getting one of each (operating system). The GIS software ran on OSF/1 and the Oracle financials we are planning to buy run on OpenVMS. So we are buying two DEC Alpha boxes and two different operating systems."

**RICHARD PRUETT**

**NOTES:** Released three years ago as OSF/1. OSF Release 1.2 began shipping in January. Next version will be microkernel-based.

### SCO'S UNIX

| USER OPENNESS RATING | 3.7 |

"There is only one SCO out there, and you have to do what they say. Because there is just one SCO, you can't jump ship if you need to. ... We have found that the best open systems support comes from the people who also see the hardware."

**JOHN ALLEN**

"Part of the reason Payless went with SCO is that SCO can run on any hardware. It doesn't have to run on just one."

**DON DAVIS**

"In our experience, SCO Unix has been faultless and has done everything it was promised to do."

**TOM GUNN**

**NOTES:** Released three years ago as SCO Unix. SCO Unix System 1.1 was released in February. Next version will be microkernel-based.

### SUN'S SOLARIS

| USER OPENNESS RATING | 3.7 |

"Sun has had to go out and be different. They really truly have their own operating system. And that does make it less open. It is in the application vendors that get shut down by the incompatibilities among operating systems and then that shuts down the end user because the applications take longer to port."

**JOHN ALLEN**

"Sun is somewhat open, although the philosophy is to create Solaris as the target open system, which means that everyone writes to it."

**JACK HANCOCK**

"Sun is probably the premier company when it comes to compatibility with standard interfaces, applications portability, open communications standards. I'm not married to Sun's Solaris. I can switch vendors of operating systems or at least the versions of Unix without a major disruption."

**MIKE PRINCE**

**NOTES:** Strong in SPARC environment, headed for Intel marketplace.
HOW OPEN IS OPEN?

OPEN OPPORTUNITIES

The Unix systems market hosts a wide range of companies using Unix-based platforms

- SECOND-TIER SYSTEMS COMPANIES using Unix as a survival and growth strategy (Data General, Unisys, Groupe Bull and Wang).
- WORKSTATION COMPANIES attempting to leverage technical strengths in commercial markets (Sun and Silicon Graphics).
- PC COMPANIES using Unix to scale upward into multimedia/server positions (Compaq, AST and Dell).
- FIRST-TIER MIDRANGE COMPANIES expanding into new growth areas and attempting to capitalize on "open systems" buying (IBM and Hewlett-Packard).
- THIRD-PARTY OPERATING SYSTEM SUPPLIERS trying to disintegrate the computer systems business and play leading roles in servers and the advanced desktop market (The Santa Cruz Operation, SunSoft, Univel and Next).

Babys step forward

Industry observers say vendors must make COSE succeed to prove a much-needed toddler step ahead for open systems progress. Some analysts even predict that open systems growth between now and 1996 depends mainly on how large suppliers embrace this latest standards initiative.

"I think vendors are serious this time," says Jim Brennan, an industry analyst at WorkGroup Technologies, Inc. in Nashua, N.H.

"They've made too much about these standards and would lose face with customers if they don't come through with them.," Backers, including IBM, Hewlett-Packard Co., SunSoft, Inc. and Novell, Inc.'s Unix Systems Group, say COSE will improve portability and interoperability.

COSE adoption, they say, will create a unified Unix platform by complying with a more narrowly defined set of industry standards than the 1.170 that have been floating around for the past five or 10 years. Backers hope to receive brand certification from X/Open ultimately, the goal is to shield developers and users from many of the vagaries of Unix systems that have harmed past vendor claims of offering "open systems."

"The wars are over," declares Dave Taber, director of commercial product marketing at SunSoft, Unit of Sun Microsystems, Inc. "There's going to be a high level of commonality, which perhaps we're not getting enough credit for yet." And that is the rub behind this unity is the specter of Microsoft. The Redmond, Wash., vendor is pushing to deliver a Win32 application programming interface, which will allow users to run the same applications across NT and a future 32-bit implementation of Windows.

