Computerworld Smithsonian Awards Dinner

The Search for New Heroes

June 25, 1990
National Building Museum
Washington, D.C.
Meet the people who are really changing the world.

Recipients of the Computerworld Smithsonian Awards are people of vision and commitment who have used the tools of information technology to create positive change.

They create products which save lives, stop prison over-crowding, decrease famine, enhance human creativity and help the handicapped help themselves. If your flight is on time; if your children are doing better in school; if your home was not flooded during a serious storm; or if your missing child has been found, it is very possible that you have these people to thank.

Before the inception of the Computerworld Smithsonian Awards Program in 1989, few of these truly heroic individuals received the recognition they deserved. And, even though their achievements depend uniquely on computer technology, the technology industry did not receive the recognition it deserves for making this progress possible.

Members of the Chairmen's Committee and the 1990 Corporate Sponsors will meet in Washington D.C. June 25th to announce the 1990 Computerworld Smithsonian Award Winners.

Computer technology is making it possible for individuals with big ideas to make a big difference in the world today. Join us when we recognize their achievements.

For more information call the Computerworld Smithsonian Awards Foundation at (508) 935-4572.

1989 Winners

Business - Bell & Howell's Image Plus Search System®

This system allows the rapid storage and retrieval of large amounts of documents, saving time and increasing efficiency.

Education - Orangburg School District 5, Orangburg, South Carolina

Computers have dramatically raised test scores and reduced the drop out rate in an 80% non-white, 70% free-lunch school district.

Environment, Energy and Agriculture - Pasam River Basin Early Flood Warning System, Sierra-Misko, Inc.

A network of microcomputers serves as an early warning system that saves lives and property.

Finance, Real Estate, and Retail Sales - FIX and FAST Fidelity Investments

Fidelity Investment's FIX and FAST gives individual investors 24-hour access to account information and market data.

Government - The Missing Children Project, University of Illinois

Computers which accurately project updated images of missing children from old photographs have successfully reunited parents with their children.

Home Escort System

Helps to solve the serious problem of prison overcrowding by allowing non-violent offenders to serve sentences without being removed from society.

Manufacturing - University of Iowa's National Advanced Driving Simulator

By allowing specialists to create safe policies and guidelines for operating vehicles, this real-time driving simulator has the potential for saving millions of lives per year.

Media, Arts and Entertainment - Live Aid, Uplinger Enterprises

The Live Aid concert raised $145 million for famine victims in Ethiopia and the Sudan.

Medicine - The EyeGaze Computer, L.C. Technologies

A computer run completely by one's eyes, the EyeGaze computer liberates the creative minds trapped in the bodies of the severely disabled.

Transportation - American Airlines SABRE Reservation Service

SABRE is the world's largest real-time, non-government computer network and the world's largest travel information database.

Wholesale and Retail Sales - The Innovis DesignCenter

People with no computer training are creating in retail stores sophisticated three-dimensional designs.

The Chairmen's Committee

Windows pulls Lotus into corner

Multiple 1-2-3 choices could confuse market

BY PATRICIA KEEFE
CW STAFF

BOSTON — Bowing to user pressure and the anticipated impact of Windows 3.0, Lotus Development Corp. surprised no one last week when it said it will port its 1-2-3 spreadsheet to Microsoft Corp.'s Windows environment, probably in 1991.

Also driving that decision is the fact that "the pace of OS/2 maturing hasn't been sufficient," acknowledged Frank Ingar, vice-president and general manager of Lotus' PC Software Division.

The 3 faces of Lotus

The firm will sell multiple high-end versions of 1-2-3:

- Release 3.0, currently the high-end version of Lotus' DOS spreadsheet family, will be supplemented in September by Release 3.1.
- Version 3.1 will run native under DOS, in character mode under OS/2, and in full screen mode under Windows.
- '1-2-3/W' should ship sometime in 1991 as a full-function Windows application.

Don't look back in time at Epoch Systems, which has gone through a boom year in its storage market niche. Page 103.

Officevision birthday blues

BY ROYCEMER HAMILTON
CW STAFF

Where there is smoke, there is not necessarily fire — or so IBM's Officevision story shows.

One year after the hot debut of its first Systems Application Architecture application, this integrated set of office tools seems stuck in evaluation mode at many user sites instead of becoming a real piece of their information systems structures.

While some users have adopted the initial capabilities of Officevision in Release 1.0 (see story page 129), others remain unconvinced that there is anything to buy into.

"I have yet to find one single feature [in Officevision] that we haven't had for years," said George Sekely, vice-president of computers and communications at Canadian Pacific Co. "When you remove the surface, it's just VM and Profs. This is a 1990s wallpaper on 1970s plaster."

Still smoldering

Most industry observers did not expect Officevision to quickly set the market ablaze, because IBM has positioned it as a long-term, strategic product. IBM prefers to focus on the long-term objectives and considers Officevision's first year a success in that it was established and met its delivery deadline for Release 1.0.

The purpose of Officevision is twofold. First, Officevision is designed to provide an integrated set of traditional office tools, such as electronic mail, that are intended to be consistent across the four SAA platforms.

Second, it is meant to serve as the central point at which an end user can access applications, move data among them and use that information with a host of office tools.

"Why would someone buy a

Focus turns to consumer rights

Leasing abuses charged

BY NELL MARGOLIS
CW STAFF

ORLANDO, Fla. — The man who has been called upon to clean up the computer leasing industry's most spectacular failures is warning industry executives that too many of them may be conducting business on the shady side of the law.

Without naming any names, James P. Hassett took the podium at the semiannual meeting of the Computer Dealers and Lessors Association earlier this month and said that some companies are engaged in abuses that are "surely immoral" and, in some cases, of dubious legality. Hassett, as a court-appointed trustee, has now overseen the reorganization of four fallen leasing companies, including the fraud-ridden O.P.M. Leasing Services, Inc.

Hassett cited questionable practices, including the selling of computers without benefit of holding legal title and the stripping of systems to sell or lease their parts without properly accounting for the transaction.

Hassett's warning came at an opportune time. Even as he gave his address earlier this month, the fate of New York-based Atlantic Computer Systems, Inc. — a $195 million leasing firm widely thought to be in sound fiscal shape — hung in the balance as its UK-based parent company careened from its place as the Continued on page 127

Aftermath

Robert T. Morris remained tight-lipped after his sentencing for Internet worm conviction, as others debated adequacy of sanctions. Page 128.
IN THIS ISSUE

NEWS
4 An Index Group survey outlines an anachronism in frustration for systems developers.
4 More huffing and puffing from the Unix front, this time over distributed computing platforms.
6 NCR moves into the high-speed lane with the introduction of 486-based boxes.
6 Frito-Lay takes to the skies with plans for a satellite network.
10 Novell's Netware enhancements should clear up access for SQL servers.
10 Banyan's Vines will twine together with Microsoft's LAN Manager.
14 Banks could be a strong factor in trading with EDS into the business mainstream.
128 Morris sentence provokes debate over whether the punishment fits the crime.
128 Big hack attack: Nationwide raids attempt to break up a computer crime ring.
129 Officevision technology is taking a back seat to SAA applications.

Quotable
"W hen you re-move the sur-face, it's just VM and Profs. This is 1990s wallpaper on peeling 1970s plaster."
GEORGE SEKELY
CANADIAN PACIFIC CO.  
On IBM's Officevision. See story page 1.

SYSTEMS & SOFTWARE
25 IBM and DEC drum up a strong show of support for CA '90s.
29 Boston's WGBH raises money the new-fashioned way — they use high-tech.

PCs & WORKSTATIONS
39 IBM refuses to be blue about the gloom and doom surrounding OS/2.

NETWORKING
59 Unisys hopes to connect some customers with a new LAN service program.

DEPARTMENTS
8, 127 News Shorts
18 Advanced Technology
22 Editorial
73 Calendar
108 Computer Careers
119 Marketplace
124 Training
126 Stocks
130 Trends

MANAGER'S JOURNAL
67 IS is in the vanguard of the brigade that wants a home to be an office, too.

COMPUTER INDUSTRY
87 Two up-and-comers — Network General and Epoch Systems — are delight of industry eyes.

EXECUTIVE REPORT
75 The financial services industry looks to IS for support in a time of transition.

IN DEPTH
97 Surprise! The winner of the Unix wars may not be Unix at all. By Gary H. Antbns.

125 SYSTEMS & SOFTWARE
126 DATABASES
129 SOFTWARE ENGINEERING
130 TRENDS

EXECUTIVE BRIEFING
■ Clean up your act, computer leasing industry executives were told at their biannual conference. James Hassett, the trustee for the bankruptcies of O.P.M., Itel and now CIS, chided CDLA members for creative accounting practices that are immoral, if not illegal. Page 5. To avoid the financial risks of less-than-honest lessors, IS directors who lease computers should look beyond low rates and beware of a deal that is too good to be true — it probably is. Page 6.

■ IS managers at investment banking and brokerage firms are in a quandary, caught between a cost drought and expanding needs for new systems. Some are counting heavily on downsizing to alleviate the resource crunch, and many are requiring that all new project requests pass through review boards. A big challenge for all financial services firms will be devising new strategies to replace outdated products and valued-added services that computer-equipped customers can now perform for themselves. Page 75.

■ Systems development directors are frustrated by a lack of real user commitment to development partnerships and lingering perceptions of their staffs as too technie. An Index Group survey also revealed that the use of CASE tools is mainly experimental, and CASE is not a panacea for faster and better development. Page 4.

■ Database marketing and the increased value of information are raising a slew of new issues regarding consumer privacy. Federal and state legislators are gear-ing up to scrutinize many private-sector business practices, ranging from phone number identification to mailing list referrals. See stories pages 1, 127.

■ Banks have the potential to be key players in EDI, but laggards risk falling far behind the leaders. Some banks have already emerged as "EDI matchmakers" to compete with such vendors as GEIS. Page 14.

■ Frito-Lay looked to the sky and will install a satellite network from Scientific-Atlanta. The planned nationwide network of 300 VSATs will support Frito-Lay's large executive information system, which had the potential to overload the firm's LAN-based network. Page 6.

■ One year later, where is IBM Officevision? Many users say IBM's first SAA application is far from being the breakthrough integrated office package first promised. Lack of support for Unix and multivendor environments, as well as the delay of Release 2.0, are big problems. Page 1. Meanwhile, some IBM software partners are also frustrated and proceeding with their own SAA applications. Page 129.

■ IS work may lend itself better to telecommuting than other functions do, and many IS departments are forging ahead with programs that allow employees to work from their homes. But observers say telecommuting will not take off until sophisticated gateways and more powerful PCs become more commonplace. Page 67.

■ On-site this week: Boston's public television station, WGBH, powers its fund-raising drives with a DEC VAX 8550. The CPU tracks 1.5 million donor records and contributions that totaled more than $15 million last year. Page 29. To help determine the creditworthiness of some 200,000 retailers, Dun & Bradstreet calls on an expert system. Based on a shell from Inference Corp., the 1-year-old system is the first expert system at D&B's Credit Clearing House in Murray Hill, N.J. Page 30. France's second-largest construction firm has built a large Compaq network. The Paris-based Dumez Group recently invested in two Compaq Systems pros as servers for some of its networks of 250 PCs. Page 43.

With inspirational Louvre architecture as a backdrop, PC manager Alain Vignon envisions a PC networking architecture for Paris-based construction firm Dumez Group. Page 63.

IN THIS ISSUE
WHEN THE FORTUNE 500 WANT SORTING EFFICIENCY, THEY DON'T WASTE TIME.

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For sorting efficiency, don't waste time. Call your sorting partner: Syncsort.
Systems developers frustrated

BY CLINTON WILDER
CW STAFF

CAMBRIDGE, Mass. — These are not easy times for systems development directors — and computer-aided software engineering is doing little to improve things.

The increased demand to build strategic or cross-functional systems and the unfulfilled promise of new CASE tools have caused much frustration, according to an Index Group, Inc. survey of systems development directors released last week. In January, Index's Summit research unit surveyed 95 directors in the U.S. and Canada working at firms averaging $6 billion in sales and $12 million in annual development budgets.

Survey respondents were particularly frustrated by the ineffectiveness of the ballyhooed partnership between developers and functional users. Two-thirds (67%) said they believed that line managers are unwilling to assign qualified users to project development teams, while 64% said that getting different units to share data across functions was a “major problem.”

They have been hearing that it's hard to build cross-functional systems, and those perceptions are borne out by the numbers,” said Nicholas Vitalari, director of Summit and associate professor of MIS at the University of California at Irvine's Graduate School of Management. “It's not just a few firms here and there having this problem; it's across all industries.”

Another major problem, directors said, is the lingering perception of the systems development function as technology-oriented rather than business-oriented. Seventy percent of respondents said the function is often viewed by users as “the purveyor of technical rather than business solutions,” and 47% said their departments are viewed as an overhead item.

Belying those perceptions, few development directors said they view CASE technology as a top priority. Implementation of CASE tools ranked just 14th on their list of the top 20 systems development issues for the 1990s. The top three issues were developing an information architecture, achieving support for cross-functional systems and strategic systems development.

“Other issues are far more pressing than CASE,” Vitalari said. “The real major issue is cultural transformation and making development's business-oriented. That shows that systems development directors are thinking more like business managers rather than technicians, which is a very positive thing.”

Users bypass war over distributed standards

BY ELISABETH HORWITT
CW STAFF

MOUNTAIN VIEW, Calif. — With yet another standards tiff brewing in the Unix arena — this time in the area of distributed computing — some users indicated they will ignore the sounds of battle and bring in whatever seems to get the job done.

Sun Microsystems, Inc. threw down the gage two weeks ago by announcing its long-term plans to support and enhance its Open Network Computing (ONC) system — “de facto” standard, no matter what the Open Software Foundation (OSF) chooses this week as the official distributed computing standard.

The OSF is widely expected to choose the Decorum proposal — offered by a group that includes IBM, Hewlett-Packard Co., Locus Computing Corp. and Transarc Corp. Users with immediate distributed computing plans could face the dilemma of choosing between a widely installed “de facto” standard and an “official” standard that is likely to have far broader industry support when it matures in two to four years, according to Steve Wendler, a program director at Stanford, Conn., research firm Gartner Group, Inc.

However, users said that the state of the standard will have little to do with their long-term distributed computing choices. “I don't believe we'll run to Decorum simply because OSF codifies it,” said Edward Zaharewicz, a systems architect at The Putnam Companies.

Right now, the Boston-based investment firm's distributed computing environment makes use of the complementary strengths of both Sun's Remote Procedure Call (RPC) — which is the basis of Sun's distributed platform — and the HP Apollo Division's Network Computing System (NCS), which forms the nucleus of the Decorum proposal. While Sun's RPC “does have a broader multivendor support,” NCS has more functionality in such areas as location services on the network, Zaharewicz said.

Charles Schwab & Co. is still evaluating whether RPC technology is the right foundation for its distributed application platform, “but we will make our choice on the basis of whatever gives us the best multivendor interoperability, not what OSF chooses,” telecommunications analyst Shane Pflieger said.

The one component of Sun's ONC that has a claim to de facto status is Network File System (NFS), Wendler said, NCS, which is also a major component of Sun's submission to the OSF, reportedly is installed on 1.2 million nodes. However, the fact that Sun's RPC technology was developed originally for NFS is minus rather than a plus, given that users want a distributed computing platform that goes well beyond file-sharing applications, Wendler indicated.

Sun has sought to enhance ONC's appeal through alliances that broaden its networking support and through recently announced enhancements (see story page 66). Enhanced or not, however, Sun's ONC will be passed over by the OSF in favor of a combination of Decorum and DEC submission.

Correction

In an April 9 Product Spotlight article, Texas Instruments, Inc.'s Information Engineering Facility was incorrectly described as a full-life-cycle product that started out as a set of non-integrated tools. In fact, IEF was originally designed as a fully integrated product.

The March 12 article “CA follows the integration trend” misidentified United Techsys, Inc. as United Software, Inc. It correctly indicated that United Techsys bases its strategy on acquired rather than internally developed products.
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NCR to ship high-end systems with zip

*But company's marketing woes could bog down products, analysts say*

BY RICHARD PASTORE

NEW YORK — NCR Corp. moved to solidify its presence in the high-end personal computer market last week, unveiling Intel Corp. 1486-based systems and a 486 upgrade chip. However, NCR's plans may face a shaky ground when it comes to marketing the products, analysts said.

The desktop PC and diskette server, to ship next month, are among the first with the 33-MHz technology for its 20-MHz Intel server, to ship next month, are the high-end personal computer 486 chip, the fastest Intel processor available. It delivers 32% faster performance than the 25-MHz version, Intel said.

"It's trying to break out of its mold as a vertical solution vendor and become a leading vendor of client/server systems," said Paul Zaagaski, an analyst at The Yankee Group in Boston. This [introduction] helps establish presence.

The company also announced what it calls "1486 upgrade technology" for its 20-MHz Intel 83086SX-based PCs. By installing the $3,500 upgrade board, users of NCR's PCs868SX/MC20 PC can achieve faster performance than a 33-MHz Intel 83086-based PC in most applications, NCR said.

"This is how we are helping users deal with their hardware uncertainties," said Alot Moan, vice-president of workstations products at NCR.

Offering this kind of hardware flexibility and investment protection is a growing trend among PC vendors, analysts said. "It's a response to user demand to prevent early obsolence," Zaagaski said.

Although they were not always sure they would take advantage of it, NCR PC users praised the upgrade. "I think it's a good idea," said Dennis Melville, vice-president of information services at Big V Supermarkets in Florida, N.Y. "We're putting in larger disks and memories, so the capability to kick it up to a faster box is desirable."

"It gives the user more flexibility," said Toys "R Us data center director Paul Gallico, who said he feels more comfortable knowing NCR offers such an upgrade path.

However, analysts are not comfortable with NCR's ability to sell new accounts on the upgrade and high-end PC technology. "The most difficult thing will be to market the upgrade. For a long time, they couldn't even decide what to call it," said Robert Cameron, associate director of northeast research at Dataquest, Inc.

Frito-Lay to crunch a bunch of bytes over satellite net

BY SALLY CUSACK

DALLAS — Driven by new applications, including an executive committee that goes with it, Frito-Lay, Inc. has signed a contract with Scientific-Atlanta, Inc. for the installation of an extensive satellite network.

Scientific-Atlanta will install and maintain the turnkey Skylink X.25 very small-aperture terminal (VSAT) satellite network designed to transmit information to and from the 10,000-person sales force and connect all 300 U.S. manufacturing, sales and distribution locations for the snack food maker, Frito-Lay, a subsidiary of PepsiCo, Inc., posted $4.5 billion in retail sales last year.

The network will reportedly include a 7-meter master earth station located in Dallas and 300 two-waist 1.8-meter VSATs. The vendor will handle all satellite transponder services for five years, under the terms of a 24-hour-per-day facilities management contract. According to Dan Smith, Frito-Lay's MIS communications consultant, the company was very satisfied with its 9.6K bit/sec. AT&T multiplex land-based network, but the addition of an EIS and several other advanced applications would require true peer-to-peer communications capabilities.

"We have a very sophisticated information architecture," Smith said. "It is essential that we move large databases back and forth between locations." When the company examined every possible solution, Smith said, including T12, fractional T1 and AT&T multiplex land-based network, but the addition of an EIS and several other advanced applications would require true peer-to-peer communications capabilities.

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NEWS SHORTS

Wait goes on for System 7.0
Apple Computer, Inc. officials confirmed last week what third-party developers have suspected for months: Apple's upcoming System 7.0 operating system will not be available until the end of the year at the earliest. Apple had hoped to get the new version out by summer and gave no specific reason for the delay beyond this was announced at a software developers conference. Some insiders said Apple has put development in neutral to see what Microsoft comes up with next Tuesday when it plans to introduce additional details about Microsoft's interface.

Xerox loses Apple suit
The last remaining count in the lawsuit over the technology behind the icon-based graphical user interface employed in Apple's computers was dismissed last week. Xerox Corp. filed the suit in December 1989, asking the court to cancel Apple's patent registrations and charging that the company is profiting unjustly from work that Apple founder Steve Jobs did in a joint project with Xerox.

Motorola targets multimedia
Motorola, Inc. hopes to begin riding the wave toward multimedia applications today with the introduction of an auxiliary processing chip for the company's S6001 24-bit fixed-point processor. Volume shipments of the 96002 will begin in the fourth quarter.

E-mail directory forum established
When representatives of 16 corporations met at Western Union Corp. headquarters in Upper Saddle River, N.J., late last month, they agreed to form an industry forum to develop an electronic directory service based on the CCITT X.500 recommendation. Plans call for the forum to meet quarterly to complete an aggressive program that will lead to full commercial availability of a North American electronic directory service.

AT&T upgrades Systimax
AT&T last week introduced a new cable for its Systimax Premises Distribution System said to support speeds of at least 200M bit/sec. over distances of up to 328 feet from the wiring closet. Systimax 2061 unshielded twisted-pair cable is designed to interconnect high-speed token-ring workstation through the Systimax wiring hub. Meanwhile, AT&T acquired, Inc.'s SmartSwitch 4/8 network interface cards for use with Systimax, according to Proteon.

IBM to supply Amadeus
IBM recently won a bid worth an estimated $400 million to sell as many as 55,000 Personal System/2s to the Amadeus travel reservation consortium. The contract is one of the largest volume deals in IBM's history, a company spokesman said. Madril-based Amadeus will resell the systems to travel agents and partners across Europe. Amadeus' international partners include Air France, Lufthansa and Iberia Air Lines of Spain. The range of PS/2 models will be configured with Amadeus' travel agency management software running under DOS, OS/2 and Unix.

AT&T offers cut-rate ISDN link
Seeking to make Integrated Services Digital Network (ISDN) economic for the residential and small business users, AT&T and Micom Communications Corp. last week announced a $500 ISDN adapter for IBM Personal Computers. The Adaptive Terminal Adapter Model 1000 does not take full advantage of the ISDN Basic Rate Interface in that it supports only voice on the two 64K bit/sec. B channels, allowing data transmissions to the 16K bit/sec. D channel. A new, powerful and functional ISDN adapter costs about $1,400.

Of worms and wars at DECUS

NEW ORLEANS — Amid the usual pomp and nonsense of trade show exhibits, some 6,500 Apple Computer Corp. customers gathered last week to swap war stories about everything from network security and privacy, to networks to the wars between DEC and IBM.

While no single issue dominated the seminannual Digital Equipment Computer Users Society (DECUS) meeting, there was intense interest in network security in the wake of the Robert T. Morris sentence for his worm program that paralyzed several thousand computer systems on the Internet research network.

"A lot of the folks I've talked to think the [Morris] sentencing was too lenient because there was no jail time. That sends a bad message on computer crime," said Roger Lam, a research engineer at NASA Langley Research Center in Hampton, Va.

Security problems were cited frequently by VAX/VMS users as the major stumbling block to acceptance of Ultrix, DEC's version of the AT&T Unix System V operating system.

Users were also keenly interested in a promise from DEC Vice-President Dominic LaCava that the company will deliver a PC-sized VAX, possibly by the end of the year.

During a question-and-answer period following LaCava's keynote address at DECUS, one customer asked when he could count on a fully configured, stand-alone PC running VMS. "Right now, you'd have to mortgag your house to get that," said Dick Gilbert, mechanical engineer at Princeton University.

Desktop VAX
LaCava responded that "far lower cost VAXs for the desktop" were coming. However, when pressed by other users about a laptop computer running VMS, LaCava said DEC is working to get more feedback from users about demand for laptops.

"If I had a VAX at home, I'd be a happy man," declared Robert Moss, a physicist and systems manager at Texaco, Inc. in Houston. "MS-DOS is the pits when it comes to programming on a VAX."

DEC officials made much ado about celebrating the 20th birthday of the old 16-bit war-horse PDP-11 minicomputer, introducing two new systems, the PDP-10 and the PDP-15.

"This is a nice life-cycle extension," said Bill Brindley, president of the users council and a systems manager at the U.S. Naval Security Group in Washington, D.C. "It could amount to a real cost savings for a number of organizations."

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As always, the perennial issue of the competition cropped up frequently in conversation.

"We're seeing a more prominent role for VAX," said Ernie Meier, systems manager at the Kerr-McGee Corp. in Oklahoma City. Meanwhile, DEC announced the release of a VAX 6000 Model 410 to run new manufacturing software and expand a three-machine Vaxcluster.

IBM recently won a bid worth an estimated $400 million to sell as many as 55,000 Personal System/2s to the Amadeus travel reservation consortium. The contract is one of the largest volume deals in IBM's history, a company spokesman said. Madrid-based Amadeus will resell the systems to travel agents and partners across Europe. Amadeus' international partners include Air France, Lufthansa and Iberia Air Lines of Spain. The range of PS/2 models will be configured with Amadeus' travel agency management software running under DOS, OS/2 and Unix.
Only ORACLE supports virtually every vendor's software, hardware and network.

Today, some software companies claim that their software products are "open." They may even graft the word onto their product names. It is a confusing situation, but a clear definition of "open" is finally emerging.

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More specifically, a database is open if it works with other vendors' databases. For example, ORACLE provides access to IBM's DB2, SQL/DS and DEC's RMS.

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Novell boosts Netware's OS/2 access
Requester upgrade includes full support for Named Pipes

BY JIM NASH CW STAFF

Novell, Inc. moved last week to give Netware network users greater access to OS/2 applications by providing enhancements to its Netware Requester for OS/2 and its DOS shell.

The Provo, Utah, networking firm's Requester software for OS/2 Version 1.2 includes full support for Named Pipes, which works with Novell's Netware products division, provides users with "totally transparent" access to SQL servers, including a listing of all SQL servers on the network.

The enhanced Requester, which is expected to ship next month, gives users a choice between Microsoft Corp.'s LAN Manager network and Netware. SQL servers, which operate on IBM OS/2 boxes, had required LAN Manager networks.

"That's a biggie. That's good news," said Dave Hoisie, project director at the University of Utah's computer center. Hoisie, who has yet to see the new product, added, "We're in a position now where a few applications that are coming out require us to start introducing OS/2."

Tim Yates, an associate at W. L. Gore & Associates in Newark, Del., said his firm has served as a beta-test site for the new version.

"It is allowing the front end to talk to the SQL server over a Netware LAN without having to run LAN Manager," Yates said. "That flexibility, he said, could mean substantial savings.

Microsoft spokesman Collins Hemingway chose to focus on the potential that Novell offers for increasing demand for SQL Server, rather than the possible challenge to LAN Manager. "LAN Manager was engineered alongside OS/2, but if [Novell's announcement] were to some-how create a competitive advantage for SQL Server over a Netware LAN without requiring LAN Manager" that flexibility, he said, could mean substantial savings.

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Imagine the frustration of being in an airplane that can only take off and land at the same airport. Ashton-Tate's SQL Server suffers that same problem. It limits users to a single server running just OS/2 and Named Pipes.

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Pan Am/AT&T futuristic airport plan takes off

BY JOANIE M. WEXLER CW STAFF

MIAMI — In one of its largest contracts to date, AT&T Computer Systems has landed a $40 million role in Pan American World Airways' emerging integrated data network.

The two companies announced last week that they have signed a five-year agreement under which AT&T will provide 10,000 Model 6386/SX and 6386/25 workgroup systems to about 100 Pan Am airport, reservation, operational and administrative locations worldwide. AT&T will also service and maintain oth-

er vendors' equipment in the airline's international network.

The personal computers will form the foundation for what Pan Am describes as its "airports of the future." Pan Am's plan calls for token-ring local-area networks at each airport connected with other facilities over an X.25 backbone.

The new network, which Pan Am started building several months ago, was designed to automate every point of contact between passenger and airline and thus reduce passenger wait times and slash Pan Am's operating costs by $15 million to $20 million per year, according to Robert O. Wagner, Pan Am's vice-president of information services.

AT&T won the PC leasing contract after a competitive bidding process that included IBM, NCR Corp., Unisys Corp. and Westinghouse Electric Corp., according to Wagner.

The stepped-up service goals Pan Am expects to achieve with its new network include reducing check-in time for passengers with tickets from the more than four minutes it now takes to between 1-1/2 minutes, Wagner said.

Tickets and boarding passes will be combined and will contain magnetic stripes encoded with passenger and flight information to provide a continuous audit trail for the check-in function. Laser gun readers in the baggage handling area will specify in a passenger's on-line record which container his bags have been loaded into. "FAA regulations state that if a person has not boarded, the airline must unload his bag," Wagner explained. "On a 747, which can have 20 containers of bag-

gage, that could cause a two-hour delay. Now, we will be able to go right to the proper container."

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Some experts have questioned the need for laptop workstations because the scientists and engineers who use them are often networked into high-powered mainframes. As a result, the advantages of portability are not as clear-cut as they would be for personal computer users.

Others disagree. "Most engineers already work under deadlines and they're looking for a machine they can bring home to finish up some spare business and enter into the system the next day," said Roger Ross, chief executive officer of Roca Technology, a subsidiary of Cypress Semiconductor Corp., which designed the Sparc LT chip.
Developing a program that runs on the entire spectrum of PCs, Macs, Suns and other workstations is next to impossible. Because each computer has its own graphic user interface (GUI), developers must spend months rewriting each application for each incompatible GUI. Unless the applications are built with Oracle Tools.

An application developed with Oracle Tools automatically adapts to the native look and feel of the computer on which it runs. PCs, Macs, Suns or other workstations. Even character and block mode terminals. All without changing a single line of code.

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Banks being challenged to pick up EDI gauntlet

BY JIM NASH
CW STAFF

Banks, in their traditional roles as business midwives and partners, have the potential to bring electronic data interchange (EDI) out of its incubation, industry observers said. Those same observers were quick to add, however, that banks stand to lose much of their power and relevance if they ignore EDI.

That point was made repeatedly in the halls between sessions during last week's third annual Corporate EFT/EDI Conference in Chicago. Those institutions that decide to heed EDI are likely either to lead the way with new products and services or to follow the lead of others, said Ned Hill, a professor at Brigham Young University's school of management.

Followers, Hill explained, will probably survive by purchasing EDI franchises such as those offered by the National Bank of Detroit, which franchises its services, equipment and expertise to other banks.

Banks are in an excellent position to promote, facilitate and even service EDI relationships between companies, according to Hill.

While the institutions continue to play a smaller part in corporate finance, they have an almost unmatched knowledge of individual businesses and their needs, he said. The others — including competitors of banks in the emerging data-centric marketplace — have said they must capitalize on this knowledge or perish in the financial backwaters.

EDI matchmaker

Several banks have taken up the challenge. One, First Interstate Bank Ltd. in Los Angeles, has fashioned itself as an EDI matchmaker.

