Microsoft to debut enterprise-level functions, tools for Win 2000 at show

BY SHARON GAUDIN
REDCOMP, WASH.

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**Network/T Pro views your entire network from a business perspective.**
CVS SHOWS that sometimes it's easier to buy your way online than to build.

6 USERS REFUSE to switch outsourcers - out of convenience, not satisfaction.

8 GATES WOOS CEOs, but many say he focuses too much on gadgets, not enough on solid business tools.

10 LINUX ATTRACTS app and game vendors, though corporate users still have doubts.

12 IBM, ORACLE ROLL OUT mobile databases to catch Sybase in handheld market.

14 IBM EXPANDS Tivoli scope, aiming to manage everything from mainframes to laptops.

24 DISASTER SUPPLY companies thrive in conflict areas but lack the tech to be as efficient as they should be.

36 OUTSOURCERS SLASH prices to get deals; should corporate IT do the same? John Gantz asks.

36 FEDS CLAIM that courts hinder catching Web crooks, but Ann Harrison reports that the criminals have industrial espionage in mind.

40 DISTRIBUTOR MONITORS staff movements, but is it good customer service or Big Brother redux?

40 INSIDERS COMMIT many of the worst computer crimes.

41 RETAILERS CUT their e-commerce groups loose to help them compete better.

44 THE SOCIAL SECURITY Administration says it's Y2K-ready. What about the Boston Celtics?

45 SYSTEMS AIM to manage complex inventory of contracts to nail discounts.

46 MANAGEMENT GURU offers tips on how to handle global management teams.

47 INTERNATIONAL e-commerce is a myth, Jim Champy argues. It's just too complex.

50 CONSULTANT SALARIES skyrocket, our survey shows, because good ones are impossible to find.

57 GENERALISTS RULE in e-commerce, where specialists are overwhelmed.

58 SENIORS OFFER a huge new market online, but you have to know how to cater to them.

62 SERVICE GUARANTEES mean nothing without teeth to back them, Joe Auer advises.

62 PLAYBOY: What's it like to work in IT there? Pretty cool.
Raytheon Drops Suit
Raytheon Co. has dropped its lawsuit against 21 people it said disclosed proprietary information on the Internet. The defense contractor had subpoenaed several Internet service providers in an attempt to unmask those who allegedly divulged company information in public areas on the Net (CW, April 5).

Four employees of Raytheon are a result of its probe; 17 others have been counseled about their actions.

$3.5B Deal Sets Up Health Care Web Site
Healthcor Inc. and WebMD Inc. said they would merge in a $3.5 billion stock swap intended to create the largest Web medical information source for physicians and consumers. Backers of the deal include Microsoft, Intel Corp. and Excite Inc. "This underscores the business relationships and partnerships will be difficult to challenge," said Mike Davis, an analyst at Gartner Group Inc. in Stamford, Conn.

Short Take
GENERAL ACCOUNTING OFFICE investigators said they hacked into NASA systems that calculate positioning data for orbiting spacecraft and that process scientific data received from these spacecraft.

$30M Soma deal may jump-start No. 2 drugstore, but some say overhaul needed

BY STACY COLLETT
CVS Corp. planned purchase of online drug seller Soma.com for $30 million offers an important lesson in e-commerce strategy; Sometimes it's cheaper to buy than to build.

As the health industry becomes the latest hotbed of Internet development, No. 2 CVS and its archival, No. 1 Walgreen Co. and No. 3 Rite Aid Corp., each planned to develop online selling capabilities. But CVS intends to leapfrog competitors by putting a full-service pharmacy online by late summer instead of year's end.

CVS, based in Woonsocket, R.I., "didn't realize how inexpensive buying an online retailer could be," said Sandy Rajal at Merrill Lynch & Co. in New York. "You think they're going to be a couple hundred million dollars. But it's $20 million — which is about what they would have spent developing a site of their own.

Seattle-based Soma, which in January became the first Internet company to launch a pharmacy site, gives CVS an immediate online presence, a management team with Internet experience and a fully automated fulfillment center, officials said.

Soma also gets instant name recognition and relationships with CVS's 9,000 insurance providers and inventory of 55 million prescriptions, which Soma had struggled to build. CVS is a $15 billion chain with 4,700 stores in the eastern half of the U.S.

But its takeover of Soma is by no means a turnkey e-commerce strategy. CVS plans to expand Soma's 3,000 pharmacy products to 10,000, including CVS-labeled products. It will also offer a photo-processing service.

"The only way they could make that need is to pretty much overhaul the infrastructure — server capacity, catalog, fulfillment infrastructure," said Carol Ferrara, an analyst at Gartner Group Inc. in San Jose. But the benefits gained in terms of online pres

Linux Takes Flight on Northwest Simulators

OS used in $34M pilot training systems

BY DAVID ORENSTEIN
Call it a driving force that's earning its wings: Linux is finding enthusiastic users as the real-time operating system for flight and driving simulators.

Northwest Airlines Inc. is spending about $34 million to convert its 23 flight simulators from various older platforms such as VAX to Pentium II-based systems running Linux, said chief engineer Bob Aguglia in Eagan, Minn. The five-year project with consultant Opini
cus Corp, in Clearwater, Fla., began last November.

Opinius has ported the Fortran code of one of the flight simulation applications to Lin
ux. The system is being re
viewed by the Federal Aviation Administration, Aguglia said.

Simulators are sophisticated and demanding applications. Although they must run in real time, they must also account for the 90-millisecond delay created by the flow of hyd
raulic fluids in a simulator to ensure that what the pilot sees and how the simulator moves are perfectly synchronized, Aguglia said.

The Minneapolis company auditioned several vendors last year. Systems based on Mi
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Many corporate information technology departments are still deciding whether Linux — a free, open-source variant of Unix — is reliable enough to run smaller applications such as file and print servers.

At Princeton University in Princeton, N.J., where professor Warren Powell of the Cas
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The Soma deal is the latest in a string of technology-related moves by CVS to broaden its market reach (see chart).

Industry observers said Soma's sale was a good move for that company, which had been struggling for an entrepren
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Y2K Bill Faces 'Watered Down' Alternative, Veto

BY PATRICK THIBODEAU
The U.S. Senate may vote in the next two weeks on legisla
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Sen. John Kerry (D-Mass.) and Senate Minority Leader
SyncSort tames the data beast and slashes data warehouse load time by up to 90%.

Data warehouse staging can be really wild. You have data from different sources, in different formats, sorted in different ways— a jungle of data to select, reformat, clean, standardize, aggregate, and sort.

SyncSort whips that data into shape fast. Jobs that took days take hours, jobs that took hours take minutes. Designed for high volume, SyncSort speeds loads, reorgs, indexing, and sorted extracts for reports or handoffs.


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For a trial copy of SyncSort, your FREE copy of 6 Data Warehousing Tasks Made Easier, and a FREE bean-bag baby lion*, call us at (201) 930-8200, Dept. 59CWA or visit us at www.syncsort.com/59CWA.

*Available to qualified IT Professionals in the U.S. and Canada.
Costs, hassles keep users tied to deals

M ost companies avoid switching outsourcers, but it usually isn't customer satisfaction that comments the relationship. Instead, companies stay bound to outsourcers because of the high cost and major inconvenience of switching, said users and analysts gathered here for a D&I IT Outsourcing conference.

Recent research from Input in Vienna, Va., shows that 20% of outsourcing customers surveyed in the past six months are considering a switch to another services company. That's in spite of most respondents' perception that the quality of outsourcing services declined in the past year.

"The barriers to switch are high — and the outsourcers want it that way," said Mike Rhodes, head of vendor management at DHC Information Services, the information technology arm of Dayton Hudson Corp. in Minneapolis.

It's costly and time-consuming to cut a new deal and to educate a new service provider about the business, users said. Dayton Hudson recently outsourced management of its 14 mainframes to IBM Global Services. Rhodes' job is to make sure IBM delivers; he said he's hoping it does. "Just switching the software licenses back to our name would be a huge task," he said. For example, switching outsourcers means finding another company that can easily step in and take over, or staff up quickly in a tight labor market if the services are brought back in-house. It also means losing the outsourcers' knowledge of the systems they have installed or managed, analysts said.

Politics is also an issue. Union Gas, a utility in Chatham, Ontario, was told to use the outsourcer of its parent company for its infrastructure services, but IT managers were uncomfortable with the service levels and pushed — successfully — for another vendor. "We knew that if the deal didn't go through, the top management [of the favored] outsourcing vendor would be calling our top management," said Jackie Crow, manager of IT client services. Because of the interdependencies among outsourcers and clients, Tom Mylott, an attorney at Gardere & Wynne in Dallas and author of the book Computer Outsourcing, recommended clauses in contracts that let customers terminate parts of the contract without voiding the entire deal. "Oftentimes, the only choice for a customer is to terminate the whole contract, so they won't do it," he said.

Matt Saikkonen, CIO at Consolidated Freightways Corp., a transportation services company in Portland, Ore., recommended setting service expectations "one quarter at a time." Consolidated signed a five-year outsourcing deal with IBM last year for data center and network services that gives the company the flexibility of terminating specific parts of the contract.

U.S. Companies Wary of Y2K Breakdown in Latin America

Nations make power grid a top priority

BY PATRICK THIBODEAU
WASHINGTON

Kevin Greene, MIS director at Arrow Air Inc., said he can't get a straight answer about the year 2000 problem in Latin America. "They just don't have any information for you," he said. Questions to officials in some of the countries Arrow flies to — such as Ecuador, Peru, Panama, and Colombia — are met with "a pat answer or a letter that they've taken measures to correct it," he said.

Greene's Miami-based cargo carrier isn't alone. Other U.S. companies have similar questions. Year 2000 problems in Latin America could affect supply partners in both hemispheres — especially if basic infrastructure services such as power, telephones and government services are hurt.

Last week, Y2K coordinators from Latin America gathered in Washington for a meeting at the Organization of American States to offer assurances that their nations will experience few problems.

The leading priority is the electric power grid that links much of Latin America. The countries expect to implement an online system that will alert power suppliers to problems. But outside of that, officials offered few specifics on their year 2000 remediation or contingency plans.

John O'Grady is preparing for problems. President and general manager of Firestone Costa Rica SA, which is part of Bridgestone Firestone Inc., O'Grady's San Jose, Costa Rica, plant produces 2 million tires per year that are delivered to facilities in the U.S. and throughout South America. O'Grady isn't worried about U.S. suppliers and is confident about the Costa Rican government's Y2K effort. It's the other countries that worry him.

Firestone intends to boost its tire inventories at Latin American distributors, O'Grady said. It bought satellite telephones and is prepared to use a HAM radio network to reach distributors. "That's a worst-case contingency," he said.

Latin American Y2K Progress

Rankings of global year 2000 infrastructure risks (power, telephone, water and government services)

LITTLE/FEW PROBLEMS
No Latin American countries ranked (U.S. and Canada are in this category)

ISOLATED TO MODERATE
Brazil, Chile, Peru and Mexico (equivalent of France or Germany)

MODERATE PROBLEMS
Argentina, Guatemala and Venezuela (equivalent of Austria or Saudi Arabia)

MODERATE TO SEVERE
Costa Rica, Ecuador and El Salvador (equivalent to Russia or the Philippines)

SOURCE: Gartner Group Inc.

COMPUTERWORLD May 24, 1999

OUTSOURCING QUALITY DROPS, BUT FEW SWITCH

A Marriage Made in Heaven

Experts say it's impossible to construct a perfect outsourcing deal. But the following tips may result in a better deal:

= Recognize that you will have to manage the vendor
= Even if you've signed a multiyear deal, reevaluate against the market average annually
= Even if you plan to use your existing vendor for additional services, make the company compete with other service providers for the work
= Be selective about what you have the outsourcer do. (Two-hour recovery time for a server in a remote location may not be worth it)
= Be aware that your IT environment will change throughout the deal. (Therefore, flat-rate arrangements and decade-long contracts may not be flexible enough)

Correction

A May 3 News story ("Handhelds Get Network Cards, Faster Data Access.") incorrectly said Xircom Inc. in Thousand Oaks, Calif., is shipping the first CompactFlash-based LAN card. Socket Communications Inc. in Newark, Calif., has been shipping a similar device.