"There are a lot of people who hate Microsoft," says Curt Monash, president of Monash Information Services, Inc. in New York, "so anything that is being seen as anti-Microsoft is going to draw a lot of support." But even with an offering like NT, users are not assured of improved openness. For starters, NT doesn't claim to be wholly open and isn't. Plus, NT is prone to suffer from most of the implementation vagaries that affect Unix. Multiple vendors such as Digital, Acer America, Inc. and Sequent Computer Systems, Inc. are already implementing Windows NT on different hardware platforms.

For its part, COSE could eliminate some interoperability hurdles with other standards, such as the Open Software Foundation's (OSF) Distributed Computing Environment and Distributed Management Environment.

A delicate balance

But even that would not change a more fundamental problem: the need for vendors to strike a balance between maximizing profits and providing differentiated products vs. growing user demand for an environment that is plug-and-play.

"The truly portable server operating system environment is a pipe dream," Monash says. The temptation for vendors is to sacrifice portability for features, he notes. Bottom line: Vendors are making progress, but information systems managers shouldn't count on a truly open environment soon. In fact, by the time vendors implement COSE, it's likely that new technologies such as object-oriented will create a whole slew of compatibility issues.

Even so, COSE backers remain optimistic. Their ideal scenario: In 12 to 18 months, the standard is adopted by makers of products based on Unix System V and the OSF/1 versions, then by Digital, HP and others.

Some, including Noah Ross, chief information officer at Cap Gemini America, Inc. in New York, wonder whether vendors will be truly able to lay politics aside. "For a while, it looked like every one was going to follow Novell's lead and set aside their differences," Ross says. "But then it was still arguing because IBM wants to have a certain set of features and Sun wants another set for what they see as being important for their technological vision of Unix. It would be nice to have an implementation that covered all the bases."

#? SURPRISING NUMBERS

UNIX RELATIONAL DATABASE MARKET

- Grew an unprecedented 41% from 1991 to 1992, reaching $1.13 billion. All regions enjoyed strong growth; Europe was especially strong. Sales of database development tools climbed twice as fast as database engine/server software.

OBJECT-ORIENTED PROGRAMMING

- Most likely candidates: Large sites with mainframes and Digital VAXs, heavy user adoption for technical/scientific processors, open systems strategies and those in education, transportation, communications, utilities, insurance and financial services.

UNIX INTEGRATED OFFICE SYSTEMS

- Global sales rose 55% to $164 million last year, slower but still healthy. Reasons: Shifting demand for client/server and peer-to-peer products, emergence of Windows NT, more vendors. U.S. lags behind world badly: Sales here grew only 1%.

CHART YOUR OWN COURSE

PERSPECTIVE

CHART YOUR OWN COURSE
Despite cries of 'political incorrectness,' IS chiefs stand by their use of foreign programmers, citing quality and low costs.
The user interaction factor

While the use of offshore outsourcing seems to be on the rise, some forces are working against the practice, a number of observers say.

"As companies move toward client/server, the proximity between [IS staff and end users] is going to be increasingly important," says John Alexander, president of Business Technology Consulting, Inc. and former CIO at Unum Life Insurance, which used offshore programmers on two projects.

"You can generate a [graphical user interface] screen overnight, and you really want the client to touch it and feel it and give you instant feedback." The close ties between users and developers in some cases means that users become a part of the IS work force.

However, one executed at company headquarters in Portland, Maine, and the other by a team based in India. Both were contracted out to IMR in Clearwater, Fla.

The projects, which cost between $50,000 and $100,000, demonstrated that offshore outsourcing is workable and can be economically attractive, Alexander says.

A key aspect of the economic attraction is the cost of labor. Indian programmers are available at an hourly rate of $15 to $25 compared with $35 to $50 in Ireland and $50 to $75 in the U.S., according to International Data Corp. (IDC), which has completed a study of offshoring software development funded by the World Bank.

"You can get a Ph.D. in India for the same price as an undergraduated student in the U.S.," says Kurt Kornjohn, a senior analyst at IDC in Framingham, Mass.

Unum's job in India was particularly cost-effective because developers were able, via a network, to use Unum's production mainframe in the U.S. during off-peak hours.

More legwork

However, Unum found that the advantages of offshore development were offset by disadvantages. "It requires more formality," Alexander says. "You have to do more work up front, and it requires more rigorous testing and evaluation at the end to ensure that what you said and what the other guy heard matched what you really meant."