Randy Kahn, First Interstate's vice-president and manager, said that his company is now marketing added services that are tied to its EDI product, Action.

The new services basically amount to a search for logical and complementary trading partners, as well as consultation leading to appropriate EDI tools, Kahn said.

Kahn said that First Interstate will bring together partners that were perhaps unknown to one another before.

General Electric Information Services (GEIS), a value-added network company that competes with banks for transferring funds and sales-related data, supports First Interstate's move.

"There's a bank with its head screwed on," said Bill Cafiero, manager of corporate financial services at GEIS. "They are growing the industry."

First Interstate and GEIS worked together to develop GEIS' EDI software, called BPS Central.

Hill stated that First Interstate's program could qualify the bank as a leader in EDI's maturation. Someday, he said, it could put First Interstate on a par with current leaders First Chicago Corp., National Bank of Detroit and PVC Financial Corp.

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There is a better way.
Modular model of future health care

Hearts of Andersen's Hospital of the Future is a decentralized computing structure

BY ELLIS BOOKER
CP STAFF

The hospital of the future will not include robotic nurses in white outfits dispensing pink pills to feverish patients. At least that won't be the case in hospitals automated by Andersen Consulting.

Two weeks ago in Dallas, Andersen opened its "Hospital of the Future," a permanent exhibit and research laboratory intended to demonstrate how some 20 vendors of clinical and administrative hospital systems can be tied together through networks and standard interfaces.

Like Chicago-based Andersen's other two integration exhibits — the $1.6 million information systems consulting giant has similar centers for the manufacturing and retail industries — the $7 million hospital exhibits it rests squarely on a belief in distributed computing.

Monolithic, mainframe-based hospital information systems, Andersen officials suggested, are going the way of the glass-enclosed data center; it is an approach to automation being made obsolete by cheaper, more flexible departmental and workstation computer platforms linked via local-area networks.

Decentralization devotees

So dedicated is the exhibit to the decentralized approach that it curiously does not include a connection to an IBM mainframe. Andersen officials said such a "back-end" link to a Systems Network Architecture host is being considered.

"Hospitals are at a critical crossroads," said Jay E. Toole, Andersen's worldwide industry director for the health care consulting practice. He said new reimbursement structures, increasingly cost-conscious corporate payers, a skilled labor shortage and plain old competition have put hospitals nationwide on a crash course to improve their procedures — from the quality and speed of their billing systems to the quality and speed of their surgical teams.

However, Toole noted that hospitals are still behind other industries when it comes to investing in IS, typically spending approximately 3% of their annual operating budget — far less than the 8% to 10% spent by banks and insurance companies — on information technology.

But he thinks that for another 1% or 2% over the next few years, hospitals can begin to put in an architecture, "Toole said.

Such a modular, distributed approach to hospital IS, Andersen argued, is a cheaper way to solve productivity and quality concerns because it allows each department to deploy the best system available.

Technologies on display in the exhibit include home medical monitoring systems; handheld terminals for nurses; voice- and handwriting-recognition systems; communications gateways enabling physicians outside the hospital to check a patient's medical database via Integrated Services Digital Network telephones; high-speed fiber-based LANs for transmitting diagnosis-quality radiologic images; smart cards able to store a patient's medical and insurance history on a microchip; and executive information systems for the hospital's management team.

Until now, however, the expense of writing interfaces between different vendors' medical IS has been prohibitively expensive. Enter Health Level 7, or HL7, an emerging application-level protocol that makes writing interfaces between different systems much easier (see story below). Nine of the 16 applications in the Andersen exhibit adhere to HL7, and Andersen officials said that in the coming months, most of leading hospital systems vendors will have an HL7 interface.

Connecting the HL7 programs was Symborg Systems' Stat Lan, a message referee for HL7 systems. The LAN runs over the Ungermann-Bass, Inc. implementation of the Xen Network Systems protocol on a twisted-pair Ethernet.

To deliver a common interface among the remaining non-HL7 systems, Andersen used a terminal-emulation and user interface product from NCR Corp., called Access 2000. The software, running on an Unix-based NCR Tower Model 32/700 supermicrocomputer, connects HL7 and non-HL7 systems over a Transmission Control Protocol/Internet Protocol Ethernet network.

Throughout the exhibit, the user interface was graphical, in effect shielding the physician, nurse or hospital administrator from the fact that the information on the screen was being pulled from several databases throughout the hospital. One of the most interesting demonstrations of a graphical user interface was a "medical chart," an Apple Computer, Inc. Hypercard application that physicians outside a hospital can access from their remote workstation.

Attendees at a technology conference at the Infomart in Dallas sponsored by the The American College of Healthcare Executives, which will be the executive sponsor for the exhibit during the next three years, got a tour of the Andersen exhibit, and many said they were impressed.

However, many of these executives said they still worried about the ease with which different systems can be interfaced and, importantly, how they will be synchronized in the absence of a centralized database.

"If hospitals had to do it all over, they might use a core system approach," said Edward J. Pastor, IS director at Swedish American Hospital in Rockford, Ill. But for most institutions, he said, that is not an option, and they face the dilemma of integrating clinical data from the patient records and financial systems that have been purchased over the years.

For Executive Vice-President William Heath at Saginaw General Hospital in Saginaw, Mich., centralization was the answer. The 350-bed hospital is moving to upgrade its IBM 4341 to a 4381 and at the same time install a computerized inpatient core system with departmental modules over the next 18 months. Even so, Heath is concerned about adding future clinical components, such as an electronic medical record. "Chances are we'll use another vendor... and I hope we'll be able to interface easily," he said.

United against incompatibility

Health Level 7, better known as HL7, was born out of the frustration of a group of hospital information systems users tired of the incompatibilities of their clinical and administrative computer systems.

The IS users banded together in 1987 — later adding hardware and software vendors and consultants to their ranks — to develop an open-architecture model for transmitting information between computer systems.

The current implementation of HL7 Version 2.0, was demonstrated in February 1989 at the American Hospital Association's Healthcare Information Management Systems Society conference in Anaheim, Calif. That demonstration linked the applications from seven vendors, all on different hardware platforms.

Andersen Consulting, which served as systems integrator on that demonstration, is a founding member of the group known as the Health Level Seven Standards Committee.

HL7 Version 3.0, due out later this year, will address other areas of the hospital, notably the financial and inventory systems, as well as expanded coverage of nursing and pharmacy systems.

Because it is an application protocol — corresponding to the seventh and top layer of the Open Systems Interconnect protocol — HL7 is network-independent and computer architecture-independent. It defines the content and format of electronic messages, but not the network or computer architecture carrying those messages.

One of the most powerful aspects of the standard — and a critical feature for distributed environments — is HL7's definition of various trigger events to automatically update various databases throughout the hospital. For example, after a new patient admission, pertinent parts of the patient's medical biography will be sent to the laboratory and radiology systems.

ELLIS BOOKER
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**EDITORIAL**

**Thumbs... up?**

**T**HERE'S A CAUTIOUS but distinct air of optimism circulating about the computer industry these days. Exactly why, we're not really sure.

More and more computer vendors are popping up on stock analysts' "buy" lists. The semiconductor associations are reporting order numbers that are being interpreted as a harbinger of better times just over the horizon. And earlier this month, IBM sounded a very optimistic note about business expectations.

Unfortunately, a look at the dynamics underlying user purchase decisions yields little reason to think any big changes in the U.S. market are forthcoming. Believe it or not, this could be good news for these users.

First of all, the general state of the economy is shaky. Unbelievable as it may sound, the "T" word is almost audible on the lips of President Bush. A continued inability to cut the defense budget makes new federal taxes almost inevitable for the federal government to meet mandated budget guidelines. Some state governments, too, are on the verge of significant tax increases, largely because of several years of federal aid cutbacks. Taxes do not walk hand in hand with economic growth and capital spending.

The inability of our education system to churn out enough qualified professionals is already putting upward pressure on the prime determinant of inflation — wage rates. Wage inflation and economic growth are also strange bedfellows.

Both the people for whom information systems services are provided (the user departments) and those who ultimately approve expenditures for IS outlays (corporate management) are increasingly questioning whether they are getting their money's worth. In separate studies of both groups conducted by Computerworld, only half the user department managers felt their companies had gotten good value for their IS expenditures; the corporate managers surveyed were even less convinced that they got their money's worth. These sentiments do not necessarily make for a favorable buying climate.

Yes, it's a dismal science — but not totally, because aggressive, continued price cutting is the only thing worth banking on at this point.

**A chill wind**

Surely Robert T. Morris' sentence is a chilling reality for those people whose jobs depend on the security of the systems they maintain. These managers know that any system can be compromised, just as any bank can be robbed. We are left with a situation in which hacking that results in costly damage is punished selectively at best and, in a case like the Internet attack, almost not at all.

At this time, the president knows that the courts stand ready to provide some measure of deterrence when a convicted robber faces the bench for sentencing.
Project development subtleties

WILLIAM DUNCAN

There seems to be a malicious rumor in the software community that project management and project methodology are one and the same.

Why is it so important to recognize the difference between the two disciplines? Because the failure to recognize and accommodate the difference remains a leading cause of project failure.

A project methodology, or more accurately, a systems development methodology, defines the strategies that the organization will follow when developing software. For many, the choice of a methodology is akin to the choice of a religion — there is only one true way.

Some preach the gospel of highly detailed methodologies. They distribute thick volumes of forms to document everything from a user interview to a technical walk-through. Some decry the depersonalization of formal structures and worship prototyping or rely upon divine guidance from a techno-guru or two.

Project management seldom inspires such passions. It is, in fact, a pragmatic field that requires some creative intuition. It is, however, a necessary discipline.

In the first instance, I recently heard a presentation by a senior manager at one of the best known information technology consulting firms. He noted that many companies were losing ground to competitors in the marketplace. He stated that the root of the problem was project managers who were using the people creating the software as one of their resources. He continued by saying that the people creating the software would not have been fair to make the schedule of the project dependent on schedule of the software development.

During his talk, he emphasized the importance of project methodology. He said that project managers should not rely on the software developers to deliver the software on time. Instead, he recommended that project managers should take control of the project and ensure that the project is completed on time, regardless of the schedule of the software developers.

He also emphasized the importance of project management techniques. He stated that project managers should use techniques such as critical path method (CPM) and earned value management (EVM) to ensure that the project is completed on time and within budget.

In conclusion, project management and project methodology are not the same thing. Project management is the discipline of managing the processes and activities of the project. Project methodology is the set of processes and activities that are used to manage the project.

While both disciplines are important, it is important to recognize and accommodate the difference between them. This will help ensure the success of the project.

Justice failed in refusing to make Morris an example

MICHAEL ALEXANDER

Suppose Robert T. Morris had stolen a bicycle and rode across the country, periodically stopping to try the doorknobs of houses at random. Whenever he found an unlocked door, he would wheel the bike into the house and ride around the floor, he would wheel the bike into the house and ride around the floor, and ordered him to do 400 hours of community service.

Later, outside the courtroom, the defense lawyers said that they hope Morris will spend his 400 hours of community service applying his computer talents to a new purpose. To me, that seems like allowing an arsonist to install smoke detectors.

Lost opportunity

Compared with rape, murder and major-league drug dealing, this crime is small potatoes. It is easy to understand why a judge might be reluctant to put Morris in jail. Even so, the courts missed their biggest opportunity thus far to send a message to "wanabe" outlaw hackers.

"Wanabe" hackers, who have no idea that hacking into computers is wrong, mainly because they see others get away with it every day.

While it is too late to keep that particular kid out of trouble, a sharper response by the courts would have sent a stern warning to other potential outlaw hackers while they are still impressionable and able to learn a lesson or two.

Hackers all over the country are getting off with a slap on the wrist or less. The rest of us, like those hypothetical homeowners, are left to clean up the mess.

You should believe that the problem of computer fraud and abuse will get worse in the years ahead. Already, computer viruses are proliferating astronomically, and while there are no reliable figures available, the losses must certainly amount to millions of dollars per year.

It is going to take a whole new approach to computer crime. Until now, law enforcement agencies have been attempting to catch criminals who are operating on the Internet. This approach is not working. Instead, we are attempting to catch criminals who are operating on the Internet. This approach is not working. Instead, we are attempting to catch criminals who are operating on the Internet. This approach is not working. Instead, we are attempting to catch criminals who are operating on the Internet. This approach is not working.

Morris should have gotten a sentence of no more than five years. In fact, it would have been better to give him a one-year sentence with similar provisions. The judge would then have been able to let the government know that the judge was willing to make a statement to "wanabe" outlaw hackers.

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<table>
<thead>
<tr>
<th>City</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>4/26</td>
</tr>
<tr>
<td>Cleveland</td>
<td>5/8</td>
</tr>
<tr>
<td>Houston</td>
<td>5/10</td>
</tr>
<tr>
<td>New York</td>
<td>4/19</td>
</tr>
<tr>
<td>Toronto</td>
<td>5/15</td>
</tr>
<tr>
<td>Boston</td>
<td>4/5</td>
</tr>
<tr>
<td>Dallas</td>
<td>3/27</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>4/24</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>4/3</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>3/21</td>
</tr>
<tr>
<td>Chicago</td>
<td>3/29</td>
</tr>
<tr>
<td>Detroit</td>
<td>5/3</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>5/1</td>
</tr>
<tr>
<td>San Francisco</td>
<td>4/17</td>
</tr>
</tbody>
</table>

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IBM, DEC applause CA '90s

BY AMY CORTESE

Public endorsement of new architecture lends credibility, comforts users

Executives from IBM and Digital Equipment Corp. shared the stage with Computer Associates International, Inc. Chairman Charles Wang moments after Wang publically endorsed IBM's and DEC's software frameworks at the recent CA '90s announcement. It was a rare joint appearance by high-level executives from the hardware companies.

"This is an historic occasion as the industry works together," said Robert Berland, IBM's director of application solutions.

Berland said IBM had been working with CA for two years to facilitate software solutions based on its Systems Application Architecture (SAA), adding that "SAA will be the underpinning to the structure CA and others deliver."

Henry Ancona, vice-president of business and office information systems at DEC, applauded CA for offering users freedom of choice and stressed DEC's strategic development relationship with the Garden City, N.Y., firm.

However, analysts have since downplayed the significance of the IBM and DEC executives' presence at the CA announcement, interpreting it as a show of support for their own respective architectures.

Fighting optimism

"The significance of the two being there was the fact that there was an endorsement of the SAA and (Network Application Support) architectures," maintained Sam Albert, president of the Sam Albert & Associates consulting firm.

However, the credibility lent by the two heavyweights' presence "made most customers feel better," said James Kinder, director of database administration at Automated Data Processing, Inc.

Users have welcomed the CA initiative so far. Murray Information Systems, a data processing center for Murray Federal Savings and Mortgage in Dallas, uses nearly 50 CA products.

Wayne Sadin, vice-president of MIS, said that in the past, CA had been like a "multiheded hydra, with too many different ways into their products."

However, over the past few years, Sadin said, the company has been moving steadily to fewer interfaces and fewer differentiations between products. He pointed to CA's Activator product, which provides a single point for start-up and installation.

Systems splurge a key

Revco reorganization

BY J. A. SAVAGE

TWINSBURG, Ohio — The officers of Revco D.S., Inc. are betting that one way to bring the company out of a Chapter 11 reorganization and into profitability is to spend big bucks on new computer systems.

Revco, a 1,800-outlet chain of drugstores in 27 states, went into Chapter 11 in July 1988, two years after a management-led leveraged buyout.

To pull itself out of the reorganization, the company decided to flood resources into computer systems — primarily one to provide a database for its pharmacists, called Prescription Access Link (PAL).

Revco had to get the bankruptcy court's permission to install PAL. "PAL is one of the improvements we are making to ensure that Revco can emerge from Chapter 11 stronger than ever," Revco Chairman Boake Sells said in a statement. Revco has no specific time frame for coming out of Chapter 11, according to a spokeswoman, but its current plan expires July 31.

Revco chose Tandem Computers, Inc.'s new Cyclone mainframe, an on-line transaction processing, fault-tolerant computer. The company was one of the first production users of Tandem's Nonstop SQL database on a Cyclone, according to Mike Adamson, director of application development at Revco.

While Revco refused to say how much the PAL project cost, the eight-processor Cyclone that the pharmacy chain bought is listed at a price of $5.35 million.

Adamson said the system is paying for itself because it efficiently bills insurance companies for prescriptions. "It's 10 times better than the old system," he said.

The old system consisted of NEC Corp. Astra minicomputers in each pharmacy to keep localized patient prescription and billing information.

"The pharmacists were chained to the mini-computer. It took one minute in between screens," Adamson said. He added that the pharmacists were also doing their own system backups and would load rules into the database.

"Besides taking up time, they were lousy at it," he said.

PAL not only frees up the pharmacists and bills insurance companies more efficiently, its database checks for drug inter-

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Public TV meets up with high-tech IS

BY MARYFRAN JOHNSON

BOSTON — As sure as green plants grow in the Victory Gar- den and souffles rise to golden heights for The French Chef, WGBH has turned fund-raising into a high-tech performance.

The Boston-based station is a leading producer of public television programming, boasting one of the largest computer installations in the Public Broadcasting System (PBS) with 500 Apple Computer, Inc. Macintoshes and a Digital Equipment Corp. VAX 8550.

Yet while the Macs are used in the front-line work of word processing, writing and editing scripts, it is the behind-the-scenes VAX that serves as the engine for financial data and a massive fund-raising database of 15 million records.

"We track lots of information on every donor — data on the amount given, the time of the gift, motivation for giving and whether the pledge came by phone or direct mail," said Mary Meadows, WGBH's director of information systems.

WGBH has served as the fine-tuner for a database management system from Access International, Inc. in Boston. Access created the system in a marketing partnership with Cambridge, Mass.-based Admins, Inc., using Admins' key product — the Admin/III fourth-generation language.

Access now markets a fund-raising system, modeled after the WGBH system, to other public TV stations, nonprofit hospitals and associations.

In 1989, WGBH raised $15.4 million in donor contributions alone, and its overall budget was heading toward the $100-million mark, necessitating an upgrade in computing power. "We've only had the VAX for a year, but we'd be in real trouble without it," Meadows said.

The upgrade to an 8550 from two older VAXs — an 11/780 and 11/785 — enabled WGBH to merge its financial and fund-raising systems on one machine. A Decserver 550 attached to the single-node Vaxcluster supports about 50 data-entry terminals.

Faithful watchers of public TV — such as the 10 million who regularly tune into Nova — often find fund-raising as unrelenting as the advertising on commercial TV. WGBH now runs three major campaigns per year, and the trend is turning more toward "occasional spots" after a hot show, Meadows noted.

Despite the high-tech spin, WGBH puts on fund-raising, and end-user support has to be there for word processing, scripting, corresponding and messaging.

The 11-member IS staff, operating on an $855,000 annual budget, is sensitive to the volatile nature of its end users. "The production people are busy and creative and not very tolerant of bureaucracy," Meadows said.

On a steep learning curve with DB2? Or have you resorted to a 3GL to get the functionality needed with DB2? Then discover why the Gartner Group reports, "For new users, preliminary user plans for NO-MAD may provide the most 'friendly,' tightly coupled and integrated 4GL in relation to DB2."

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Only a dozen or so of the 319 PBS stations nationwide are large enough to even have an IS department, she explained. "We have three needs," Meadows said. "Our financial system needs to be good, our fund-raising needs to be good, with a smile. "They work crazy hours."

Her microcomputer service team, for example, tends to do less technical troubleshooting and more consulting work with employees trying to build small databases. Meadows herself has little technical background, leaving behind an art and management major in college to join WGBH 16 years ago as a fund-raising assistant.

By the time the station was ready to overhaul its administrative computing in 1985, Meadows was the only one with hands-on experience in every major user department. A task force was appointed to develop a competing standard for the station, with an eye toward IBM or DEC as the likely choice.

However, a few Macintoshes had won the hearts of the design department, prompting the task force to consider them instead of IBM Personal Computers. "Now we're four years and 500 Macs later," she said.

There is currently little or no interaction between the Macs and the VAX, but by next September, plans are to install an Access' Financial Management and Control System which will enable use of the Macs as dumb terminals.

"We'll be able to view financial information and also have the ability to download certain sets of financial information," Meadows said.

Customers consider Cincom to be an oldie but a goodie

BY ROSEMARY HAMILTON

Cincom Systems, Inc. may not be a high-profile giant like its two chief mainframe database rivals, but apparently not all customers believe bigger is better.

"They've been around for many years," said Richard Krejza, manager of systems programming at Boston Industrial Products, a division of Dana Corp. "With the core products they have now, I don't feel insecure staying with them at all. I have no problem sleeping at night."

Like Krejza, several Cincom customers interviewed recently have a long history with the company. They said Cincom has not let them down, and they expect this trend to continue. Furthermore, they support the firm's plans to bring its Supra database management system to other hardware platforms, including personal computers and Unix systems, as well as to deliver a distributed database capability.

Customers also acknowledged that being outside the IBM and Computer Associates International, Inc. camps has its drawbacks. For one thing, Cincom customers do not have a wealth of third-party tools and companion products available for their database environment, as IBM or CA customers do. However, Cincom users said the core database product is strong enough technically that they are willing to make this trade-off.

"Outside of the fact that there aren't people developing tools to go with the database product, that's the only place I see it coming up short," said Warren Crawford, manager of database services at Mastercard International, Inc.

Crawford said he is particularly interested in Cincom's distributed database strategy, since Mastercard is looking at replacements for the IBM Series/1 it uses at remote locations. Although an evaluation process has not officially begun, the firm will look to Unix-based systems, he said. If Mastercard goes with a Unix system, it could eventually load Supra at regional locations to communicate with the host Supra, he said.

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May 14, 1990
D&B installs instant-analysis service

BY AMY CORTESE CW STAFF

MURRAY HILL, N.J. — Dun & Bradstreet Corp.'s Credit Clearing House (CCH) has provided credit information to the apparel industry for more than a century — testimony that timely information is never out of style. Now, D&B has fashioned an expert system to analyze credit.

Part of D&B's Business Credit Services, CCH serves some 60,000 manufacturers, wholesalers and distributors by tracking information on roughly 200,000 retailers, from large chains to small mom-and-pop shops. By phone or by dialing directly from their personal computers, D&B clients have access to information that can help them determine a retailer's overall business condition. Like other D&B Credit Services, the apparel industry service has evolved over the years from simply supplying credit information to providing more analysis, even determining a dollar-specific credit recommendation. "We are providing a decision, not a report," said Joseph Pilla, director of product marketing for Credit Services, CCH.

D&B has turned to expert system technology to deliver more up-to-date information. The system, based on Information Corp.'s ART-IM expert system shell, accesses information contained in a CCH database to produce a credit recommendation within seconds. In production since last July, the CCH system marks D&B's first expert system application.

The system has been a success, according to Pilla. The number of credit analysts has dropped from 12 to eight, while the number of companies the CCH is able to cover has increased by 60,000. A request for information used to take up to three days to fulfill. Now the expert system can come up with a recommendation in a matter of seconds. More importantly, Pilla said, the system "gives customers the benefit of the most experienced analyst and a uniform level of consistency."

Comprehensive database

The CCH recommendation database is a subset of D&B's corporate reports database, a comprehensive database containing more than 10 million files. In the past, credit analyst's used this information determined dollar-specific credit limits and overall credit ratings for the retailers tracked. When new information became available on an apparel-related company, the analysts would review the information, update the report if necessary, and notify the data-entry department for input. Consequently, reports might not reflect the new information for a few days. The expert system can immediately produce a recommendation within seconds. In production since last July, the CCH system marks D&B's first expert system application. "You cannot become enamored with the technology."

D&B then began looking at expert systems in 1987 and engaged the consulting services of Coopers & Lybrand to help build a prototype knowledge model. A video camera recorded the decision-making process of a senior credit analyst working with a novice analyst with documentation. The model was shown to roughly 40 customers as a "reality check." "You have to have a grounding," explained Roger Jambor, director of applied research for D&B's Systems Group. "People can develop on a PC and deliver on a DEC Microvax, but they must have the commitment."

Staffing also posed a problem. It took up to nine months for an analyst to be trained, but the repetitive tasks required of the entry-level analyst resulted in high turnover rates. Then, in addition to training and hiring costs, valuable expertise was lost.

D&B began looking at expert systems in 1987 and engaged the consulting services of Coopers & Lybrand to help build a prototype knowledge model. A video camera recorded the decision-making process of a senior credit analyst working with a novice analyst with documentation. The model was shown to roughly 40 customers as a "reality check." "You have to have a grounding," explained Roger Jambor, director of applied research for D&B's Systems Group. "People can develop on a PC and deliver on a DEC Microvax, but they must have the commitment."

Currently, the expert system handles from 80% to 85% of CCH recommendations, the remaining being flagged for an analyst. D&B's parent is expected to be reduced to 6% to 7%.

Systems tools dominate Depixo

BY MAURA J. HARRINGTON CW STAFF

NEW ORLEANS — Systems management products were among the key offerings at the Depixo South show last week, which coincided with the Digital Equipment Corp.'s Goliath, a DEC Microvax.

A DEC challenger with drive

System Industries, once again playing David to Digital Equipment Corp.'s Goliath, has introduced an 8-in. disk drive that provides 1.7G bytes of formatted storage for DEC VAX machines.

Claiming its new storage subsystem is a better and cheaper alternative to DEC's recently announced 1.5G-byte RA92 drive, System Industries said its drive has a 13-msec average seek time and a data transfer rate of 2.75M byte/sec. DEC's RA90 and RA92 drives have average seek times of 18.5 and 16 msec, respectively, while their data transfer rates are 2 and 1.5M byte/sec.

The SIB87 C-Series drive is the firm's first 8-in. subsystem to incorporate embedded drive interface circuitry, which allows drives to be placed in a cabinet. "This is a relatively new, evolutionary extension of existing drives," said James Porter, president of DiskTrend in Mountain View, Calif. "It has normally made use of the newest drives once they're in production on a steady basis."

System Industries uses drives manufactured by Seagate Technology in Scotts Valley, Calif. The drives can connect directly to the hierarchical storage controllers used on DEC VAXclusters, as well as to DEC KDB50, QDA50 and UID50 controllers.

The System Industries drive can be mixed with drives of smaller capacities and solid-state disks in tiered storage configurations. Available now for evaluation, the drives are slated to ship in volume by next month, starting at $25,875 for an entry-level system.

D&B's Jambor emphasized system transportability

CA '90s

CONTINUED FROM PAGE 25

The CA '90s announcement reassured Sedin that CA's top management was committed to a unification strategy. "I always knew CA had the money to do whatever they wanted. Now I see they have the vision to define an architecture and systems strategy," he said. The announcement was "more promise than delivery," he said, but "what I have a problem with is..." Sedin said.

"Whenever you have a company as large as CA, anything they do to standardize is good," said Boris Shafrir, manager of general IT at Technion. "I have a lot of that over the last few years — they just didn't call it an architecture," Sedin said.

Some, however, are awaiting more details from CA. Ken Oakes is pleased with the direction CA has set but would like more tactical information, for instance, on their database strategy.

With the CA '90s architecture, CA claims it will bridge its various database management products with standard interfaces and access methods. Similarly, it will provide a common interface across all areas of its product line to present a more uniform face to users. Most observers agree this approach is a smart one for CA, but they say it will not be easy.

"It will be a challenge to implement an architecture," said Marc St. Joesph, director of marketing at Neurosystm, a software development tool vendor, "and carry out everything they said they would," said Dale Kutnich, president of market research firm Meta Group, Inc. "The sales force has to go be- eing bag-carrying catalog salespeople to architecture salespeople," he said. Ultimately, he said, the architecture "will make customer, product. We have to show them to do more with their CA products."
Will IBM sites find RS/6000 compelling enough to switch?

TEMPER, Ariz. — Some of the largest IBM sites in the country are showing significant interest in IBM's RISC-based RS/6000 workstation family, and several would consider a switch from other workstation vendors such as Sun Microsystems, Inc., Hewlett-Packard Co., and Apollo Division and Digital Equipment Corp.

That was the finding of a survey recently released by The Sierra Group and First Boston MIS Executive Council, which polls 50 of its 150 council members each month on computer industry topics.

In a telephone survey conducted in March, 50 information systems directors were asked their impression of the strengths and weaknesses of the reduced instruction set computing (RISC) workstations. "On a scale of 1 to 10, they gave it an 8 on average," said Merrily Shinyeda, president of The Sierra Group, Inc.

Among the sites surveyed, 29 use workstations as part of their hardware platforms and 11 of those firms said they would consider switching vendors. "That may not sound like a lot," Shinyeda conceded, "but the volume these companies represent could be sizable. These are all highly visible industries, and that makes the numbers more significant."

While IBM may be targeting the RS/6000 at scientific and technical markets, Shinyeda said the survey showed a burgeoning interest in commercial accounts at insurance companies, financial and securities institutions and banks. "That says to us that the broader issue of workstations in the commercial marketplace is really picking up," she added.

The Sierra Group and First Boston did not identify the companies responding to the monthly survey, but Shinyeda said most were Fortune 500 firms.

The executives surveyed found the power and performance of the RS/6000 compelling enough to outweigh their concerns about a lack of commercial software, Shinyeda noted.

Some of the respondents questioned IBM's experience in the workstation market and worried about the supplier's support for the RISC workstations under IBM's Systems Architecture. "Some of them also cited their systems with AIX Version 3.4," Shinyeda said, referring to IBM's version of AT&T's Unix System V operating system.

The Sierra Group researchers found that about one-third of the survey respondents were increasing their company spending on workstations, and about half were spending more on file servers.

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Unisys Corp. has extended its Surety Service Program to its A Series, 2500/1100 Series and System 80 mainframe lines, giving users of its large systems new options in maintenance support.

The Surety program for the U Series line of Unisys minicomputers was previously expanded to include Unisys' PC/FW2 line of personal computers.

NCR Corp. and Software Earnings, Inc. in Memphis, Tenn., have joined forces in a marketing agreement to provide check processing systems for the banking industry. NCR officials estimate the worth of the alliance at $20 million over the next several years.

Earnings will develop personal computer-based check processing software for the NCR 7770 Multi Packet Proof machine and productivity tracking software for the NCR 7766 Clustered Proof machine.

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FOUNDATION will help you keep your options open, letting you make the best choices for each environment in the enterprise, free of the constraints of conflicting cultures and proprietary systems.

With FOUNDATION, you won’t be locked in to a single vendor, a single standard, or a single methodology, just for the sake of compatibility.

Similarly, you won’t be locked out of future advances. If changing business conditions dictate new system solutions, FOUNDATION enables a smooth transition to new platforms and environments.

It all adds up to compatibility without compromise.