An April 19 Technology section story ("Hotel Tests Ethernet Access on Phone Lines.") incorrectly said download software is required for hotel users seeking high-speed Internet access through the sports port product from At-connex in San Diego. No download software is required.

The April 19 ExecTech feature ("Ergo Mice and More," page 84) incorrectly credited the invention of the mouse to Aero PMC. In fact, the mouse was invented, patented, named and used in a working system by Douglas Engelbart at Stanford Research Institute [now SRI International] in 1960.
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BRIEFS

E-Broker Censured

In its first action against an electronic brokerage, the Securities and Exchange Commission censured Date Online Brokerage Services Corp. for allegedly misusing $43 million in customer funds to cover trades by other customers. The Iselin, N.J.-based brokerage will also pay a $50,000 fine.

GE Capital Lands $6B Outsourcing Deal

Tech Data Corp. today announced a three-year, $6 billion outsourcing deal with GE Capital IT Solutions. The Clearwater, Fla.-based distributor of technology-related products and services said the agreement covers information technology procurement, logistics services and server configuration and assembly.

HP Slashes Prices On NetServers, PCs

Hewlett-Packard Co. has cut prices by up to 25% on its Itanium-based NetServer systems, Brio business PCs, Vectra corporate PCs and Kayak PC workstations. The move came as Intel Corp. released its newest 550-MHz Pentium III processors.

Short Takes

Denver-based J. D. Edwards & Co. last week announced an $80 million deal to buy NUMETRIX LTD., a Toronto-based maker of supply chain planning software that works via the Internet. LAWSON SOFTWARE in Minneapolis will be the latest company to enter the enterprise portal market tomorrow when it launches the Lawson Enter-prise Portal. . . . PEOPLESOFT INC. said it plans to ship an online storefront application based on MICROSOFT Corp.'s Site Server 3.0 this summer. . . . IBM last week began to ship a major new release of the OS/400 operating system - Version 4 Release 4. . . . A recent report from INTERNATIONAL DATA CORP. in Framingham, Mass., said the number of billion-dollar outsourcing deals doubled from 1997 to 1998. U.S. contracts accounted for $36 billion, or 63%, of outsourcing spending worldwide.

CEOS SEE GATES’ VISION OF FUTURE

Digital Dashboard, e-paper, collaboration software highlight Microsoft summit

BY SHARON GAUDIN

REDMOND, WASH.

CORPORATE EXECUTIVES attending Microsoft Corp.'s third-annual CEO Summit here last week were intrigued by Bill Gates' vision of how advancing technology will keep their employees and their companies better connected — within two to five years.

"Information technology isn't about technology," said Jacques Nasser, president and CEO of Ford Motor Co. "Technology is about how you run a business. It is integral to what we do as CEOs."

But some industry watchers said Microsoft is focusing on the wrong things. They said instead of gadgets and more software, companies need reliable systems.

Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass., said Gates is looking in the wrong direction.

"All this nice stuff he talked about is window dressing," Kusnetzky said. "It's intriguing, but it's not original thinking. Lucent [Technologies Inc.], CallStream [Communications Inc.], Lotus [De-velopment Corp.] — they're all working on this stuff. And what's more important are sys-

Digital Dashboard, which offers individual portals of business and personal information; e-paper; online collaboration software; and integrated online access to e-mail and voice mail.

"Employees have good ideas and customers offer good feed-

Digital Dashboard, for example, is a customized intranet site for each employee using Outlook. It was designed to offer a single point of contact for information, such as real-time stock quotes, news bulletins, sales figures and traffic reports. Jeff Raikes, Microsoft's group vice president of sales and support, said the pages can be built with Outlook now but he expects Microsoft will release templates or wizards to make it easier. No time frame exists.

Martha Stewart, chairwoman and CEO of Martha Stewart Living Omnimedia LLC, said she's looking forward to using Digital Dashboard, along with advanced videoteleconferencing and an integrated e-mail and voice mail.

"Since I have to be in about five places at one time, I'd love to be more connected to everything very easily," said the guru of media and home decor. But Isaac Applebaum, CEO of Concorde Solutions Inc., a Concord, Calif.-based subsidiary of Bank of America, said he's concerned about putting too much information in one place.

"It's the difference between 'cool' and productive," said Applebaum, who didn't attend the summit. There's a fine line between power and distraction."

Transaction Loads Sack EBay Hardware

Service blips may be linked to Sun server

BY JAIKUMAR VIJAYAN

A series of hardware-related service interruptions at eBay Inc. in the past few months highlights the continuing challenges users and system vendors must overcome to ensure constant system uptime in the face of ever-increasing transaction loads.

Since January, eBay's online auction service has suffered more than 100 hours of unplanned downtime — including a two-hour disruption last week. In the latest incident, hardware wasn't to blame.

According to eBay's bulletin board, many earlier incidents, including a five-hour outage in May, were caused by problems relating to Sun Microsystens Inc.'s popular E10000 Unix enterprise server, touted by the

The number of billion-dollar outsourcing deals doubled from 1997 to 1998. U.S. contracts accounted for $36 billion, or 63%, of outsourcing spending worldwide.

Microsoft chairman and CEO Bill Gates sits with Summit members, from left, Paul O'Neill, CEO, Alcoa; Martha Stewart, CEO, Martha Stewart Living Omnimedia; Michael Dell, CEO, Dell Computer Corp.; Gates; Jacques Nasser, CEO, Ford Motor Co.; Larry Bossidy, CEO, Allied Signal Inc.; and Jeff Raikes, group vice president, sales and support, Microsoft.

Digital Dashboard, which offers individual portals of business and personal information; e-paper; online collaboration software; and integrated online access to e-mail and voice mail.

"Employees have good ideas and customers offer good feed-

company as an ideal platform for hosting Web applications. Problems have ranged from failed memory and system boards to I/O subsystem problems. eBay's problems highlight the challenges involved in keeping servers running continuously in a fast-growing, extremely volatile environment, said Jonathan Eunice, an analyst at Illuminata Inc., a consultancy in Nashua, N.H.

Other sites have faced similar problems. Schwab.com, for instance, suffered four server outages in two months this year. "The Web environment introduces a tremendous amount of uncertainty about when workload peaks will occur," Eunice said.

In eBay's case, the problems are partly the result of having to constantly add things like processors, memory and new servers to handle the company's fast-growing business, said Shahn Kahn, marketing director of Sun's E10000 server business in Beaverton, Ore.

Ebay now has 3.8 million registered users and more than 1.9 million items for sale — compared with 1.2 million users and 1 million items in December.

Unlike the data center, where vendors and customers typically have time to fine-tune large, new systems before putting them into production environments, online businesses like eBay's don't offer that luxury, resulting at times in lower reliability, Khan said.

'Ebay spokesman Kevin Purseglove last week declined to comment on the specific problems relating to Sun equipment.'
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* More important
Linux Gains Development Tools in Bid For Expanded Usage

BY DAVID ORENSTEIN
RALEIGH, N.C.
A torrent of commercial application development tools is becoming available for Linux. But users said they aren’t yet convinced that elaborate enterprise applications belong on the platform. And they said free tools fit the bill for smaller jobs.

Several software makers announced development tools last week at Linux Expo here, including Fujitsu Software Corp. in San Jose, which said its WebLogic application server and Tuxedo transaction manager is shipping now.

Such announcements, designed to make mission-critical distributed applications available on Linux, build upon applications ones made earlier this year, including Inprise Corp.’s pledge last month to make the popular JBuilder 3 Java tool available on Linux by the end of the year.

But most users aren’t yet using Linux to run enterprise-scale applications, which require expensive middleware and complex technologies such as Enterprise JavaBeans, said analyst George Weiss at Gartner Group Inc. in Stamford, Conn.

The widespread availability of popular application development tool releases will make that possible when users decide to make the leap, he said.

Best Value: Single App
Matthew Kromer, a Web infrastructure developer at a major automobile maker and a member of the Linux Metro Detroit users group, said Linux’s nearly free price makes it most valuable in environments where many low-end PC servers are combined to run a simple application.

For mission-critical environments where expensive middleware such as Tuxedo is used, the proportionally lower savings from using Linux vs. a more scalable commercial operating system is less attractive.

But Kromer said he would like to see a graphical user interface (GUI) development tool for Linux to help developers prototype applications.

Among the GUI tools for Linux are offerings such as BX Pro from Integrated Computer Solutions Inc. in Cambridge, Mass. Open-source tools are also available.

A webmaster at the American Red Cross, based in Falls Church, Va., who requested anonymity, added that as Linux GUIs improve, visual development will become more feasible and important.

But for development projects in Linux, the webmaster said he has been able to use the myriad free development tools and compilers that are often supplied with Linux versions.
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**Palm VII Seen as Consumer Net Device**

Users are wary about connecting it to server inside firewall

**BY MATT HAMBLEN**

The Palm VII, a version of the popular handheld device that's geared to wireless connectivity, debuts today — but information technology managers are wary of connecting it to their servers.

The new Palm is the latest in a series of announcements that give IT managers more wireless options for connecting mobile workers to headquarters and the Internet. The Palm VII will provide e-mail and grab information from more than 20 Web sites through Palm.Net, a wireless communications service using Mobitex technology and running on the BellSouth Corp. wireless data network. The concept was announced last December by Palm Computing Inc. in Santa Clara, Calif., a subsidiary of 3Com Corp. (CW, Dec. 7).

Palm.Net access will begin in the New York metropolitan area; nationwide availability will come later in the year. The first units are expected to sell for $599 with monthly wireless access charges ranging from $9.99 to $24.99, Palm said.

**Security Concerns**

The traditional Palm Pilot and its sister devices are certain to be popular with more than 2 million sold. But IT managers are concerned that the Palm VII will require connections to a corporate server outside the firewall, which raises security risks, users and analysts said.

"What's the point of having a firewall if you aren't using it?" wondered Luis Ruacho, network manager at Yaskawa North America Chrysler Business Unit in El Paso, Texas.

Figuring out how to connect the Palm VII server to data inside the firewall "sounds like a lot of work, and that would make it difficult," added Mark Higgins, director of IS at Sea Pines Co., a resort and developer in Hilton Head, S.C.

But Ruacho said the "Web clipping" feature of the Palm VII, even at $25 per month, would be attractive to executives who need Internet access.

Meanwhile, an Oracle Corp. official said in an interview last week that Oracle software, code-named Panama and due later this year, will help corporations simplify access to data from Palm VII and other wireless devices through a company firewall. "Right now, Palm VII is targeted at consumers, but we're working with Palm to bring it into the enterprise," said Denise Lahey, vice president of mobile and embedded products at Oracle (see story, page 20).

But analyst Matthew Nordan at Forrester Research Inc. in Cambridge, Mass., discussed Panama as little more than vaporware so far. "Palm VII would be a fantastic product idea if you could link to data inside the firewall and if we had a better network to work with," he said. "Mobitex is ex-cruciatingly slow."

Mobitex runs at about 9K bit/sec., half the rate of cellular networks.

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**IBM, ORACLE SET SIGHTS ON MOBILE CONNECTIVITY**

Vendors look to tap Sybase's market niche

**BY STEWART DECK**

IBM and Oracle Corp. separately announced last week mobile databases that were designed to improve database connectivity for traveling employees and executives.

Both companies are trying to chip into Sybase Inc.'s early lead in the mobile database niche. IBM has begun to beta-test its new DB2 Universal Database Server Edition — designed for large-scale laptop deployments — and DB2 Everywhere for Windows CE and PalmOS.