That added layer of formality just about wiped out cost savings on Unum's test projects, but Alexander says offshore development in larger projects of the right type would probably yield between 15% and 30% in savings.

Unum concluded that the ideal development job to be sent offshore would cost more than $250,000 (large enough to recoup fixed costs involved in setting it up) and straightforward in scope — for example, porting a legacy mainframe application to a client/server environment without re-engineering the underlying business practices.

"It would also be helpful if the customer is really rigorous in defining requirements and is willing to hold the world still between requirements definition and solution delivery," Alexander says.

Foreythe agrees, saying that change control has to be rigorous when contracting from thousands of miles away. "You have to be disciplined in evaluating whether a system change is worth the risk of introducing late in the game."

Financial service

Control was the watchword at Turner Broadcasting System, Inc. in Atlanta when it turned to offshore software house Data Conversion, Inc., in Cambridge, Mass., to develop a financial system.

Turner designed the application and handed very detailed specifications — beyond what the foreign programmers needed to perform the work. "We sat down with them and talked it through, but I don't think any minds were changed. The right thing for them was to employ Americans, preferably Maitheos, and keep the work local," says Martin Garvey, senior research analyst at Meta Group in Westport, Conn.

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Legally speaking

Two changes in federal law may make things tougher for foreign programmers trying to work for U.S. companies:

1. Possible revamp of the Labor Conditions Applications.

   The Labor Department is taking a close look at the Labor Condition Applications that employers must file when they petition for visas for foreign professionals.

   Some of the proposed changes to regulations include the following:
   - The government could initiate investigations. Previously, only "aggrieved parties or organizations" could file complaints. In this way, government agencies would be able to initiate investigations even in the absence of a complaint.
   - Employers would be required to show how they determined the prevailing wage rate for the foreign worker.

2. Tighter restrictions on foreign visas for temporary workers.

   The State Department is looking at tightening visa restrictions in the area called "B-1 visitor for business."

   Some of the proposed rule changes include the following:
   - The foreign worker's salary or other remuneration can come only from the foreign employer, not directly or indirectly from a U.S. company.
   - The foreign firm maintains ultimate control over the alien's employment, including hours worked.
   - The alien's "proprietary work product" belongs either to the alien or the foreign employer, not to a U.S. firm.
   - The foreign firm handles all personnel matters, such as promotions and terminations.

Wake up, U.S. programmers!

BY ED YOURDON

A fter spending the last five years trying to warn U.S. programmers that their days may be numbered, I think I'm finally starting to see a glimmer of hope that my message is getting through. In 1988, I wrote about downsizing, unemployment and press about sleazy programming "body shops" stealing U.S. jobs. In 1993, we have known for nearly 30 years that offshore programmers and the quality of offshore work is just as good as in the U.S. and "in many cases better." Travelers in Hartford, Conn., set up a software development office in Ireland in 1987 and now has 27 application developers there. Coolidge says the company saves 12% on its offshore development work. Nevertheless, there are drawbacks, he says. Echoing a complaint common to a number of companies that have gone offshore, he says, "There is difficulty in getting your traditional IS manager to use remote activities. It's a culture shock knowing your people aren't sitting down the aisle where you can go talk to them." That remoteness is both a blessing and a curse, says former Unum CIO Alexander. At Unum, "we tended to put the programmers and analysts as close as we could to the businesspeople, so we tended to minimize the formal handoffs to maximize fast response to customer needs.

While the formal handoffs from Unum to its Indian team forced a discipline that was useful at times, it also led to misunderstandings, Alexander says. "The strengths that Unum gains by having that close proximity between IS staff and users is that everyone tends to speak the same language. It is more comfortable to be close to your people."