So if you’re looking at the decade ahead and wondering how you’re going to develop the kinds of strategic applications that the times will demand—the ones that are responsive to global conditions, that create real differentiation, that deliver the right information at the right place at the right time—then you owe it to your enterprise to bring FOUNDATION into the picture.

Call us at 1-(800) 458-8851 or 1-(312) 507-5161.

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Sharebase buyout appears set for warm user reception

BY JEAN S. BOZMAN CW STAFF

SUNNYVALE, Calif. — Sharebase Corp. users who met here recently seemed relieved that their database machine vendor is about to be acquired by $1.3 billion Teradata Corp. in Los Angeles.

The two firms are in allied businesses, building dedicated processors to run relational database software. The merger, which is scheduled to be finalized in June, follows several years of poor financial results for $29 million Sharebase (formerly Britton-Lee, Inc.).

"I don't think many users dropped by the wayside over the last few years," said Bob Thompson, president of the Sharebase user group and information systems manager at Reynolds Electrical and Engineering Co. in Las Vegas. "The general feeling was that if they didn't get the money they needed to promote their products, they were going to go out of business. The products, though, were so technically unique that we always felt some company would buy the right to market them," Thompson said.

Users pleased
The 100 users who attended the meeting said they were also pleased with a new release of the Sharebase operating system called Sharebase III that runs on the high-end Server 8000 line. Older Sharebase systems, such as the Server 500 and Server 700 products, cannot run Sharebase III, company spokesman Scott Humphrey said.

"We needed the date-time stamp and the referential integrity features in Sharebase III," said a U.S. Department of Defense user who did not wish to be identified. "Now that they're supporting the ANSI SQL standard, I can assure my management that the Sharebase machine will be compatible with a great number of dissimilar hardware systems."

The new software release supports the ANSI 89 standard for data exchange using SQL.

Just two weeks ago, Sharebase III was certified ANSI 89-compliant by the National Institute of Standards and Technology, according to Humphrey.

Revo
FROM PAGE 25

If this is wrong, we may have just killed our customer.

MIKE ADAMSON
REVCO

Keeping the rules for insurance billing is almost as critical to Revco's financial health. "There are over 500 carriers, each with different rules [for payment]," Adamson said. He said that when there are 612 varieties of a drug such as Darvon, the flags generated by the database are critical. "If an ATM transaction goes wrong, you might have lost $50. If this is wrong, we may have just killed our customer."

Cincom's SUPRA High Performance SQL Relational DBMS is now SAA compliant with AIX, IBM and MVS environments as well as VSE. It also runs on VAX and UNIX. Better yet, it's the most powerful DBMS around. Because applications built using SUPRA are DB2 compatible, you can implement relational systems today using SUPRA in your existing environment and run with DB2 later without conversion. So now you can go SAA without spending a blue million. Call today for more information.

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MAY 14, 1990
Bozman
CONTINUED FROM PAGE 25

The new quality imperative means more on-site support, more highly trained support personnel — and more hand-holding.

"When you get to be a big company like IBM, you have to start to act like IBM does, and that includes providing better account support," said Tierney, himself a former IBMer. However, he gave no details of how the new quality imperative account support," said Tierney, himself a former IBMer. However, he gave no details of how the new quality imperative will be funded or staffed.

The reason for the change in attitude on financial growth is simple: Oracle is lowering its sights and adjusting to the realities of a product-saturated marketplace. Sales of large computer systems have slowed in North America and, with them, the prospect of selling brand-new Oracle systems to brand-new customers. Recent financial setbacks on Wall Street — Oracle stock lost one-third of its value after a bad earnings report in March — have been like a splash of cold water on the face, jolting Oracle into damage-control action.

Sales orders had been flying so fast at Oracle in recent years that routine maintenance and hand-holding were sometimes overlooked, according to users. They complained that junior support personnel answer the phones and are often unable to resolve difficult problems. Even Tierney conceded, "We recognize that we've got to be more responsive when there are problems with our products."

An Oracle database manager at one large Fortune 500 firm underscored the need for greater attention to detail at Oracle. The industrial firm, which has spent hundreds of thousands of dollars at Oracle over the years, was among those that set an ultimatum for better support: Provide it or the Oracle bill will go unpaid. Industry analysts said the user backlash has been intense enough to push Oracle's receivables to 140 days or more — significantly above the industry-standard 90 days.

Strong user resistance prompted meetings with senior Oracle executives in recent months — and angry exchanges of letters between Oracle's California headquarters and regional user groups. Next month, in an attempt to smooth things over with regional user groups, Ellison, Tierney and other Oracle executives will host the presidents of 10 key user groups at the firm's new headquarters.

"We see this meeting as a kind of open forum on how Oracle conducts business with its existing users," said David Kreines, president of the International Oracle Users' Group, which organizes the annual Oracle user meetings. "Just the fact that they're finally admitting there are problems is encouraging," he added.

Bozman is Computerworld's senior West Coast editor.

PSDI unveils graphics pack

BY MAURA J. HARRINGTON

CAMBRIDGE, Mass. — Project Software & Development, Inc. recently added graphical user interface capabilities to its Qwiknet Professional project management software when it unveiled Version 2.0 of the package.

Scheduled to ship June 1, Version 2.0 has incorporated interface capabilities that allow the user to draw a project management structure on-screen to get a picture of the project as well as having the facts input under tables that pop up in different windows, said Chip Drapeau, PSDI's director of product marketing.

The announcement of the host-based system came at about the same time that Microsoft Corp. introduced a Windows-based project management package for personal computers (see story page 39).

PSDI sought to make it easier to manipulate screens by redesigning the windowing structure in its product so that a user can access a given chart or feature from more than one location.

Other features include the following: "next step" sign posts to help novice users get around in the product; Planning Dates, which is designed to accommodate activities that must occur regardless of other events; analyses of "what-if" scenarios that are designed to assess how certain factors will affect a project; Resource Management, which automatically calculates activity durations based on the allocated resources and allows for flexible scheduling of activities when user-specified minimum requirements are met; and more, the company said.

Qwiknet Professional Version 2.0 is designed for novices, said Dean Goodermote, vice-president of sales and marketing, because the job of project management is shifting toward the less technical, more business-oriented managers. "This version is a major enhancement of our product, designed to meet the needs of the managers who do not consider themselves project managers per se," he said.

Release 2.0 runs on IBM and compatible PC-based local-area networks. IBM mainframes and Digital Equipment Corp. VAXs and Vaxstations, with an interface option to Oracle Systems Corp. database servers. Prices range from $2,500 for a stand-alone copy to $18,900 per four concurrent users on a VAX.
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Title _______________________________ Hardware _______________________________
Company ___________________________ Operating System ___________________________
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City, State, Zip ________________________ TP Monitor ______________________________
DB2 subsystem that offers 1.3G bytes of tape storage, announced DDS-1300, a digital audio tape system with interfaces to Digital Equipment Corp. VAX systems, Sun Microsystems, Inc. computers and Apple Computer, Inc. Macintoshes. It is also plug-compatible with small computer systems interface hardware and operating system software for Wang Laboratories, Inc., NCR Tower Corp., and Hewlett-Packard Co. It offers 1.3G bytes of tape storage.

The system provides transparent access to user disk storage, and enables users to take advantage of the high-speed data transfer characteristics of digital audio tape. It is equipped with an enhanced small device interface.

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The 1.23G-byte DK516-12 has a 14-msec. average seek time and a 2.75M bit/sec. data transfer rate. It is equipped with an enhanced small device interface.

The 1.65G-byte DK516C-16 offers a 13.5-msec average seek time and a 3M-bit/sec. data transfer rate. Its small computer systems interface (SCSI) supports enhanced SCSI-2 commands.

Hitachi America Ltd. has introduced two 5¼-in. Winchester hard disk drives. The 1.23G-byte DK516-12 has a 14- msec. average seek time and a 2.75M bit/sec. data transfer rate. It is equipped with an enhanced small device interface.

The product's price ranges from $2,500 and $4,100, depending on the hardware platform used.

Symmetrical Technologies
Suite 231
301 Gallaher View Road
Knoxville, Tenn. 37919
(615) 690-3838

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Pricing is $3,300 for the DK516-12 and $4,300 for the DK516C-16 in OEM quantities.

Hitachi
Hitachi Plaza
2000 Sierra Point Pkwy.
Braynhec, Calif. 94005
415-589-8300

Gigatrend, GmbH, the parent company of Gigatrend, Inc., has co-developed a plug-and-play 4mm digital audio tape backup product with Bull H. N. Information Systems, Inc. in West Germany.

The media cost to back up 1G byte using Giga-Dat is $16. Frontal versions of the product sell for $7,450.

Successful explorers seek the guidance of the best professional outfitters and trackers before leading an expedition into dangerous, unknown territory. They understand that the right equipment and expert knowledge of the terrain are critical to the success of their mission.

PLATINUM technology, inc., was one of the first companies to delve into the uncharted DB2 jungle.

Today, we are recognized internationally by our trailblazing clients as the world's foremost professional outfitters for DB2.

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- DB2 Database Design and Application Planning
- DB2 Database and System Administration
- DB2/SQL Application Programming
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- Using DB2 and QMF

Published Products
- The PLATINUM DB2 Guide/Online™
- The PLATINUM Reference™ for DB2
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As you begin your trek into unfamiliar, little explored regions of relational technology, PLATINUM can outfit you with everything you need to make your DB2 adventure a success. We've been there, so we know what it takes.

Let PLATINUM be your expert guide through the wilds of the DB2 jungle.

Call 1-800-442-6861 today for more information or a free on-site trial evaluation of any PLATINUM product.

The VREO1, a 19-in. flat-panel monitor for use with its workstations and windowing terminals.

The product is based on electroluminescent technology and offers 1,024-by-864-pixel screen resolution with a 60-Hz vertical refresh. The monitor weighs 18 pounds and needs only 51 sq. in. of desk space.

The VREO is currently praised at $11,995 and is available now, according to the vendor.

DEC
146 Main St.
Maynard, Mass. 01754
508-493-3690

A color computer monitor that provides 2,048-by-2,048-pixel resolution on a 20-by-20-in. screen has been announced by the Precision Graphics Systems Division of Sony Corp.

The Sony 20/20 was designed for imaging applications in areas such as air traffic control, medicine and science. The monitor incorporates features of Sony's Trinitron aperture grille technology, including a 0.31mm phosphor pitch and a flat-screen display that minimizes distortion and light reflection, according to the vendor.

The monitor is available in two models: the DDM-2801C, with a price of $40,000, and the DDM-2802C, for a price of $47,500. Pricing includes both a cabinet and a bezel.

Sony
9 W. 57th St.
New York, N.Y. 10019
212-418-9427

Processors
Sky Computers, Inc. has introduced a multiprocessor digital signal processor board based on the Texas Instruments, Inc. TMS320C30 microprocessor.

The Sky Challenger-C30 combines two C30 chips that can perform 32 bit/sec. data transfers. The product includes 576K bytes of random-access memory and up to 8M bytes of dynamic RAM, according to the vendor.

It operates in a high-precision floating-point operation of second or 32 million instructions per second and features applications such as radar, sonar, seismic processing, speech recognition, acoustics, imaging and three-dimensional graphics.

The list price for Sky Challenger is $11,750.

Sky
27 Industrial Ave.
Chelmsford, Mass. 01824
508-250-1920

New Products — Hardware

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PLATINUM Catalog Poster
The PLATINUM DB2 Guide/Online™
The Open RDBMS

The Sybase View

Today's changing business environment demands full exploitation of multi-vendor network computing. The challenge is to integrate existing applications with new on-line systems, preserve past investments and create an open, flexible architecture for the future.

The allure of standardizing on a single RDBMS and migrating existing applications is tempting, but utopian. This "one size fits all" strategy will not preserve existing investments. And it raises the specter of being locked into a single software vendor.

The solution: an Open RDBMS. One that provides hardware and software interoperability. One that offers a true open architecture and provides integration of decision support and transaction processing. One with the support of leading hardware and software manufacturers to provide heterogeneous interoperability. And one with a full range of technology integration services that can weave these heterogeneous environments into a unified computing enterprise.

OPEN ARCHITECTURE. Open architecture gives hardware and software companies — customers and competitors — access to comprehensive open interfaces. These open interfaces must be based on standards and available for extension and industry adoption. Only a network-based client/server architecture, with such open interfaces, can meld an array of operating systems, networking protocols, and applications into a seamless computing enterprise.

DECISION SUPPORT. To handle real-time decision support across multiple systems, an Open RDBMS must provide interfaces that can:
- read data from any RDBMS, non-relational DBMS, or file system
- communicate with all dialects of SQL and with non-relational data manipulation languages.

TRANSACTION PROCESSING. To integrate production transaction processing applications, an Open RDBMS must provide interfaces that can:
- control inter-system transactions for concurrency, consistency and recovery
- provide access to application programs, as well as databases, to assure complete data consistency for updates
- integrate application-specific logic for custom functionality and performance
- transparently access such external data sources as real-time feeds, process control data, electronic document exchange, and mail services.

MULTI-VENDOR INTEGRATION. An open system requires the full backing and support of industry leaders to ensure customers the benefits of direct interoperability. It creates a vendor-independent, open architecture that is more flexible than a single, vendor-centric approach.

TECHNOLOGY INTEGRATION. Making the open system work requires the assistance of a professional support organization with multi-vendor experience in DBMSs, operating systems, networks, and hardware.

Only SYBASE delivers on all of these requirements. The SYBASE open client/server architecture is based on a commitment to standards. It provides enterprise-wide integration of decision support and transaction processing that marries SYBASE and non-SYBASE data, applications and services. Alliances with industry leaders like Apple, AT&T, DEC, DG, IBM, HP, Lotus, Microsoft, NCR, Pyramid, Sequent, Stratus, Sun and over 100 independent software vendors ensure interoperability — not just portability. And Sybase's professional services division, SQL Solutions, Inc., now provides complete integration services and customer support for single or multi-vendor environments.

SYBASE. The Open RDBMS to make the open computing enterprise a reality.

THE SYBASE FORUM

This view of The Open RDBMS first appeared in The Sybase Forum (Computerworld, March 12, 1990).

Look W You O

SYBASE Open Client/Server Interfaces allow data and application integration and interoperability in a multi-vendor environment.

SYBASE Open Client provides an application programming interface (API) for accessing and updating data using a variety of front-end tools or applications — including SYBASE applications, independent software vendor's tools, or user-written applications. SYBASE Open Server provides an API for accessing and updating a variety of foreign data sources and application services. Open Server can seamlessly integrate hierarchical and relational DBMSs, third party applications and real-time data feeds into SYBASE applications. Together, Open Client and Open Server interfaces and gateways make real-time access to various data sources and application services across networks completely transparent regardless of protocol — the essence of the on-line enterprise.

The SYBASE Open Architecture gives transparent real-time access to various data sources, including DB2 and CICS, with transaction processing capability.

SQL Server was designed to help give continuous OLTP application availability 24 hours a day, 7 days a week.

It handles maintenance operations (backups, diagnostics, design and integrity changes) while all other applications continue to run.

It protects against loss of integrity during a system failure so that all changes to the database can be rerun quickly and accurately.

It also supports fault tolerance in media failures even when the hardware doesn't.

Sybase's professional services division, SQL Solutions, focuses exclusively on providing relational database services and tools.

SQL Solutions provides customized solutions with a complete line of SQL productivity tools that ease every step of the application development life cycle.

SQL Solutions' support all major DBMS across all major hardware platforms. The firm has designed, developed and integrated more relational systems in the on-line enterprise-wide network computing arena than all of the leading RDBMS vendors combined.
Strategic alliances with other industry leaders are critical to successful interoperability. With SYBASE, the results have been impressive.

In commenting on SQL Server, Microsoft stated:

"Microsoft surveyed the entire SQL database market and chose SYBASE technology as the most powerful. SYBASE is the perfect partner to help Microsoft apply the power of OS/2 to multi-user database environments."

And Lotus, in announcing its alliance with SYBASE, said: "This partnership with SYBASE demonstrates our belief in the importance of database products as an extension of our core business, and is an important step in our effort to provide our spreadsheet users with access to diverse sources of data."

In the real world of multi-vendor environments, SYBASE preserves your prior hardware and software investment while keeping your future options open. SYBASE SQL Server supports portability to a wide range of strategic computing platforms, including VAX/VMS, UNIX, and OS/2, with PC and MAC connectivity, making it a natural for linking applications residing on different types of machines.

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NEW PRODUCTS — SOFTWARE

Development tools
Sunrise Software Systems, Inc. has announced a graphical user interface system that provides users with an interface to the X Window System and the Open Software Foundation’s Motif. The EZX Version 2.0 for Motif interface contains three modules: Ezxdraw, which interactively designs Motif or Sun Microsystems, Inc.’s Open Look user interfaces; Ezxlib, a library that provides an interface to application programs that is independent of a windowing system; and Ezxdemo, which demonstrates a user interface without the need for programming.

Pricing for EZX Version 2.0 begins at $3,500 for a single-user version.
Sunrise 1151 Aquidneck Ave. Middletown, R.I. 02840 401-847-7868

Oracle Systems Corp. has added an integrated graphics application product to its generation of application development tools.

Oracle Graphics provides users with graphic analysis of time-varying database information. Its point-and-click interface enables nonprogrammers to create more than 50 charts and change more than 60 chart parameters, the vendor said. It can run on X Window System, Digital Equipment Corp.’s Decwindows or the Open Software Foundation’s Motif. It will be available for DEC’s VAXstations in the third quarter.

Pricing ranges from $1,400 for a single-user license for use on Sun Microsystems, Inc. Sun-3 and Sun-4 workstations to $19,000 for a 64-user license.
Oracle 20 Davis Drive Belmont, Calif. 94002 415-598-8000

Inter-Data Computer Services, Inc. has announced a programming interface for IBM’s Restructured Extended Executor (Rexx) language and SQL.

DB2REXX/TSO can embed SQL statements in a Rexx program, and SQL commands can be issued by using a command window, which displays results of single-screen or multiple-screen queries in a scrollable format, according to the vendor. The product requires a hardware configuration that can run on MVS/XA or MVS/ESA, IBM’s TSO/E Version 2 or higher and DB2 Version 2 or higher.
A software license for the product costs $12,500 per mainframe.
Inter-Data Suite 107 2500 Maitland Ctr. Pkwy. Maitland, Fla. 32751 407-660-0004

Training
Computer Systems Research, Inc. has announced its MVS Diagnostics Laboratory, a series of video, computer-based course modules and software components designed for use by MVS systems programmers.
The system comprises three segments: an MVS/ESA Problem Determination Environment, an IBM Interactive Problem Control System (IPCS) and a CSR Diagnostic Procedure. The IPCS enables programmers to resolve system outages more effectively, according to the vendor.

MVS Diagnostics Laboratory costs between $10,500 and $20,000, depending on the license type and number of users.
CSR P.O. Box 45 Avon Park South Avon, Conn. 06001 203-678-1212

System software
SDC Software, Inc. has announced Release 2.2 of Data Packer/DB2.
The product can be installed on an IBM MVS/XA or MVS/ESA system in less than one hour without an initial program load or DB2 outage, the vendor said. Pre-generated Editprocs and a facility to generate customized Editprocs to compress different types of data are provided. A data integrity feature provides a facility for automatic backup and recovery of customer-generated Editprocs.

A perpetual license for Data Packer/DB2 ranges from $15,000 to $57,500, depending on the type of CPU.
BMC P.O. Box 2002 Sugar Land, Texas 77487 800-841-2031

AGS Management Systems' firstCASE is the first step toward fully realizing the potential of CASE. It will help you build systems in an efficient, organized way by tying together every single component of the life cycle—not just parts of it.
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To find out the many ways that firstCASE, the cross life cycle solution, can help you tie it all together for greater efficiency and productivity, write or call our toll-free number: 1-800-678-8484.
IBM not singing the OS/2 blues

Soyrying downplays problems, says solid sales are grounds for optimism

BY CHARLES VON SIMSON

REDMOND, Wash. — Micro-

soft Corp. announced a graphical

entry last week into the sleepy

market for personal computer

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"We have had a number of bad
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"The graphical strength of Windows, as well as the flexibility Microsoft has built into it, adds substantial functionality to project management software. Micro-

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sulting large business processes, but users should still expect a substantial learning curve. Even with a PC, managing a project is more an art than a science."

Yahdav said that many of the barriers to implementing project management systems had no-
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Helpful Windows

The Windows version of Project adds substantial functionality to many of the program's capabilities. The ability to add fields, support numerous charts and exchange data with other Windows applications has been improved.

Two areas, however, disappointed users and analysts. The first is that the initial version of the product, available from re-

Continued on page 46

Micro Focus revitalizes project management

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Continued on page 46

Some folks think that COBOL, the language of
the past, may also be the language of the future!

"Micro Focus COBOL for Presentation Manager has suddenly become the right language." — BYTEweek, 6/19/89

"And COBOL, the language everybody uses without admitting to it - also refuses to go gentle into the night of old technology. ... Micro Focus appears ready to bring the old-time language into the brave new world of graphical user interfaces." — PCWeek, 6/5/89

Micro Focus COBOL2 Workbench Awarded 1989 Professional Solutions Award — PC Tech Journal, 2/89

"The COBOL2 Workbench, available from Palo Alto based Micro Focus, Inc. is by far the most powerful and complete PC-based COBOL development and maintenance toolset. This package is the Cadillac of PC COBOL toolsets." — System Builder Magazine, 1/89

Micro Focus "ANIMATOR is a sparkling example of the reason why the PC-based COBOL workstation represents a quantum leap in programmer productivity." — Database Programming & Design, 10/88

"Could COBOL be the key to the success of OS2?" — BYTEweek, 6/19/89

Micro Focus Awarded Four Out of Four Ribbons for "Overall Value" in Readers' Choice Awards — InformationWEEK, 4/24/89

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The early bird gets the application.
PARIS — Europe's No. 2 construction company did not put up the Eiffel Tower, which punctuates the skyline two miles from its headquarters here. It missed out on the Arc de Triomphe as well. But the Dumes Group is laboring to erect its own monument to distributed processing using the latest technology tools — Compaq Computer Corp.'s multiprocessor Systempro and Microsoft Corp.'s OS/2 Version 1.2.

Alain Vignon, manager of personal computing at Dumes's Paris headquarters, bought the department's first network server two years ago — a Compaq Desktop 386. "We chose Compaq because they had a bigger product line," Vignon said.

Today, the building runs 11 networks, and 85% of its 250 personal computers are Compaqs. So it was a natural "evolutionary step" to buy two of Corp. 80386-based dual-processor Systempros in December, Vignon said.

"With the speed at which hardware becomes obsolete, I'd rather invest in a Systempro and stay ahead of the curve," Vignon said. "If you compare the Systempro to a regular Compaq file server, the Systempro is less expensive in terms of evolution and path for growth."

Careful shopper

Vignon has also made some paper comparisons with IBM's new Personal System/2 Model 80 servers. "In theory, I can think you would find quicker disk access time with [IBM's] Micro Channel Architecture," Vignon said.

However, he said, he chose to look at the bigger picture: "Compaq gave us the chance to do disk mirroring, something IBM never offered us."

Dumes's Systempros are each configured with 4MB of system memory, Novell, Inc.'s Netware 386 software and 15 PC nodes. The networks talk to the department's IBM 4381 mainframe via IBM 3270 gateways.

Installation was no more difficult than with any other file server, Vignon claimed, and Netware was easy to load. The only trouble so far came when he accidentally tried to run a Compaq 32-bit token-ring card with an incompatible Proteon, Inc. Token-ring driver.

Currently, the boxes are running word processing, spreadsheet and accounting packages. Vignon will really put the processors through their paces next month when he migrates intensive payroll applications off the mainframe.

Another networking cornerstone rests on OS/2. Six members of Vignon's staff of 30 have spent 18 months developing an OS/2 version of the firm's mainframe-based cost-estimate application. By the end of the year, this program will run on the Systempro networks, as well as the IBM's few PS/2 stand-alones and Toshiba America Information Systems, Inc. laptops.

The cost-estimate program allows users to play "what-if" games to determine the cost for a construction project. The heart of the application is a 5,000-item materials database with unit prices for everything from washers to windowpanes.

"Cost savings are not the primary reason for the migration efforts, "I don't know if it will save money," Vignon admitted. "It will lower the charges on the mainframe, but we will have to invest more in PC training."

End users are actually driving the migrations, Vignon explained. "Users want to work on a PC rather than a terminal; they want to be in a more user-friendly environment," he said.

Vignon said he does not expect the networks to replace the mainframe or even his IBM AS/400 because "IBM was in the process of becoming obsolete."

"It's a very difficult for us to justify getting rid of equipment until it breaks or is in no longer usable," said Mary Howlett, a manager in the ground systems department. "We have become hard-pressed to cut costs and improve productivity yet prevent computer equipment from becoming obsolete."

"Suppliers soon began scrambling to keep the Hughes account alive. "With a buying moratorium, you tend to get pretty creative," said Jim Law, a national account executive at Apple, who helped arrange the buyback plan.

"Buy-back plan reaps treasure from trash"

The buy-back plan proved to be an attractive option to higher-ups in Hughes management, and the moratorium was lifted for replacement parts, Howlett added. Suppliers participated in this deal comes with only winners: Hughes gets a savings of up to 15% over its already substantial volume discounts, Businessland maintains a high-profile presence inside Hughes through an extensive installation service plan, and Apple sells up to $8 million worth of equipment.

BY JAMES DALY CW STAFF

FULTONFALL, Calif. — Pity the original Macintosh. Considered a marvel of user-friendly engineering when Apple Computer, Inc. introduced it in 1984, the machine drew critical raves and a wildly enthusiastic following within weeks of its arrival.

But six years after its debut, the former toast of the industry seems a prehistoric relic. The machine's rudimentary configuration of 128K bytes of standard system memory and one floppy drive slot now make it seem more like a kid's toy than a serious business machine.

One man's junk, however, is another man's treasure. At least that's what Hughes Aircraft Co. is discovering.

The aeronautical equipment manufacturer has arranged a buy-back program with computer retailer Businessland, Inc. under which Hughes will trade in about 1,000 aging personal computers, including many original Macs, and get substantial credit toward the purchase of new Macintosh and IBM systems.

The swap could not come at a better time for Hughes. Like many firms in the rapidly shrinking defense industry, Hughes has become hard-pressed to cut costs and improve productivity yet prevent computer equipment from becoming obsolete.

"It's a very difficult for us to justify getting rid of equipment until it breaks or is in no longer usable," said Mary Howlett, a manager in the ground systems group where the trade-in will take place. "Yet a lot of our PC's are old and no longer capable of running any of the new applications coming out today."

Howlett said that credit values have been assigned to 21 different styles of computers and peripherals, including several different Apple models as well as IBM Personal Computers and XT's and assorted Hewlett-Packard Co. machines. These will be traded for Macintosh IIIXs and SEs as well as IBM Personal Systems/2 Models 55 and 20.

After picking up the older machines, San Jose, Calif.-based Businessland will in turn resell the machines to Dana Commercial Remarketing, a nearby reseller that will refurbish the systems and sell them at cut-rate prices overseas.

"WITH A buying moratorium, you tend to get pretty creative," said Jim Law, a national account executive at Apple, who helped arrange the buyback plan.

The reworking at Hughes is part of a sweeping in-house inventory rearrangement, according to Hughes purchasing manager Tom Croom. In May 1989, a computer purchase moratorium was imposed after a study reported that the employee-to-machine ratio was a bloated 2-to-1.

Suppliers soon began scrambling to keep the Hughes account alive. "With a buying moratorium, you tend to get pretty creative," said Jim Law, a national account executive at Apple, who helped arrange the buyback plan.

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The NCR PC486/MC is one fast machine. PC/Computing reports "the PC486/MC is on the front edge" of 486 desktops. With its dual high-speed cache design, the system takes full advantage of the performance potential of the i486™ microprocessor. And its implementation of Micro Channel™ architecture makes it the clear leader in providing full 32-bit performance.

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The Strategy For Managing Change.
Barney
FROM PAGE 39
down's biggest pain.
Windows 3.0 also has an
DOS-compatible way of address-
ing protected mode — in other
words, it can treat up to 16M
bytes of random-access memo-
ry as directly addressable linear
memory. Unlike OS/2 or Unix,
this mode is single-tasking-ori-
ented. These features were
pioneered by a class of products
called DOS extenders.

While it is no big thing in oth-
er environments, this is an en-
tirely new mode for Windows
and the real reason that users
are excited.

The third mode, pioneered
by Windows/386, is called virtual
mode, and it allows the user to
run multiple dumb real-mode
sessions simultaneously. There
are a few problems, however —
it only works on an Intel 80386
or 1486, and it only allows users
to multitask applications that
work in antiquated real mode.

Because the IBM PC is sin-
gle-processor-oriented, once a
user begins to multitask appli-
cations of any significance, the
PC will bog down anyway.

But Microsoft has some
clever folks. To keep applica-
tions from bringing the other-
wise snappy 80386 to its knees,
they built in a time-slice sched-
er. The user can determine
how much processor time is al-
located to each task. Then, the
resolution graphics. You can
still upgrade from Windows 3.0
to Presentation Manager.

However, while Windows
3.0 should serve many applica-
tions well, it is not up to Micro-
soft's more aggressive public
goals, particularly as a multime-
dia operating environment.

Multimedia requires both
multitasking (how else could you
load animation, synch it to
sound and add text overlays?)
and a large linear address space
for complex moving images.

Unfortunately for multime-
dia users, Windows 3.0 is only an
either/or environment. How-
er, it should have plenty to offer
for most spreadsheets, data-
bases and word processors.
Barney is editor in chief of Amiga
World.

LIKE MANY Mi-
crosoft projects, Windows 3.0
has generated a fair
share of controversy.
report for the boss can be given
priority, and the spouse's news-
letter can be put on the back
burner, or vice versa.

Like many Microsoft proj-
certs, Windows 3.0 has generated
a fair share of controversy. For
years, Microsoft pooh-poohed all
the so-called DOS extenders.

Then Microsoft used this same
technology to allow Windows
applications to cleanly exceed
640K. Worse still, Microsoft
created its own DOS extender,
even though other vendors
such as Lotus and Borland were
already using proven, semi-
standard technologies.

This point, however, irked
only the small companies. It was
the very use — proprietary or
not — of DOS extenders that
had the big boys steaming. Lot-
tus, for instance, has dumped an
estimated $40 million into
OS/2 development with the be-
ief that Windows would never
rival its bigger graphical broth-
er's features. Wrong.

Windows 3.0 has left firms
like Lotus in the lurch. They are
stuck with tons of code for OS/2
but little for Windows, which
customers finally care about.