DB2 Everywhere has a 50K-byte footprint, requires 6K bytes of memory and was designed for handheld users who need to synchronize their data with data on enterprise servers. It works with IBM's Mobile Connect synchronization server.

Oracle announced that the latest edition of its database for mobile users, Oracle8i Lite, will ship next month with several updates.

The product will include Oracle Lite, a small, Java-enabled database built for laptops and handhelds. Web-to-Go, a deployment and management component, and iConnect, an architecture for bidirectional synchronization of data and applications between mobile devices and database servers.

A Linux version of Oracle8i Lite is also in development, as is an edition of the database designed for small groups of up to 10 end users that Oracle said will come out sometime in the second half of this year.

Shelly Rosenthal, vice president of information technology at Newcourt Credit Group Inc. in Parsippany, N.J., said small-footprint databases have been the key to keeping his national sales force fast and more responsive to market changes and customers. Newcourt's mobile users all carry an Oracle Lite version of the company's loan origination database with them during sales calls.

"This has made our response time [with customers] much faster because we aren't tied to phone lines for every sales call," Rosenthal said. "There are practically no training issues" because users know the database, he added.

"Sybase has led the march into this quickly growing space," said Carl Olofson, an analyst at International Data Corp. in Framingham, Mass. "All of these announcements are about people who carry small devices not having to worry about the linkage between the handheld device and the base environment."

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**Emperor Virus Targets DOS-Based PC Files**

**BY ANN HARRISON**

A company that develops antivirus products said it has discovered a more contagious and destructive clone of the Cher-nobyl virus which can bypass virus protection programs. But a rival software vendor said that the virus, known as Emperor, can't affect many users because it affects only DOS-based machines and COM and EXE files.

According to Ken Peer, president of Central Command Inc. in Medina, Ohio, Emperor changes each time it infects a system, making it difficult for antivirus programs to detect it. Although DOS accounts for 2% of the operating systems market, according to Interna-

tional Data Corp. in Framing-
ham, Mass., DOS files on other PCs could be vulnerable.

The Emperor virus, about 6K bytes in size, overwrites the master boot record of the hard drive and the boot sector on floppy diskettes. It corrupts the Flash BIOS, preventing the user from booting up the machine. It's activated between 5 a.m. and 10 p.m. if the computer is turned on. Peer said Emperor hasn't yet infected a large number of users.

Sal Viveros, a marketing manager at Network Associates Inc. in Santa Clara, Calif., agreed that Emperor can be dangerous to PCs it infects. Viveros noted that Emperor is one of 300 viruses that the company sees each month, and that it affects only DOS programs and hasn't yet been observed outside laboratories.
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Short Takes

IBM Puts Tivoli in the Management Seat

New mainframes will run Tivoli products

BY SAMI LAIS

NASHVILLE

It's a wired, world-and everything will connect to, and get managed from, Tivoli Sys-

tems Inc. systems management software.

So says IBM Chairman Louis V. Gerstner, making a rare public appearance at last week's Planet Tivoli user conference. Gerstner said that, starting next month, IBM's latest and biggest mainframes, Generation 6, would ship ready to run Tivoli's software. That's the high end of what Gerstner said will be a "perservative computing" model, in which the range of devices connected via a network and managed by Tivoli software will rise exponentially. IBM will build the technol-

gle, Web-based platform and a single user interface for a wide range of training programs is appealing to users such as Frank Taylor, manager of training and quality assurance at Astra Pharmaceuticals LP.

Approximately 1,000 people at the company's manufacturing site in Western, Mass., must be trained regularly in rigorous manufacturing practices to comply with government regulations. The company is beta-testing manufacturing coursework developed for the LearningSpace platform, and if that project is successful, Astra hopes to use the same platform for other training packages.

"The more we standardize [on one learning platform], the easier it becomes for the user," Taylor said.

Al Gordon, program manager at Siemens Virtual Universi-

ty in Pembroke Pines, Fla., the computer-based training divi-

sion of Siemens Information and Communication Networks Inc., has been using Data-

Beam's real-time capabilities for three years. "To be able to put all this together in a co-

hesive environment, with some management (capabil-

ity), could be very valuable," he said.

Saved $1M

In its second year of using the DataBeam product, Siem-

ens Virtual University saved more than $1 million in travel expenses, Gordon said.

A groupware analyst was also optimistic about Lotus' distributed learning ambitions. "Lotus has been the leader in teaching distributed software for many years, and just because of their size, I don't expect this to fail," said Lewis Ward, a research associate at Collaborative Strategies LLC, a San Francisco-based consulting firm.

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Windows 2000

automatically switch to the last available node and remain op-

erational.

Uptime, a tool designed to track and report when servers go down and how long they re-

main down.

Microsoft's strength lies in branch office or departmental servers. Gambier said these tools and software extensions should help Windows 2000 enter the enterprise where scalabil-

itely, reliability and interoperability are key.

And Microsoft also is ex-

pected to tout interoperability on Tuesday, when it releases a list of software vendors that are building applications using Microsoft's Distributed Net-

work Architecture (DNA). The architecture, which is built on Windows APIs, is geared at building Web- and Windows-based applications.

Out of Character

Jigish Avalani, Microsoft's group manager for Windows DNA, is touting DNA as a way to integrate Windows-based applications with other plat-

forms, a move that seems out of character for a company known for being highly propri-

etary. Avalani said the applica-
tions can access other plat-
forms using integrated middle-

ware, specifically a bridge be-
tween Microsoft's proprietary Component Object Model and the cross-platform, industry-standard Component Object Request Broker Architecture. The bridge has long been in the works.

"Using that bridge, a DNA-based application could talk to an Oracle database or a main-

frame," Avalani said. "It's one of the elements that we're us-


ing for the enterprise."

But many corporate IT groups aren't interested in see-
ing Microsoft team up with various small software compa-

nies to provide middleware be-
tween its software and that of other companies.

"They would love to have a one-stop shop," said Josh Walker, an analyst at Forrester Research Inc. in Cambridge, Mass. "Microsoft would do well by those folks to provide middleware itself, but it hasn't."
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Continued from page 1

3-D Images

in-store experiences.

For example, at www.sharperimage.com, you can pop open a CD player to get a feel for how it ejects discs.

Go to www.landsend.com, type in your measurements, and you can create your own personalized apparel model from Lands' End Inc.

It's cool. It's fun. And according to retail experts, it's seen as one of the most promising ways to convert online browsers to online buyers.

"If you get them past the point where they need to see (a product) in person, they're much more likely to buy," said Tom Fornoff, a vice president at Intelliquest Information Group, an e-commerce market research firm in Austin, Texas.

That's important, because of the 32% of Americans who shop online, only about 11% actually buy, Fornoff said.

Giving customers the power to spin, zoom in on and listen to products helps keep shoppers online longer, which increases their likelihood of clicking on the buy button, retailers said.

The Sharper Image, an upscale electronics and gadgets retailer, features 25 of its top-selling products in an enhanced 3-D area of its Web site. The 3-D portfolio was created by Viewpoint Digital, a Marina Del Rey, Calif., services company that specializes in streaming technology and interactive 3-D imaging.

Online, the company's gadgets spin, whirl, beep and buzz much the way they would for an in-store shopper.

"It keeps users engaged, so it keeps our site sticky. We've already turned browsers into buyers, and that's all that matters," said Meredith Medland, director of Internet marketing at the San Francisco company.

In the Web world, stickiness refers to a site's ability to maintain users' interest and keep them coming back. It's what Ticketmaster Online hopes to attain by letting users see where their seats are for a given concert or sporting event.

The Los Angeles-based ticket agency is also using Engage Technology's software to collect user data and preferences to create personalized Web pages for regular customers.

The system also notifies them of events of interest indicated in their profile. Aretha Franklin fans, for example, would receive e-mail reminders in advance of the singer's scheduled local concert dates.

The Catch

But being cool and having fun online don't come cheap.

The cost of creating 3-D images that shoppers can spin and twirl ranges from $3,500 to $10,000 per image, said Steve Wollock, director of field marketing at Viewpoint Digital.

Another potential downside of the new imaging is the time it can take some users to download complex, interactive 3-D images. At Ticketmaster, for example, it can take customers using a 2.8K bit/sec, modem three to five minutes to download certain images.

But Ticketmaster has also created a software plug-in for viewing that users need download only once, said Josh Zarov, ticketing product manager.

["Advances in technology move quickly enough that the barriers drop," Zarov said.

At The Sharper Image, Medland figures she more than makes up the cost of the new 3-D technology on greater publicity and increased visibility for the company's Web site.

"The PR value alone of new technologies can increase sales and drive results, even though you might not see those results the next day," she said.

Product Development Tool Gets Revamped With Java

IpTeam integrates suppliers, contractors

BY DOMINIQUE DECKMYN

NexPrise today will announce an overhaul of its flagship product, a Web-based collaborative engineering tool used by product design teams at The Boeing Co.'s Rocketdyne unit, Raytheon Co. and Ford Motor Co.

NexPrise Inc. in Santa Clara, Calif., was founded in 1997 to market technology developed at Lockheed Martin Corp. with funding from the Defense Advanced Research Projects Agency. Its IpTeam software is already being used by a small number of customers, most of whom were also involved in the early stages of the product's development.

IpTeam 3.0, which will be officially launched today and will ship next month, will be the first version to be marketed broadly, said President and CEO Ram Sriman. The release has been rewritten in Java and features a new decision-building tool that automates and documents the making of engineering decisions.

The software will be priced at about $90,000 for a 100-user configuration and will also be rented on a per-user basis.

Development Cycle

A key feature of the product is that it integrates suppliers and contractors into the product development cycle, according to analysts and users. For instance, it automates the bidding procedure for suppliers.

"It's actually targeted this issue before," said Wayne Collier, president of engineering, manufacturing and design at technology research firm D.H. Brown Associates Inc. in Port Chester, N.Y.

Roger Moorhead, program manager at tactical missile manufacturer Lockheed Martin Vought, said he estimates this feature of IpTeam alone will help the company shave 10% off procurement costs.

The company has been piloting the software (which was originally developed at Lockheed Martin) with about 100 users and is now rolling it out to more than 850.

Though collaborative engineering is a relatively new niche, NexPrise's IpTeam already faces competition from several recent entrants such as Centric Engineering Systems Inc. in Sunnyvale, Calif., and Framework Technologies Corp. in Burlington, Mass.

NexPrise must also increasingly compete with product data management tools, general-purpose groupware products such as Lotus Development Corp.'s Notes and certain enterprise resource planning applications.

"The fact that they have chosen to target a market that they know a lot about makes a lot of sense," said Mark Levitt, an analyst at market research firm International Data Corp. in Framingham, Mass.

Government Documents for Free; Net Advertising, Digital Economy Get Scrutiny

A U.S. Department of Commerce agency last week opened what it hopes will be a free Web-based search engine for finding government documents. But just hours after the National Technical Information Service (NTIS) and private partner Northern Light Technology LLC launched the engine, it went from free to fee.

The Clinton administration said it wanted to allow the service to ensure it wasn't violating federal information access policies, said Ronen Edwards, an NTIS spokesperson.

The search engine (www.usgovsearch.com) will be free until June 3, according to a notice placed on the Web-site. But Edwards said the search engine may remain free for a month or longer while the review takes place.

The sponsors want to charge users fees based on a variable scale, ranging from $15 for 10 searches a day to $9,000 annually for corporate accounts of up to 50 people.

The group was unveiled just days after Dell Computer Corp. and Mornon Electronics Inc. settled FTC charges that their computer lease advertisements violated federal laws. The FTC said lease terms were either incomprehensible or unattainable on the companies' Web sites. The settlement calls for readable text.

The Department of Commerce will examine the impact of the "digital economy" on U.S. economic growth at a conference this week in Washington. The intent is to get retailers, manufacturers and investors better statistics on e-commerce.