Threat in our backyard

As if offshore workers weren't enough of a problem, traditional programmers have to be concerned about an even bigger threat right here at home: downsizing, unemployment and press about sleazy programming "body shops" stealing U.S. jobs. In 1993, we have known for nearly 30 years that offshore workers and the quality of offshore work is just as good as in the U.S. and "in many cases better." Travelers in Hartford, Conn., set up a software development office in Ireland in 1987 and now has 27 application developers there. Coolidge says the company saves 12% on its offshore development work. Nevertheless, there are drawbacks, he says. Echoing a complaint common to a number of companies that have gone offshore, he says, "There is difficulty in getting your traditional IS manager to use remote activities. It's a culture shock knowing your people aren't sitting down the aisle where you can go talk to them." That remoteness is both a blessing and a curse, says former Unum CIO Alexander. At Unum, "we tended to put the programmers and analysts as close as we could to the businesspeople, so we tended to minimize the formal handoffs to maximize fast response to customer needs.

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Must keep up

But I worry when I hear Americans implying that the U.S. is a monopolist on this talent. Remember that 90% of our software applications are simple, mundane and boring; it is precisely because of the innovative technology we've developed that these applications can be built by programmers anywhere in the world. We can't get complacent. And I worry about the arrogance of the hotshot young C++ programmer who sees his only competition in the form of a middle-aged mainframe Cobol programmer. That competition is only a local skirmish. The real competition is going to be among the world-class players; such competition will grow increasingly fierce as we approach the midpoint of the decade.

Unless U.S. programmers wake up and start working harder and smarter, I fear that that competition will make today's layoffs look tame by comparison.
WHEN YOU INHERIT A WAN

By Julie Hart

W hen you thought your job couldn’t get any harder, you suddenly inherit a wide-area network. Your first inclination is to run. Your second is to sign up for primal scream therapy. After the panic subsides, you realize what you already knew: You can’t escape.

“Being a LAN technician is becoming somewhat like being an electrician because the technology is pretty close to plug-and-play,” says Chris Finn, a senior analyst at TeleChoice in Siren, N.J. When you work with a WAN, however, no two networks are the same.

“This is where you get into using art and science to pull everything together.”

But where do you begin? First, if you don’t know much about WANs, expect to feel a bit uncomfortable for about the first six months, according to analysts.

And after that, it still isn’t easy. “You may inherit a WAN as well as a bunch of unmet needs,” Finn says. That’s why it’s important to get to know your users and community before launching into day-to-day WAN management.

“Find out how well the wide-area network is serving its needs,” advises Bob Harrold, manager of strategic programs at ARI Network Services in Milwaukee. “And if you inherited a staff, talk to them about the network’s current and potential use.” This background information will come in handy.

“The biggest ongoing learning curve is sorting through the onslaught of technology,” says Phil Evans, director of telecommunications at Perot Systems Corp. in Dallas.

Get your feet wet

Adding to the confusion is a growing mass of telecommunications options, from asynchronous transfer mode to synchronous optical network. In addition, data carrier solutions constantly change. Your best defense, Evans says, is to keep up with the players, especially their vision for the future.

Cpace, Inc. in Leicester, N.Y., is in the process of moving from individual PC and Macintosh LANs to a WAN. “Before, I just plugged in AppleTalk and it worked,” says James Mullin, data processing coordinator.

“Packetets and TCP/IP and other terminology didn’t matter to me. Most everything I needed was shrink-wrapped and ready to go. Now I find myself reading everything I can get my hands on.”

One of the best ways for newcomers to get their feet wet is to surround themselves with peers. “Become active in an association,” Evans says. Not only will you meet peers in other companies willing to share information, but the exposure to WAN issues and terminology will also eventually start to make sense.

A big concern is how to deal with multiple vendors. “With a WAN, you’re not at all guaranteed that everything will run smoothly,” Evans says. And when things go wrong, it’s difficult to trace problems back to a particular vendor.

To minimize this difficulty, analysts suggest building strong vendor relationships before making long-term commitments.

“Vendors are willing to give advice,” says Rob Rich, an analyst at Dataquest Worldwide Services Group in Framingham, Mass. “Just be sure to talk with them thoughtfully before coming to any conclusions.”

In addition, be prepared for things to move more slowly in the large-scale WAN world than in the LAN environment. Although the technology is advancing rapidly, Finn says, companies are swallowing it at a leisurely pace to control costs.

If you plan to succeed in your new role, don’t expect to simply keep the network running. “Give it a fresh look — that’s what you’re there for,” Rich says. “Whoever set up the WAN in the first place may not have done it right, or the company’s business goals may have changed.”