Although some of these
firms have publicly blamed Mi-
crosoft for these foibles, it is
not its fault. Microsoft has pas-
sionately, zealously and relent-
lessly told developers to write
for Windows. If any missed
their opportunities . . . well, that's just too bad.

Windows 3.0 also sparked a
vicious debate over the transi-
tion to OS/2 Presentation Man-
ger. Some say that Windows
3.0, by mirroring Presentation
Manager's features, will hold up
the migration. That's silly. The
move to Windows 3.0 can only
help Presentation Manager.

Both systems require an 80386
to be effective. Both need lots
of RAM. And both need high-

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of RAM. And both need high-
Oracle keeping up with the databases

BY CHARLES VON SIMSON
CW STAFF

BELMONT, Calif. — Oracle Systems Corp. recently shipped its Professional Oracle Version 5.1C database and development tool kit. The newest version includes several new features that pull the respected Oracle database server closer to the usability offered by other vendors.

"PC databases have a tough job because they have to be easy for both the software developer and the end user to use," said Al-len Taylor, an independent personal computer software analyst and consultant based in West-minister, Calif. "There has been a major shift in the user base toward nontechnical people. If you don't get a sophisticated interface together, you are not going to survive." Oracle has added a menu-driven command shell that allows users to start Oracle tools and remote databases from a central control panel. The system can be preconfigured so that end users do not need to know the location of the remote database. The system can also be customized by users to function as a general-purpose DOS shell, allowing them to start applications or batch files.

Version 5.1C also supports the Microsoft Corp. Windows 286 device driver in character mode under Windows 286.

"This is our response to demands from customers for increased ease of use," said Mark Benioff, director of Oracle's desktop products division. "The proliferation of networks is sending users out to nontechnical business people. That is obviously a trend we want to support as much as possible."

But while the system is a solid improvement over previous character-mode versions, Oracle is still behind the development effort taking place at Gupta Technologies, Inc., which has demonstrated its SQL Windows product fully supporting the Windows 3.0 character mode. Gupta is seen by most analysts as the leader in interface design.

"Gupta has a lead in graphical, menu-driven systems," Taylor said, "but given that Oracle has traditionally played to other strengths, they are making significant progress." Oracle has not traditionally competed on the basis of ease of use, an area that is really only beginning to move into the decision process for many would-be database purchasers. The strength of the system continues to be its availability on a broader range of platforms than its competitors, making it easily portable to a range of operating systems across hardware categories.

In addition to the interface enhancements, Version 5.1C has been redesigned to include support for third-party memory managers such as Compaq Computer Corp.'s CEMM system. The new version has an improved installation procedure. Professional Oracle Tools and Database Version 5.1C require MS-DOS 3.0 or higher, with a minimum of 640K bytes of random-access memory and a hard disk. It includes several utilities and is priced at $1,299. Tools alone is available for $799.

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MAY 14, 1990
The latest directive from senior management is a doozy. Marketing and manufacturing must now share applications. As for all those different PCs and systems in place, management is “confident you can meet that challenge without incurring significant additional capital expense.”

Now what?

For many corporate managers, the answer to that question is 3Com® 3+Open™ systems. 3+Open systems start with LAN Manager, co-developed by 3Com and Microsoft, and include the most extensive range of connectivity and electronic mail products.

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Soyring
CONTINUED FROM PAGE 39

Can you respond to complaints that IBM and Microsoft are confusing the industry?
I don’t know of one instance where we made an announcement and changed it. Our strategy is to continue to support OS/2, and we have made our investment in that system accordingly. Our relationship with Microsoft is a strong one. As in any relationship, we will continue to evolve how we work together. Neither company has ever said [we would] hand over OS/2 development to Microsoft.

What about the announcements regarding Windows at Comdex/Fall ’89 in November?
When we make an announcement, it’s a clear position statement. Relative to the functions that will be in Windows, we said there would be no threads, no defense security, no 32-bit model, flat addressing space or full object-oriented support — these will be in OS/2 only.

Many users and OS/2 developers say you need more than 1MB of memory — Microsoft’s “design goal” — to run Windows.
As far as I know, Windows is for entry-level machines, meaning up to 2MB of memory and a 30M-byte hard disk. There is a large installed base of [Intel Corp.] 286 and 386 machines that have limited disk storage and real memory whose owners do not plan to upgrade those machines. Windows is a very good environment for that. It all depends on your expectations and on the memory requirements of your applications.

So when do you go to Windows vs. OS/2?
Windows might be fine for some limited sets of applications. But where you need preemptive multitasking and protected mode, and have applications that require a higher level of performance in the system, then go to OS/2.

How will Windows 3.0 impact OS/2?
My personal opinion is that I view Windows as a positive thing that will help sales of OS/2 by making a graphical user interface available to a larger number of users. I do think Windows 3.0 will delay some user migration to OS/2, because you now have the capability of running a graphical user interface on entry-level machines, as well as on more powerful machines.

Users are using Windows as a transition tool to provide a graphical user interface and a common set of applications. So from the standpoint of the cost of training users, corporations can minimize costs if they don’t hand over OS/2 interfaces very similar.

Take Microsoft’s Excel for Windows and Excel for OS/2 — there’s a lot of synergy there. And whenever you have an entry-level configuration of a machine or system that is consistent with the high end, it helps overall sales.

Is there a silver bullet that will launch the OS/2 market?
No. I think [what will launch the market] is a variety of products, like [Lotus Development Corp.’s] Notes and 1-2-3/3-G, Excel and [IBM’s] Officevision. When you start putting these applications together, you provide a powerful office environment.

Users and developers have complained about the limited support for DOS under OS/2.
The 32-bit version of OS/2 is very attractive. It offers a better DOS than DOS does today by providing more address space for each virtual DOS machine and expanded memory. It will allow each DOS application to run in protected mode. As for the 16-bit version of OS/2, a large percentage of [DOS] applications do run in it, despite its limitations. It hasn’t been a major issue among customers.

Silicon Graphics drops price of Iris workstation
MOUNTAIN VIEW, Calif. — Silicon Graphics, Inc. has announced that its Personal Iris 4D/20 visual processing workstation is now available for the reduced price of $10,000 in hopes that it will attract a larger and more diverse cross-section of creative design professionals.

Anticipating that the lower price point will allow a broader set of developers to bring their software to the Iris platform and subsequently expand the visual processing market, the vendor listed reduced component and manufacturing costs and an increased demand for volume shipments as the impetus behind the price reduction.

The system, which is aimed at the color publishing, computer-aided design and computer-aided engineering markets, allows scientists, engineers and designers to incorporate both color and real-time three-dimensional graphics into computing applications.

Silicon Graphics also announced that the price of the 4D/25S Data Station computer and file server has been reduced to $5,900. All new pricing is reported to be effective immediately.
Just when Power Seekers thought they had nowhere left to go...
Introducing the
IBM RISC System/6000™ family.
With the most powerful desktop workstation on earth.

No matter how big the job you're setting off to conquer, the new IBM RISC System/6000 family of POWERstations and POWERservers is for you. The desktop POWERstation 320 puts more than 7 MFLOPS and over 27 MIPS at your command—power that soars as high as 13 MFLOPS and 41 MIPS in other models.

What makes it possible is POWER Architecture—Performance Optimization With Enhanced RISC—IBM's second generation of RISC technology. It delivers up to four instructions per cycle and has the most powerful CMOS microprocessor in the business.

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<th>Model</th>
<th>MFLOPS</th>
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<tr>
<td>POWERstation 320</td>
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<td>DECstation™ 3100</td>
<td>1.6</td>
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<td>SPARCstation™ 1</td>
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MFLOPS are the results of the dense portion of the COFFEE benchmark test. MIPS are single-precision. The DECstation 3100 SPEC mark is based on the SPECmark 2.0 benchmark suite. SPECmark™ is a trademark of International Performance Evaluation Corporation. HAGAR performs data are based on published benchmark information.

Micro Channel™ makes bottlenecks ancient history. All RISC System/6000 models feature a new implementation of the IBM Micro Channel bus with I/O throughput of up to 40 megabytes per second. And the Micro Channel Architecture can accommodate a doubling or even quadrupling of this data transfer capacity, making traditional, non-expandable architectures seem primitive by comparison.

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Supercomputer speed at a workstation price: $12,995. Our entry desktop POWERstation 320 starts at $12,995 complete. And every member of the RISC System/6000 family comes with software service at no extra charge and a 12-month warranty.

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Computer show to strike Moscow

FRAMINGHAM, Mass. — The Soviet Union, perhaps the world's largest untapped computer market, will open up July 10-15 to Western personal computer vendors in Moscow when International Data Group's World Expo Corp. hosts 50,000 Soviet officials and business professionals with hard currency to spend on PCs and software at PC World Forum/Moscow.

The exposition is the only certified U.S. Department of Commerce trade show to be held in the Soviet Union this year. PC World Forum/Moscow will also be the first chance for Soviet software developers to meet with international vendors and development experts.

Once the expected changes in intellectual property laws are passed, Soviet software is expected to be a major form of countertrade. Although the Soviet Union has only 300,000 PCs, Moscow officials predict demand will reach 28 million by the year 2000; considering existing Soviet production facilities, the majority of those systems will have to be imported.

The opening two days of the show are reserved exclusively for Soviet executives identified as volume buyers. Included among the speakers at the July 11-12 Software Development Conference will be Bradley Hymes, director of the U.S. State Department's Bureau of International Communications and Information Policy; Bernard Vergnis, vice-president of Microsoft Europe; and Esther Dyson, an industry consultant.

MICRO NOTES

PC base doubles in Fortune 1,000

The average multisite Fortune 1,000 corporation had installed 2,287 personal computers by the end of 1989, a 133% growth rate from 1987, according to a recent study by Computer Intelligence. A similar survey that had been conducted in 1988 showed an average installation of only 982 PCs per company by the end of 1987.

The PC growth rate was found to vary among vertical markets, ranging from a low of 48% in the life insurance sector to a high of 230% in the diversified services segment.

CI also said that these organizations are on average planning to purchase another 185 PCs this year. The survey is based on interviews with 26,900 sites associated with 949 of the Fortune 1,000.

McDonnell Douglas Corp. will resell Hewlett-Packard Co.'s reduced instruction set computing-based 9000 workstations under a three-year, $75 million value-added reseller agreement signed by the two companies last week. McDonnell Douglas will package its own Unigraphics software on the HP platforms and said that it will continue to target the computer-aided design/computer-aided manufacturing market, in which it has successfully teamed with HP in the past.

Dial-a-DOS from Microsoft

BY CHARLES VON SIMSON CW STAFF

REDMOND, Wash. — Microsoft Corp. has established a 900 number to provide MS-DOS technical information that evaluates the potential for turning a profit from telephone service. The process is the first for a major software vendor, but several others are expected to follow.

"Up until now, 900 numbers have meant dial-a-porn and other silly stuff," said Richard Farmer, director of systems and marketing in the product support services unit at Microsoft.

In the near term, the 900 number will provide information and technical support to DOS customers for $2 per minute. Farmer said he expects that the 900 service will break even, but he is looking for profit opportunities in other areas. In the long run, the current service will provide a laboratory for testing the service and marketing possibilities of 900 numbers.

Farmer said that the system was running near capacity but that customers were experiencing no delays in reaching the eight technicians staffing the phones. A sample call placed by Computerworld was answered promptly.

Because Microsoft licenses DOS only to OEMs, product support has traditionally been the responsibility of equipment manufacturers. The distribution channel, however, is coming under pressure from software publishers. "Resellers and dealers simply don't provide the level of support that customers need," Farmer said.

"We will study the ways customers use the service to look at the best value-added potential."

Microsoft will also look at the potential for telephone consulting on more sophisticated topics such as systems development and billing for its expertise. "There is simply no good research on how people will use this kind of information or what they will pay for it," Farmer said.

Lotus Development Corp. and Aldus Corp. have said they, too, will offer 900-number customer support.

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NEW PRODUCTS

Macintosh products

Microtech International, Inc. has announced a 16M-byte memory upgrade package for Apple Computer, Inc. Macintosh systems.

The package consists of Microtech’s 4M-byte single LU line memory modules and Maxima, a memory management software product from Connectix Corp. The bundled product enables Macintosh users to use graphics and audio editing programs as well as perform large database and spreadsheet tasks.

The list price is $699 per module.

Fontina, a software product that improves font menus in Apple Computer, Inc. Macintosh programs, has been announced by Eastgate Systems, Inc.

The product upgrades Macintosh system software so that multicolumn menus are used instead of scrolling fonts, the vendor said. The software includes a feature in which related font families are grouped together and allows for all installed fonts to be displayed at once.

Fontina has a retail price of $69.95. A complete office package that includes 10 copies of the program is available for $295.

Software utilities

Invisible Software, Inc. has begun shipping an expanded memory manager for Intel Corp. 80386-based personal computers.

Invisible RAM 386 reportedly uses the 80386 chip’s built-in memory management functions to create shadow random-access memory and boost DOS memory from 640K bytes to 704K bytes on monochrome systems or up to 736K bytes on color systems.

The product also supports applications programs designed for Lotus Development Corp., Intel and Microsoft Corp.’s Expanded Memory Specification Version 4.0. Invisible RAM 386 costs $59.

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Systems

Square 3 Extra, an addition to Reason Technology’s line of Intel Corp. 80386-based business computers, combines a 25-MHz 386 processor with 8M bytes of random-access memory in a small footprint system.

It incorporates an IBM Video Graphics Array-compatible graphics card, a color monitor, a 200M-byte, 15-msec 3¼-in. hard drive with 64K bytes of cache memory, a 1.2M-byte floppy drive, two serial and one parallel ports and eight expansion slots. Its hard drive features data transfer rates of more than 1M bit/sec.

The system’s introductory price of $3,695 includes a one-year warranty and a 30-day, money-back guarantee.

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Unisys offers network support

BY ELLIE BOOKER (CW STAFF)

BLUE BELL, Pa. — Laying claim to six years of experience building local-area networks, Unisys Corp. recently introduced Connect, a five-phase program to plan, design, install and maintain LANs. Unisys will act as a single point of contact for LAN customers, maintaining its own equipment and software as well as that of other vendors.

Last October, Hewlett-Packard Co. introduced a comparable service called HP PC-LAN Support. Digital Equipment Corp. also has a LAN support offering. "I think everyone should be in this business . . . if they want to stay in business. The opportunities today are in networking and LANs. They're complex, vital," said Don Goodspeed, vice-president at Westport, Conn.-based Meta Group, Inc.

Goodspeed was less sure of Unisys' ability to sell the service outside of its existing customer base, but he welcomed the thoroughness of the five-phase Unisys offering.

"Many service and support contracts for its computer customers already account for about one-quarter of Unisys' revenue," said Unisys director of services marketing development Joseph Zeccardi, who estimated the market for value-added network planning and support services at $2 billion annually.

Unisys will initially support LANs using Novell, Inc.'s Netware, which has been selling under the name Usernet since 1984.

The company will eventually have 200 of these engineers, who will be supported by its existing staff of 4,000 to 5,000 customer service engineers, company officials said.

Pricing for Connect will depend on the particular contract. However, these prices will be "competitive" with what LAN manufacturers charge for such services — in the $100 to $200 per hour range, Zeccardi said.

"In addition to planning, design and installation, we will also take full responsibility for hardware and software content." The Unisys Surety Service Program will offer various levels of maintenance and support for the LAN and all its attached devices. Also, as part of ongoing service, Unisys said it will periodically visit its LAN customers to check the performance of their networks.

FEATURE: CUSTOMER-CARRIER RELATIONS

Catching users in public nets

BY JOANIE M. WEXLER (CW STAFF)

The postdivestiture dust has settled, leaving corporate telecommunications professionals confident in the expertise and survival of multiple communications carriers in a competitive world. In the aftermath, interexchange carriers have been able to woo many customers back to public networks with economical enhanced services once available only through private solutions.

Many large companies now consider their interexchange carriers strategic partners in planning and building corporate networks. Recognizing that carrier resumés are brimming with networking talent, users are easing up on their postdivestiture doggedness to handle every wire, jack and port in-house.

Notes Tom Pollando, corporate director of communications at Paine Webster, Inc., an AT&T Tariff 12 customer: "As a manager, I want the most talented people I can find running my network. It's the long-distance carriers who are at the leading edge in communications."

Carriers are becoming more flexible in accommodating individual company needs via volume discounts, custom-designed networks, virtual private networks and fractional T1. Also, software-defined network management services give users control over their networks previously offered only by private T1 switches. "Economics are the main reason users migrate back to public networking," says Tom Nolle, president of CMI Corp., a communications...
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Primary Access aims to pare down dial-up access

BY JOANIE M. WEXLER CW STAFF

SAN DIEGO — A product that could replace the jumble of equipment in the asynchronous dial-up environment with one multifunction device was introduced last week by start-up Primary Access Corp.

Called Primary Access, the system integrates the function of modems, channel banks, packet assembler/disassembler (PAD), channel service units, local-area network servers and Integrated Services Digital Network terminal adapters into a software-based, modular system containing T1, fractional T1 and other interfaces.

Control and management of the functions and interfaces are provided by a centralized personal computer-based system called Primary View.

Novell beefs up Mac ties

Novell, Inc. recently made three announcements, each intended to bolster the local-area network manufacturer's stake in the world of the Apple Computer, Inc. Macintosh.

The Provo, Utah-based company last month announced the release of LAN Workplace for Macintosh Version 1.1. The update offers new features for Macintosh owners using Novell Netware products.

Macintosh Workplace 1.1 includes 12 European alphabets, a larger screen display, Telnet terminal emulation and print-screen capability. The print-screen ability allows users to print portions of Telnet sessions with mouse functions. The software, which is priced at $250, includes support for File Transfer Protocol, Transmission Control Protocol/Internet Protocol (TCP/IP) software and network monitoring software.

**Shiva gets Fastpath license**

At the same time, Novell announced the licensing of Fastpath, its Macintosh gateway product, to Cambridge, Mass.-based Shiva Corp. Novell picked up greater Macintosh connectivity expertise from its merger with Excelan, Inc. in June 1989.

Shiva specializes in Macintosh networking software and hardware. Fastpath connects the Macintosh's LocalTalk with Ethernet.

Fastpath supports protocols including Decnet and TCP/IP and allows sharing of printers, file servers and other peripherals as well as electronic mail.

Novell took another step in its campaign to create a higher profile in Japan. Novell has formed a Tokyo-based joint venture with Softhawk Corp., a software peripheral distributor.

The new company, called Novell K. K., was registered for business March 30. Novell, the major partner in the venture, is joined by Softhawk, Canon, Inc., Fujitsu Ltd., NEC Corp., Sony Corp. and Toshiba Corp.

The company will market and support Japanese versions of Novell's Netware product line. Novell K. K. expects to deliver its first product, Netware 386, this fall.

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**UPDATE**

Framingham, Mass.

He added that companies starting to build networks and those replacing modem banks over time in their data centers would be the most likely candidates for the product. Other targeted customers are enhanced services providers and local and long-distance carriers.

Newman noted that the all-in-one approach has historically been a difficult sell for vendors in that "a specialized device may be fine-tuned for what you need, where the integrated product might be more generic."

The vendor said it sees an $879 million market for the system, a sum of the market segments for the various devices it replaces. Primary Access began shipping last month.

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The Hubble reaches out to terra firma

BY GARY H. ANTHES

GREENBELT, Md. — It was hard to tell if Paul Ondrus underrated the meeting with anxious tenants would not lock onto the satellite needed to relay data to the ground, and Ondrus punctuated the meeting with anxious telephone calls and consultations with colleagues.

Nothing is simple about the $1.5 billion Hubble telescope, now stretching its wings some 380 miles above Earth — certainly not data communications.

Volumes are high: a megabit of imagery data will flow from the telescope every second, 24 hours a day for at least 15 years. Readings that show the status of the telescope’s many complex instruments are sent from each of 6,000 sensors once per second. Scheduling data, which tells the telescope where and when to look, must flow virtually error-free to the telescope through a torturous terrestrial and celestial route.

Scheduling is almost unbelievably complex, Ondrus said. Each day, the telescope’s instruments and controls act on 20,000 commands, which are re-leaved from Goddard. Timing is crucial in order to prevent the telescope from damaging itself and to avoid wasting precious viewing time. Scheduling algorithms use artificial intelligence and statistical techniques to balance hundreds of often-conflicting factors.

Scientists wishing to conduct experiments must have their requests approved and in the schedule queue more than one year in advance, and space telescope glitches can require rerun ning the scheduling programs for a period stretching back over three weeks.

“It’s like an air traffic control system with a new flight schedule every day, and if one plane is late you have to reschedule all planes for three weeks,” Ondrus said.

The reliability of digital lines combined with the economics of switched solutions such as virtual private networks and ISDN are another lure to the public network. Switched access can be less expensive than leased lines, depending on traffic volume, in that customers only pay for bandwidth when they use it.

Virtual networks allow customers to allocate a portion of the public network between their premises and the carrier’s central office to a mix of services and destinations. AT&T provides this service under its Software-Defined Network offering, U.S. Sprint Communications Co. under its Virtual Private Network and MCI under Vnet.

Money savers

Virtual networks attempt to offer the channel allocation flexibility of a private network without forcing users to make large capital investments in their own equipment or in dedicated lines. Virtual networks allow users to reallocate bandwidth as traffic fluctuations during the day.

Dynamic bandwidth allocation for voice is offered in real time over AT&T’s and Sprint’s ISDN Primary Rate Interface lines on a call-by-call service selection basis. This service is not yet available on the data side because it is too cost-efficient for carriers to run fiber to customers’ premises equipment (CPE), Nolle says, adding that the gigabytes of bandwidth provided by fiber would be needed for bandwidth-on-demand for such applications as video on a switched basis.

The schedules and other commands are relayed from Goddard to 62

the telescope.

Data coming back follows the same path in reverse. The telescope may send data in real time, or it may store it on tape if the relay satellite is temporarily out of view. Imagery data is sent in 4.8K-bit blocks that include address information and error-correction codes.

Space Telescope Science Institute in Baltimore, where it is further processed and stored on tape and optical disc.

Data undergoes a sophisticated error-correction process called Reed-Solomon, that uses multiple check bits for coding and decoding. An error should occur no more than once in every 10 million bits, or 100 times better than offered by conventional techniques, Ondrus said.

In addition to imagery data, Hubble sends back more than 500 million instrument readings daily. An expert system evaluates the real-time readings, looking for and even predicting problems. Problems are displayed graphically on workstations, keyed to pictures of the telescope and its components.

The expert system suggests corrective measures, and ground technicians respond by sending commands that return changes back to the telescope.

Ondrus’s staff eventually discovered that a cable, slightly too long, was affecting the telescope’s antenna from swiveling properly toward the relay satellite. A search for the problem led to several commands went up, and everything worked — for the time being.

Contract counsel

One way for users to ensure that vendors provide them with what they need is to nail down a service contract. Users and analysts offered the following advice:

- Define procedures for escalation — the amount of time allowed for repairs at each level of expertise before passing the project up to the next highest level — and define essential circuits for priority maintenance.

- Specify diverse routing, uptime guarantees and quality of service.

- Know what equipment you will use and how it will work. "Get all your vendors and carriers together to draw up a schematic from one end of the network to another," advises June Hoffman, telecommunications supervisor at Kaiser Permanente, a health maintenance organization. Hoffman also says to insist on a "favored nation" clause in your contract, which ensures that if the carrier offers a similar service to someone else for a lower price, you automatically get that price, advises Bill Rahe, president of the Aries Group-MPSG, a market research firm in Rockville, Md.

by Frost & Sullivan, Inc., a market research firm in New York. MCI and AT&T have announced network management interfaces that allow users to key in a circuit number at a terminal and find out that a T1 line is down, locate an associated equipment failure and determine an expected "Ex" time.

In addition, services such as AT&T’s Customer Controlled Reconfiguration allow users to lease a portion of a central office digital cross-connect — which switches T1 lines in increments of 64K bit/sec. — and make changes to network configuration as if they had private nodes.
transfer the data, drop the call and connect to the next destination. Users can automate the process through the use of the script languages supplied with modern communications programs. However, writing and debugging scripts can be tricky for the casual user.

Fortunately, software vendors have provided ways of automating the process by integrating their software into ISDN’s fabric. Easystreet, from Newbridge Networks, Inc. in Herndon, Va., and Manylink, from Manylink Corp. in Redmond, Wash., are specifically designed to support ISDN virtual networking. The software transparently handles device destination lookup, call setup, data transfer and call termination.

This gives users the impression that ISDN is a virtual local-area network able to connect to many destinations over great distances. Ken Wade, president of Manylink, said, “[Virtual LAN software] allows standard applications such as Wordperfect or Lotus’ 1-2-3 to access devices on the ISDN network.”

Once connected to ISDN, the software can use devices such as remote printers that are located far outside the normal range of LANs. In fact, the term LAN is actually a misnomer because the virtual network range is far enough to be considered a metropolitan-area network. According to Wade, “The goal in developing virtual LAN software was to implement shared data conferencing in a method similar to voice conferencing. For example, a joint editing project can be done on-line with existing software, allowing several users to work on a common spreadsheet.”

Easystreet and Manylink are solid packages that are well-thought-out and highly integrated into an ISDN environment, although each has its advantages in comparison with the other. ISDN virtual LAN technology makes it possible for a home worker or remote user to access files from office computers. No coaxial or special cable needs to be run because ISDN uses the telephone company’s standard wiring.

One drawback of ISDN virtual LANs is that file transfers are slower than those in most conventional LANs. Since virtual LAN packages typically use ISDN’s D channel at 9.6K bit/sec. or B channel at 19.2K bit/sec., this is to be expected. One way around the problem is to use faster terminal adapters supporting asynchronous communications at 38.4K bit/sec. Even if files don’t get transmitted at full LAN speeds, some virtual LAN software packages can move the process into background mode, so the computer can do other applications while the file transfer is under way.

Is it overly optimistic to think that ISDN virtual LAN technology can become a major ISDN application? Probably not. Cost and a lack of unique applications are two of the biggest obstacles to widespread ISDN use. Clearly, virtual LAN connectivity offers users a unique application not readily supported by other data communications technology. Given its potential, ISDN virtual LAN technology may indeed play a major role in putting ISDN services on the map.

Fritz is a data communications analyst at West Virginia University in Morgantown, W. Va.

**NEW DEALS**

**U.S. Sprint awarded weather system pact**

The U.S. Department of Defense has awarded U.S. Sprint Communications Co. a five-year, $10 million contract to serve as systems integrator for the department’s Automated Weather Distribution System program. Sprint said it will provide high-speed network services and equipment for providing real-time weather information and graphics to U.S. Air Force bases throughout the continental U.S. The carrier will also provide field maintenance and network operations staff for the program.

The Bank of Bermuda has licensed Systems Strategies, Inc.’s Ezbridge File Transfer/Mail software in order to permit financial reports to be electronically transferred between the bank’s IBM System/38 and Digital Equipment Corp. VAX computers. It will also be used to deliver reports to customers who use the bank’s accounting services to keep track of their funds, Systems Strategies said.

The Franklin Institute science museum in Philadelphia will be working with Unisys Corp. to design and implement an interactive information system for visitors. Called Unisystem, the system will consist of computer stations in various exhibit areas that will answer visitors’ questions when a bar-coded card is inserted. The system is scheduled to become operational in the museum’s new Futures Center this month and in the Science Center in December.

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Internet makes users KIS-ing cousins

Prototype retrieval system bridges disparate network directories

BY GARY H. ANTHERS

MOUNTAIN VIEW, Calif. — Two weeks before the Open Software Foundation is expected to choose the Decorum system as its official distributed computing standard, Sun Microsystems, Inc. announced a two-year strategy for making its own rival protocol, Open Networking Computing (ONC), the "true" standard.

Sun announced year-end shipments for its announced ONC enhancements that are designed to extend the platform's networking support beyond Transmission Control Protocol/Internet Protocol.

First, ONC will support the Transport Layer Interface component of AT&T Unix System V Release 3, which is said to allow applications to communicate transparently across a variety of networking protocols including, in the future, Open Systems Interconnect.

Second, ONC will support Netwise, Inc.'s remote procedure call compiler, RPC Tool, which is said to facilitate the porting of distributed applications across various networks and computers. Netwise, Inc., 3Com Corp. and Banyan, Inc. have all said that they will support ONC on their networking systems via Netwise's compiler.

Sun said it plans to enhance its proprietary Local Area Network (NFS) to serve as a "family of services" to the directory standard.

Neither of the above announced enhancements will be released until "1992 and beyond," Sun said.

Sun also said it will support Kerberos, a security system developed by MIT's Project Athena. NFS will continue to support Sun's Secure product, the vendor said.

Object orientation

In addition, Sun said it will enhance its naming services to be object-oriented "so that users can work with network resources," asking, for example, for a "class of information such as "Teletype," and then have the ability to access any "Teletype" device on all the systems that support CCITT X.500, although the vendor has announced no plans to actually migrate its naming services to the directory standard.

KIS is operational, but it is likely to have bugs and be somewhat cumbersome to use, Cerf said. The user interface Knowbot now uses a crude "dumb" telnet program, but Sun plans to add an X Window System interface with user-friendly menus of options, Cerf said.

X.500 is an approved standard, but it will be years before it is in widespread use on the Internet, Rose said. He said Performance Systems' goal is to have an interactive, distributed X.500 service covering 90% of Internet users in place within seven years.

Even with X.500 implementation, KIS will still be useful because its Knowbots can be trained to accept X.500 queries, access non-X.500 databases and return results in X.500 format, Cerf said.

In any case, neither KIS nor X.500 will solve the most pressing problem facing directory services — how to keep them complete and correct. Fewer than half of Internet users are listed in a directory, and many entries are hopelessly out of date, Cerf said.

Gandalf Data's Basic Rate Interface terminal adapter allows applications to run over high-bandwidth ISDN facilities

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'Taking the 'place' out of workplace

Telecommuting technology is expanding out-of-office work, and IS is at the forefront

BY J. A. SAVAGE
CW STAFF

On the volatile management issue of telecommuting, information systems managers appear to be far ahead of their peers in other departments.

During the last few years, the technology infrastructure has grown to accommodate work done from places other than the office. While IS employees are rarely discouraged from coming into a central office, the change in infrastructure is allowing managers to get productive work from them even when they are not in the office.

"The work that people do in IS lends itself to telecommuting," said Paul Blake, staff manager for Pacific Bell's customer IS in San Ramon, Calif. "If you're a programmer or a maintenance type, you're sitting by yourself with your tube and your manuals. The biggest problem is interruptions, and when you're telecommuting, you don't have those interruptions."