—Patrick Thibodeau

Capital Watch

The U.S. Federal Trade Commission (FTC), trying to put more emphasis on focus on Web advertising, last week created a new member Internet advertising practices group, said Jodie Bernstein, director of the agency's bureau of consumer protection.

The Department of Commerce will examine the impact of the "digital economy" on U.S. economic growth at a conference this week in Washington.

The intent is to get retailers, manufacturers and investors better statistics on e-commerce.

—Patrick Thibodeau

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HANDHELDs TAKE ON CORPORATE FUNCTIONS

Pioneering IT departments deploy PDAs for warehouse pickers, stock traders

BY MATT HAMBLEN

Handhelds are getting more serious roles for a variety of reasons: A wide selection of PDA models and vendors has emerged during the past 12 months, wireless network connections are getting cheaper, and the cost of a PDA may be 10% of the cost of a laptop computer. PDAs have limited capabilities, but sometimes end users don't need more. PDAs are becoming more important in the enterprise market because information technology is now able to develop mission-critical applications with them, said Gerry Purdy, an analyst at Mobile Insights Inc. in San Francisco.

Eventually, Purdy said, handhelds will sell items other than liquor to thousands of travelers daily and then file end-of-shift reports, perhaps through a wireless network, said Gregory Wood, technology planner at American in Dallas.

Using personal digital assistants (PDAs) would save flight attendants time and improve sales, Wool said. "American Airlines has quite a few programs under consideration for PDAs, but we have to look at the business case first," he said.

American's in-flight application is still on the drawing board, but a handful of other companies are preparing to connect hundreds of off-the-shelf PDAs to custom applications intended to cut costs or increase revenue.

The Northern Trust Co. in Chicago, for example, plans to link sales forces carrying handhelds to critical databases. And earlier this month, Federal Express Corp. in Memphis announced an agreement with AvantiGo Inc. in San Mateo, Calif., to let handheld users track the status of their FedEx packages online.

In essence, PDAs are being seen as more than personal contact and calendar toys. Many companies are hoping to connect workers to sales databases and simple e-mail or to provide cheap ways to automate functions.

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RELIEF SUPPLIERS FACE CHALLENGE

Antiquated systems and few funds for IT hinder efforts to procure emergency items

BY STACY COLLETT

The International Procurement Agency (IPA), can find 10,000 blankets made of 50% wool (as specified by the customer) from a manufacturer in India. But when it comes to ordering or shipping the goods to refugee camps in the Balkans, the Netherlands-based company has to handle arrangements by fax and do shipping calculations and documentation by hand.

So goes the battle in bringing the lowest-priced supplies to disaster areas.

As the number of ethnic Albanians fleeing Kosovo for refugee camps climbed to 744,000 last year, government and humanitarian groups turned to a growing disaster-products industry for supplies. These procurement companies specialize in locating and negotiating the lowest prices for blankets, generators, lighting towers and all-terrain vehicles and quickly delivering the items to refugee camps. But when managing their own complex supply chains and inventory, most procurement companies lack information technology solutions.

Officials said they can't afford the highly customized systems they require.

"We've spent a small fortune trying to customize our IT systems but haven't been successful," said Mike Ridenour, director of IPA's Canton, Ohio, office. The organization considered more-expensive enterprise resource planning systems, but "then you get to a point of diminishing returns," he said.

Tri-Med Ltd. in London developed its own load-planning software 13 years ago. But the system isn't year 2000-compliant. Tri-Med also uses a UK-based multicurrency accounting program called IICE. But director Peter Smith acknowledged it doesn't meet all of Toyota Motor Corp., supplies all-terrain vehicles to relief agencies and benefits from its parent company's systems.

The unit uses accounting and shipment-tracking systems similar to those at other Toyota facilities, said Darwin that are available.

Internet e-mail now accounts for 30% of Tri-Med's communications with suppliers, said Smith. That's up from 5% last year. The London-based procurement group doesn't have a Web site.

Figuereido, marketing executive at Toyota Gibraltar. Its Web site offers product and shipment-tracking information in four languages.

IPA's Ridenour said the Internet is the most effective tool for communicating with vendors and relief agencies in Western Europe, where 40% of IPA's products originate. But fax machines are still needed for communicating with India, Pakistan and China, where 30% of its supplies are based. IPA's Web site also lists products and space Administration assured members of the House appropriations subcommittee, which jointly held the hearing, that they won't have GPS problems.

Commercial users will have to check their GPS equipment before the August rollover to ensure that they won't be affected. A software patch or chip replacement will fix most receivers. "There are just a few, very old sets that essentially won't be upgradeable," said John Webster, a GPS consultant in Huntsville, Ala.

Timing errors "can lead to data loss and degradation and eventually to network disruption or even complete failures," testified Keith Rhodes, the technical director of the U.S. General Accounting Office's information management division at a hearing two weeks ago.

Postal Service Revamps IT To Cut Costs

New projects on hold during Y2K fix

BY TOM DIEDERICH

The U.S. Postal Service is evaluating numerous technology projects — suspending some and axing others — to cut costs and ensure that the year 2000 issue won't hamper mail delivery come Jan. 1.

"We're kind of tightening our belts — individual managers have been asked to look into their own areas and determine where they can make cuts," said spokesman Norm Scherstrom. "And then we have a Y2K remediation effort going on, so we're not going to bring in any new systems."

The Postal Service has spent about $600 million gearing up for 2000 in the past three years, employing an additional 2,000 people for Y2K issues, spokesman Mark Saunders said.

Saunders said the agency was acting like a private-sector business in cutting some projects and holding off on others, but he didn't name the targeted programs.

"We're focusing on mission-critical systems that involve mail processing, transportation, delivery," Saunders said.

"Keeping the mail moving is the top priority."

Although the Postal Service wouldn't comment on specific cuts, one of its vendors did.

Officials at Electronic Clearing House Inc. said the Postal Service has suspended its electronic-money order processing pilot. The project, launched in 1995, was in the testing phase in Dallas, according to company spokeswoman Donna Camras.

"We were in the process of working on software enhancements, but now everything has been temporarily put on hold," Camras said. "They haven't given us any idea of how long the delay will be, but we know that they're still interested."

The Postal Service's Saunders said he couldn't confirm or deny that claim because the situation is "fluid."

For Locator Satellites, Year 2000 Arrives in August

Potential problems debated at hearing

BY PATRICK THIBODEAU

The satellites that make up the Global Positioning System (GPS) won't be affected by year 2000 problems. But the back-end systems that receive and process positioning data could fail if steps aren't taken to fix them, according to testimony at a recent congressional hearing. Furthermore, some ground-based systems could run into trouble during the so-called "end of the week."
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US West, Global Crossing To Merge in $37B+ Stock Swap

BY MATT HAMBLEN

The latest megamerger in the telecommunications industry promises to offer more voice- and data-network service options and perhaps more-responsive service for large business customers, analysts said. US West Inc. in Denver, the smallest of the Baby Bells, announced it will merge with Global Crossing Ltd. in Hamilton, Bermuda, in a stock swap worth more than $37 billion. For the merger to pass muster at the Federal Communications Commission, Global Crossing may need to sell off its long-distance voice and data business in US West's 14-state territory to preserve competition, analysts said.

Global Crossing is buying long-distance carrier Frontier Corp. in Rochester, N.Y., for $11 billion. Frontier has a small number of long-distance customers in the US West region.

User firms in US West's local-service area could get a "preferred provider" option for less-expensive long-distance service from Frontier under the deal, but the new entity couldn't require customers to use Frontier, said analyst Melanie Posey at International Data Corp. in New York. Analysts said the merger could beef up US West's service by giving it access to more cash and service technicians.

"It's pretty accurate to say US West doesn't get high marks for service. And they claim that's because they have such a geographically dispersed area, where it takes longer to do repairs and installs because technicians have to drive to the back of behind in Idaho," Posey said. "Maybe now, US West can throw more money and people at that problem."

Analyst Jeffrey Kagan in Atlanta said the deal exemplifies how start-ups in telecommunications are merging with established firms to bring new services and technologies to existing markets.

Business-to-business e-commerce revenues are projected to reach $326 billion in 2002, up from $8 billion in 1997—an increase of over 3900%.

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Jurors interviewed in Bristol’s private antitrust case against software giant

**Column: Juries Ahead in Trials for Microsoft**

**BY KIM S. NASH**

Microsoft Corp. and Bristol Technology Inc. last week interviewed potential jurors for a private antitrust trial slated to start June 2. Legal experts said having a jury of ordinary citizens examine Microsoft’s business tactics may spell trouble for the big software vendor. Meanwhile, the judge in the case in U.S. District Court in Bridgeport, Conn., last week denied Microsoft’s motion to delay the trial.

Bristol, a small tools vendor in Danbury, Conn., sued Microsoft last August, claiming the software giant used anticompetitive moves to try to shut Bristol out of the Unix-to-Windows translation tools market. After a contract that gave Bristol access to Windows NT code expired, the two couldn’t reach a new deal.

Come June, a jury of six to 10 people will decide whether Bristol’s complaints are legitimate.

“Bristol is more likely to be the beneficiary of a jury than Microsoft, especially since one of the themes will be ‘were they just a small local company trying to make a living,’” said Rich Gray, an antitrust lawyer at Bergeson, Ellopy, Grady and Gray LLP in San Jose.

But because Microsoft may benefit if the trial becomes too technical, Tony Clapes, one of Bristol’s lawyers, said he will strive to keep the trial’s terms simple. Clapes, a Honolulu-based lawyer at Technology Law Network, worked as a lead attorney for IBM in its federal antitrust case in the 1970s.

The trial, which is expected to last six to eight weeks, could end before the federal antitrust case against Microsoft by the U.S. Department of Justice. That means the Bristol case could be the first to offer a formal decision on whether Microsoft has a monopoly.

Q: You have been really quiet for a couple of years — or has it just seemed that way?

A: Actually, I’ve been really quiet for six or seven years now, enjoying semiretirement. I’ve stayed involved [in the IT business], but not in the sense of spending a lot of time. But Tricord was different. It was a high-flier in the early 1990s in the server arena, [headed by John Mitchell], a good friend from Texas Instruments.

Q: What’s Tricord up to?

A: Because we are a start-up, we’re really not in a position to talk about the products right now. The general area will be the storage-management arena. It will address the problem of adding storage to a network and managing it as one big pool. One of the strengths of the technology [that we are developing] is that we can apply it directly in some markets with our own products, and at the same time we will license it to [resellers] to sell in other segments.

Q: Do you expect to be at Tricord long term?

A: No. I enjoyed the free time I had in the situation I was in. When we get through this launch phase and we’re up and running as a company, I will step back. But I like working with start-ups and I’m likely to be doing that again in the future.

Q: Your successor at Compaq [Pfeiffer] was removed in a way that closely mirrored your own departure. Do you see any irony there?

A: I really don’t see any parallel beyond the fact that Ben Rosen was chairman [both times] and he took a decision that was hard to make and which I think is the right decision. It was critical to do [the sales channel restructuring] now and not wait for a new CEO. My outside impression is that they are making the decisions that need to be made and they are moving on.

Koch said accusations of willful infringement are part of almost every patent infringement case, but they’re difficult to prove.

Austin-based Crystal Semiconductor, a unit of Cirrus Logic Inc., filed suit against OPTI and TriTech in January 1997, charging they copied Crystal’s mixed-signal technology for gain scaling, noise management and trilevel capacitors. OPTI left the audio chip business shortly after the suit was filed but remained liable.

The judge could rule on the final damage award as early as this week. According to TriTech’s attorney at Fulbright & Jaworski LLP in Washington and a former U.S. Patent Office attorney.

**Chip Maker Wins Big in Patent Infringement Suit**

**BY STACY COLLETT**

A U.S. District Court in Austin, Texas, has awarded audio chip maker Crystal Semiconductor $48.6 million in a patent infringement suit.