Once you have some knowledge under your belt, take a close look at the WAN topology to determine whether changes are needed. A variety of ways exist to optimize a WAN.

Either way, your job is to ensure that the WAN you’ve inherited serves the needs of the user community. “It’s not an easy job,” Finn says, “but it’s where the action is.”

Hart is a free-lance writer in San Jose, Calif.

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All skills reap benefits

By Joe Panepinto

Even though Emit Hurdelbrink and John Johnston have made the journey from mainframe systems operator to today's multiplatform world, they have marched to the tunes of wildly different drummers.

The 42-year-old Hurdelbrink started in 1970 as a mainframe operator working in an Army mobile data center — two IBM System/360s in a 40-foot trailer in Frankfurt. From there, he took a job as a mainframe operator at Denver's city auditor's office and pursued his interest in programming by taking Cobol and assembler classes at night.

In 1976, he left to become a mainframe programmer at another company, where he wrote financial, accounting and other mainframe software for an IBM CICS system. Even though he was a self-proclaimed VSE bigot, Hurdelbrink picked up MVS skills as well as experience with an OS/2 application. By 1983, he had an M.S. in information systems and was moving into the PC world.

Johnston worked in an automotive environment. When the medical center rumbled about downsizing, for instance, Johnston bought a PC and learned DOS, OS/2 and VAX programs on his own. When it began installing LANs, he volunteered for that project as well.

After less than four years, Johnston was in tune with the emerging heterogeneous environment. When the hospital wanted to build a prototype application that would pass data between Windows PCs, OS/2 workstations and CICS applications on the mainframe and the Digital Equipment Corp. VAX, only Johnston could build the application.

Although Johnston never earned a college degree, he says he never really missed it. "I would recommend young people learn NetWare first. They can find a lot there to learn," Johnston says. "Then I'd tell them to learn the interconnectivity parts of OS/2 and Windows. But most importantly, I'd tell them to jump on every opportunity they have to get more skills."

Panepinto is a free-lance writer in Amherst, Mass.
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Computerworld DECEMBER 6, 1993 133
**Systems Analyst (Ref. #88693)**
To consult with clients to ascertain and define their business requirements or problem areas and utilize technology expertise to provide solutions to clients' needs, analyzing, designing, developing, and implementing an integrated DB2 database, migration, and re-engineering of application systems to the new database platform. Duties include implementing computer software for clients' EDP systems. Responsible for full project life cycle for the design and implementation of comp software for clients' EDP systems. Duties include: enhancing and customizing the UWIN, (Universal Windows Interface) and supporting database administration. $47,000/yr. 40 hr/wk

**Consultant** (Ref. #86193)
To consult with clients to ascertain and define their business requirements or problem areas. Duties include in whole or in part, development of integrated systems, including redesign, development of its modules, and integrated system testing. Duties require using comp software for clients' EDP systems. Duties include: enhancing and customizing the UWIN, adhering to the company's documentation, and providing support to the development team. $33,155/yr. 40 hr/wk

**Senior Software Consultant** (Ref. #46893)
To consult with clients to ascertain and define their business requirements or problem areas and utilize technology expertise to provide solutions to clients' needs, analyzing, designing, developing, implementing comp software for clients' EDP systems. Duties include: in part, lead team of programmers in analysis, design, problem solving for clients' EDP systems. $37,810/yr. 40 hr/wk

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CHICAGO: 10400 West Higgins Road, Suite 300, Rosemont, Ill 60018, Patricia Powers, 708-827-4433.

**Marketplace**

**FIELD REPORT**
Docking Stations

By David Baum

Th concept is great: A portable computer that goes anywhere and upon return to the office, slips into a docking station with your favorite desktop peripherals and network connections already attached. No need to maintain two computers or worry about files and programs being synch.

Typically, the goal of most users who seek docking stations is to integrate a portable computer into a cohesive desktop system, not just to provide a bigger monitor and keyboard, says Matt Ghourdjian, national director of technology at the law firm of Howrey & Simon.