With computer rooms in 24-hour operation, it is not unusual to have companies provide each IS staffer with a home computer for remote diagnostics, as does Ask Computer Systems, Inc. in Mountain View, Calif. Beepers and other products, according to Paul Saffo, a research fellow at the Institute for the Future, a Menlo Park, Calif., think tank. It was formerly understood to simply mean a way for an employee to work at home using a personal computer.

Saffo said that in the 1990s, the creeping technical infrastructure, such as facsimile machines in hotels, phones on airplanes, cellular phones, electronic mail and voice mail, will allow work to be done in places other than the office. American Airlines, for example, recently announced an "office in the air" on international flights (see story page 69). This would still be considered telecommuting, even though work is not necessarily being done at home. Software applications, such as groupware, which allow employees to work separately on the same project, and small, powerful computers to run such software are also becoming a more common means of telecommuting.

Saffo said that taking advantage of these products will give companies more flexibility and a cost advantage. One such advantage would be locating a company or a department in a non-metropolitan area where the cost of doing business is cheaper.

For instance, a software development center could be in Boise, Idaho.

Continued on page 69

MANAGER'S JOURNAL

Shore leave for better systems design

BY JIM NASH
CW STAFF

In two Chevron Corp. subsidiaries, users of information systems have a new tool for working with programmers on projects: face-to-face discussion.

The San Francisco-based petroleum giant has deep-sized several corporate policies, said Bardin Nelson, senior systems analyst at Chevron Information Technology Co. (CITC), for the sake of a pilot project that brings programmers and users together in close quarters.

The IT department is attempting to make information sharing as painless and efficient as possible through a coordinated group effort," Nelson explained. CITC and Chevron Shipping Co. are developing standardized shoreline and shipboard software and a worldwide network linking Chevron with its approximately 40 tankers.

In 1989, Nelson and his 10-person team moved from their CITC offices in San Ramon, Calif., to the San Francisco high rise that also houses Chevron Shipping. Chevron also began rotating two fleet officers at a time to duty on the project. He said the group will stay indefinitely to develop and refine the resulting software and hardware.

“Our group exclusively supports Chevron Shipping,” Nelson said. "Normally, [CITC] groups are project-oriented. Here, we’ve banded together (shoreside and shipboard) applications development, which is a departure from our insulated approach in the past.”

Chevron Shipping’s Geoff Landon said that the approach has been well received. This way, he said, they have much more control over project direction and ingredients. Landon said particular attention has been paid to fleet officers, who put in five months— the length of an average voyage— working with Nelson’s team.

“Our officers are the single most untapped source of productivity and quality improvement at Chevron,” Landon said. “We fit the needs of the ship first and secondarily the needs of the home office.

Officers are picked for the project. Landon said, based on their professionalism, expertise and ability to clearly see what Chevron wants to accomplish with the project.

Despite not targeting technophiles, there has been little resistance on the part of officers.

“The officers do it all while they are here, from needs-listing to flow-charting,” Nelson said. “They go back to their regular duties as disciples and preach where we can’t reach.”
People: Toughest part of partnerships

BY ALAN J. RYAN CW STAFF

TORONTO — Marrying technology to the business was a hot topic in the late 1980s. Now, as companies move into the 1990s, the partners formed by that bond will be finding themselves held accountable for their company’s bottom line. So said speakers at the recent “Partnership Conference,” sponsored by LOMA, an international association for the insurance and financial services industry.

“Business is not separable from technology any more,” said Mike Tine, senior vice-president in the financial services department at The Travelers Corp. in Hartford, Conn.

Larry Bacon, senior vice-president of The Travelers’ information systems department, agreed. For 20 years, Bacon said, technology was applied to the business when the business people requested it. “Neither group understood each other,” and the process of building systems could take up to two years, he said. When systems were created, they often simply automated a former- laypaper-based function, he said. However, increased competition, the tremendous costs associated with long systems development and the changing markets of the insurance industry have brought about changes, Bacon said. Foremost are the partnerships between the businesses within The Travelers and the systems department.

“The partnership brings product design and systems people together at the beginning” of a project, Bacon said, and systems workers “are aligned to that line of business every step of the way.” The partners are driven by business results rather than by business or technical considerations alone, he said.

The partnership can only work if there is a clear vision and capable people behind it, Tine said. “The technology is the easy part here.”

When The Travelers’ financial services department was looking at ways to improve its success in the annuity market, a task force of the best workers in that area and in the systems area was hand-picked by Tine and Bacon and asked what could be done. The group formed service principles: quality, error-free processing that would provide good customer service and have easy access for customers.

The people conducting the study did not talk about the technology; they simply came up with a fix to a problem and then worked with the systems people to find the most effective system to meet that need, Tine said.

Working together, the team came up with the idea of having a skilled customer service representative who could be reached by customers via a toll-free phone number, facsimile or mail, Bacon said. The representatives would have all the information a client might request at their fingertips. “The service rep can take care of new business, billing and collecting, research and support, customer reporting and shareholder accounting,” among other things, Bacon said.

The project was highly involved and expensive, but Tine said he believes the money was well-spent. It involved “several dozen people and cost several millions of dollars,” he said. The project as it was originally planned would have taken up to two years to complete. “We didn’t have the time,” Tine said.

The decision was made to implement 70% to 80% of the functionality quickly. The other 20% to 30% may never be completed, or it may be modified pending the outcome of the initial phase, Tine and Bacon said.

Looking for CLUES

A similar partnership at The Mutual Life Insurance Co. of New York (MONY) helped form CLUES, its Comprehensive Life Underwriting Expert System, which has been integrated with the company’s administrative new business processing systems.

CLUES applies 800 rules to applications for life insurance and then goes through 7,000 steps to determine if the case should be accepted, rejected or if an underwriter should check it to add more information, according to William Daly, retired vice-president of selection who now does consulting at MONY.

The CLUES partnership began with one person in the company’s corporate IS area looking at expert systems in 1985 and the subsequent discovery that the underwriting department was doing its own expert systems research. In 1986, the two areas began working together as a team, according to Arthur Sun-tu, assistant vice-president of corporate IS.

In its first month of operation, CLUES processed 285 cases and had a 7% approval rate. By June 1987, the approval rate had climbed to 15%. Currently, the system has a 33% automatic approval rate of all cases, and it handles 75% of all new underwritten business, according to Sun-tu.

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Telecommuting
CONTINUED FROM PAGE 67
where the cost of living is a fraction of that in major metropolitan centers. As long as there are good telecommunications links to headquarters, development could be done remotely.

These telecommunications links, which allow remote work, are another part of the infrastructure that has been in place only since the late 1980s. Idaho, for instance, had party lines that precluded the use of advanced telecommunications in "virtually every exchange in the state" until 1987, according to Perry Swisher, an Idaho public utilities commissioner.

Loss of the personal touch

T hose who telecommute swear that their productivity increases. Jay Fenton, a principal engineer at Parallon Computing, Inc., in Emeryville, Calif., said his productivity increased "drastically" after he began coming into the office only once per week instead of every other day.

Fenton, who owns two home computers, fax machine and modem are supplied by Parallon, is high up enough in management that he is allowed to measure his own productivity. But his position is about to put him in the same boat with managers who want to see their employees.

"I'm just about to hire people to work for me," he said, adding that in his last job, he and his boss videoconferenced to communicate. "We started with a certain rapport, but the personalities turned into raggedy electronic images" and the working relationship fell apart, he said.

Fenton is about to hire someone who will come to his house for meetings. "I'm not convinced if you have to

supervise people you can do it just by talking remotely," he said.

Fenton is also a moderate user of groupware. "Instead of electronic mail which handles one-to-one communications, groupware handles group-to-group communications. Groupware for programming projects, however, is more tricky than that for text and graphics."

Fenton suggested that programmers be face-to-face when finishing a program. "If you have to get together to change part of the program, you have to gesticulate a lot in order to reconcile the differences," he said.

All this software requires one more bit of infrastructure — powerful hardware. Networking users together demands file servers, and running software on individual computers requires more powerful personal computers.

Fenton said another needed technology is Integrated Services Digital Network cabling into houses. The current transmission rate, 9.6K bit/sec., is not productive enough, he said.

J.A. SAVAGE

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Those products, coupled with a portable computer, are about all it takes for telecommuting eight miles high, although the stewards and stewardesses have yet to take delivery. The airline has not set a date to introduce air fax, but it expects to have a plan within the next few months, according to a spokesman.

"Office in the air" capability will first be available on the "International Flagship Service," announced late last month. In its first iteration, the fax machine will be absent, but future air travelers will have videocassette recorders.

"We don't know to what extent we will offer this to economy seats," the spokesman said.

the basic concepts of society — such as going to work in an office — have been around much longer. Safo said he still expects telecommuting to take off: "The surprise will come when companies realize they have the infrastructure together and all they have to do is add software."
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The truth is, conventional ways of measuring a computer's power don't have very much to do with the power a computer gives you to accomplish anything.

A personal computer can't do anything by itself. And a computer that people can't—or won't—use doesn't really have any power at all.

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A recent survey of people who use Macintosh personal computer systems and people who use the other leading personal computer system in Fortune 1000 corporations helps explain why: Macintosh was rated 22% higher for user enjoyment. Which, in turn, helps account for why information systems managers in those companies rated Macintosh 22% higher for overall satisfaction and a remarkable 42% higher for user productivity.

So before you spend another dime on personal computers, invest a few minutes in a system that lets you measure its power by the only benchmark that really matters: the performance of the people who use it.

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“Global Communications: Worldwide Connectivity Strategies,” is the theme of a June 14-15 conference for companies that have, or are planning, an international presence.

The conference, to be held in Washington, D.C., will address the issues of technical and regulatory trends, including deregulation, demonopolization and privatization, and how those changes affect the networking alternatives available to multinational corporations for their global communications needs.


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Human resources representatives will frequently eliminate candidates because they are unsure of their suitability or confused by their acronym-filled resumes.

University of Minnesota Management Information Systems Research Center Working Paper 1989

"The Economics of Data Integration"*
By Dale Goodhue

The corporate challenge of determining an appropriate level of data integration is balancing effective communications with the least possible cost. Most companies will find it more desirable to partially integrate their data islands rather than to go to the extreme of total integration or total lack of integration.

A major cost of integration crops up in trying to agree on a single network design. Other costs are associated with loss of local autonomy and flexibility, translating nonintegrated data into a compatible form and the extra managerial time spent making decisions with nonintegrated or partially integrated data.

Data integration benefits include facilitating corporatewide actions and making information available for companywide decision.

The optimal degree of integration will vary with the number and diversity of subunits in a company, extent of centralization and emphasis on corporatewide vs. local-level activities and decisions.

California Management Review Winter 1989

"Beyond the Charismatic Leader: Leadership and Organizational Change"*
By David A. Nadler and Michael L. Tushman

A charismatic executive is not enough to steer a firm through large-scale organizational changes. While an inspired individual is critical to provide vision, direction and energy, different changes call for different types of leadership.

One of the most challenging changes to manage is reorientation, a strategic change for future competitive advantage. An individual executive is severely limited by his own time, energy and expertise to deal with the demands of such change. Two other forms of leadership are key in successful reorientations.

Institutional leadership focuses on defining the behavior needed to achieve change and ensuring that employees continue that behavior. It consists of three elements: building competent management teams to communicate the desired behavior; creating processes to assess behavior; and establishing systems to reward or punish behavior consistent or inconsistent with the goal.

Institutionalized leadership entails expanding the number of people who perform leadership functions. This concept consists of three elements as well: developing an effective and visible senior management team, broadening the senior management level to include individuals one or two steps down from the executive team and developing future leaders in the organization to fit with the future environment of the reorientation.
Wall Street cultivates a lean and hungry attitude

BY DAVID LUDLUM

From their Manhattan office towers, managers of the nation's leading brokerage and investment banking firms can see shiploads of business opportunity on the horizon. However, the question along Wall Street is whether there is enough cash in the till to build adequate docks.

Last month, for example, the Securities and Exchange Commission loosened its regulation of the private placement of securities. The change made it a lot easier for corporations to sell stocks and bonds directly to big institutional investors. Wall Street's investment banking and brokerage firms expect that business to grow rapidly. They are jockeying to become bigger players, and that means sinking money into new systems.

Right now, however, cash for capital investments is a commodity that is in rather short supply. After the 1987 market meltdown, demand fell for services such as retail brokerage. For a while, other activities, including mergers and acquisitions, picked up the slack, but those have also slowed. Even where services remain in demand, profit margins have come under pressure.

Take securities trading, for instance: The falling price of computer power has let institutions that buy stocks and bonds do sophisticated analyses of prices that only brokers and dealers could do in the past. The result is a smaller spread between bid and ask prices and slimmer profit margins for the sellers.

"The playing field is being leveled. That has changed the business fundamentally," says Gary Curtis, a vice-president in the Chicago office of the Boston Consulting Group. Wall Street companies are saddled with overhead costs originally justified by the profit margins of the past.

Goldman Sachs' Adam points out the paradox between reduction expectations and new introductions

"There's a real paradox here," says Rick Adam, a partner in charge of global operations and information technology at Goldman, Sachs & Co. "The traditional products that paid the bills for a few years have slowed down, so people say you should be able to cut back. But traders and salespeople are accelerating the rate of new product introductions."

The new products also tend to be more complicated than the old ones. Goldman Sachs, for example, recently became a market maker for Japanese equity warrants traded in London. To handle the Japanese warrants, Goldman Sachs' traders have to have real-time prices of the underlying Japanese stocks and calculate the impact of changes in them on prices for warrants. "A client will call, and you have to be able to give him a quote," Adam says. "From a computing point of view, it's quite tricky."

The company equipped traders with personal computers running Microsoft Corp.'s Windows. The desktop machines are tied to Stratus Computers, Inc. minicomputers and IBM hosts through a cooperative processing scheme, so that the traders get power and responsiveness and the ability to track the mainframe-based inventory.

Goldman Sachs is actually in better shape to deal with the development of complex new systems than are many of its rivals. Firms that tried to offer a broad array of products and services during the heady 1980s face the toughest challenge, according to industry analysts. Organizations that once spent freely and put on fat are now eliminating entire lines of business. Last year, for example, Merrill Lynch & Co. took a $470 million charge for restructuring, including the sale of its Canadian brokerage operations. Also, last month, Shearson Lehman Hutton, Inc. posted a $630 million charge for restructuring, divesting part of a money management business.

Even at companies where such radical cutbacks are not necessary, expenditures are still being watched closely. Goldman Sachs, for example, has no standing order to cut costs, but the firm is generating efficiencies to help finance new projects. Its information systems budget has fallen slightly in the past year, Adam says.

Similarly, Salomon Brothers, Inc., which earned $119 million for the first three months of this year, imposes strict requirements for the justification of any new systems projects. Managers must break each initiative into its component parts and forecast the cost and payback for each one.

For the most part, it's a matter of fewer dollars chasing many more priorities. New products and services have to be developed to repair frayed profits, and those products are often more complicated to support than the traditional lines of business. In areas in which margins have thinned, companies are looking for systems that can help traders make the most profitable use of their time. Many existing systems, which are nearly obsolete after a decade of sweeping change, need to be replaced. Others, thrown together in haste during the boom years to answer specific and pressing
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sidered. The changing business envi-
ronment is forcing businesses to pick up and compete. The need to change is urgent.

Distributed processing is a top-of-the-list item at many firms. IBM mainframes are the popular choice for transaction processing on Wall Street, but firms embrace different ap-
proaches to distributed processing. Many rely primarily on IBM's minicomputers and have discov-
ed similar trends that could affect their businesses. 

"Wall Street firms need technology that lets programmers build systems quickly and modify them or move them among hardware platforms easily," top management has to recognize the value of such seemingly "pedestrian" capabilities. 

I N A FAST-CHANGING BUSINESS, Wall Street firms need technology that lets programmers build systems quickly and modify them or move them among hardware platforms easily, but top management has to recognize the value of such seemingly "pedestrian" capabilities. 

The idea of reducing main-
frame investments pays for themselves. "At Merrill Lynch, says Howard Sorgen, "The data center standards and re-
structuring — when it hired
Dennis Prentice to run the ny system for clearing
security trades, for example, as an equity or fixed-income
Agreement," says Dyan Dransim, Solomon's managing director in charge of systems. At Merrill Lynch, managers in the central processing group sometimes work out cheaper ways to do things in response to requests from business units. They forecast their ex-
penses and budgeting with the top managers of the
units and, subsequent-
ly, with the software development staff. Once
they have taken is discounted rates for processing services at a discount of 5% to 10%.

At the same time, companies are plugging ahead with invest-
ments aimed first at boosting
services by one-fourth. One
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Soren says Merrill Lynch is centralizing "utility-like func-
tions" while spending money on
strategic initiatives such as structured software develop-
ment. It plans to cut the costs of central services by 5% to 8% a year; since 1986, it has reduced the cost of operations by 50% and shifted the services by one-fourth.

A key move has been the con-
solidation of seven data centers into two "megacenters" de-
gined to provide operational re-
dundancy. This change, which was completed last year, is bringing savings of more than $28 million a year, Soren says.

Data center standards and automation are helping Merrill Lynch and other companies take care of business with fewer peo-
ple. Merrill Lynch standardized

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1) MS-DOS
2) Personal computer integration
3) Multivendor compatibility
4) Multivendorivity
5) IBM's Systems Network Architecture

From a 1989 survey by The Sierra Group, Inc.

In addition, a number of Wall Street companies are working on technologies that could some-
day work as substitutes for ser-
vice of the New York Stock Ex-
change, which charges member firms as much as $20 million a year. Soren is making its own
market in about 50 Big Board is-
sues, mostly closed-end stocks.

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Data center standards and automation are helping Merrill Lynch and other companies take care of business with fewer peo-
ple. Merrill Lynch standardized
operating systems and scheduling and installed software for monitoring and controlling networks, T1 lines and modems. "The idea is a lot of sophisticated equipment with very few people," Sorgen says.

Kidder has installed data center automation for backup, job control, tape library management, report distribution and transfer of data among incompatible systems. The company leases data center facilities from First Boston but runs its own computers with its own people. Kidder has cut its information systems headcount from more than 400 to "the low 300s" in the last two years, according to McKinney. To keep employees motivated and focused on their work — a major challenge — managers hold regular meetings to address concerns of staff members.

Critical ties are prime target
Communications costs have long been a major expense for Wall Street companies and, therefore, a major target of budget-cutting efforts. In recent years, Goldman Sachs has "re-engineered" its network. Adam says. It uses a fiber-optic backbone for voice, data and video moving between the U.S., London and Tokyo. The company has lowered costs 30% while boosting the quality of transmissions and allowing seven-digit dialing worldwide, Adam says.

Shearson has introduced fractional T1 lines to connect certain locations where full T1 would be too expensive to justify. Multiplerater vendors design and help install the networks, which are cheaper and more reliable than conventional analog circuits.

All the companies are cutting costs by bargaining more aggressively with vendors. They are taking advantage of negotiated rates for telecommunications, such as AT&T's Tariff 12. Merrill Lynch has tapped MCI Communications Corp. as its sole telecommunications provider. In a turnaround, however, it recently backed off from a plan to outsource network management to MCI and IBM. Top management decided network control is too critical to outsource, Sorgen says.

Shearson has been cutting better deals with suppliers of computer equipment and communications services through the buying power of its parent, American Express Co. McKinney says Kidder is saving money by buying First Boston's global trading system. "Today, it would cost anyone $100 million to build," he says, while purchasing it cost a small fraction of that amount.

At Shearson, the focus of cost-cutting is software development. The company is redesigning software to run in a more efficient parallel mode on the six-processor IBM mainframes in its new Manhattan data center. The idea is to accommodate business growth with minimal increases in hardware costs. "We don't want to build these mammoth systems that are CPU hogs," Shearson's Morrison says.

In developing software, Shearson has standardized database interfaces, communications and presentation. "The term we use is 'snap-on,'" Morrison says. With the approach, development is less labor-intensive and more simple; programmers don't need to know the operating system in as much detail as before. Since applications look more similar, maintenance is easier, too, he says.

At Merrill Lynch, business units do their own software development, but the central services group provides processing for them. It is cutting costs by offloading some of the work to PS/2s. The firm thinks each programmer is costing 16% less in processing resources, Sorgen says. State-of-the-art software development is definitely an area in which Wall Street firms need to invest, says James Emery, a professor at the University of Pennsylvania's Wharton School. In a fast-changing business, they need technology that lets programmers build systems quickly and modify them or move them easily among hardware platforms. But top management has to recognize the value of such seemingly "pedestrian" capabilities. Given pressures to cut costs, Emery says, it's becoming harder to get money for investments that are perceived in this way. "But," he adds, "I'm extremely bullish about it in the long run."

COMMERCIAL PRIORITIES
Top technology issues cited by commercial lenders

National firms:
1) IBM's Systems
   Network Architecture
2) Multivendor compatibility (tie)
   Fault tolerance (tie)
3) MS-DOS (tie)
4) Multivendor connectivity

Nonnational firms:
1) MS-DOS
2) Personal computer integration
3) Multivendor compatibility
4) Common user interface
5) IBM's Systems Network Architecture

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"I DIDN'T KNOW CODEX DID THAT."
STAYING IN STEP WITH THE TIMES

Do traditional providers need to change their work processes for product innovation?

I can't answer that across the board — some do and some don't. But virtually everybody needs to put systems in place to measure performance. They need to be able to answer questions such as: What market need are we meeting? How much of our capital is tied up in that? How much money do we make? And you're going to do it by processing transactions, you've got to recognize that this is a business and it's a lot like traditional manufacturing, where the economies are derived from scale, and the key to success is getting down the experience curve quickly. That argues for heavy investments in technology.

How do the traditional providers' investments in information systems compare with those of their newer rivals?

They spend a lot of money. But everyone in the financial services arena spends a major amount of money on technology. Securitized mortages compete with mortgage lending. Salomon Brothers largely invested securitization. So, if you're asking, does Salomon Brothers spend more money on technology than the typical large thrift and is that the key to their success, the answer to that question is I don't know. Everybody spends a lot. Is that the key to the success of the innovation? The answer is no.

Can technology and the people who manage it help spark innovation?

Let me tell you about one client of mine. This client asked me to help them figure out what they should do with technology, marketing and customer service. I came in and realized they really didn't have any strategy. They had a lot of ad hoc decision-making, and they had a lot of projects. They were very bright, capable people, but there was no overall coherent approach to the marketplace. Without that kind of frame of reference, I couldn't answer the questions they were asking. What you're going to do with technology depends on what you're going to try to do as a business. What I had to do was help them figure out their overall strategic approach. Once that was possible, then the implications for technology, customer service and marketing were easy.

INTERVIEW

Staying in step with the times

KPMG Peat Marwick's Erich Sippel says 'traditional' financial services firms need better performance-measuring systems to keep up with changing market realities

The basic definition of financial services is fairly simple, says Erich W. Sippel, senior manager at KPMG Peat Marwick in Philadelphia and New York: It means getting those with money to lend together with those in need of investment funding.

This exchange, however, can be structured in innumerable ways. Traditional financial services institutions, including banks, thrifts and insurance carriers, are facing a creative challenge from rivals such as securities firms and insurance brokers.

Ultimately, Sippel says, the financial services providers that will thrive will be those that spot possibilities for innovation in investment instruments. Computerworld Features Copy Editor Cathleen Duffy recently spoke with Sippel about what so-called traditional firms must do to keep up.

What are the biggest strengths of the newer financial services providers?

I like to think of these newer rivals as creators of financial innovations. These are the companies that have come up with innovations such as money-market and mutual funds, junk bonds, mortgage-backed securities and noninsurance methods for managing property and liability risk.

What kind of an advantage has this creativity given them over the more traditional providers?

The biggest advantage they have is being able to meet the same market needs in ways that are less capital-intensive.

There are five basic ways to make money in financial services:

1) You can assume someone else's risk.

2) You can manage the spread, which means obtaining money cheaply and lending it expensively.

3) You can aggregate, which means managing money in something like a mutual fund, without assuming any of the risk.

4) You can process information by handling transactions, administering accounts or gathering, reformatting and selling investment data.

5) You can act as a distributor, selling financial instruments on behalf of the originator and/or reselling them in the secondary market.

I've listed these possibilities in order of their capital intensity.

What that means is that if most companies are meeting the current need of the market by managing the spread and you can do it by processing information, you win. Or, if they're doing it in any of the first four ways and you can do it by distributing, you win.

Is the problem that the traditional intermediaries shy away from changing and risk?

They don't exactly shy away, but they're prisoners of the pattern of thought and perceptions built into the traditional paradigm of the financial services industry.

Their cultures are basically risk-averse. This sort of thing happens to companies of all kinds. They start out as entrepreneurial, risk-taking ventures, but, over time, they evolve and are taken over by professional managers and bureaucracy. That's OK if the environment remains stable. But if the environment starts to change, it can mean real trouble.

What kinds of measures will enable traditional providers to survive in the financial services world?

They're very used to thinking in terms of conventional categories — banks, thrifts, life insurance companies. What I'm saying is that these categories are becoming irrelevant, and these companies will go a lot further if they stop thinking in terms of old definitions and start thinking in terms of what the market needs they meet, how they make money and what the return on capital investment is from that method of making money.

I like the quote by Charles Revson, the founder of Revlon, who said: "In the factory, we manufacture lipstick, but in the store, we sell hope." People buy something important to them; they don't buy what companies decide to manufacture.

Sippel: Firms will go further if they stop working with old definitions of what is the return on invested capital? Those are pretty fundamental questions for any business, and yet, hardly anybody in financial services can give you hard-edged answers to those questions.

Why can't they?

One reason is that systems inside companies are not set up to gather that kind of information.

Could a change in the way they use information technology help?

It primarily depends on how the company is going to make money and what its strategy is. Nevertheless, I think that it's safe to say that in all of these companies, their end product is information, so they've got to be able to process information effectively. It's part of the cost of entry into the whole game.

If you're going to make money by processing information and you're going to do it by processing transactions, you've got to recognize that this is a business and it's a lot like traditional manufacturing, where the economies are derived from scale, and the key to success is getting down the experience curve quickly. That argues for heavy investments in technology.
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Beating the clock

Time margins are slim in the financial services industry these days. Investors want to respond immediately and intelligently to quicksilver market changes. They also want this fast-response capability to stretch around the clock and around the world.

This imperative is fueling more innovative applications and ambitious leveraging of information systems and networks. Below are examples of companies stretching information and communications systems to cover new market needs.

Chicago Mercantile Exchange

The pits may close, but trading goes on. There is always action in some corner of the world, particularly when it comes to foreign currencies and Eurodollars, and that far-flung action is becoming too important to miss. That's why the Chicago Mercantile Exchange (the Merc) decided to partner with the Reuters information and newswire service in September 1987 to develop the Globex electronic trading system. Globex, currently in alpha testing, will extend trading hours long after Germany and Japan are now allowing the establishment of exchanges. Institutions wanted to attract new participants, but we also wanted to protect our beachhead. The only way to do that, Walsh says, was to adjust trading hours to clocks in the new trading territories.

Buyers and sellers enter bids and offers using terminals called keystations. These statements are transferred to a host processor in Hauppauge, N.Y., for sorting and matching. Fees from successful matches are fed from Hauppauge to the exchange in Chicago, which feeds them to 56 quotation distributors. The distributors in turn send prices to terminals worldwide. A clearing system processes trades and, at the end of each day, transfers losses and gains to winners and losers, based on settlement prices. A clearing system processes trades and, at the end of each day, transfers losses and gains to winners and losers, based on settlement prices. A clearing system.

Operations are connected to the Merc's IBM 3090 mainframes, which perform the clearing process. The partners are dividing the technical tasks. Reuters is programming the host-matching and keystation systems, while the Merc is programming the clearing network and the clearing and banking systems, explains Donald Serpico, senior vice-president of operations.

The keystations are Intel Corp. 80386-based IBM-compatible personal computers with specially designed keyboards. The host processor in Hauppauge is a Digital Equipment Corp. VAX 8800. In Chicago, quotes and trades are processed through Tandem Computers, Inc., machines, then routed to the Merc's IBM 3090 mainframes, which perform the clearing process.

Globex is being alpha-tested in London, New York and Chicago. Beta testing is scheduled to start at the end of this month and run through June. The actual start date will be determined by the success of the beta testing. Even so, plans are already under way to bump up the network's capacity. Walsh says.

Chicago Mercantile Exchange

Security Pacific Merchant Bank

Administering syndicated loans — large loans broken up among a group of lenders — is a notoriously complicated business. But thanks to an internally developed system, Security Pacific Merchant Bank in New York is finding the job less onerous these days.

The system is the work of a two-man team — a consultant and an employee in the bank's Corporate Financing and Banking, Loan Sales and Syndications department. An ongoing project, the system speeds and simplifies the company's work as an agent bank coordinating tens of billions of dollars worth of syndicated loans.

Acting as the agent for loans is difficult in the first place, says Joe Holiday, the inside developer on the system and principal in charge of operations at the bank. Now, the speed at which people are administering deals — as well as the options for borrowers and short turn-around times — makes it difficult to automate. But it's necessary.

To make a large commercial loan in the past, he explains, an agent bank would send invitations to as many as 40 to 60 other banks to join a syndicate as lenders. But now, in the interest of faster turn-around, fewer banks are solicited to lend larger amounts. This can only be done, however, with the proviso that shares in that investment can be resold to smaller banks.

As a result, the agent bank acts as the liaison between not only the borrower and the lead banks but also between the lead bank and the subparticipants.

Although this new process is faster, it is also very complicated. The agent bank must communicate all loan activity to all participants in this process in the short time allotted required a radical approach.

Holiday doesn't believe in lengthy specifications. "We had to create complex databases and get applications up and running in no time, so we decided to throw the rules out the window and go," he says.

Consultant Mike Joblin, at Rational Software Technology Co. in New York, and Holiday used both Corvision, an integrated computer-aided software engineering tool from Cortex Corp., and a modular approach to expedite the development task.

"When it came down to what applications will be included in the system, you want to automate the most common components," Holiday says.

"Anything that was developed and runs on a VAX 6320. Used by loan managers and their operations staff, it now contains more than 300 reports, 700 menu selections and 40,000 entries across 12 databases.

The team's next job is to generate more management information reports. "In investment banking, we live in an environment of instant response," Holiday says. "We're trying to support supply that can squeeze as much as possible out of systems."
Here are 43 reasons why the new controller

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23. Talks to IDEA 244 series printers
24. Talks to host-addressable PC printers
25. Talks to local devices
26. Talks to remote devices
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Future fortunes hinge on present IS choices

BY GREGORY SCHMIDT

The financial services industry will be a whole new ball game within a few years as a shrinking field of players takes on more roles and diverse approaches to serving the customer. The relative positions of those that remain will be primarily determined by information systems choices being made today.