But the award could climb to as much as $50 million, legal experts said, because the jury also found willful infringement on the part of the three defendants — OPTI Inc. of Milpitas, Calif., TriTech Microelectronics Pty Ltd. of San Jose and TriTech Microelectronics International Inc. of Singapore — which will allow the judge to increase the cash award.

“Willfulness findings are significant. It’s not unusual to have that [initial award] amount tripled and then to add on attorney’s fees,” said Robert Koch, an attorney at Fulbright & Jaworski LLP in Washington and a former U.S. Patent Office attorney.

Dell Computer Corp. reported that strong sales of servers and consumer PCs resulted in first-quarter earnings of $343 million, jumping 45% from the same period a year ago. Revenue for the quarter was $5.5 billion, up 41% from the same period last year. Round Rock, Texas-based Dell said it is selling more than $18 billion worth of computers daily via its Web site, or 30% of its revenue.

**Data General Bets $100M on Storage**

Data General Corp. said it plans to spend $100 million to hire 450 sales, service and engineering staff in the next 18 months in a bid to emphasize its Clarion storage business. Westboro, Mass.-based Data General said its short-term results would suffer but the company expects to find long-term business growth in the storage-area network market that relies on Fibre Channel technology.

**Short Takes**

Computer Associates International Inc. said it would invest up to $50 million in financially troubled CHS Electronics Inc., a Miami-based systems distributor to Europe and Latin America. Chicago-based ERP vendor System Software Associates Inc. said it lost $7.7 million, down from a $9.7 million loss for last year’s first quarter. The company’s revenue dipped by 18%, to $68.7 million. . . . Online bookseller Amazon.com Inc. in Seattle invested $50 million to buy a 35% stake in HomeGrocer.com, an Internet grocery and home-delivery service in Bellevue, Wash.
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Power shift

The stock market craziness has a lot of so-called experts in a tizzy because the market isn't acting as it's supposed to. The bubble will invariably burst, they argue, and we'll return to the more rational days of 30X price/earnings ratios.

Maybe not. Because, just maybe, the stock market has changed for good. Through all of history, the equity markets have been run by the elite cadre of traders who made the rules because they were vested with the authority to make them. The arrival of more than 5 million individuals buying and selling online is changing the balance of power.

What's happening is that the stock markets are becoming free markets — and free markets are inherently unpredictable. The conversations that drive markets are increasingly going on outside the clubby confines of the investment houses.

If you want a taste of how the new rules are made, go to the Yahoo Finance stock discussion on the Internet and watch the day traders exhort, scold and trash talk each other 24 hours a day. That is no gentleman's club. It's a free-for-all, the bazaar next door to the Wall Street cathedral.

Wall Street is one of the more dramatic examples of what happens when controlled markets become free. Although still heavily regulated, the stock markets are being driven more and more by people who have no concept of how things ought to be done. Could the same thing happen to your business? To what degree is your business based on knowing things your customers don't? What happens when that advantage goes away?

Those conversations on Yahoo Finance are only the most dramatic examples of exchanges occurring every day among your customers on the Net. You can be part of those discussions, or you can let them take control of your destiny. Wall Street analysts are realizing late that they are no longer the sole influencers of their market.

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Dear Reader,

I consider myself a people person, and I think e-commerce is all about people. Prior to founding the Massachusetts Electronic Commerce Association (Mass eComm), I worked on the marketing side of e-commerce, where I met some of the smartest people in New England. These were the people responsible not just for creating a new industry, but for making it explode. They came from different parts of the world and from various professional and personal backgrounds, yet they all possessed the same overwhelming enthusiasm about technology and about what it can do for the world.

It was this enthusiasm that led to the creation of Mass eComm. And it was this enthusiasm that led to the “Mass eComm 10,” a selection of people honored annually by Mass eComm for their contributions to the e-commerce revolution. The focus here, as perhaps it should be, is on the people and their achievements. At the 1999 Mass eComm 10 awards ceremony, I hope to spotlight their stories and demonstrate that the drive behind the e-commerce industry is not motivated by profit or technology per se. The drive is sustained by people, many of whom make their homes right here in New England.

On May 24, 1999, New England’s technology leaders will come together at the Westin Copley Plaza Boston to celebrate these individuals and their stories. By honoring and learning from the Mass eComm 10, we hope to inspire the young entrepreneurs who will continue the industry’s spectacular growth. This supplement is a tribute to those individuals as well. I hope that reading this supplement will give all of us a fuller appreciation of how invigorating the e-commerce community can truly be.

Thomas Hopcroft
President
Mass eComm
Matt Cutler began shaping e-commerce in 1994 from an MIT fraternity dorm room. With the World Wide Web still brand new, he concluded that the growth of online business would largely depend on the creation of a set of tools for tracking customer attitudes.

At the time, MIT frowned upon student entrepreneurs. School officials believed that students should spend their time studying. But Cutler was undeterred. In meetings held in “clandestine” locations—computer labs, lunch rooms, on street corners—Cutler honed his business model, and took a major gamble by founding a company called net.Genesis. Even though the first company office was a dorm room, Cutler transformed the nascent net.Genesis into an e-commerce mainstay. Through that transformation, his vision remained intact: The way to sell online is to know your customer.

Cutler’s story is refreshing, since the term e-commerce often conjures images of routers, servers and wires, rather than images of people like Matt Cutler—who had the foresight to recognize the potential of ideas and then worked tirelessly to turn their vision into reality. Without these faces, the e-commerce business would not exist today.

Such faces belong to the "Mass eComm
10," the ten people from the New England e-commerce community who are honored annually by the Massachusetts Electronic Commerce Association (Mass eComm). The Mass eComm 10 spotlights the individuals leading the e-commerce revolution, and their stories, in the hope that they might inspire others to follow in their footsteps.

Built on blind faith

One such individual is Henry Bertolon, founder and president of NECX, the company he says he "built on blind faith." That faith helped land Bertolon a place on the Mass eComm 10 for the second straight year. "I am long on faith, passion, vision, stubbornness and execution," he adds. "I am very proud that my company is homegrown."

Bertolon's homegrown company is now the largest online retailer of computer products in the world. Through NECX.com, visitors can buy anything from computer parts to handheld Palm Pilot device. Bertolon has been at the helm of NECX since the beginning and has watched the company change its course as the Web came into existence. In that time he has personally affected the growth of online commerce.

Bertolon has been willing to take the risks associated with that position. Risk for him often meant changing his company's selling practices in dramatic ways. For example, with the introduction of the Web, he completely shifted his business model, which at that point consisted of distribution of client software on diskettes, to the online world. More recently, in 1998 he made NECX the first and only online retailer to truly offer competitive pricing. Visitors to the NECX Web site can compare NECX prices with those of other online retailers.

Another member of the 1999 Mass eComm 10 is Ralph Folz, who made his own "Web shift" back in 1994 when he refocused his company to create Web sites specifically designed with enhanced content for selling services. As when Bertolon transformed NECX, the Web at that time was brand new, and Yahoo! was just a list of bookmarks on the home page of a university student named Yang.

"It was a huge risk," Folz recalls, "but we were a company of only two or three people. When you're that small, taking a big risk doesn't seem like such a big deal." Today, Folz is president of T'Visions, an independent Web consulting, design and development firm he co-founded.

Risk-taking is a common theme among the 1999 Mass eComm 10. Folz took his gamble when he launched a new Web design for Fidelity Investments, complete with an interactive calculator for investors. This calculator was one of the earliest truly interactive items on the Web, and as its usage rocketed, Folz and his colleagues reveled in the growing number of users. "Seeing how many people visited that calculator was the most exciting thing for us," he says.

Rolling the dice

Bob Davis, CEO of Lycos, rolled the dice earlier this year when he predicted that a new network strategy would propel Lycos past Yahoo!. The world called him quixotic. But the Internet portal shocked the industry in April by becoming the most visited site of its kind. The news was not surprising because it was Lycos, but rather because Lycos displaced Yahoo! from the top spot on the list.

Risks are nothing new for Davis though, who is often described as the warrior from the gritty streets of Dorchester, Mass., who...
put himself through Northeastern University and became the first employee at Lycos—back when the Lycos workspace was merely a single cubicle.

While topping Yahoo! is what places Davis squarely in the 1999 Mass eComm 10, it is just one of his recent achievements. Earlier this year, Davis announced what could become the biggest e-commerce deal of 1999: a proposed merger between Lycos and the interactive properties of USA Networks. The new combined company, USA/Lycos, would boast a massive e-commerce infrastructure, both on and off-line, as well as the ability to sell products on television via Home Shopping Network (a USA property).

The pace of e-commerce is so fast many companies fear being left behind. For Anna Sabasteanski, helping Fortune 1000 companies overcome this fear is a task not just for one person but for an entire company. As she sees it, it's a challenge to convince businesses to be practical about the Internet.

Now chairman of the board and vice president of practice management at Empresa, Sabasteanski is not awed by the new technologies but rather has a deep understanding of how e-commerce can transform a company. Her continuum of e-commerce successes has landed her on the Mass eComm 10 for a second straight year.

"E-commerce to me is looking at the entire enterprise of a company and seeing where the Internet fits in," says Sabasteanski. "Many times we are described as the people with the gray hair. We know what all the technology means to business."

Unlike many recent Internet entrepreneurs, Sabasteanski can recall the days before the Internet, when e-commerce existed even though the World Wide Web did not. In those days, computers were the domain of "nerds"
and the public distrusted all things technical. Yet despite this pervasive distrust, persistent entrepreneurs took the leaps necessary to make today's e-commerce boom a reality.

**True beginning of e-commerce**

To many observers, Open Market represents the true beginning of e-commerce. The company's products allow other firms to sell online without having to build e-commerce transaction solutions from the ground up. Gary Eichhorn, president and CEO of Open Market, is greatly admired because he led his company through several strategies while continuing to create value for its shareholders and customers. For this reason, Eichhorn earned his place on the Mass eComm 10 in 1999.

Like Open Market co-founder Shikhar Ghosh, a member of the 1998 Mass eComm 10, Jeet Singh emigrated from India for the educational and technical opportunities offered in Boston, selecting MIT over such prestigious Ivy League schools as Princeton University and Columbia University.

After graduating, Singh co-founded Art Technology Group, a firm specializing in online e-commerce and personalization solutions. Today he is not only president and CEO of the company, but he is also a shining example of the growing number of immigrant entrepreneurs who are helping fuel the e-commerce explosion in Massachusetts. For his continuing successes in this area, Singh has earned a position on the Mass eComm 10 for a second straight year.

Jay Wood, president of Silknet Software in New Hampshire, is the only member of the 1999 Mass eComm 10 not based in Massachusetts, but his impact on New England's e-commerce community is no less profound. His firm provides the online customer software that is essential to e-commerce. On the Web, where the next store is only a mouse-click away, customer service can determine whether a cus-
As a proud sponsor of the Massachusetts Electronic Commerce Association’s annual awards ceremony, we congratulate all of the award recipients for their achievements.

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tomer will do business with a company or look elsewhere.

Wood's latest concept, Silknet eCommerce, integrates customer service capabilities with e-commerce transactions. The promise of reducing expensive call centers through the use of online communications represents a major e-commerce opportunity for his company. Customer service popped up on many e-commerce radar screens in 1999 and with that trend, Jay Wood earned a spot on the Mass eComm 10.

Wood’s company has extended e-commerce into the arena of customer support. For another much anticipated e-commerce vertical—banking—the torch-bearer in New England is Blaise Heltai, managing director for corporate Internet strategy at Fleet Financial Group.

Since he joined Fleet in 1996, Heltai has compiled an impressive list of firsts: Fleet became the first major bank in the United States to introduce an electronic storefront product for small businesses. Heltai also led Fleet into several deals never possible before the Internet, and never before tried. These include deals with US News & World Report, Family Education Network and boston.com. As an e-commerce leader in the financial community, Heltai earned a position on the 1999 Mass eComm 10.