Apple Computer, Inc., NEC Corp., Compaq Computer Corp. and a host of third-party vendors offer docking stations that work with portables from these three vendors. After testing PC and Macintosh-compatible systems, the 750-person law firm standardized on Apple PowerBook Duo portable computers and a variety of docking stations from Apple and third-party vendors.

"The attorneys like the Dous because they are lightweight," Ghourdjian says. He insists that Apple's PowerBook Duo line and accompanying docking stations offer the best integration between hardware and software.

"The PC vendors don't do this as well," he says. "There is no synergy between the operating system and the docking hardware. For instance, [with a PC] if you hit the eject key, you can lose whatever document you were working on. Also, there are no auto-mount features like you have with the Apple" docking stations.

**Makes traveling easy**
Docking stations have caught on at sites where users are on the move such as Houston Community College in Texas, where the faculty travels among 46 different locations at six different colleges.

"Our faculty teaches at multiple sites on the same day," says Willie Pritchard, assistant vice chancellor for instructional computing. "We've established teaching bunkers in the main lecture halls with built-in docking stations. Teachers can walk in with a computer, slip it into the dock and power up a full multimedia system for presentations."

Ghourdjian says his favorite Duo-compatible dock is Etherdock from E-Mac or a dock-resident hard drive. "The attorneys like the Duos because it is Ethernet-ready. However, it does not support an internal PowerBook modem or a dock-resident hard drive."

**Lingerincomplaints**
Despite the convenience, the price for a complete system is steep. After spending $500 to $2,200 for a portable computer, spending another $500 to $1,000 for the docking station may be hard to swallow. Some users say many docking station-compatible notebooks that favor light weight over functionality are flawed by the lack of an internal floppy drive.

Ghourdjian disagrees. "If you utilize the networking and communication tools, you'll almost never need a floppy," he says. "For us, the extra weight isn't worth it." Yet users warn that not having a floppy drive onboard can be disastrous if a critical program crashes when away from the dock. With no way to insert floppies, you cannot reboot the system.

Baum is a free-lance writer in Santa Barbara, Calif., who specializes in emerging technologies.
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Index of used computer prices

Week ended November 29, 1993

| Computer | IBM PS/386SX/25 | PS/2 Model 70-A21 | PS/2 Model 55SX | ThinkPad 700C | PS/2 Model 90-OH9 | PS/2 Model 95-OIF | Compaq Prolinea 466 | Prolinea 486/50 | Portable 386 | SLT-386 | LTE-286 | Prosignia 486/66 | Apple Macintosh SE | IIcx | IICI | IIIFX | Quadra 950 | Closing Prices
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140 COMPUTERWORLD DECEMBER 6, 1993
Wall Street divided on EDS

The grandaddy of outsourcing firms, Electronic Data Systems Corp. (EDS), owns more than one-third of the market. Recent events have divided analysts on the company's near-term stock performance.

James Kissane, an analyst at Salomon Brothers, Inc., said EDS is fundamentally solid and that its revenue will likely continue to grow. But he recently downgraded EDS shares from Buy to Hold, citing uncertainty created by the decision to spin off its parent General Motors Corp. to contribute its GM shares to its U.S. Hourly Pension plan.

Also, EDS has had mixed results in recent bouts for big contracts. EDS lost the bidding in November for a 10-year, $2 billion contract with British Aerospace PLC. Computer Sciences Corp. (CSC) got the business instead. At the end of the month, though, EDS scored a 10-year, $2 billion contract from Buy to Hold, citing uncertainty created by the decision to spin off its parent General Motors Corp. to contribute its GM shares to its U.S. Hourly Pension plan.

With the British Aerospace deal under its belt, EDS competitor CSC seems to enjoy good prospects. Equities firm Raymond James & Associates, Inc., recently gave CSC po-

---

Dollar

Electronic Data Systems Corp. (EDS) is still an attractive stock for investors. The company's revenue growth in the coming year, he said. EDS' fundamentals are more important than the pension plan and the British Aerospace deal.

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Each 52-Week Range

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Source: Gatterer Group, Inc., Stanford, Conn.
Dour Dell seeks portable panacea

By Michael Fitzgerald

Despite a return to profitability, Dell Computer Corp.'s normally effusive executives are haleful pie last week, forecasting a fourth quarter that will not match last year's.