Until recently, the financial services industry was based on a strongly protected and institutionalized role as intermediary between buyers and sellers, lenders and borrowers, payers and providers and individual and collective risks. That role was predicated on exclusive possession of information that could be used to assess risks and reconcile the needs of parties on both sides of a financial transaction.

When computers made this information widely available, however, all the rules began to change. Deregulation and the appearance of a more sophisticated, demanding breed of consumer/investor combined to explode the quasi-monopolies of traditional financial institutions.

A whole new range of products and services appeared, many of which were the creations of companies never before seen in this arena.

The following are just a few of the major changes brought about by new information capabilities:

- **Securitization.** The practice of collecting large numbers of small loans with some common characteristics (trade credits, mortgages, credit-card loans, deposits) allowed the backing of securities that could be marketed and sold directly to savings customers.
- **Disintermediation.** Using credit ratings and investor networks, borrowers avoided traditional intermediary institutions and went directly to lenders with commercial paper and private bond placements.
- **Rapid settlement.** Improvements in processing technologies allowed the Federal Reserve to speed up check settlement dates dramatically so that banks' ability to earn interest on float all but disappeared.
- **Mutual funds.** The enhanced ability to manipulate a large portfolio led to the creation of large investment pools that focused on a variety of areas from stock indexes to foreign currency. The net effect was to make a range of sophisticated investments available to the small investor outside of the major markets.
- **Self-insurance.** Companies began finding that they could manage their own risks effectively. For example, most large firms now self-insure for health care.

Although financial services firms have seen traditional markets erode with the emergence of these nontraditional services, they have also been able to create additional sources of income using information technologies. Each year, they devise new types of credit — from variable-rate loans and equity lines of credit to checking account overdrafts and unlimited credit-card accounts.

Even more importantly, banks are finding that noninterest income — derived from fees, transaction charges, information and advice — is becoming the fastest growing item on their balance sheets. Over the next decade, information technologies will play an even more important part in defining the competitive position of financial institutions.

In fact, their greatest challenge will most likely be dealing with commoditization of information. Whether information gathering and processing becoming both easier and more affordable,
developing value-added products will become more difficult and sustaining a long-term competitive advantage virtually impossible.

As a result, every financial institution will be forced to pick a strategy for action. Among the major choices are the following:

- The technological solution. National or major regional banks and thrifts, national insurance firms and large investment banks may want to develop large-scale systems that coordinate information on markets and customers, transaction records and settlements, risk and portfolio assessments and direct ties to their customers.

  This will be an extremely expensive proposition because systems must continue to evolve as competitive products emerge. Only the largest firms will be able to take this route, but it will enable them to offer a full range of global services to major business clients and sophisticated consumers.

- Customer service. Other firms may be able to settle for standardized systems that are modular in nature, making it easy to add when new needs and capabilities arise and to subtract when products become outdated or unprofitable.

  Institutions opting for this choice, however, will have to allocate substantial resources to improve their links with the customer by offering a personal banking officer, friendly insurance agent or daily phone contact with the investor.

  In this strategy, the added value will be the communications technology that allows each organization to present relevant and current market choices to each of its customers.

- Market management. Still another choice will be to focus resources on gathering and assessing information about target markets.

  A health insurer, for example, might concentrate on building an information inventory that allows it to negotiate provider costs in a managed care context, whereas a bank or a thrift might focus attention on a given type of commercial property development. A commercial paper dealer could establish its own credit ratings. The key to success for any institution choosing this approach would be fast, full and accurate market information.

- Niche identification. Finding a niche — such as a secondary market in municipal paper for small borrowers or a specialized reinsurance market — will be an option for the firm seeking to establish itself as a specialist without the inordinate cost of running a comprehensive system.

  How realistic any of those options will be for a given financial institution will depend greatly on decisions that are being made right now about information systems and, more specifically, on how well informed those decisions are.

  Future corporate strategy will be determined by how effectively decision-makers can now answer questions such as the following: How much will it cost to establish and maintain a national debit card system? How quickly should an international investment portfolio respond to shifts in exchange rates? What are the most appropriate ways to reach middle-income households for the wide array of financial products and services?

  Technology will always be a consideration in strategic planning. However, for at least the next few years, major strategy options for financial service firms will be almost completely dependent on answers about the costs of information systems and about how those systems can change relationships with consumers.

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IN DEPTH

Move over, Unix: Here comes Mach!

This fast riser is not just for defense anymore

BY GARY H. ANTHESE

Move over, Unix: Here comes Mach!

Propelled by factors that are likely to dominate computing in the 1990s, the industry is increasingly turning to Mach, a born-again, Unix-like operating system from the University of California at Berkeley that offers high portability, support for multiprocessing, robust security — and freedom from AT&T licensing requirements.

Mach was conceived by Carnegie Mellon University using the University of California at Berkeley's Unix 4.2 version of Unix as a starting point. Mach is being developed by Carnegie Mellon University using the University of California at Berkeley's Unix 4.2 version of Unix as a starting point.

Mach is funded largely by the Pentagon's Defense Advanced Research Projects Agency (DARPA) and the National Security Agency. DARPA wants an operating system that is highly portable, scalable for use in aggressively parallel supercomputers and able to evolve into a highly secure system. Carnegie Mellon has ported Mach to a number of other platforms, including a 30-processor system from Sequent Computer Systems, Inc. in Beaverton, Ore., several VAX models, IBM's 370 and computers based on Motorola, Inc.'s 68000 and 68020 processors, as well as Intel's 80386 and 386 processors.

Meanwhile, Carnegie Mellon and DARPA are working with another small vendor to develop a highly secure version of Mach. Some believe that such a version could have great commercial appeal, especially for banks.

Propelled forward

In the biggest boost for Mach so far, the 170-member Open Software Foundation (OSF) chose the operating system in November as the cornerstone for OSF/1, its would-be industry standard operating system. Last month, IBM, DEC, HP, Hitachi Data Systems Corp. and Bull H. N. Information Systems, Inc. announced they would use OSF/1 as a base for future Unix offerings, some of which will reportedly be available this year.

Brian Boesch, a DARPA program manager, says Mach is a potential substitute or replacement for Unix. "It's the only one with a reasonable chance of offering high trust, and no other Unix supports multiprocessing. When push comes to shove, Mach or Mach concepts will crowd out Unix," he says.

"It was clear we needed Unix-like functionality," says Avadis Tevanian, manager of systems software at Next. The company wanted a more advanced environment than was offered by MS-DOS, he says — specifically, one offering multitasking, virtual memory and Unix tools. AT&T's Unix System V, Berkeley's Unix and other Unix variations were not the answer for Next; they had evolved in a time-sharing world and carried too much excess baggage to be appropriate for the desktop, Tevanian says. "Deep down inside, people know they need Unix, but there are problems they are afraid of," he adds.

The power of Unix without the baggage was attractive, Tevanian says, as was Mach's ability to support graphics animation.

Although Mach is not truly a

Mips Computer Systems, Inc. reduced instruction set computing microprocessors, Hewlett-Packard Co. 9000 series and others.

Carnegie Mellon has shipped research versions of Mach to 157 corporations and 91 universities.

Next, Inc. and Encore Computer Corp., among others, sell computers running Mach. Mt. Xino, a small Berkeley, Calif.-based company, sells supported versions of Mach for Sun workstations, DEC VAXs and IBM RT workstations. Mt. Xino also has versions in the works for 386-based PCs, Macintosh IIIs.

Anthes is Computerworld's Washington, D.C., correspondent.

- In testing at more than 200 organizations
- Endorsed by OSF, Next and others
- 'Unix without the baggage'

MAY 14, 1990

COMPUTERWORLD

97
real-time operating system, the Mach kernel is ideally suited for embedded and real-time use, says Alan Tobey, a marketing manager at Mt. Xini.

The company hopes to work with several firms to adapt Mach for applications such as high-speed switching and communications controllers.

Carnegie Mellon's goal — only partly achieved so far — is to build a Unix-free Mach kernel, a set of "primitives" that control basic hardware functions such as virtual memory management, message passing and processor management. Layered above the kernel are programs called "tasks," meaning the basic units of computation, Mach employs a flexible approach to memory management in multiprocessor systems that allows the use of shared memory or distributed memory. Mach can also accommodate hybrid systems in which some memory is shared and some is local to specific processors. This allows Mach to be used in shared-memory multiprocessors, such as DEC's VAX, distributed-memory machines, such as IBM's OpenPOWER and its computer networks.

Virtual-memory management is split into machine-dependent and machine-independent portions of code within the kernel, hardware-independent versions of Unix — or another operating system such as OS/2 or MVS — can be layered on top. A single Mach kernel could even support multiple native-mode operating systems running simultaneously.

Today's version of Mach, Release 2.5, still contains a generous amount of Berkeley's Unix 4.2 code and some AT&T Unix System V code as well. However, Carnegie Mellon is currently at work systematically replacing that with its own software. The Mach Release 3.0 kernel will be entirely free of Berkeley and AT&T code, Boesch says, and a later release — dubbed 3.X — will have purged the proprietary code from the Mach servers and libraries as well. According to Boesch, this will result in a Unix-like operating system free of any requirement for an AT&T or a Berkeley license.

OSF took a version of Mach from Encore — which had already added features for parallel processing to Mach 2.5 — and is now adding its own enhancements at the rate of $40 million per year. OSF/1 is scheduled for general release late this year.

Ira Goldberg, research vice-president at Cambridge, Mass.-based OSF says OSF/1 will require payment of an AT&T license fee, while OSF/2, due out late in 1992, may not.

OSF/2 will be built around TMach, now being developed by Trusted Information Systems, Inc. in Glenwood, Md., under a contract with DARPA. TMach will be a highly secure version of Mach based on an early version of the Unix-free Mach kernel.

As a practical matter, no version of Unix can be taken to the level of trust that TMach will offer because the existing Unix kernel is enormously complex, says Stephen Walker, president of Trusted Information.

TMach is intended to win certification by the National Security Agency at a B3 level of trust. This is the next-to-highest rating on NSA's scale, which ranges from D, offering minimal protection, to A1, providing extremely rigorous safeguards.

As user concerns mount over breaches in computer security, TMach, like Mach, seems likely to move beyond the confines of the defense and intelligence communities. "As soon as someone can deliver a DBMS for a B3 system, banks will want it," Goldstein says.

Mach concepts may eventually permeate Unix. A source close to AT&T says that some of the company's Unix developers use workstations displaying two active windows — one holding Unix System V, Release 4 and the other Mach. Whether Mach code or just Mach concepts flow from one window to the other is not clear, the source says.

Ours is better

Not surprisingly, OSF touts the benefits of Berkeley's Unix 4.2-based Mach at the expense of archival Unix International, which wants to establish its own industry standard based on AT&T's Unix System V.

"We see OSF as a beneficiary of BSD (Unix 4.2), not a competitor. But we think multiprocessing plus B3 [security] will lead people to choose OSF over System V," Goldstein says.

"That's poppycock," says David Sandel, marketing vice-president at Unix International, the 150-member consortium that defines Unix System V, Release 4 requirements for AT&T implementation.

Sandel says Unix System V, Release 4 will be certifiable for a B2 level of trust just below that of TMach and OSF/2 — by late this year or early 1991.

He also says Unix System V, Release 4 will offer parallel multiprocessing for shared-memory architectures one year after that. Sandel adds that Unix International has even more ambitious goals and may incorporate some Mach concepts in Unix System V, Release 4.

According to Next's Tevanian, Mach does not compete with Unix but is rather a base to build Unix on. For example, he says, Mach's file system today is the one used in Berkeley's Unix 4.2, but it will be rewritten and greatly improved by Carnegie Mellon.

Tevanian says, "Mach in a sense will save Unix, causing it to evolve in a positive way. Whether you call it Unix or Mach, who cares?"
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Return of the Atari kid

Commodore International Ltd. put together a new tag team aimed at developing and marketing interactive, Amiga-based consumer products. It went straight to the well to find the man to head it: Nolan K. Bushnell, the home computer products pioneer whose resume includes the founding of Atari, Inc. and the creation of the first video game system. Bushe’s official — and freshly minted — title at Commodore will be general manager, consumer interactive products, according to the company.

Not ‘the Toronto Operations’?

Unix player The Santa Cruz Operation is about to acquire 100% of Toronto-based HCR Corp., hailed as Canada’s leading Unix supplier, the companies jointly announced last week. The privately held mates-to-be declined to reveal financial terms of the deal beyond stating that it would take place as “a share swap with a multimillion-dollar value.” The companies said that when everything is done — pending the final approval of the company’s shareholders — HCR will run as an independent subsidiary known as SCO Canada, Inc.

Migrating East

Technology and accounting consultancy Deleitie & Touche has joined forces with Migration Technologies, Inc. in Camarillo, Calif., to provide technology migration services to companies that are moving from one computer vendor to another. Migration Technologies already markets Migration Project Life Cycle, a software tool for planning and executing the transition from one computer platform to another. Financial details of the partnership — which the companies said will be headquartered in New York — have still not been disclosed.

Twin Peaks: Looking good so far

Up-and-comer Epoch taking off

BY MARYFRAN JOHNSON

if Christopher Robert ever feels like gazing into his past, the president and chief executive officer of Epoch Systems, Inc. need only glance out his office window.

Down a sloping, barren hill from Epoch’s new Westboro, Mass., headquarters sits Data General Corp., which served as a career breeding ground for Robert and several other top executives at this fast-growing network storage vendor.

Yet no one at Epoch seems to be looking backward these days. “It’s our job to run faster than anyone else,” Robert said. “The one thing a company can do wrong is look backward to figure out what the other guy is doing.”

The 4-year-old firm that appeared to be an up-and-comer last year [CW, March 6, 1989] has grown space since then. It is currently expanding its 90-person staff by 40 new employees and counting on 1989 sales of $7.7 million to triple this year. Its first foray into the Japanese and British markets last year shifted 20% of Epoch’s annual sales overseas.

Unlike so many of its Boston-area high-tech neighbors, now suffering slumping fortunes, Epoch is surging ahead with a leading-edge product and free run of its own specialized niche in optical and magnetic disk storage.

John Dunkle, a vice-president at Epoch, said that the company has already achieved 100% profitability and expects to double it again this year to $29 million, Saal said.

Nor is saturation of Sniffer’s market in sight. “There are still thousands of LANs without Sniffer!” Saal said. “The need for tools to pinpoint LAN trouble spots, on the other hand, continues unabated. The number of LAN installations is expected to grow 40% per year between 1989 and 1993, a recent report by Arthur D. Little, Inc. said.

Network General justifies hype

BY ELISABETH HORWITT

etwork General Corp. ’s story reads like a classic Hap-tio Alger tale. Five years ago, plucky Harry Saal, un-daunted by the financial flounderings of his first venture, Nea-
tars Systems, Inc., struck gold with his second by anticipating an explosion in demand for more effective local-area network troubleshooting tools.

Today, Menlo Park, Calif.-based Network General is still riding the crest of that explosion. Fourteen months after the company made what many analysts called the network industry’s hottest public offering of the year, its stock has tripled in value.

One roof over competitors’ heads?

Novell buys stake in Gupta Technologies, possibly setting the stage for a family feud

BY CHARLES VON SIMSON

extending the dense web of al-
iances in the database serv-
er community, Menlo Park, Calif.-based Gupta Technolo-
gies, Inc. announced earlier this month that it had sold a 20% share of the company to Novell, Inc. for an undisclosed sum.

Executives of both companies said that the deal simply means Gupta’s commitment to develop database products for Novell’s Netware network software. However, if the proposed merger of Novell and Lotus Development Corp. is consummated, it will give the merged company ownership in two competing database companies.

LOTUS owns a 15% share of Sybase, Inc. — the developer, along with Micro-
croft Corp., of the SQL Server database server product that competes di-
rectly with Gupta’s SQL Base database server. If the merger between Lotus and Novell is finalized, Gupta’s deal could set up a competitive environment ripe with po-
tential conflict of interest in the database management system market.

Umang Gupta acknowledged the potential for conflict. “Someone will have to figure out whose side everyone else is on,” he said. “I am frankly not sure how this will all work out.”

A Gupta source close to the deal said that the agreement between Lo-
tus and Novell came after the Novell agreement with Gupta and complicat-
ed the process. The source main-
tained, however, that both sides had the option of backing out and chose not to.

“Now, for real, we actually see it as a formal endorsement of our commitment to Netware,” the source said. “The rest will have to wait.”

MAY 14, 1990
Gephardt decries U.S. lack of industrial policy

BY PETER BARTOLIK CW STAFF

BOSTON — House Majority Leader Richard Gephardt (D-Mo.) last week called on high-tech executives to become involved in a "giant fight" brewing in Washington, D.C., over development of a national industrial policy.

In a speech to a meeting of the board of directors of the American Electronics Association, Gephardt said an industrial policy is one of the three initiatives needed from government to ensure that U.S. industry is competitive with Japan and a unified Europe at the end of this decade.

The other linchpins of Gephardt's "High Technology Competitive Agenda for the Future" are resolution of the U.S. budget deficit and changing the nation's education system to eliminate the escalating high school dropout rate.

While offering few specifics, the unsuccessful candidate for the 1988 Democratic presidential nomination painted development of an industrial policy as the cornerstone for international competitiveness.

Although "industrial policy" are the words no one wants to utter," Gephardt said, "if we don't get one pretty soon, we are likely not to have any industries left that we care about."

The recent ouster of Craig Fields from the position of director of the Defense Advanced Research Projects Agency, or DARPA, [CW, April 30], Gephardt said, "was not because [Fields] didn't do the job right...it was because of ideological disagreement within the White House on what he was trying to do."

DARPA has long been involved in nurturing fledgling technologies considered crucial to advanced defense systems. Fields had steered the agency toward "dual-use technologies" that had commercial as well as military potential; he had sponsored the Sematech semiconductor consortium, high-definition television projects and made an unprecedented direct investment last month in a developer of gallium arsenide circuits.

Gephardt invited the electronics executives to become involved in an upcoming battle over a bill crafted by Sen. John Glenn (D-Ohio) to create a "civilian DARPA" — essentially a nonmilitary agency designed to seed technology start-ups in commercially strategic areas. The bill would overhaul the Commerce Department and seek to promote exports.

Decrying Bush administration officials who "do not believe there is a difference between semiconductor chips and potato chips," Gephardt argued that the U.S. has in the past crafted industrial policies that paid off. "We've had an industrial policy in agriculture for 100 years, and it's the reason we have the lowest prices and best quality product in the world," he said.

More immediate, however, is the "budget summit" President Bush has proposed to hold with Congress in a bid to resolve the staggering budget deficit.

While saying he hoped such a summit will be successful, Gephardt offered little optimism. "I'm worried that the well has been poisoned by the political back-and-forth on the tax issues," he said, noting that just days after Bush indicated a willingness to participate in the budget summit, Republican leaders were coming out of the White House saying particular tax issues are not open for debate.

With 85% of the federal budget split between interest payments on the national debt, defense spending and social security outlays, "to think we can do something without revenue is not realistic," Gephardt said.

On the issue of a capital-gains tax break — an issue dear to many of the executives Gephardt was addressing last week — the democratic congressman held out a very tenuous offer, hinting that it might be considered if the tax rate for high-income taxpayers is raised to at least match that of middle-income earners.

EXECUTIVE CORNER

Telebit founder honored by IEEE

Modem supplier Telebit Corp. recently honored its founder, packet-switching pioneer Paul Baran, by electing him chairman. In October, he is scheduled to receive the Institute of Electrical and Electronics Engineers' 1990 Alexander Graham Bell Medal for "exceptional contributions to the advancement of communications sciences and engineering."

Northern Telecom Ltd. Chief Executive Officer Paul G. Stern is now the $6.1 billion telecommunications company's chairman. The former Unisys Corp. president, who took over the helm of Northern Telecom in March, 1989, retains his executive position, which will remain a member of the board.

Coopers & Lybrand has appointed Dean P. Bouloukos as partner in charge of the information technology practice in its Chicago office. Bouloukos was previously a partner at Ernst & Young.

May 14, 1990
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**Net General**

FROM PAGE 103

"The need for [LAN diagnostic products] is growing partly because people are becoming more LAN-conscious but more because of the increasing LAN complexities," said Richard Segal, a technical adviser at Aetna Life and Casualty Co. and a Sniffer user. "People are mixing and matching Ethernet and Token-Ring, one person's LAN software, another's network driver, and the more stuff [from different vendors] you put in the box, the more fingers start pointing," Segal said. "Sniffer, the old wolfhound," can discover the guilty parties.

While both Hewlett-Packard Co. and Excelan, Inc. — now a subsidiary of Novell, Inc., which itself was recently acquired by Lotus Development Corp. — had introduced LAN diagnostic products prior to Network General, Sniffer rapidly established itself as a "Cadillac in the business" because of its rich array of features and broad support of networking protocols, said Alice Bradie, a principal at Hambrecht & Quist, Inc.

Segal determined that Sniffer would be protocol-independent — a lesson learned from Nestor, which Hewlett-Packard, Inc. (3Com's deep-pocketed rival) and then watched Ethernet and token-ring take off.

Indeed, independence has been the hallmark of Network General's success. While the firm has completed several OEM deals in which manufacturers such as Data General Corp. resell Sniffer to their customers, Network General has remained aloof from the recent rash of acquisitions in the networking industry.

Merger talks such as 3Com Corp.'s acquisition of Bridge Communications and Novell's acquisition of its competitor General Instrument's Epoch stand apart from the more straightforward deals between companies that offer compatibility with DEC's VAX/VMS, combines the speed of magnetic disk drives with the voluminous capacity oferasable optical disc servers and storage capacity seems unlimited.

Epoch's biggest challenge now will be "filtering its technol-ogy down" to more trad-itional commercial clien-t-tes in the Fortune 100, Dunkle said.

Epoch stands apart from the crowd of disk drive vendors as a cheaper alternative to a spread- ing array of optical disc disks. Its $4 to $5 cost per megabyte con-trasts starkly with the $45-per-megabyte cost of storage on a hard drive of the same size.

"The company now offers 13 different models in a range of sub-systems that are priced from $61,000 to $694,000, including entry-level systems, 5%-in. re-writable optical disc servers and 5%-and 12-in. write-once-readwrite optical disc servers.

"The other thing driving demand [for Epoch's offerings] is the big push to get rid of paper," Robert said. "I really believe the file cabinet in the cor-ner will die with the right technology, and that technology is opti-cal storage."

"With an eye toward sharpening the firm's sales and marketing or-ganization, Epoch co-founder and DG vendor Kenneth Holberger is said to have left his CEO post to become chairman of the board."

New CEO Robert's management background includes field operations at Lexidata Corp., plus a decade of product marketing and sales at DG. In 1983, he co-founded Corporate Software, Inc. in Westwood, Mass., and helped build it into a $134 million public company.

"I checked this company out very carefully, and I liked the vi-sionary strategies," Robert said. "I also felt that the product-ers were saying the product was even better than they expect-ed.

3Com hones in on Asian LAN market

BY JIM NASH CR1STIAN

SANTA CLARA, Calif. — 3Com Corp. officials are moving aggres-sively to capitalize on a lo-cal-area network market they plan to dominate: Asia.

"Asia is an absolutely humon-gous marketplace," said Eric Benhamou, president of 3Com. It is a marketplace Benhamou feels he intends to command.

"We have landed," he said. "Our Far Eastern operations are a turning point right now as a re-sult of its recent first major in-troduction since Sniffer — a low-er-end analysis" as well as diag-nostic tool called Watchdog, Saal said. "If that's the in-dustry trend, we'll go up-stream."

Network General could be at a turning point right now as a re-sult of its recent first major in-troduction since Sniffer — a low-end, easy-to-use LAN monitor-ing tool called Watchdog, Saal said. While Sniffer is geared to the more sophisticated analy-sis needs of the upper 5% to 10% of large corporations, Watchdog potentially addresses the much broader market of small to medi-um-size LAN installations that cannot afford to employ the net-work expertise needed to oper-ate Sniffer, he added.

Watchdog will actually be come an intrinsic part of the next Sniffer release, Saal said. How-ever, the low-end system's ap-peal may be limited to new cus-tomers, given that Sniffer users may not see much need for Watchdog's simpler monitoring capabilities.

Paul Hastings Janofsky & Walker, which handled the deal for 3Com, has been very happy with Sniffer's "abili-ty to do both general and in-depth analysis" as well as diap-in-node problems across a system that combines Novell's Net-work, Xerox Network Systems and KX. William Hauberg, the Los Angeles law firm's data processing manager.

However, Hastings sees no need to install Watchdog be-cause "you give people the most complete tool you can give them," Hauberg said.

**Net General**

FROM PAGE 103

"The need for [LAN diagnostic products] is growing partly because people are becoming more LAN-conscious but more because of the increasing LAN complexities," said Richard Segal, a technical adviser at Aetna Life and Casualty Co. and a Sniffer user. "People are mixing and matching Ethernet and Token-Ring, one person's LAN software, another's network driver, and the more stuff [from different vendors] you put in the box, the more fingers start pointing," Segal said. "Sniffer, the old wolfhound," can discover the guilty parties.

While both Hewlett-Packard Co. and Excelan, Inc. — now a subsidiary of Novell, Inc., which itself was recently acquired by Lotus Development Corp. — had introduced LAN diagnostic products prior to Network General, Sniffer rapidly established itself as a "Cadillac in the business" because of its rich array of features and broad support of networking protocols, said Alice Bradie, a principal at Hambrecht & Quist, Inc.

Segal determined that Sniffer would be protocol-independent — a lesson learned from Nestor, which Hewlett-Packard, Inc. (3Com's deep-pocketed rival) and then watched Ethernet and token-ring take off.

Indeed, independence has been the hallmark of Network General's success. While the firm has completed several OEM deals in which manufacturers such as Data General Corp. resell Sniffer to their customers, Network General has remained aloof from the recent rash of acquisitions in the networking industry.

Merger talks such as 3Com Corp.'s acquisition of Bridge Communications and Novell's acquisition of its competitor General Instrument's Epoch have resulted in "a lot of good people leav-ing," Saal said. "If that's the in-dustry trend, we'll go up-stream."

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The best 3Com could hope for out of such a situation, Kimball said, would be "probably more of an even match." The networking company for-mally announced the shipment of its Japanese language (Kanji) network operating system, 3+Open Kanji, Japan-based NTT and Nippon Electric Co. al-ready have installed the PC soft-ware.

In the native tongue

The 3Com offering is the first Kanji network operating system on the market, according to Freeman. Written in Kanji, the system will also accept key En-glish phrases that in some cases are difficult to translate. 3+Open Kanji does not tran-late the two languages. Trans-mission Control Protocol/Inter-net Protocol and Open Systems Interconnect versions will be shipped later this year, Freeman said.

The software was developed by 3Com/Soliton, a 1-year-old joint venture between 3Com and Soliton Systems K.K., a Tokyo-based networking company. The project management comes at a time when many wide-and local-area network companies are stretching be-yond U.S. shores. All face formi-dable cultural problems, Freeman said.

Indeed, for all its technological brilliance, has shied away from the individualistic nature of PCs, according to industry analysts. The Japanese use roughly four million PCs, compared with the U.S. 40 million, Benhamou stat-ed.
Sequel shapes storage support

BY J. A. SAVAGE
CW STAFF

SANTA CLARA, Calif. — Mainframe storage vendors are faced with a dilemma. On one hand, they do not want to use up precious resources supporting aging devices that use 14-in. platters certainly qualify for the rest home. On the other hand, there is an installed base that still needs support.

Sequel, Inc., a five-month-old spin-off from Unisys Corp., hopes to exploit that dilemma by taking the hardware remanufacturing out of the hands of vendors. Sequel started out with a contract to remanufacture Unisys' 14-in. disk drives. Last month, it expanded its scope by buying the high-end storage assets of Priam Corp.

Reaching for the brass ring

Sequel is also discussing remanufacturing contracts with "every other" 14-in. storage vendor, according to Marketing Vice-President Robert Hubbard. The entire market for repairs for 14- and 8-in. disk drives, he said, is about $2 billion.

With the contract from Unisys and with Priam's old customers, Hubbard estimated Sequel's current share of that market to be 7% to 8%.

"With companies like Digital [Equipment Corp.], they hate like hell to spend money on repairs; they want to spend it on new products," said Jim Porter, president of Disk/Trend, Inc., a market research firm in Mountain View, Calif. Porter said that Sequel has a shot at the market, although it is not a sure shot because vendors do maintain a "certain pride in ownership."

"Their story is believable," he said, estimating that Sequel has a solid three- to four-year business opportunity. "But as 14-in. drives begin to look like pterodactyls, they'll have to shrink."

Sequel does remanufacture 8-in. disks and drives — about 40 per day, compared with 110 14-in. drives, according to Hubbard.

To train in Spain can be a real pain

BY CHRISTINE SIMONNET
SPECIAL TO CW

With the 1992 Summer Olympic Games in Barcelona and the World's Fair in Seville, the end of the 20th century is witnessing the beginning of a Spanish commercial rebirth. Spain's businesses are now attempting to make up for lost time before the unified European market of 1993.

Finding the work force to steal the slew of new jobs, however, is proving to be difficult. "In Spain, there are many students with a degree from the Faculty of Arts, but we don't need this type of qualified work force," said Avelino Rodriguez, general secretary of the Franco-Spanish Chamber of Commerce. "We badly need engineers and data processing professionals."

However, many of the "help wanted" signs — two firms alone are reportedly looking for over 50,000 qualified people — are remaining in place.

Foreign exchange

Even on a small scale, there are already Franco-Spanish exchanges between students, teachers and researchers. Some agreements between schools enable young engineers to study for six months at a French or Spanish school or spend their last year of study in either country.

However, it is difficult, if not impossible, for a young French engineer to go to Spain as a trainee.

"Companies think they are wasting time training young people without being sure that they will stay in the country," said Maria Pausal, a student at the Technical Superior School in Madrid.

"Moreover, the Spanish government does not authorize this practice since they consider it disguised work," Pausal added. "Spanish students can only hold part-time jobs — 500 hours per year — if they want to have a little experience before their first job."

In addition, Spanish government regulations make it difficult to be hired by a Spanish firm; labor laws are still very protectionist. Any firm willing to hire a foreigner must first go to the National Institute for Employment (NIEM). If NIEM does not match the job profile with the file of an unemployed Spanish worker, the request is accepted.

It's bad enough, mixing Macintosh, IBM PC, UNIX and mainframes in the same company — sometimes even within the same department. At least you should be able to standardize on one laser printer.