Venture funding

The gamble of so many e-commerce entrepreneurs, past and present, could not have been realized without venture funding. A name that is almost synonymous with high-tech venture funding is David Wetherell, chairman of CMGI.

Wetherell’s venture company is called @Ventures, and it has invested in, or owns outright, at least two dozen Internet companies and has returned a staggering $1.5 billion on $39 million in venture investments, according to TheStreet.com. Not surprisingly,
CMGi stock is up 122% since the beginning of the year (as of press time).

Wetherell, a mathematician turned financier, celebrates his second straight year on the Mass eComm 10. His influence in the New England e-commerce community ranges from the traffic of portal sites (Lycos), to Web site hosting (NaviSite), to online communities (GeoCities and PlanetAll). His wizardry has certainly impressed Wall Street and, to a great extent, has charged the Internet economy as a whole.

No one strikes out

Each and every member of the Mass eComm 10 has taken the risks necessary to rapidly grow the e-commerce industry. It's understandable that within this World Wide Web of technology, the human element is often overlooked. But the image of young Matt Cutler sipping coffee outside his fraternity house, while maxing out his last credit card to meet payroll, is perhaps more significant than any technology that might come down the road.

Cutler remembers one particularly poignant moment when faith was necessary to beat overwhelming odds. When NetGenesis was still in its very early stages, MIT became suspicious of Cutler's activities and decided to chastise him for his possible commercial use of MIT property.

"One of the MIT network managers brought me into his office and gave me a kind of slap on the wrist," Cutler remembers. "They told me it was my first strike. And they said I had two strikes left."

Fortunately, Cutler did not strike out back then at MIT. And now, five years later, in 1999, he, along with nine other e-commerce entrepreneurs, is a member of the Mass eComm 10.

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Produced by Computerworld Enterprise Business Solutions
Benchmark is a progressive full-service human resources consulting organization that can help small and emerging high-technology companies enhance and improve all aspects of an established Human Resources function, with emphasis on recruiting and building the HR infrastructure. Our strategic, scalable and cost-effective programs have proven successful for firms of all sizes. Furthermore, our "best practices" approach provides clients with unique solutions that are well researched, competitive and creditable.

Benchmark fine-tunes recruitment planning, strategy and budgeting activities to meet a client's staffing goals. Benchmark implements effective recruitment processes to develop candidate pipeline, pre-screen and close candidates. The company also provides highly targeted and focused direct sourcing campaigns. Our human resources approach is practical and cost-effective, addressing employee retention and development programs such as interview training, orientation, compensation consulting, independent surveys, benefits reviews and employee communications.

Brooktrout Software, with headquarters in Southborough, Mass., is a Brooktrout company (NASDAQ: BRKT). A leading provider of Windows NT-based computer telephony (CT) solutions, services and rapid application development platforms, Brooktrout Software focuses on reducing the cost, complexity and time to market for developing enhanced interactive voice response (IVR), call management and unified messaging solutions for the enterprise. These solutions enable the enterprise to manage interactions with customers through multiple interfaces and technologies, including the Internet and call centers, building the loyalty that leads to profitable relationships.

Additionally, Brooktrout Software's Professional Services Group (PSG) provides customers with CT consulting, customized CT applications, systems and related services. Contact Brooktrout Software at www.brooksoft.com, or call (508) 239-7777.

Computer Sciences Corporation (CSC) helps companies succeed in the Internet economy, leveraging technology to create business value. Whether your goal is to improve customer service, streamline supply chain processes or enhance communication among employees, CSC can design and implement a solution that meets your business goals.

From strategy consulting, to solution development and implementation, to ongoing management of e-business solutions, CSC offers end-to-end services to meet your needs. We provide the integrated e-business teams, proven Web Catalyst methodology, the flexible component-based architecture and the complex systems integration expertise you require for enterprise-scale e-business solutions.

For more than 40 years, CSC has helped Global 2000 clients deliver business results in a highly dynamic business and IT environment. Contact CSC for more information on how we can help your organization create successful e-business solutions. E-mail e-business@csc.com or call (800) 272-0018.
E-business is, first and foremost, about business. The most successful e-businesses to date are led by a strong management team, employ strategic thinking around the opportunities and challenges of e-business, and are prepared to re-engineer processes dramatically, not just incrementally to successfully implement an e-business strategy.

Moreover, e-business has issues of its own: trust, security, digital money and other electronic payment systems, and Internet-specific regulatory and tax issues. It's a lot to consider, but e-business pioneers need not go it alone. Deloitte Touche Tohmatsu provides accounting and auditing, tax, and management consulting services through more than 82,000 people in over 130 countries. We've assisted some of the leading companies operating on the Net, and we're here to help you. After all, who connects you with the e-business trends that matter? The answer is Deloitte & Touche.

Empresa produces affordable, highly customized e-commerce solutions. For over five years we have been pioneering Internet commerce with our leading edge customers and partners. Rather than selling individual products, we offer complete solutions that let our clients focus on their businesses, not the hassle of building highly reliable Web sites.

Our client base consists of professional publishers, merchant banks and general hard goods merchants. We not only help our customers to sell their products and services through the online channel, we also help them to build an e-community, which in turn allows them to bring together their unique trading partners, customers, and financial institutions.

By using our own highly productive software infrastructure as well as packaged technologies from our partners such as Microsoft, Netscape, OrderTrust, CyberSource, etc., we build competition-crushing, profit-generating Web sites for our customers.
IDC

International Data Corp. is the industry's leading Internet research resource with 70 full-time and 150 contributing analysts in 36 countries, covering more than 20 expertise areas within the Internet field. This group—possibly the largest Internet market research practice anywhere—is known as Internet@IDC. Internet@IDC delivers industry-leading Internet research and analysis. Designed to cut through the Internet hype and bring the market into sharp focus, Internet@IDC is built upon the same value proposition as IDC's other services: extensive primary research with a uniquely global perspective, combined with thoughtful analysis, to produce credible and often startling forecasts.

Drawing on more than 300,000 end-user surveys conducted by IDC each year, Internet@IDC provides the most comprehensive understanding of the Internet. Its disciplined approach offers the breadth and depth of coverage and the thought leadership needed to understand the full impact of the Internet on businesses and consumers. Visit www.idc.com to learn more about Internet@IDC.

NaviSite

NaviSite, a majority-owned subsidiary of CMGI, is a leading application service provider delivering Web hosting and application management solutions to the Internet's emerging enterprises through outsourcing packages. NaviSite's full-service solutions help companies deliver Internet-based services to their customers by offering a high level of Internet access and security with a commitment to customer service.

The SiteHarbor Hosting solutions from NaviSite provide secure, reliable, Web hosting and co-location services for UNIX and NT environments including high-performance Internet access and high-availability solutions through load balancing, clustering, mirroring and advanced storage services. NaviSite's SiteHarbor ProApps Products combine a portfolio of complementary applications into comprehensive business solutions available in a variety of cost-effective options, including application rentals and services.

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NECX has been at the forefront of technological innovation for over 18 years and today manages the most comprehensive electronic commerce site for computer products on the World Wide Web. Corporate-wide revenues for 1997 exceeded $406 million. A privately held company founded in 1980, NECX conducts business from its worldwide corporate headquarters in Peabody, Mass. The company has access to more than $1 billion in computer products in more than 23 supplier warehouses at any one time. NECX is always looking for good people to join its professional ranks. Additional information is available at www.necx.com.

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Oracle Consulting is the leading expert in transforming Oracle technology into solutions that drive business. Through delivery of a comprehensive mix of technical expertise, industry knowledge and applied innovation, Oracle Consulting provides rapid implementation of complete integrated solutions that harness the Internet for business innovation.

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QuickBuy, Inc. develops and markets software products that revolutionize the way people buy and sell over the Internet. Its QuickBuy™ product family is based on the Buycon™, a patented breakthrough technology that enhances and enables electronic retailing through the use of intelligent icons.

The QuickBuy product line is designed to simplify the online retail experience for both consumers and Web-based merchants. QuickBuy's Buycons, or "buyable icons," are compact graphical representations of buyable goods containing embedded product data such as price, SKU, affiliate information and purchase URL. Using QuickBuy software, e-tailers can quickly build or update their entire product database with Buycons that consumers can easily drag-and-drop into their personal desktop shopping cart for immediate purchase.

Buycons can also be e-mailed to friends for instant purchase, broadcast as buyable ads, and hosted on private gift/wish list and registry pages.

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Resources was created in 1996 as a wholly owned subsidiary of Deloitte & Touche. On April 1, 1999 Resources and Evercore Capital Partners L.P., a prominent New York investment firm, completed a management buyout purchasing Resources from Deloitte & Touche. For further information about Resources, call (800) 900-1131 or visit its Web site at www.resourcesconnection.com.

Schwartz Communications, Inc. is the nation's leading public relations agency for emerging-growth companies. The agency currently represents more than 80 exciting high-tech firms, including Lycos and Red Hat. Schwartz has been on the Inc. 500 List of America's fastest-growing private companies for the past three years (#187 in 1998, #203 in 1997, and #308 in 1996).

The agency is on INSIDE PR's 1998 "Best of the Best" list of high-technology PR agencies. Additional information is available at the company's Web site at www.schwartz-pr.com.

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Testa, Hurwitz & Thibault, LLP is a leading provider of legal services to businesses in the e-commerce and Internet space. We take an interdisciplinary approach to this business sector, providing legal services which include:

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- advising on taxation issues unique to e-commerce businesses.

We have represented numerous clients in all aspects of e-commerce and Internet-based business activities, including leading portal, search engine and e-commerce retailing sites and are active in promoting industry organizations.

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1999 Mass eComm 10

Henry Bertolon, President & CEO, NECX

As founder of NECX, Henry Bertolon has been at the forefront of technological innovation for nearly two decades. Under his leadership, NECX has become the world’s central exchange for the buying and selling of ICs and computer products on the open market. After establishing and legitimizing the independent distribution of high-tech commodities, Bertolon seized a leadership position for NECX on the Internet with the creation of the industry’s largest and most complete electronic commerce Web site for computer products. His energy, vision, and understanding of the marketplace continue to fuel the company’s spectacular growth.

Matt Cutler, Co-founder & Chief E-Business Intelligence Officer, net.Genesis

Matthew Cutler co-founded net.Genesis in January of 1994 as an MIT undergraduate. In 1995, Cutler literally wrote the book on Web site analysis: Build a Web Site: A Programmer’s Guide to Creating, Building, and Maintaining a Web Presence. Matt frequently presents at major national and international Internet-related conferences including InternetWorld, Gartner Group B-Commerce conferences and Internet Commerce Expo (ICE), and has contributed to CIO Web Business Magazine and Internet World Magazine. He has also served as President and Chairman of the Webmasters’ Guild [now a part of the Association of Internet Professionals], the country’s first professional association of Webmasters.

Robert J. Davis, President & CEO, Lycos, Inc.

The company’s first employee in June 1995, Robert J. Davis has helped Lycos evolve from an Internet search engine to one of the most powerful Internet hubs and Web media companies. Through a string of strategic partnerships and acquisitions, he has led Lycos in developing the Lycos Network, a pioneering Web media model that delivers mass reach and diversity of audience and programming. This community-based, integrated network includes three top 10 Web sites and is the most visited hub on the Internet. Prior to Lycos, he spent 14 years in high-tech sales and marketing management positions. He currently serves on the board of directors of the Massachusetts Software Council.

Gary Eichhorn, President & CEO, Open Market

As president and CEO of Open Market, a provider of Internet commerce and information publishing software, Gary Eichhorn is responsible for the entire operations of the company, including strategic corporate direction and growth. He joined the company in 1995, led it to its IPO in May 1996, and transformed it from a service-based organization to a leader in software applications. He previously held executive roles at Hewlett-Packard and Digital Equipment Corp. He is active in driving many issues in the industry, and was a key member of the initiative that aligned the largest suppliers of UNIX systems around a single set of specifications to ensure the operating system’s long-term competitiveness.