At the same time, Dell is gearing up for renewed growth in 1994, in part through a rebirth in the notebook market.

Dell posted a $12 million profit on record revenue of $757 million in its fiscal third quarter, up from $370 million a year ago and a solid 8% increase over its second-quarter revenue.

While profits fell to less than half of the $28 million posted in last year's third quarter, the stock market reacted positively, bumping Dell's stock up three points. The PC maker had been expected to break even at best.

Dell followed up by issuing a debt offering, cautiously analyzing that fourth-quarter profits will likely fall short of last year's $30 million, though sales should should rise last year's fourth-quarter total of $815 million. Dell also said it will not hit its goal of $3 billion in sales for the fiscal year. Its sales totaled just over $2 billion in the last fiscal year.

Lack of a portable hurts

Dell surprised analysts with solid unit growth in the desktop market, but its lack of notebooks hurt its third-quarter sales performance and is blamed for the projected slip.

Analysts said they were impressed with the company's ability to grow revenue 8% despite its absence from the portable sector.

In a recent interview, Joel Kocher, Dell's president of sales, promised "a fairly broad range of products" for 1994.

Sources confirmed a published report that Dell will relabel AST Computer Corp. in Framingham, Mass., said, "They'll be coming from behind the curve, but if they can come out with something innovative," the notebook market will be competitive.

Stephen Ades, director of information systems for States Nitewear, Inc., said, "They'll be coming from behind the curve, but if they can come out with something innovative," the notebook market will be competitive.

Dell is that "notebook" form factors keep the market — 700 no-names own the rest of it," Kocher said. "They'll be coming from behind the curve, but if they can come out with something innovative," the notebook market will be competitive.

Sybase finds an Oasis

By Kim S. Nash

Sybase Inc. last week said it plans to acquire Oasis Group PLC, a $16 million business process re-engineering firm based in the UK.

The deal, valued at $21 million, would add consulting services aimed at non-technical senior managers to Sybase's collection of technical trainers, systems integration partners and other client-server advice-givers, the Emeryville, Calif., database vendor said.

As client/server computing becomes mainstream, users will need to plan for it on a corporate level, rather than project by project, analysts said. "Sybase needs to strengthen its consulting side to go beyond solving individual technology problems," said Dan Rich ard, an analyst at Database Associates in Morgan Hill, Calif.

Oasis provides Sybase with an entrance into business process re-engineering with the Oasis Methodology, according to David Peter schmidt, vice president and general manager of worldwide field operations at Sybase.

The Oasis way

Oasis Methodology is a set of guidelines for analyzing and re-vamping core business tasks such as billing, customer service and order-filling. About 70% of Oasis Methodology can be applied to any industry, while the other 30% must be customized for specific users, said David Stanley, Oasis co-founder.

By happenstance, Exxon Corp.'s Chemical Polymers Europe division and BP Exploration, Inc., are among several joint Sybase and Oasis customers. For the next year, Sybase plans to gradually introduce Oasis consulting to existing Sybase users interested in rebuilding business processes.

Rival Oracle Corp. beefed up its consulting arm by introducing Oracle Industries five months ago [CW, July 19]. The vertical market-oriented service provides consulting and prefabricated database templates based on the Oracle database.

Sybase officials claimed that Oasis goes beyond Oracle's offering by reaching out to senior executive suites at user sites. "We deal in high-level discussions of how business works and doesn't work, without touching on specific technical issues until much further down the line," Stanley said.

The acquisition is expected to be approved by shareholders and government agencies next month.

Sybase Group PLC

Headquarters: Maidenhead, England


Focus: Pure consulting firm for business re-engineering; sells software or hardware of its own.


Employees: 100.

Customers: Multinational firms, primarily based in the UK, including S. G. Warburg & Co. and BP Exploration, British Coal Corp., El Lilly & Co.

Sybase gains:

High-level consulting services.