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NET posts $2.5M income drop

BY JIM NASH
CW STAFF

REDWOOD CITY, Calif. — An overzealous sales office is being blamed for disappointing year-end financial figures at data communications vendor Network Equipment Technologies, Inc. Net income for the fiscal year ended March 31 was down $2.5 million from last year's total of $16 million, according to the company.

NET executives revised their unaudited second- and third-quarter financial figures after external auditors discovered exaggerated revenue. According to information released to the press, a September 1989 shipment worth about $519,000 was listed as a booked deal, when it was not. That amount was erased from revenue statistics in the audit.

Revenue for the third quarter, originally stated at $52.1 million, was decreased by $5.4 million after a series of accounting errors - some traced back to the September mishaps - was discovered, according to company documents. About $2.4 million of the $5.4 million was recovered through proper order documentation and reported in the fourth quarter.

As a result, NET Chief Executive Officer Bruce Smith said in a prepared statement, management foresees the company operating at break-even or perhaps even a small loss in the near term.

A little too aggressive

Company spokesman Stan DeVaughn said the problems stemmed from "a little too much aggressiveness" on the part of a handful of Eastern region salesmen, all of whom have since left NET.

"We have precise processing policies about when an order is considered an order, a shipment is a shipment, and when revenue is booked as revenue, and these policies were not followed," DeVaughn said.

DeVaughn said a new vice-president of sales, Craig Tysdale, had been appointed in the incident's aftermath. Tysdale, Nashville's vice-president of marketing since 1989, replaced Roger Hobbs. The company did not comment on whether Hobbs' departure is related to the recent mishaps.

The appointment, however, apparently has not dispelled investors' misgivings. NET's stock price plummeted to 10% by mid-May last week after a 52-week high of 34%.

INTERNATIONAL BRIEFS

DEC to the defense

Where does a government contractor turn in a time of increasing peace and shrinking Defense Department budgets? Digital Equipment Corp. has an answer: to one of the defense departments still very much on active alert. DEC and Tel Aviv-based Israel Aircraft Industries — said to be Israel's largest manufacturing company — recently announced a strategic alliance under which DEC will serve as a systems integrator for its Israeli partner. Israeli Aircraft, in turn, will standardize its computer-aided design, manufacturing and engineering efforts on DEC workstations to the tune of an estimated $25 million over the next five years.

Piece of the Apricot

Late May is the slated date for final contracts embodying the acquisition of UK-based Apricot Computers PLC's hardware division by Tokyo-based Mitsubishi Electric Corp. The deal will create a new Mitsubishi subsidiary called Apricot Computers Ltd.; the former Apricot will continue its remaining software service business under the name of ART Group.

Help!

That, along with inventory management software, is what users in the UK want the most, according to information released by three large UK-based information center software providers. The burgeoning number of large commercial users craving software "Help desk" and inventory control packages leads them to estimate a $1.6 million market niche by the end of this year, the companies' report said.

Equita-Bull?

Bull H. N. Information Systems, Inc. is set to pay $378,350 for a 40% stake in Bridge Pacific, a networking specialist and computer dealer based in Auckland, New Zealand. According to one Bridge executive, negotiations between the two companies have been off-again, on-again for some 15 months. A recent slew of telecommunications contracts garnered by Bridge, he said, flipped the switch to on-again.

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MAY 14, 1990 COMPUTERWORLD
Strolling down Wall Street

Securities firms are hiring, but their needs are limited and specialized

BY DAVID A. LUDLUM CW STAFF

Despite what you may have heard, it's neither the best of times nor the worst of times for information systems people on Wall Street. Although some big investment houses have been laying off workers, business and hiring continue to chug along, but the pace is nothing like the breakneck rate typical of the '80s.

True, demand for some investment banking and brokerage services has slowed, and profit margins in others are under pressure. Both developments are forcing firms to cut back on spending. However, the situation also means the firms must compete more aggressively as new business opportunities arise (see story page 75).

In addition, the companies must replace computer systems that have been made nearly obsolete by globalization and other changes in the securities business. Firms must also integrate their existing systems so that management can keep real-time changes in the securities industry ranks are financially stable, while those with the broadest array of services have taken the biggest losses. "We're still recruiting," says Rick Adam, partner in charge of global operations and information technology at Gold, Sachs & Co.

"There's still plenty of opportunity. I think people who read the press have a much darker view of the conditions than what's really going on here.

On the other hand, firms such as Merrill Lynch & Co. and Shearson Lehman Hutton, Inc. are methodically shrinking their work forces. Even so, Merrill Lynch, which took a $470 million restructuring charge late last year, is hiring IS people, says Jeff Berg, manager of services. He declined to provide a number.

Jay Gaines, an executive recruiter in New York who places top IS managers on Wall Street, says he sees no lack of opportunity. However, he says people can no longer merely ride the explosive growth as some did during the 1980s. "Career progress will probably be less dramatic, more parallel to industrial companies or banks," Gaines says.

Firms with narrowly-focused strategies may be financially stable, while those with the broadest array of services have taken the biggest losses. "We're still recruiting," says Rick Adam, partner in charge of global operations and information technology at Gold, Sachs & Co.

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Among senior managers, the demand is for people with a demonstrated ability to cut costs, increase productivity and manage the accompanying organizational change, according to Gaines. "When you're looking at individuals, you look at what they accomplished with the resources they had and how well and how efficiently," he says.

"There are people who have successfully streamlined organizations while maintaining or enhancing productivity.

Imagination is another important attribute, says Howard Sorgen, director of information products and technical services at a Merrill Lynch. Managers must consider unconventional approaches to cutting costs, such as outsourcing and partnerships with suppliers and other companies. "It's a different type of thinking — creative rather than quantitative," he says.

In the technical ranks, the most sought-after people are the ones who can help companies deploy the distribution processing that can help securities traders and other revenue generators analyze markets more quickly, managers and recruiters say. This priority calls for professionals skilled in C programming and high-end, multitasking personal computers or Unix workstations with graphical, window-based interfaces.

Relational databases are another important component of the distributed approach. They also relate to a second critical technological thrust at securities firms — the streamlining and modernization of software development. Companies are standardizing data structures and application interfaces to eliminate redundancies and to allow programs to be integrated.

Merrill Lynch is moving toward a more specialized division of labor in application development, Berg says. Increasingly, the work is divided among technical specialists who provide development tools and business-oriented people who ferret out requirements and define software functions.

The latter group must understand what users need from applications and translate it into software, using a limited set of high-level tools. "You have to know the users' business almost as well as he does — you're the person recommending improvements to it," Berg says.

While the chances of landing a choice position or moving up in the securities industry ranks are not as great as in recent years, observers say that pay for the people who do get the opportunities will remain healthy.

Wall Street will continue to boast many of the highest-paid positions, some of them with seven-figure compensation. Further down in the organization, senior applications programmers can still earn $60,000 to $80,000 per year, and project managers can earn $125,000 to $200,000.

If the pay does not return to the extravagant levels it occasionally reached in the 1980s, the pressure may not be as great either.

"Wall Street was paying incredibly well in terms of DF, but people were working incredibly long hours," says Jessica Keyes, a consultant and former managing director of technology at the New York Stock Exchange. "In return for that money, the firm had some expectations. It expected seven days a week. It expected blood." 

Ludlum is a Computerworld senior writer.

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- Data Access with experience in Data Administration, Data Modeling, and Logical Data Design

**Computer Operator**

- 3 years experience
- 1 year Technology or ISM experience

**Get involved with a fast-growing group by selling your services.**

**GET Directories Corporation**

**Human Resources**

**System Analyst**

- 3-4 years experience
- 2-3 years supervisory experience

**VAX**

- 4 years experience
- 2 years supervisory experience

**MVS**

- 3-4 years experience
- 2 years supervisory experience

**IBM**

- 5 years experience
- 2 years supervisory experience

**P.O. Box 1724, St. Louis, MO 63043-0621**

**FAX**

- 1-800-434-0952

**NACCD Member**

**Data Processing Manager**

Leading import firm is looking for a take-charge individual to manage the data processing activities of the company. The individual selected will have a proven background in data processing, with at least 2 years of experience in a similar position. The ideal candidate will have a strong working knowledge of Mainframe technology, along with the ability to manage a team of data processing professionals. This position requires strong analytical and problem-solving skills, as well as the ability to communicate effectively with both technical and non-technical personnel. The individual selected will be responsible for ensuring the smooth operation of the company’s data processing systems, and will have the opportunity to lead a dedicated team of professionals. The position offers a competitive salary and benefits package, as well as the potential for advancement within the company. If you are interested in this exciting opportunity, please submit your resume to [Recruiting Department](mailto:recruiting@get-directories.com) today!
COMPUTER CAREERS MID-WEST

SUCCESS MEANS BEING IN THE RIGHT PLACE
AT THE RIGHT TIME...

... And The Time Is Right To Join
CHC in Rockland, Orange & Putnam Counties in New York

New PL/1 Project Team Is Forming
ACT AT ONCE!

When you're a Computer Horizons Consultant, you'll find yourself in the right place for a stimulating, challenging career. Computer Horizons, the nation's largest privately-owned Computer Processing Consultants, is universe that we've proven our success stories and are opening new services in a variety of markets.

Computer Horizons is staffing a brand new project team to support all of the Mission Critical operations in the manufacturing and engineering sectors of our client. As a CHC consultant, you'll be involved in all areas of the project life cycle. We are looking for experienced:

• SYSTEMS ARCHITECTS
• SR. LEVEL DESIGNERS
• ANALYSTS

SENIOR PROGRAMMER ANALYSTS

to join the excellent team of CHC consultants that are forming right now. To be considered you must possess strong DP skills and have a strong desire to get the job done. Additionally, you must be able to function in a DP environment that consists of:

• IMS and/or PL/I
• IMS OVS

Special consideration will be given to Programmers with strong PL/I experience. IMS OVS experience is required in all positions. This project team will have full responsibility for all manufacturing and engineering applications.

As part of the CHC team, you'll earn an excellent compensation package that includes an attractive base salary, generous benefits, relocation assistance, and a deferred income savings plan (WRA).

If you're hired as a result of this ad you will earn a $2,000 sign-on bonus paid on your 90th day of continuous employment.

For more information, please contact David McLain at (203) 402-7940 or FAX your resume to: Carole Annino, Employment Manager, 2401 S. 31st St., Temple, TX 76508. 1-800-321-2421.

CT COMPUTER HORIZONS CORP.
"The Solution Experts"
An Equal Opportunity Employer EOE

MIS International is one of Michigan’s oldest and most respected consulting firms. For over 19 years, our data processing and engineering professionals have provided services to Fortune 500 firms including the major automobile manufacturers and others.

We are enjoying exceptional growth, making this a perfect time to step up to a permanent position on our technical staff. Currently available opportunities include:

• DR/2 and PL/I
• IDMS A/D (3/P/A)
• IMS/COBOL (Sr. P/A)
• ADABASE NATURAL II/MVS (Sys. Prog., P/A)
• CLIPPER (Prog.)
• ADO /P/A)
• CLARCASE (Dba, Architect, QA)
• PACBASE
• EDI (Sys. Ana, P/A)
• IMS/COBOL (Sr. P/A)
• ADABASE NATURAL II/MVS (Sys. Prog., P/A)
• REXX, VRM, IMAS/IBM, MVS systems, Interface to IBM, Computer science.
• IMS/COBOL (Sr. Ana, P/A)

Call Marie Clark at 1-800-678-1118, or forward your resume to: MIS International Corporate Headquarters, 445 Enterprise Ct., Warren, MI 48013. Fax: (313) 253-9508. Equal Opportunity Employer.

COMPUTER PROGRAMMER/ANALYST

INDEPENDENT INDUSTRY LEADER

Nation’s leading computer and systems consulting company with 12 locations in the Chicagoland area. We have opportunities for experienced programmers.

We require a degree in Computer Science and four years of working experience in the field. A working knowledge of computer systems design is also required. Send resume to: Mike Fortunato, President and Chief Executive Officer, Plant 36, 11965 S. Wallace, Chicago, IL 60655. EOE

Senior Computer Systems Analyst to analyze complex systems requirements, design, develop and test and implement all related software and hardware systems. Must have a Bachelor’s degree in Computer Science or related field. Excellent communications and analytical skills required. Send resume to: MIS International, 445 Enterprise Crt., Warren, MI 48013. Fax: (313) 253-9508. Equal Opportunity Employer.

Recruit qualified computer and communications professionals with the IDG Communications Computers Network of five leading computer newspapers.

Call Lisa McGrath at: (800) 343-6474 for more details

One thing every executive should have after retirement:

Gold watches are fine for some retired executives. But after a lifetime of experience, moving from the trenches to the front offices, your knowledge is worth more—to us and to hundreds of thousands in need of your special skills. Through the International Executive Service Corps—the not-for-profit organization that sends U.S. managers to help businesses in developing nations—you can volunteer for short-term assignments in foreign countries where you’re truly needed. Although you will not be paid, you and your spouse will receive all expenses, plus the personal satisfaction of teaching others while you discover more about yourself.

It’s an adventure of the spirit. And the time to explore it is now. So don’t let this spirit pass you by. Send for more information today.

Computer Horizons, Inc.
Mid-West

MAY 14, 1990

International Passenger Shipping/ Hotel and Resort Firm Seeks:

SENIOR PROGRAMMER

ANALYST

MIDTOWN MANHATTAN

Develop and maintain existing systems to process

bookings. Design new systems and maintain

support. BS Degree and 3-5 years systems

analyse/programming experience required. Send

resume to: Grace Cole, Employment Manager, 2401 S. 31st St.,
Temple, TX 76508

CUNARD LINE LTD.

PERSONAL DEPARTMENT

555 5th Avenue, New York, N.Y. 10017

No agency calls accepted. Equal Opportunity Employer

EXPRIENCED IN

ADABAS/NATURAL II?

Then you have a great future to look forward to with

Turn-Key Solutions, an experienced computer consulting

firms. Turn-Key Solutions has a distinguished list of clients.

Turn-Key Solutions, Inc.

 Turns-Key Solutions, Inc.

SYSTEMS ANALYST INTERFACE

or Software Systems Analyst, Senior Software Systems Analyst or Software Developer. Requires a B.S. in Computer Science. $27,000/yr.

Turn-Key Solutions, Inc.

1-800-343-6474

for more details

One thing every executive should have after retirement:

An adventure.

Yes, I'd like to share my lifetime of experience with others. I recently retired from my position as a hands-on manager with a U.S. company. I also understand that volunteers and their spouses receive expenses, but no salary. Please send me more information now.

Name:

Address:

City __________________________ State _______ Zip _______

In what publication did you see this ad?

Write to: IESC, 8 Stanford Forum, P.O. Box 10005-2301

Stanford, CA 94304-2301. Or, for faster response, call this number: (203) 967-6000.

COMPUTERWORLD

MAY 14, 1990
With 31 facilities nationwide and annual sales in excess of $90 million, Computer Horizons Corp. ranks sixth among software services/systems integration firms. This 20 year old company designs, develops, and implements systems and software primarily for Fortune 500 companies in finance, insurance, and manufacturing. To ensure that it lives up to its tagline — "The Solutions Experts," — Computer Horizons Corp. spends over $1 million each year on recruitment advertising. And it’s the responsibility of David Reingold, Vice President of Human Resources, to see that this money is spent recruiting only the best computer professionals. That’s why he advertises in Computerworld’s Campus Recruitment Edition. "Today’s colleges and universities are turning out better qualified graduates. Since companies like ours tend to concentrate more on experienced professionals, we don’t have the time or staff to get out to all the campuses we should. That’s why we turned to Computerworld’s Campus Recruitment Edition. It’s making many of my campus recruitment trips for me."

In 1990 alone, Computer Horizons Corp. anticipates hiring up to 100 entry-level programmers, systems analysts, database professionals, and software engineers with degrees in computer science or mathematics. Our ad in Computerworld’s Campus Edition has already generated over 400 resumes from all over the United States. Now in the initial screening stages, my guess is that we’ll be interviewing about one-third of these graduates. So our prospects are looking very good.

“Computerworld’s Campus Recruitment Edition lets me compete more effectively in the nation’s pool of top computer career students. I was thrilled with the results and definitely consider this to be an ‘annual ad’ for Computer Horizons Corp."

Computerworld’s Campus Recruitment Edition. It’s helping America’s companies recruit America’s best computer career students. Just ask David Reingold.

For all the facts on the October 31, 1990 issue, call John Corrigan, Advertising Director, at 800/343-6474 (in MA, 508/879-0700).
All the information you need is right here. Just call Lisa McGrath at 800-343-6474 (in MA, 508-879-0700). Or, if you want, you can send us the form below via mail or to our FAX machine. You can reach our FAX at ext. 739 or 740 at either of the above numbers.

The following information will help you determine the size ad you’d like to run and when you’d like to run it.

CLOSING DATES: To reserve space, you need to call us by 5PM (all continental U.S. time zones), 6 days prior to the Monday issue date. We need your ad materials (camera-ready mechanical or copy for pub-set ad) by 5PM, 5 days prior to the weekly issue.

AD COPY: We’ll typeset your ad at no extra charge. You can give us copy via phone, U.S. mail, or FAX. To typeset an ad for you, we need clean, typewritten copy. Figure about 30 words to the column inch, not including headlines. (There are seven columns on each page.)

LOGOS AND SPECIAL ARTWORK: Any logos or special artwork should be enclosed with your ad copy. For best reproduction, please send us either a stat of your logo or a clean sample on white bond paper.

COLUMN WIDTHS AND MINIMUM DEPTHS: Your ad can be one of seven different widths. There is a minimum depth requirement for each width. You can also run larger ads in half-inch increments. The chart below can serve as a reference.

<table>
<thead>
<tr>
<th>NUMBER OF COLUMNS</th>
<th>WIDTH</th>
<th>MINIMUM DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 column</td>
<td>1 1/4&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>2 columns</td>
<td>2 5/8&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>3 columns</td>
<td>4 1/16&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>4 columns</td>
<td>5 9/16&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>5 columns</td>
<td>6 15/16&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>6 columns</td>
<td>8 3/8&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>7 columns</td>
<td>9 3/4&quot;</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>

RATES: Your rate will depend on the size of your ad and whether you choose to run regionally or nationally. The national rate is $14.85 per line or $207.90 per column inch. The regional rate (Eastern, Midwestern or Western editions) is $10.80 per line or $151.20 per column inch. You can run your ad in any two regions for $13.50 per line or $189.00 per column inch. In all cases, you can earn volume discounts.

The minimum ad size is two column inches (1 1/4" wide by 2" deep) and costs $415.80 if run nationally. A sample of this size appears below. You can run larger ads in half-inch increments at $103.95 per half inch. Box numbers are available and cost $25 per insertion ($50 if foreign).

SAMPLE AD SIZES AND PRICES: To assist you in planning your recruitment advertising, the following shows common ad sizes and their respective costs.

<table>
<thead>
<tr>
<th>Ad Size</th>
<th>One Region</th>
<th>Two Regions</th>
<th>National Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 column x 2&quot;</td>
<td>$502.40</td>
<td>$578.00</td>
<td>$415.80</td>
</tr>
<tr>
<td>2 column x 2&quot;</td>
<td>$1,004.80</td>
<td>$1,156.00</td>
<td>$831.60</td>
</tr>
<tr>
<td>3 column x 3&quot;</td>
<td>$3,014.40</td>
<td>$3,519.00</td>
<td>$2,496.60</td>
</tr>
<tr>
<td>4 column x 5&quot;</td>
<td>$3,024.00</td>
<td>$5,780.00</td>
<td>$4,158.00</td>
</tr>
<tr>
<td>5 column x 7&quot;</td>
<td>$5,292.00</td>
<td>$6,615.00</td>
<td>$7,276.50</td>
</tr>
</tbody>
</table>

PAYMENT: If you’re a first-time advertiser or if you haven’t established an account with us, we need your payment in advance (or with your ad) or a purchase order number. Once you have established an account with us, we’ll bill you for any ads you run as long as your payment record is good.


Computerworld Recruitment Advertising Order Form

Ad Size:______ columns wide by ______ inches deep

Issue Date(s): ____________________________

Name:__________________________

Company:__________________________

Address:__________________________

Telephone:__________________________

Region:□ East □ Midwest □ West
□ East/Midwest □ Midwest/West □ East/West

National:□

Send this form to: COMPUTERWORLD RECRUITMENT ADVERTISING

375 Cochituate Road, Box 9171, Framingham, MA 01701-9171

800-543-6474 (In MA, 508-879-0700)

Telecopier Extensions: 739 or 740
"Our ads in Computerworld had the resumes pouring in and the phones ringing."

— Linda Huebscher
Manager of Employment
Unisys

With more than 60,000 customers worldwide, Unisys is a $10 billion information systems company that applies leading-edge technology to provide the best possible solutions to its customers.

So naturally, says Linda Huebscher, Manager of Employment for the company's Product & Technology Operations division in Roseville, Minnesota, Unisys wants the best technically trained personnel on its team. And for the most successful recruitment of such qualified professionals, Linda explains, Unisys turns to Computerworld.

“We recently embarked on two major recruitment campaigns for systems programmers. First, we need to support our development of Unix*-related products and services. Second, we seek systems programmers to help us capitalize on our lead in fourth generation language (4GL) technology.

“We want programmers who are well qualified, aggressive and systems motivated. The market for programmers with Unix kernel and shell development experience is extremely competitive. Just as it is for professionals with backgrounds in C programming, relational database and 1100 systems technology.

“And we are confident we’ll find these professionals through Computerworld. I asked our key systems programmers and managers which periodicals are most widely read by our top programmers. I was told in no uncertain terms that Computerworld is at the top of their reading lists.

“That became clear when we saw the results. Our ads in Computerworld had the resumes pouring in and the phones ringing. We averaged 28 responses for each ad we ran. But most importantly, we made several very good hires.”

Unisys. We’re helping serious employers and top computer professionals get together every week. Just ask Linda Huebscher.

For all the facts on how Computerworld can put you in touch with qualified personnel, call your local Computerworld Recruitment Advertising Sales Representative today.

* Unix is a registered trademark of AT&T Bell Laboratories.
**Computer Careers**

### Computer Employers Expect NCA To Be the Most Effective in Meeting Their Personnel Needs... and we can earn their approval every day!

For many years now, many thousands of EDP employers have relied on NCA firms to meet their staffing needs, efficiently and professionally. As a result, you can be sure that we constantly make intensive efforts to provide the experienced and qualified people you need — far more than you could find locally or nationally, contact the NCA firm nearest to you. We'll thank you now... and you'll thank us later.

---

**Gulfstream Aerospace Corporation is currently seeking qualified candidates for**

**SENIOR OPERATING SYSTEMS ANALYST**

Our Senior Systems Programmers provide internal consulting and highly specialized technical knowledge and expertise to the process of designing, implementing, administering, measuring, tuning, and maintaining complex computer hardware and software configurations. Qualified applicants should possess a Bachelor's degree in Computer Science or equivalent experience, with a minimum of 6 years Data Processing experience, to include four years of Systems Programming on MVS/ESA operating systems. Should also be proficient in the use of SMIPJ, JESSJ, DP, IPA, TDSSPP, RFP and SD70 Assembly Experience with UCC 1, UCC 7, UCC 11, DFS/HSM, and DASD tuning helpful.

**DATA BASE ANALYST**

Our DBA's design, implement, and maintain data bases; perform data table design, data base generation and coupling, data base recovery and restart, and application programmer support.

Qualified applicants should possess a Bachelor's degree in Computer Science or equivalent experience with a minimum of 3 years DBMS data base experience including at least one year of DBA experience with CMIS physical data base design and navigation. Background in the environment and administrative support for CAS manufacturing and financial application modules is highly desirable.

Gulfstream Aerospace Corporation is the world's leading manufacturer of corporate executive jet aircraft. We are located in Savannah, Georgia, which is home to this country's single largest historic district. Savannah is a beautiful city located just minutes from beaches on the Atlantic Ocean. If you meet our requirements and would like the opportunity to work with experienced staff that committed to quality, you indicated you are responding to Ad #90-15 and send your resume and salary history in confidence to:

**Gulfstream Aerospace Corporation**

P.O. Box 2206, M/S D-03
Savannah, GA 31402-2206

An Equal Opportunity Employer M/F/H/V.

---

**Computerworld**

### Programmer Analysts

West One Bancorp, a multi-state financial services holding company, headquartered in Boise, Idaho, is seeking experienced Programmer Analysts for the Consumer/Commercial Loan and Disc IRS/LCR Systems teams.

Most qualified candidates will possess:

- Bachelor's degree in Computer Science or related field, or equivalent programming experience
- 3-5 years' experience in large-scale IBM MVS or EAS environments.
- Proficiency in COBOL, VSAM, CICS and OGL/CL.
- Familiarity with IMS Database, DB2 Database, RACF, TSO/SPF, Library, System/3, and Project Life Cycle Methodology.

Boise, Idaho's beautiful capital city has so much to offer and unlimited recreational opportunities: day/night skiing at Bogus Basin (30 minutes from downtown), golf, tennis, hiking, fishing, biking, windsurfing, river rafting, water skiing, camping and jogging along the 9-mile Boise River Greenbelt.

Don't miss your chance for an exciting career with a growing company and a taste of Boise's good life! Send your resume and salary history to Mary O'Keefe (3-2255), FAX Box 8247, Boise, ID 83733. As an equal opportunity employer M/F/H/V.

---

**Computerworld**

### Advance to AS/400 at Synon.

Synon is the leading supplier of Computer Aided Software Engineering (CASE) tools for the AS/400. In a little over 2 years, we have over 500 customers in North America alone! IBM recognizes the value of our products and has included Synon as part of AD/Cycle, their development blueprint for the future.

**Application Consultants**

Learn AS/400, Synon and CASE techniques. Demonstrate our products, assist during customer evaluation and implementation. Sales and technical training required. Aggressive compensation package leveraged on sales team performance. CFP, OS/400, Big 6 consulting and/or CASE experience required. Openings in New York City, D.C., Dallas, and San Francisco Areas.

Synon provides a complete company paid benefits package. Relocation reimbursement will be considered for the right candidate. Please respond with salary history and resume to: Synon, Inc., Personnel, 1100 Larkspur Landing Circle, Larkspur, CA 94939. Principals only please. EOE.

---

**Computerworld**

### IN A SLOW MARKET, YOU NEED A QUICK EMPLOYMENT SERVICE

If you have marketable skills, together with reasonable geographic and salary requirements, your resume will be on its way selectively, to our applicable contacts. Then, in a week's time, you'll be on your way to the next step in your career. The difference is, we're the only service you can rely on that's fully committed to your success. For good reasons.

**ASSISTANT PROGRAMMERS / HW/SW**

**DATA PROCESSING, INC.**

In a Slow Market, You Need A Quick Employment Service

**Advance to AS/400 at Synon.**

**Synon**

**MAINE - NH**

**$25,000 - 50,000**

**Salary**

ROMAC, the largest and oldest placement agency in this area, is seeking qualified data processing professionals with salary requirements in the $25,000-$50,000 range. Our clients pay our fees.

---

**Computerworld**

### IT'S CALLED THE GOLDEN GATE FOR GOOD REASON

System professionals can discover career enrichment, personal satisfaction and rewarding employment with System/3, the world's most reliable computer system. System/3 offers the best in mainframe and microcomputer technology. To those employers who have not yet discovered System/3, we welcome you to try System/3 and feel the difference. Systems Design, Development and Software Engineering.

**THE SEARCH FIRM, INC.**

**590 MARKET STREET, SUITE 380, SAN FRANCISCO, CA 94105**

(415) 777-2950 FAX: (415) 777-8632

---

**Computerworld**

### PROGRAMMERS

**Contact**

(704) 366-1800 FAX (704) 366-0070

Portland, ME 04112

**P.O. Box 8247, Boise, ID 83733. An equal**

**Programmers**

**Contract**

YEARS TO SEND:**

3-2255, P.O. Box 8247, Boise, ID 83733.

**OS/400, Big 6 consulting and/or CASE experience**

**System/3, RACF**

**required.**

**Programmers**

**required. Openings in New York City, D.C., Dallas, and San**

**Francisco Areas.**

**Synon**

**provides a complete company paid benefits package. Relocation**

**reimbursement will be considered for the right candidate. Please**

**respond with salary history and resume to: Synon, Inc., Personnel,**

**1100 Larkspur Landing Circle, Larkspur, CA 94939. Principals only**

**please. EOE.**

---

**Computerworld**

### WEST ONE BANCORP

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**Computerworld**

### MAY 14, 1990
**SOFTWARE ENGINEERS**

- Operating Systems: Transmission
- Configuration: UNIX/VAX
- On-Line Diagnostics & Fault Isolation: UNICOM/XENIX
- Man-Machine Interface: INGRES/EQUEUL
- Software Tools/Languages: ANSI/C/C++
- System Integration and Test Work Station: TL1
- Network Control Systems: X.25
- PC-MS/DOS: Matrix Analyst
- MS/Windows: Work Station Administrator
- Objected Oriented Quality Assurance: Data Communication
- System Integration and Test Work Station: Database Management Systems/Internals
- Languages: Quality Assurance Development
- Objected Oriented Quality Assurance: Design/Internals

DSC Communications Corporation is located in the Dallas suburb of Plano, TX. This sprawling community offers an excellent public school system and easy access to an abundance of cultural and recreational activities. To learn more about our challenging technical careers, contact: DSC Communications Corporation, Attn: NPG/CW514, 4030 Rippling Waterway, Plano, Texas 75075.

---

**APPLICATIONS DEVELOPMENT**

Programmers

- Positions require 4+ years of structured coding experience. Highly desired experience would include COBOL, CICS, DB2 and DATACOM. A four-year degree is preferred.

Systems Analysts

- Positions require 4+ years experience in a development environment versus a maintenance environment. Highly desired experience would include structured methodologies, data modeling experience, prototyping and Method/1 knowledge. A four-year degree is preferred.

DATA ANALYST

- Positions require 4+ years experience in data administration, database administration, or systems development. At least 1-2 years experience in logical or conceptual data modeling is also required, as well as experience with CASE tools. Excellent interpersonal and communication skills, and some JAD facilitation skills are highly desirable. A four-year degree is preferred.

DATABASE ANALYST

- Positions require 4+ years experience utilizing a relational database engine, preferably DB2 or DB/COM/DB. Desirable experience includes formal participation in the physical DB design activity of development projects. A four-year degree is preferred.

SR. DATA COMMUNICATIONS ANALYST

- Positions require 5+ years experience in data communications in a large systems SNA environment. Knowledge of PC Local Area Networks desirable. Excellent written and verbal presentation skills, as well as project management and planning experience, are a must. A four-year degree is preferred.