Ralph j. Folz, Co-founder & President, TVisions

Ralph Folz founded TVisions in 1994 and has grown the company from a two-person shop to a leading independent Web development firm that currently employs more than 110 full-time employees. He has been instrumental in the creation of some of the first commercial Web sites. He is the driver behind TVisions’ philosophy of leveraging Internet technologies to enhance business process efficiencies. Previously, he was a principal engineer, manager and developer at GTE and has also advised several of New England’s largest computer companies on how to integrate the convergence of multimedia technologies into their offerings. In 1998, he was a finalist for the Ernst and Young “Entrepreneur of the Year” award.
Blaise Heltai, Managing Director for Corporate Internet Strategy, Fleet Financial Group

Blaise Heltai is responsible for the corporate-wide development of Internet-enabled business strategies for R&D and for the coordination of all Fleet online initiatives. He previously was director of Fleet’s Online Financial Services Group where he managed the consumer and small business online channel. Prior to joining Fleet in 1996, he was director of marketing and strategy for AT&T’s Consumer Products Division. His background includes the assessment, development and market introduction of high-technology consumer products and services.

Anna Sabasteanski, Chairman of the Board & VP of Practice Management, Empresa

With vast knowledge and experience in content management and subscription services, Anna Sabasteanski is responsible for managing Empresa’s publishing customer relationships as well as the overall P & L for the business unit responsible for the delivery of these solutions. She was the founder of Electronic Press Services Group. With over 20 years experience in delivering online systems, she is positioned as both a technical and business expert for Internet commerce, and in 1998 was named one of the top 10 e-commerce leaders by the Massachusetts Electronic Commerce Association as well as one of the top 40 software leaders in The Improper Bostonian.

Jeet Singh, President & CEO, Art Technology Group, Inc.

As CEO and president, Jeet Singh is responsible for the business strategy of Art Technology Group. Together with co-founder Joseph Chung, he has led the strategic design and development at ATG, bringing the company to the forefront of Relationship Commerce. Prior to founding ATG, he held positions in project management, product marketing and management, and new business planning and development, including product marketing manager at Boston Technology, Inc.; a management consultant with Team Technologies, a Washington, DC-based consulting firm specializing in workgroup productivity; and with Groupe Bull/Bull Corp. of America.

David S. Wetherell, Chairman & CEO, CMGi, Managing Partner, @Ventures

David Wetherell has served as chairman, CEO and president of CMGi since 1986. He took the company public in January, 1994; a month later, he founded the Internet start-up company BookLink Technologies. In late 1994, BookLink was sold to America Online in a stock-based transaction that ultimately was worth over $70M to CMGi. He used the sale’s proceeds to fund a two-pronged strategy: the incubation of a series of start-up Internet firms, and the formation of @Ventures, an affiliate that invests in early-stage Internet and interactive media technology companies. Prior to CMGi he co-founded the software development firm Softrend, Inc.

James (Jay) C. Wood, Founder, President & CEO, Silknet Software

Jay Wood founded Silknet Software to develop enterprise applications that leverage the Internet and other emerging technologies in order to improve customer efficiency and loyalty. The e-business solutions offered by the company enable corporations to integrate, engage and leverage the customer. Wood sees his role at Silknet as that of a facilitator, providing the executive staff with everything they need to execute: direction, goals, tools, resources and assistance. He also founded CODA Inc., the North American subsidiary of the U.K. developer of financial accounting software. He graduated from Villanova University with a B.S. in Electrical Engineering.
E-commerce represents a synergy among business professionals. The e-commerce revolution originated as a concept in the minds of people with a vision toward the future. Those people looked to other people with the same foresight — for financing, technological support or just affirmation. At the forefront of this activity, Mass eComm was founded to foster ideas and actions across diverse industries including academia, technology, marketing and government.

Mass eComm provides a forum for individuals to share experiences, find resources and cultivate ideas that will continue to propel the industry's phenomenal growth for today and into the future!

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and employees can learn at their own pace.

The hottest product group at E3 was Internet-based multiplayer games. Players find them the most challenging and rewarding. Some games can involve thousands of players simultaneously, forcing the users to divide into teams and share information to survive. As those games improve, gaming companies will develop new techniques to help teams develop strategies, reach consensus and coordinate their activity. The most successful techniques will be quickly adapted to collaborative software for business use.

Nintendo or Sony as the next Microsoft? Why not? Each has leading-edge technology and hundreds of millions of fans willing to devote countless hours to honing every innovation. It could be an unbeatable combination.

DAVID MOSCHELLA

Behind Gates' big bet on bandwidth

IF YOU RAN MICROSOFT and were sitting on $20 billion in cash, what would you do with it? Even if you tried, you couldn't possibly spend that much on developing new software, and with the Justice Department looking over your shoulder, you probably couldn't acquire other software or Internet industry leaders. If you decided to diversify into the computer hardware or services markets, you would infuriate many of your biggest and best business partners. Yet if, like Bill Gates, you're a true believer in the power of IT, you simply couldn't bear to squander huge chunks of IT industry money on media properties, professional sports teams, real estate holdings or boring old dividends. Indeed, from this perspective, Microsoft's decision to invest aggressively in telecommunications should be seen as almost inevitable.

What other areas could possibly soak up this amount of cash? What's really interesting isn't what Microsoft has done, but the way it is doing it.

When you look down the list of Microsoft initiatives — $1 billion in Comcast, $5 billion in AT&T, $600 million in Nextel, $500 million in the British cable firm NTL, along with smaller investments in Qwest, Qualcomm and Northpoint — there's a clear pattern. Cable and wireless technologies are in; twisted-pair copper is out. Given that so much of today's Internet is based on local telephone wiring, it's clear that Microsoft is betting on a radically different future, one where its vast wealth is truly needed and where future monopolies are once again possible.

If all of this conjures up a sense of déjà vu, remember that back in the early 1980s, a cash-rich IBM went on its own telecom buying bing. It developed both Satellite Business Systems and the IBM Information Network; it acquired PBX maker Rolm and took a significant stake in MCI. Like Microsoft, IBM had grand visions of the coming convergence between computers and communications. But IBM badly misread the market. It thought that its main network rival would be AT&T and wound up ill-prepared for LAN-based technologies from Novell, Cisco and others. Ultimately, IBM's great wealth was mostly spent in vain.

Microsoft seems to see things more clearly. Depending on the sector, Microsoft faces many tough competitors, such as Oracle, Lotus, Sun and others. But the two currently most worried are AOL and Yahoo. Both companies have benefited enormously from the telephone-based Internet infrastructure, both are vulnerable to new generations of cable and wireless services, and both have no real cash to speak of. Certainly, neither company can enter the wireless or broadband cable markets without carrier cooperation.

Thus, Microsoft hopes to use its enormous wealth to outflank its rivals, but in a politically palatable way. Consumers should actually benefit. Certainly, there are few IT areas in more need of large investments than local loop bandwidth and wireless data infrastructure. Why shouldn't Microsoft's money be used? From a broader industry perspective, a steady transfer of profits generated by monopoly PC operating systems into badly needed bandwidth capacity has a certain systemic efficiency, even beauty.

If nothing else, Microsoft's investments might light a fire under the cash-rich, but seemingly still ossified, regional Bell operating companies to finally get serious about high-speed digital subscriber lines. With markets for AOL and Yahoo on the telcos' side, Microsoft, AT&T and Nextel and others would have a very fair fight on their hands. Given where we are, can you think of a better way forward?

Y2K fact checking

A MEDT speculation about the impact of Y2K, we find that statements that have been portrayed as "facts" don't stand up to scrutiny. For instance, in an April 5 Computerworld article on Y2K and pharmaceutical companies ("Foreign Supply Failure Worries Drug Makers"), our reporter repeated inaccurate assertions found in a U.S. Senate report about the world's insulin supply. We have seen several variations of the statement that 70% of the world's insulin is made in Denmark (or the Netherlands).

Another statement — which also was included in the Senate report — says 80% of raw materials used in manufacturing pharmaceuticals is sourced from outside the U.S.

These inaccurate statements could unduly cause worry about having enough insulin at the start of the new century. That is unfounded.

Lilly manufactures all of its human insulin in the U.S., near its company headquarters in Indianapolis. Only 15% of the raw materials Lilly uses to make its insulin comes from countries other than the U.S. In total, we rely on 44 suppliers for those raw materials to make insulin, and only nine of them are located in countries outside the U.S. Furthermore, in the U.S., we have all of the raw materials we need to make our 1999 year-end target inventories for major Lilly products.

Lilly is working to explain our Y2K readiness and address the flow of insulin to consumers. Given the importance of the Y2K issue, it is crucial that statements given as "fact" are indeed true.

Joyce Chadwick
Eli Lilly and Co.
Indianapolis

READERS' LETTERS

I N T E R V I E W

Captain should go down with Microsoft

IT MANAGERS monitor two things: We're in big trouble if we've got IT managers today who've already decided to break up their platform of choice two years in advance; and these IT managers must be out of touch with the technology trends that are evident today.

Finally, you seem completely lost in your "technology purchase process" paradigm. The end user cares nothing of the purchase process but rather the functionality, effectiveness, reliability and quality of the technology itself.

As an engineer, I'm continually amused and troubled by your publication's IT manager-centric view of the world.

Jeremy Steele
j.j.steele@cumnins.com

Computerworld welcomes comments from its readers.

Letters shouldn't exceed 200 words and should be addressed to Allen E. Alter, columns editor, Computerworld, PO Box 9787, 50 Blvd. Chestnut Path, Framingham, Mass. 01701. Fax: (508) 875-8933: Internet: letters@computerworld.com. Include an address and phone number for immediate verification.
Microsoft Windows NT Workstation 4.0 is now available with Service Pack 4, which includes Y2K and Euro updates. For Year 2000 information regarding Microsoft products see www.microsoft.com/year2000.
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Microsoft  
Where do you want to go today?
ANN HARRISON

Uncle Sam's secret cryptography plan

U.S. OFFICIALS are sure to appeal the recent ruling which extends First Amendment protection to strong cryptographic source code. The decision by the Ninth Circuit Court of Appeals in the case of Unitov is the latest of a string of events last week that's put the government's battle against potential competitors. Their corporate lives depend on it. Internal organizations used to be able to compete at least on price, having budgets that didn't reflect fully allocated costs and not having a requirement to make a profit. When they lost it, it was often for lack of rare technical skills, lack of time and energy to devote to certain projects or because of a need for cash (many outsourcers will lease back). With value-based pricing, that advantage goes away.

I think the leading-edge professional service firms are going to pull away from the average — and someday even the exceptional — internal IT organizations. Their corporate lives depend on it. And the reality we're all getting used to with the Web — that with outside help, applications can be developed in days, weeks or even overnight — may make outsourcing the preferred approach. IT organizations will have to resemble IT service firms, with a sales force, partner organization and profit sharing. Pretty radical. And quite possible.

JOHN GANTZ

Is your IT shop ready to compete?

IS YOUR IT organization worth its salt? Can it beat the competition?

Two minor events last week got me thinking this was a question that more and more CEOs will be asking soon.

The first was this: my 14-year-old son went to Washington on a weekend field trip with his school. Each night, the class had pictures and write-ups on the class Web site. This took place during the same week my company had a major meeting about our IT infrastructure — and learned how long it will take and how difficult it will be to allow each product group to have its own intranet. My immediate reaction was to ask the eighth-graders to take on the project.

The second was a conversation I had with a colleague. He told me the supply-chain consulting practice of Ernst & Young was getting about a third of its billings in value-based payments. Those are payments triggered by business metrics, like lower actual costs, increased revenue and time-to-market milestones. My colleague pointed out that companies like Ernst & Young have begun hiring industry experts and financial types — as opposed to IT technical specialists — in order to take on this kind of work.