Computerworld December 6, 1993 145
Microsoft late last week informed DOS 6.2 users via CompuServe that they may need a patch from Stace Electronics if they intend to use the operating system with the latest version of Stacker. Microsoft claims that Stace slipstreamed some changes into Stacker 3.11 that have caused various “incompatibilities” between the two products. Users need to run the patch, which can be found in Stac’s Intellection has a family of forum, before installing MS-DOS 6.2. If Version 6.2 has already been installed, users must uninstall it, run the patch and then reinstall DOS. The vendors are involved in litigation.

Unstacking the code
Microsoft late last week informed DOS 6.2 users via CompuServe that they may need a patch from Stace Electronics if they intend to use the operating system with the latest version of Stacker. Microsoft claims that Stace slipstreamed some changes into Stacker 3.11 that have caused various “incompatibilities” between the two products. Users need to run the patch, which can be found in Stac’s forum, before installing MS-DOS 6.2. If Version 6.2 has already been installed, users must uninstall it, run the patch and then reinstall DOS. The vendors are involved in litigation.

Scalng, scaling over the DBMS sea
This week Microsoft is expected to show attendees at Database World in Chicago a version of its SQL Server for Windows NT database running on Digital’s Alpha, according to sources close to both firms. The product will ship by month’s end, the sources said. A 64-bit Alpha release of SQL Server will help prove that the database is scalable and portable, according to Dennis Schneider, president of OnPoint Marketing, a Nashua, N.H., consulting firm.

Getting a handle on Unix
Novell is preparing to roll out the services that will allow its UnixWare systems to be managed along with NetWare via its NetWare Management System (NMS), according to product line manager Steve Dauber. The services to be rolled out to UnixWare in the “fairly near term” include inventory management and software distribution, Dauber said. The recently shipped NMS 2.0 already monitors traffic generated by UnixWare systems through its LANalyzer NetWare Loadable Module, which can analyze TCP/IP packets, he added.

Ties that bind
When it comes to integrating Banyan’s Enterprise Network Services (ENS) with Microsoft’s Windows NT, the question is not whether but how, according to Banyan Vice President Bill Johnson. Definitely in the works is an NT redirector that will put NT clients on an ENS server. Less clear is whether Banyan will implement its global services on an NT platform, as it is doing for various Unix systems; or integrate ENS services with Microsoft’s LAN Manager, as it did with NetWare; or even support Microsoft’s future global services, a la Cairo. Stay tuned, Johnson says.

Avoiding LAN mines
Tandem Computers and its Ungermann-Bass subsidiary are expected this week to disclose that they will ship a set of fault-tolerant LAN products in the first quarter of next year. The NonStop Access for Networking series was designed to nearly double the uptime of LANs running DOS, Windows and OS/2 PCs through the use of dual-port LAN adapters and dual hub controller cards. The MasterLAN FT dual-port Ethernet adapter card, priced at $199, can be added to LANs of any brand. A complete system, including hub controller cards and host-based LAN controllers, costs $650 per workstation.

Unstacking the code
Microsoft late last week informed DOS 6.2 users via CompuServe that they may need a patch from Stace Electronics if they intend to use the operating system with the latest version of Stacker. Microsoft claims that Stace slipstreamed some changes into Stacker 3.11 that have caused various “incompatibilities” between the two products. Users need to run the patch, which can be found in Stac’s forum, before installing MS-DOS 6.2. If Version 6.2 has already been installed, users must uninstall it, run the patch and then reinstall DOS. The vendors are involved in litigation.

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Even Digital employees seem a bit uncertain about when it’s OK to use the now-discredited DEC acronym. Last week’s press release on Digital’s object technology agreement with Microsoft made reference to the Digital OSEF1 operating system (see story page 6). But a spokesman for the company’s Unix operations said that at least for now, the name is still DEC OSEF1; he surmised that the press release reflected an overly zealous reading of the corporate campaign to sweep the DECs clean. Digital does eventually want to change the name of DEC OSF1 to include the word “Uniz,” provided licensing terms from the new keeper-of-the-Uniz brand X/Open Co. are not onerous; but the spokesman said a switch to a new moniker is not imminent. Phone, fax or CompuServe News Editor Alan Alper at (800) 343-6474, (508) 875-8931 or 76537,2413, respectively. Or try Computerworld’s 24-hour voice-mail tip line at (617) 820-8555.
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