The quality of life in the beautiful Carolinas is one on which to boast. We offer a mild but seasonal climate, a moderate cost of living, excellent schools and universities, and a myriad of cultural and recreational activities. With CP&L located in the capital city of Raleigh, the mountains and seashore are just a few hours away.

CP&L offers competitive salaries, excellent benefits, and opportunities to advance. If you’re interested in becoming part of our important team of professionals, send resume with salary requirements to: Randy Millwood, Senior Recruitment Representative, Dept. CW52190, CAROLINA POWER & LIGHT COMPANY, P.O. Box 1551, Raleigh, NC 27602. An Equal Opportunity/Affirmative Action Employer.

---

**UNISOFT Corporation**

- Have immediate needs for professionals with experience in any of the following:
  - COBOL, PCL, ALC, RPG, "C", "CICS"
  - FOCUS, ORACLE, INFORMIX
  - DB2, SQL, IDMS, M204, IMS
  - TANDEM, COBOL, TAL PATHWAY
  - DEC, VMS, UNIX, PC
  - DASD, MIMIC/MONACO, DOD

**SUNBELT OPPORTUNITIES**

UNISOFT Corporation has both contract and permanent openings for D.P. professionals with the following skills:

<table>
<thead>
<tr>
<th>IMMEDIATE NEEDS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEC, VAX, VM, C</td>
<td>Requires VAX set structured, database design pro experience. The position requires immediate hires.</td>
</tr>
<tr>
<td>ORACLE, INFORMIX</td>
<td>Requires ORACLE experience.</td>
</tr>
<tr>
<td>TANDER</td>
<td>Requires TANDER experience.</td>
</tr>
<tr>
<td>COBOL, PL/1, SQL</td>
<td>Requires COBOL, PL/1, SQL experience.</td>
</tr>
<tr>
<td>CICS</td>
<td>Requires CICS experience.</td>
</tr>
</tbody>
</table>

For other positions, send resume to: UNISOFT CORPORATION, 11335 S. Normandie Ave., Los Angeles, CA 90045. Tel: (213) 347-7070.

**BRANNON & TULLY, INC.**

- Check out our Multinational Data Processing Facility located at 300 N. Stone St., Stone St.

**APPLICATIONS PROGRAMMER**

- Positions require 4+ years of structured coding experience. Highly desired experience would include COBOL, CICS, DB2 and DATACOM. A four-year degree is preferred.

**SYSTEMS ANALYST**

- Positions require 4+ years experience in a development environment versus a maintenance environment. Highly desired experience would include structured methodologies, data modeling experience, prototyping and Method/1 knowledge. A four-year degree is preferred.

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Outsourcing: Avoiding pitfalls

**By Raymond T. Nimner**

There is no general answer to this question. Arriving at the correct solution requires an examination of a company's unique characteristics, including its human resources and technological infrastructure. Even if an organization eventually decides against outsourcing, simply undertaking this kind of probing investigation can be beneficial because it can generate insights regarding these critical aspects of the business.

Companies that do opt to outsource must face a number of critical decisions about how to protect themselves in the joint venture. That's right — joint venture. In an outsourcing relationship, the customer enters into a long-term partnership with the service provider. As in many joint ventures, poor performance on the part of the provider might cause the client company to fail.

For big organizations, the typical outsourcing contract covers a lengthy period of time — usually 10 years. While this arrangement lets the service provider amortize the cost of its computer systems, it also means that the client is bound to a partner for what seems like eternity in the fast-changing information systems business.

Besides the length of the relationship, the raw material involved, information, also makes outsourcing contracts unilateral. These two components mean that contracts must thoroughly address key areas. They include the following:

- **Growth.** The relationship needs to provide for the possibility that the client's needs will grow substantially. For example, if an organization adds a new division, the client should know if the service provider can or will expand its facilities to meet the new needs.
- **Reliability.** Firms must make sure they are dealing with a stable partner and that they maintain continued access to their information if the service provider encounters financial problems during the course of their relationship. Thus, the outsourcing contract must stipulate how the client can access, retrieve or transfer its data if the provider closes or goes into bankruptcy.
- **Accountability.** Contracts should spell out which party is responsible for errors or information that is lost in the course of processing. Under what circumstances is each party responsible? How broad is the party's responsibility? What measures must the service provider take to ensure the security and integrity of data? What amount of insurance must the provider maintain against the risk of information losses?
- **Technology.** Given their length, outsourcing contracts must also include provisions that state the service provider will use up-to-date systems. Firms must ask what rights they have to influence the development of the service provider's systems.

Stipulations in this area should deal not only with developments in technology but also with the process of choosing which system the service provider will operate for five or six years down the road.

Nimner is Foundation Professor of Law at the University of Houston, counsel to the law firm Sheinfeld, Maley & Kay and author of The Law of Computer Technology (Warren, Gorham & Lamont, New York).

**Index**

Marketplace | 119
---|---
Time/Services | 119
Data Conversion | 131
Buy/Sell Loans | 131
Graphics/Desktop Pub | 133
Ride Proposals/Real Estate | 133
Peripherals/Supplies | 133
Software | 133
Business Opportunities | 133
Training | 154

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An Opportunity to Meet Peer Managers from the World of Information Systems Training

BY JESSICA KEYES

In the world of information systems training, a newsletter can be worth a thousand follow-up training sessions. IS training organizations usually have only a day or two to teach people how to use a particular piece of software or hardware. During this short period of time, the instructor tries to convey a wealth of knowledge. The problem is that students generally retain only a small percentage of what they hear or read. This fact accounts for the high proportion of students who take courses, presumably to refresh their memories.

Even when trainers successfully drive home principles and students actively use their newfound knowledge, the instructor often finds that some students are still more interested in information than in learning. There is often a need to update lessons. Instructors can forget to mark a point or run out of time before covering all of their material.

Finally, there is the problem of students who take courses but eventually lose interest in the subject. It’s particularly common with topics that generate a lot of attention, such as fourth-generation languages. Students may not find the time to use what they’ve learned and may need some prompting to do so.

How, then, can IS training organizations perform the following tasks?

• Keep students informed about new features and functions?
• Keep students interested in using the tools they’ve labored to equip them with?
• Make the newsletter a learning tool?
• Keep regular updates and news of the month?

A newsletter could be the answer. A newsletter can develop a loyal following, whether it is for useful information or simply chatty commentary. Whatever the reason, good newsletters are often read front to back. To generate this kind of loyal readership, however, a newsletter publisher must follow certain rules. Among them are the following:

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• Make it fun to read. Manuals are not fun to read. The notes from your last training course are probably not fun to read. But a newsletter can and should be fun to read. It might include contests, cartoons, jokes and other humorous items. Try to imagine a publication that you would enjoy reading — then create it.
• Welcome outside contributions. Will the newsletter be geared to end users or IS staff members? Will it cover only personal computer training or will it deal with systems built in-house? Too broad a scope will prevent a newsletter from conveying a personal touch. Worse, by trying to satisfy too many readers it can end up satisfying none.

Keep it short. A big advantage of newsletters is that readers can peruse them during spare moments in almost any situation. They might take in an issue while waiting in line or riding the bus or train.

To do all of this, newsletter publishers must do a little planning. For example, newsletters are usually available to organizations that have the following:

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Chips ahoy

Semiconductor makers ride a wave of optimistic numbers

New orders plus new chip equals new stock price high. That's the equation that added up to positive numbers for Motorola, Inc. last week. After reports of brisk April orders and a speedy new chip slated to be introduced today, the semiconductor maker's stock gained 4 points to close at 745% Thursday. Intel Corp. seemed to benefit from the same formula: Its stock advanced 1% points to 43%, after the firm said its April orders also increased.

Technology stocks apparently lured investors last week, although a few issues did lose ground. Among the good buys was Sun Microsystems, Inc.; heavy trading boosted its price 22 points to 28%. Compaq Computer Corp. jumped 3% points to 107. IBM added 1% to 112%, and Hewlett-Packard Co. garnered 11 points to end at 46%. On the downside, Unisys Corp. lost 1% points to 13% after news that the leader of its mainframe division, Hollis Caswell, will retire. Digital Equipment Corp. eased 4% of a point to 857. Teradata Corp. fell 1% to 254.

Elsewhere, MCI Communications Corp. announced a dividend payment plan, and its shares edged up 4% of a point to 38%. AT&T also rang up stock sales this week, up 3% to 414.

KIM S. NASH
Unisys reorganizes

Unisys Corp. realigned its computer and networking businesses late last week, combining the two into a single unit called the Computer Systems Group. The new division will integrate the products of the former $1.5 billion Network Computing Group, based in San Jose, Calif., and the $3 billion Computer Systems Group, based in Blue Bell, Pa. Cyril Yansouni, 47, who had been president of the Network Computing Group, was named president of the new division and executive vice-president of the corporation. Yansouni was president of Convergent Technologies, Inc. when Unisys acquired it in 1988.

The moves came after Hollis Caswell, 58, president of the Network Computing Group, resigned to become chairman at Hypres, Inc., an Elsmford, N.Y., semiconductor firm.

EDS parks in Chicago

Scottflows in the Loop, beware! Electronic Data Systems Corp. last week received a tentative nod from Chicago city fathers to put in a computerized parking ticket system, with its backlog of hundreds of thousands of outstanding tickets, has been plagued by problems that four firms have tried to fix over the years.

Livermore looks at paperless world

Is it possible that, in another five years, paperless will be almost a thing of the past for companies that do business with the U.S. Department of Defense? That's what scientists at the Lawrence Livermore Laboratory in Livermore, Calif., said. They have created a Unix-based software system that can electronically handle nearly all the paperwork that needs to be completed by government contractors. Plans call for the Defense Department to begin pilot testing of the Electronic Commerce Through Electronic Data Interchange program in 1991.

Bellcore tests smart card

An experimental "smart" card for telephone users was unveiled last week by Bellcore, the research and development arm of the seven regional Bell holding companies. The card, now in testing with several hundred BellSouth Corp. and Bell Atlantic Corp. customers in nine states, contains a microchip that can store 50 telephone numbers and addresses on credit-card-size plastic. The system was captured for mailing lists.

Privy privacy

A 1989 public opinion poll by Cambridge Reports, a polling firm in Cambridge, Mass., found that most Americans are concerned about privacy, and 50 percent support stronger privacy laws. The poll is clear that any business involved even indirectly in handling information on individuals must be very sensitive to people's need to feel their privacy is both respected and protected. In some cases, a company or organization could even use its willingness to protect privacy as an effective way of differentiating itself from competitors," the pollster's report said.

Several experts said the privacy issue has flared because of a confluence of factors— including the pervasiveness of telemarketing, junk mail and the controversy over Caller ID telephone services that display the caller's phone number. (CW, Feb. 5)

The House Subcommittee on Consumer Affairs and Coinage, chaired by Rep. Richard H. Lehman (D-Calif.), is scheduled to begin marking up a bill next month that makes several consumer amendments to the Fair Credit Reporting Act. Among other things, the bill would prohibit credit bureaus from providing information for marketing campaigns unless the individual consumers are notified and have the option to decline participation. The industry opposes many of the bill's provisions as too burdensome. "Credit bureaus should be able to sell mailing lists just like magazines and trade associations and country clubs do," said Marvin Kaplan, spokesman for Associated Credit Bureaus.

The industry does support tougher enforcement and penalties for those who illegally disclose or obtain personal credit information, but currently, the penalties are so minor— up to one year in jail and a $5,000 fine— that most district attorneys will not pursue such cases, industry officials said.

The New York-based Direct Marketing Association, keenly aware of the privacy issue, has a system permitting consumers to remove their names from telemarketing and mailing lists. At the same time, the industry continues to collect more and more information about people and their buying habits.

Guiton said her philosophy is that, at a time when personal information has become a commodity that is bought and sold for a profit, "we must always be searching for that critical balance between the consumer's need for privacy and industry's need for information."

Consumer

FROM PAGE 1

President Bush, for example, said most consumers do not Realize that the surveys at the bottom of warranty-registration credit card application forms and a "frequent shopper" programs are turned into databases for use in highly targeted marketing campaigns (CW, March 5).

Credit bureaus have also hopped on the bandwagon, selling data on requests. "The agencies are trying to sell the idea that personal financial information of people with certain financial profiles to companies offering credit cards by mail. Guiton said she is concerned about the practice because information provided for credit purposes is being used for a different purpose without the consumer's knowledge.

The bill's proponents are reaching sympathetic legislators at the state and federal levels. Already this year, New York and Maryland have passed laws that prevent merchants from forcing consumers to write telephone numbers and addresses on credit-card (sign-up) slips. (The data was captured for mailing lists.)

Cui: Industry must educate consumers

"Credit bureaus were the first to take the lead in the Bush administration on privacy issues, making numerous speeches to business and consumer groups and urging Congress to update the 20-year-old Fair Credit Reporting Act.\n
Guilon's primary message is that the industry needs to do a better job of educating consumers about billing databases and develop voluntary industry guidelines to protect consumer privacy. She has also warned the industry that if self-regulation fails, Congress will step in.\n
In a recent speech, she advised that the "hundreds of bills out there just waiting for an event or issue big enough to yank them out of the legislative quagmire and give them the attention they need to pass Congress."

Guiton is the first official of the executive branch since the Carter administration to take such a high-profile role on privacy issues. "It's one of those welcome surprises," So far, I'd say it's a four-star performance," said Evan Hendricks, editor of the "Privacy Times" newsletter in Washington, D.C. "Guiton has also gained the respect of industry lobbyists, although they do not agree on every issue. Guiton and her staff have done their homework and made an effort to understand the credit industry, said Steve Fior, director of government relations at Associated Credit Bureaus, a Houston trade association.\n
However, the industry is more comfortable when Guilon talks about industry self-regulating than when she talks about legislative mandates, Fior added. Guilon's support for congressional action adds some clout to the privacy movement, privacy advocates said.

MITCH BETTS
Morris sentence spurs debate

BY MICHAEL ALEXANDER

Attorneys for convicted computer worm programmer Robert T. Morris filed a notice of appeal in federal court in Syracuse, N.Y., last week amid debate about the adequacy of the computer crime laws and whether his sentence was severe enough.

Morris, 25, was convicted in January of releasing a worm program that hampered university and other computers on the internet, a national computer network, in November 1988.

On May 4, the court sentenced Morris to three years of probation, 400 hours of community service and a $10,000 fine. He was also ordered to pay $91 per month — the cost of his supervision during probation.

Immediately after sentence, defense attorneys said that while they believed the sentence was reasonable and fair, they would appeal in an attempt to remove the lifelong stigma of a felony conviction.

Convicted felons are barred from voting, holding certain jobs and getting contracts from the federal government, among other things. "collateral consequences," defense attorney Thomas Guido- boni said last week.

Some legal experts said the sentence and subsequent appeal will probably spur debate on federal sentencing guidelines as they apply to computer crimes.

Federal sentencing guidelines did not apply neatly to this case, said U.S. District Judge Howard Munson as well as prosecutors and defense attorneys before the sentencing.

Federal guidelines are based on a system that assigns and subtracts points to circumstances surrounding a crime. Points are added for crimes that require special skills but subtract if the defendant willingly accepts responsibility.

Federal judges are obliged to follow the guidelines in most instances but can depart from them in special cases, which Munson did in the Morris case. The sentences did not fit within the guidelines, and there were no analogous crimes that might have suggested a more appropriate punishment, he said before sentencing.

Had Munson followed the guidelines, Morris would have faced 21 to 27 months in prison.

"The Morris case also underscores the need to clarify the federal statutes," said Joseph Tompkins, partner in the Washington, D.C., law firm of Sidley & Aus- tin and chairman of the American Bar Association's Criminal Justice Section's Task Force on Computer Crime.

"The problem is that the law is vague and subject to attack, as in the Morris case," Tompkins said. "You spend a lot of time fighting motions of ambiguity of the law. If the law was clear, a lot of those issues would go away, and you could focus on what the facts are. You have to draw the line somewhere and then decide whether he crossed the line.

Right now, we are trying to put the line somewhere.

A report on the Internet incident to the House Subcommittee on Telecommunications and Fi- nance in June 1989 noted that the computer act does not define such terms as "access," "information" and "prevents author- ized access," among others. Further, the law is not directed at inci- dents involving viruses, worms and other crimes involving computers, the report said.

There are at least four pieces of new legislation that would patch some of those loopholes in the law, Tompkins said.

Secret Service busts alleged crime ring

BY MICHAEL ALEXANDER

PHOENIX — More than 150 special agents of the U.S. Secret Service, teaming with state and local law enforcers, fanned out last week to carry out the largest crackdown ever on computer hackers.

Working under the name "Ope- ration Sundevil," the law enforcers executed 20 search war- rants in New York, Chicago, Los Ange- les, Phoenix and 10 other cities throughout the country in an ef- fort to break up an alleged crime ring that one official said could account for $50 million in dam- age.

The raids produced a haul of 42 computers and more than 23,000 floppy disks as well as telephone testing equipment and computer printouts. Four sus- eptibles were arrested, although two were nabbed for weapons and drug possession charges, not for crimes related to the investigation.

Agents arrested Andrea Ger- ulis, 19, in Pittsburgh and charged her with theft of ser- vices, unauthorized use of a com- puter and fraudulent use of credit cards, according to the Se- cret Service.

Anthony Neusall, 20, was arrested in Tucson, Ariz., and charged with fraudu- lent schemes, pos- session of an interception device and theft of services, according to Gail Thackery, assistant at- torney general for Arizona.

The investigation was launched nearly two years ago following a "colonial wave of complaints" by businesses and other organizations whose informa- tion systems had been under repeated attack, Thackery said. Law enforcement officials said the investigation was aimed at hackers who steal and illegally use long-distance telephone ser- vices, voice-mail systems and credit-card numbers.

Authorities set up a sting op- eration to snare the hackers, Thackery said. She declined to describe the sting or where it was located, but it ap- pears that an electronic bulletin board was part of the plan.

The search warrants were sealed because the investigation is continuing, said Richard Ad-ams, a Secret Service spokes- man in Washington, D.C. He de- clined to provide additional details of the case.

In a press release based by the U.S. attorney's office in Ari- zona, however, U.S. Attorney Stephen McNamara said the im- proper and illegal use of comput- ers may become the white-collar crime of the 1990s.

The Model 25 286 is based on Intel Corp.'s 80286 chip and ships with an IBM Video Graph- ics Array color monitor. It offers a 1.44M-byte floppy disk drive and a 20M- or 30M-byte hard disk drive option. List pricing ranges from $2,925 to $2,995.

"It's pretty hard to justify spending $3,000 when I can get an Epson 80386SX processor, a 30M-byte drive and a decent monitor (dis- counted) for $1,500," said Ron- ald Jones, director of data pro- cessing at Paul Smith's College in Paul Smiths, N.Y.

"The price is too high, but I'd take a long look at it if they gave us a good discount," echoed Ed- win Ecker, director of computer facili- ties at MacMurray College in Jacksonville, Ill.

IBM may have also underesti- mated the processing needs of larger schools. "It sounds like a nice machine, but it's too low end," said Raymond Geitka, di- rector of computing services at the University of Michigan at Dearborn.

California State University has also standardized on Intel's 80386SX processor. "Since we're buying comparably config- ured 386SX machines for a com- parable price, I think we'll con- tinue to do that," said Paul Flickinger, director of academic computing.

Both Geitka and Tumolo add- ed that the PS/2 might not be suit- able for home use by students who do not have the money for higher end personal computers.

New IBM PS/2 misses its man by schoolyard

BY RICHARD PASTORE

IBM introduced another Person- al System/2 Model 25 last week aimed primarily at the education market, but academic computing managers said IBM missed the mark with this particular volley.

"This criminal case may ac- count for losses of over $50 mil- lion in 14 cities," U.S. Senator Stephen McNamara said in a statement related to Opera- tion Sundevil.

Estimates are that computer and credit-card fraud make up a $5 billion-per-year criminal en- terprise, he added.
**Officevision**

**FROM PAGE 1**

$7,000 workstation to send a

싼이면 completeness based on

some nagging is-

than that.”

vision as well as offer

needs to better ac-

sues.

do not reach out to

risk of watching what was to

host-based users, observers

have been a market-leading of-

functions and applications are in-

liver on its concept of the Office-

software companies that her-

alded IBM's introduction of

trating their energies on deliver-

president of technology and re-

next release of Officevision, few

nounced shipment delays for the

was forced to delay all four

that while the company is contin-

an SAA environment.

company revamped its original

for moving data from IBM main-

frames to desktop computers in

area.

Secondly, IBM must support

as a collection of office tools that

as quickly as possible, or more

users may shrug off Officevision

al availability is scheduled to be-

forth quarter of next year.

Furthermore, he said that Release 1.1

to the Officevision LAN Series will ship by the end of

is an interim fix for local-area

network users that provides ad-

ditional functions over Re-

lease 1.0, but not the full power

of Release 2.0.

As for the DOS and Unix

Monello last reiterated his commit-

ment to the new Release 2.0 de-

livery schedules, which are slated to

begin with early re-

leases at the end of this

summer and continue into gen-

eral availability through the first

quarter of the next year.

BY SALLY CUSACK CW STAFF

investigating the possibility of

creating a more tightly coupled

version of its Millennium SA

package, one that would fully im-

plement the Officevision icon

technology, but nothing definite

in the works.

Similar sentiments were echoed

by Lotus Development Corp. in Cambridge, Mass. Mike

Mitschok, a senior product mar-

keting manager at Lotus, said that

while the company is continu-

ually monitoring the situation

with IBM, current users of Lot-

us' 1-2-3-G2 are not suffering at

all, as the product coexists nicely

with Officevision 1.0.

The delay is basically creating

minor adjustments in product de-

velopment and marketing plans for the software vendors.

According to Fred Braddock, vice-

president of research and devel-

opment at Sterling Software, Inc. in Canoga Park, Calif., the

company did not have plans for

Officevision as a proprietary

system whereby users who buy be-

hind networks for a company's...
Journal takes a look at their fast lane for Mark De-
nications means life in the McCaw Cellular Commu-
Camp (left) and Ken Arneson. Manager's efforts to rewrite core ap-
plications in order to re-
McCaw Cellular's decen-
tralized management phi-
losophy.

TRENDS

Hospital Systems Market
A recent survey of 2,595 hospitals shows that when it comes to IS, the majority prefer to do it themselves

Methods of processing
Of the more than 60% of hospitals that elect to do their processing in-house, 68% are using IBM equipment

% of respondents
(Base: 2,595)

1 to 9 months: 44%
9 to 18 months: 34%
Don't know: 15%

In-house 63%
Shared service 27%
Facilities management — less than 1%

Time frame for replacement
Of the 670 hospitals that plan to make major changes, 44% will complete their modifications in less than nine months

% of respondents
(Base: 670)

1 to 9 months: 44%
9 to 18 months: 34%
Don't know: 15%

OVERVIEW

NEX T WEEK

Information management at fast-growing McCaw Cellular Communications means life in the fast lane for Mark De-Camp (left) and Ken Arneson. Manager's Journal takes a look at their efforts to rewrite core applications in order to remain consistent with McCaw Cellular's decentralized management philosophy.

Why not have one personal computer that you can use every day and then pack up to use on a road trip? Portable computer vendors would like to think that this is possible now, but users are not so sure. Expense, screen size and keyboard functionality are just some of the unresolved issues of portable computers. See Product Spotlight.

INSIDE LINES

No hot air
Word on the super side of the street has it that Minneapolis-based Cray Research will announce the long-rumored air-cooled version of its YMP supercomputer today. Industry sources said the new computer will cost about $2 million.

Everything's relative
Codd & Date, purveyors of the Relational Model and its famed 12 rules, is looking for a buyer for the consulting practice and Relational Institute. However, as with the firm's attempt at a Relational Model 2 last year, no one seems to be bitting.

LAN plans, I
Rumors are getting stronger about disarray at Novell resulting from the proposed merger announced last month between Novell and Lotus. The image of local-area network makers working happily is fading. One industry leader who visited the company's Provo, Utah, headquarters said some high mucka-mucks appeared to be very uncertain about Novell's plans. The source suggested that managers may be hedging on answers or offering answers that may later prove wrong.

LAN plans, II
Meanwhile, farther west, 3Com is taking unspecified actions designed to raise its stock price (not the recent stock buy-back announcement). One manager said last week that the computer networking company is "sitting on tenterhooks" awaiting a hostile takeover bid. The source refused to reveal which companies appear to pose the greatest threat, saying, "I don't want to give anybody any ideas."

Don't color them Blue
Amdahl will announce its next generation of mainframes with out waiting on IBM's next generation, the so-called Summit, according to company President Joe Zemke. Until its 5990 mainframe debut in 1988, Amdahl had trailed IBM's announce-
ments to make sure the company didn't miss any of IBM's features. This may not mean that the new computer will appear before IBM's Summit, Zemke warned — only that its introduction will not depend on an IBM announcement.

Rushing to beat the clock
Windows 2.0 is not all Microsoft has up its sleeve. It will announce a Windows version of its so-far Apple Macintosh-only Powerpoint slide generator on May 18. We hear that Aldus is also moving Persuasion, a competitive product, to Windows.

Nothing to serve up
You can forget rumors of an impending release of Omega, Microsoft's Disease alternative and Windows-based stand-alone database for SQL Server. It is supposed to be fully relational and object-oriented, with its own Basic-based data language. A source told us that the product has suffered design setbacks.

Hot links
The hot news at next week's ICA show will mostly concern software-defined networking — that increasingly strategic telecom service that allows users to enjoy private network-style management and configuration flexibility at dial-up prices. AT&T is rumored to be finally announcing a data version of its Software Defined Network. Also, U.S. Sprint will be demonstrating its new global Voest connection — a real boon to users considering that, according to The Financial Times, British Telecom has been overcharging by as much as 74% for overseas connections.

National Semiconductor is discovering a new wrinkle in the term "corporate raider." The company's Santa Clara, Calif., headquarters is being overrun by cats. The little beauties also favor restricted areas that can only be entered with a special ID card, so animal handlers need to be escorted in. "It's not something you can just walk into," a company spokesman said. Unless you're a cat: "Then you can just wiggle in." If felines turn you off, call in your news tips to News Editor Pete Bartolik at 508-343-6474, communicate via fax at 508-875-8931 or address MCI Mail COMPUTERWORLD.

130

COMPUTERWORLD

MAY 14, 1990
Bureaucracy can kill a company. It can also cripple its customers. Today, no one can afford to work with a maze of corporate buck-passers. So at the new Wang, we’re attacking bureaucracy head-on. By some very hard but necessary decisions, we’re revolutionizing our entire organization. We have 21% fewer vice-presidents today than on July 1, 1989. 25% fewer directors. 36% fewer managers. 53% fewer supervisors. What you find today is the muscle. Working muscle. Over 20,000 people with the power and the willingness to act for you. People with answers for you. Their work is already paying off for you. For example, within 48 hours of placing an order, you’ll now know exactly when your order will be delivered. No ifs, ands or I-don’t-knows. Moreover, now no product will take more than eight weeks to arrive. Most will take less than four. And many will be at your office within 24 to 72 hours. Fast work, not fast talk. It’s the shortest way we know to get to work.

LET’S GET TO WORK. WANG
"If they can send a man to the moon, why can't they make my computers talk to each other?"

IBM has developed an answer to the looming question of multivendor networking. As if getting people to work together weren't hard enough, you're faced with a somewhat more complex task.

Getting your computers to work together.

You see, computers, like people, need reliable connections to obtain, modify and distribute information.

And no other company connects more companies with more computers to more people than IBM.

Beyond physically connecting your computers, we help them to "interoperate" with each other.

This means that now, all your machines from different networks can speak the same language to each other. As a result, people can share all types of information: applications, files, resources, mail, anything. Whether it's across the hall, the country, or the globe.

Which is why we're committed to OSI solutions, to TCP/IP solutions and to SNA solutions: all to meet your open networking requirements for the '90s.

And IBM network management software will also help you better manage everything you've managed to network.

It's all part of IBM's commitment to helping all types of people using all types of computers work more productively together.

No matter how high their aspirations.

For more information, call your IBM Marketing Representative.
We’ve taken product ratings out of the lab and put them where they belong.

In the hands of buyers.

Buyers’ Scorecard
The new standard for rating IS products and services in large computing environments.

Since computing is not conducted in a controlled situation, why should testing and evaluating computer products be conducted in controlled situations?

*Computerworld* has taken product ratings out of the lab and put them in the hands of IS management and staff responsible for purchasing these products.

Buyers’ Scorecard
A unique rating structure.

- All evaluations are performed by IS professionals at major user organizations.
  *Not by a research firm or publication.*
- Products are measured by how well they perform on site.
  *Not in a lab.*
- Review data is gathered from a large sample of users from 30 to 80 sites.
  *Not just a handful.*
- Buyers of a product being rated are randomly selected.
  *Not taken from vendor-supplied lists.*
- Criteria used in reviews are based on recommendations from leading IS consultants.
  *Not vendor preferences.*

Buyers’ Scorecard
A forum for buyers to speak out on and a standard the industry can rely on.

With our Buyers’ Scorecard, end user organizations now have an effective tool to use in setting standards, making brand selection and purchase decisions, and implementing products and services into the corporate wide information system. Buyers’ Scorecard ratings really count — for our readers and for you.

So put your advertising where it really counts. In the hands of today’s most influential and informed buyers.

Be sure you’re in the June 11th issue of *Computerworld* when your buyers are turning to the Buyers’ Scorecard on:

Security Products and Services
Access Control Software
Users speak out on their alliance with IS

In business today, the drive for success is affecting all functions within the corporation. With the corporate information system having a greater impact on the business goals of increasing productivity, competitively positioning the company and producing bottom line profitability, IS finds itself working very closely with end users. But how do the users feel about this alliance?

"View from the Front Lines"
A survey on the state of the IS/user alliance today.

Computerworld went in search of user opinion and commissioned a unique survey among 2500 end user managers in large U.S. corporations. Selected at random these managers represent a cross section of all major business functions: accounting/finance, marketing/sales, administration/human resources, engineering/research and development and manufacturing/operations.

Their views on the IS/user alliance may well be surprising to some. User department managers report an increasingly positive relationship with IS — over 85% believe the IS function is critical to their company's future. And a majority of them feel their IS organization responds effectively to their needs.

The IS/user Alliance
An increasingly united force for achieving success.

Clearly end users today are more aware of what they gain in forming a close alliance with their IS group. They have a greater understanding of information technology as a tactical weapon in achieving bottom line success. And to use this weapon, users are aligning themselves even more closely with the group responsible for acquiring and implementing information technology — IS.

A brochure, "View from the Front Lines," provides detailed information on this timely and candid user survey. Contact your Computerworld sales representative for your copy.

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