Now, I have to admit we're looking at two leading-edge IT organizations here — Ernst & Young and the eighth-graders at Wayland Middle School. But I think there's a message here for the average IT vendor.

If a leading-edge IT practice inside a leading-edge outsourcer is willing to put some skin in the game on major IT projects, then other outsourcers will soon follow. Shouldn't your own IT organization also put some skin in the game, for example, by tying bonuses or stock options to the financial outcome of the project? Yet a lot of IT shops still think in terms of projects and see themselves competing with companies like Ernst & Young on a time-and-materials basis. If we're not careful, innovative external companies will cherry-pick the most strategic (and hence valuable) IT projects on a risk-and-reward sharing basis and leave us to the Windows upgrades, Y2K clean-up and e-mail conversions.

And if the average end user's expectations of IT can be set by the prowess of a bunch of eighth-graders, whether unfairly or not, then the average IT organization has already lost the public relations battle against potential competitors.

We have had competition between outsourcers and internal IT organizations for years. But the nature of the competition is changing.
SELL TO SENIORS
Think your Web customers are all young and hip? Nope. At least half are over 50. They’ve got tons of spending power, but they won’t struggle with sites they don’t like. Many sites cater to them — to good effect. 58

ON THE RIGHT TRACK
Better contract management means companies can better track their negotiated pricing — for pharmaceuticals, for instance. 45

BIG BROTHER’S WATCHING
At W. W. Grainger, employees wear cards that let them track one another. They’re a way to keep customers happy by getting reps online with them fast, but where’s the line between good service and privacy? 40

GLOBAL DEVELOPMENT
Development is development, right? Wrong. Spread it across several countries to save time and money, and cultural misunderstandings can gum up the works. This Q&A with an expert on international development might help. 46

GLOBAL SCHMOBAL
Sure, developing applications globally might (eventually) work, but a global economy? The problems of international trade are so daunting, it’s surprising anyone makes any money, Jim Champy bemoans. He calls worldwide e-commerce a myth. 47

GENERALISTS WANTED
The age of the IT specialist is over, at least in e-commerce, Lina Fafard writes. People with one main skill are overwhelmed when faced with the mass of issues related to complex sites. She lays out hot skill combinations. 57

LOCATION, LOCATION...
Where do big retail operations go when they want to sell stuff online? San Francisco, mostly. Many find they have to move Web units away from the center of their brick-and-mortar operations to encourage innovation. 41

HOW TO PREVENT INSIDE JOBS
The worst hack in U.S. history was engineered by someone inside the firewall. A new survey shows internal attacks outpace those from the outside. It takes careful monitoring and attention to detail, not just a firewall, to catch insiders. 40

CAN I HAVE SOME MORE?
Computerworld’s 2nd Annual Consultants Salary Survey shows consultants with hot skills are drawing bigger paychecks, getting bonuses and benefits, having their relocation costs covered and reaping some other cheeky perks and requests. Why? Because the ones with the right combination of IT and people skills are impossible to find.
Nothing else matters until your basic needs are met. However, it's easy to overlook obvious answers to your information technology problems. Our objectivity can help. It already has for four out of five of the world's largest companies. When it comes to running the applications that run your business, we never stop asking what do you need most?
Audit Trails Might Have Fingerprinted Los Alamos Insiders

BY ANN HARRISON

The largest computer crime in history was an inside job. Though it occurred at a government laboratory, experts say many companies are also vulnerable to insider attacks.

U.S. Energy Secretary Bill Richardson last month confirmed that classified nuclear weapon computer codes at Los Alamos National Laboratory in New Mexico were transferred by a lab employee to an unclassified computer system. The incident has been at the center of allegations that China pilfered U.S. nuclear secrets to build nuclear warheads.

"Their monitoring systems were not as fully automated as they needed to be. Moving files from a classified to unclassified environment should be an auditable event — you need to have a daily snapshot and intrusion detection happening in real time," said Rob Clyde, vice president of the security management business unit at Axent Technologies Inc. in Rockville, Md., which develops computer security tools.

A report issued earlier this year by the Computer Security Institute noted that 86% of respondents reported insider attacks, while 74% reported outsider attacks. Some reported attacks came from both sides.

"Obviously, a disgruntled employee is a bigger threat than a hacker because he already has the access and insider information on how the process works, whereas a hacker comes in blind usually," said Dan Erwin, a specialist in security at Dow Chemical Co. in Midland, Mich.

Clyde recommended that companies set up an audit trail system to track network managers who can deliberately leave security holes open for data thieves. Such systems should monitor firewall and operating system settings and track access to privileged accounts and files. Clyde said an intrusion detection system should monitor security policies and immediately report any vulnerabilities, changes or addition of users.

"We have all these controls and capabilities, but usually, no one is looking to make sure that it is running properly," Clyde said. If a company suspects a manager is leaving holes open, Clyde suggests recording the user's sessions or keystrokes. Instead of firing the manager, Clyde advises monitoring the employee's sessions or keystrokes. If a pattern emerges, a company has a good chance of showing collusion.

"If they did damage, you want to have enough evidence to bring them to court," said Phil Schacter at The Burton Group in Midvale, Utah.

Clyde recommended that companies use common sense in notifying employees of any monitoring activity and maintain "reasonable standards of privacy" at work, she said, adding, "It personally disturbs me."
WEB STARTUPS NEED TO LEAVE TO SUCCEED

Corporate parents encourage Web counterparts to set up shop in Bay area

BY JULIA KING

A N INCREASING number of retail- ers are pushing their young Internet start-ups from the corporate nest in hopes they'll quickly learn new ways to fly online.

Eleven-month-old Macy's, com, for example, is headquartered in San Francisco, thousands of miles away from its corporate parent, Federated Department Stores Inc. in Cincinnati.

A Service to Combat Fraud

Used by banks, it's now available to retailers

BY STEWART DECK

HNC Software Inc. in San Diego has announced a service that will give Web retailers new tools for detecting credit-card fraud in Internet transactions.

Fraud has become less of a problem now that online retailers have real-time credit-card authorizations, said Elaine Rubbin, chairman of Shop.org, a Silver Spring, Md.-based trade association for Web retailers. But those that sell quickly downloaded intangibles, such as software and music, still need better and faster tools for fraud detection than simple bank authorizations provide.

HNC's service, called eFalcon, is similar to the fraud-detection service the company already provides for nine of the top 10 credit-card issuers in the U.S. The service is built on neural network technology that sorts thrugh volumes of transaction-level data for patterns of fraud and provides a rank-ordered scoring system that users can adjust to set their own fraud parameters. Pricing for the service is based on transaction volume.

As part of the service, eFalcon users will give HNC access to purchase-level data, which HNC will use to continually refine its fraud-detection data models, said Wesley Wilhelm, director of consulting at HNC.

Analysts said HNC could eventually sell this valuable data on the shopping patterns of Web consumers, but Wilhelm denied that. "No, our focus is fraud," he said.

The eFalcon service could be one of the cornerstones of providing fraud protection for online merchants, said Joe Barrett, an early eFalcon user as co-founder of EC Direct Corp.

"Because of HNC's reputation, this will go a long way toward building the credibility the Internet needs and give shoppers and merchants the same fraud-protection assurance," Barrett said.

"HNC knows this space well and has a rich technology base for fraud detection," said Allen Bonde, an analyst at The Enterprise Group Inc., a Boston consultancy. "They are certainly a company to keep an eye on in this area."

So is Office Depot.com, whose brick-and-mortar headquarters is in Delray Beach, Fla. And just a few weeks ago, Paramus, N.J.-based Toys "R" Us Inc. announced plans to spin off an Internet venture and locate the new dot.com offspring in the San Francisco Bay area.

What's driving this trend, experts say, is retailers' growing recognition that selling in cyberspace requires an entirely different mind-set and skills from selling in the physical world. And what parents don't know, they can't teach.

"Internet thinking is different. The speed is different and so are the technology and partnerships you embrace," said Dwayne Walker, president and CEO of shopnow.com, an online shopping portal.

"The Internet business changes radically every 90 days. For most big retailers, if they can change radically in a year, they're doing really well," Walker said.

And few places change faster than the Bay area.

"Being in San Francisco, we're closer to the pulse of what's happening with the Internet and more tuned in to what's going to happen 12 months from now," said Office Depot.com senior vice president Paul Gaffney. "If you're not out here, I think you definitely miss out on that knowledge," he said.

Another big difference is how online and real-world retailers stock their virtual and brick-and-mortar outlets.

"Putting a garment in a store requires lots of different logistics than putting it online, which means you need different kinds of data and a different workflow," said Kim Miller, a vice president at Macys.com.

In a store, a dress must be placed on a hanger, which then goes on a display stand. Selling the same dress online requires no hanger or stand but lots of data to track when and where it will be shipped and how it will be paid for.

Other reasons for casting out new Internet retail ventures are more political than operational in nature.

Creating a separate dot.com subsidiary is a near-surefire way to attract the attention of Wall Street, which goes ga-ga these days over anything and everything Internet-related.

"It's also a good way to protect top IT and marketing talent who may not otherwise be drawn to employment with a retailer," said Gene Combs, an analyst at Hambrecht & Quist in San Francisco.

"You can be sure that Toys "R" Us.com will have a different culture and will be incurring options to attract employees," Combs said.

The Internet business changes radically every 90 days.

DWAYNE WALKER, PRESIDENT AND CEO, SHOPNOW.COM

Bar Keeps Rising in Privacy Debate

If companies don't follow Commerce guidelines, they could become law

BY PATRICK THIBODEAU

WASHINGTON

Having a privacy policy isn't enough anymore. Companies that do business on the Web may need to determine whether their privacy policies meet certain "fair information practices." Those are a set of broad guidelines, outlined by the U.S. Department of Commerce and other agencies, that have become the new focus in the online privacy debate.

And that's because a recently released privacy study by Georgetown University in Washington found that only a small number of companies, about 12% of the 674 surveyed Web sites, follow all privacy practices.

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Bar Keeps Rising in Privacy Debate

If companies don't follow Commerce guidelines, they could become law
Try getting this out of your plain vanilla black-and-white printer or copier.
You can stand in front of your black-and-white copier all day long and never get it to output
in color. You can stand in front of your color printer and never get it to deliver the
laser crisp text of a black-and-white machine. But, walk up to Canon's new
imageCLASS C2100 printer, and you get both. Or, maybe you'd prefer to sit. After all, the imageCLASS C2100
works from your desktop, too. HERE'S THE FUTURE. LET'S GET TO WORK.
Social Security
Y2K-Approved; Tests Go On

Recertification process is critical

By Tom Diederich

The Social Security Administration hasn't halted its year 2000 effort when its system received the president's seal of approval in late December, officials said this month. But the agency nevertheless wants to assure its 51 million payment recipients that their checks will be in the mail Jan. 3. "All of our software is Y2K-compliant, but we'll be changing it as we go through this year to implement new projects [and] the January cost-cutting, adjustment," said Kathy Adams, the Social Security Administration's assistant deputy commissioner for systems. "We don't want to make changes and then put that code back into production without checking it or recertifying it to make sure it's still Y2K-OK." The recertification process is critical, Adams said. "We want to make sure that as we change those systems we're not introducing any errors," she added.

What we did was to determine what we wanted our recertification process to be, and then we evaluated which tools best supported that process. I think it's a mistake to go out and buy a tool and then try to figure out how you're going to use it," Adams said. The agency eventually chose Y2K vendor CCD Online Systems Inc. in Arcadia, Calif. "We want to lock down our environment as we get closer to 2000, and so we will not be making any discretionary changes to our systems beginning Sept. 1. And that goes through March 2000 because we want to get through the leap-year processing in February," she said.

Mandatory changes will be made, however. For example, software that handles January's annual benefit-rate increase will be implemented in late November, she said. It has now begun to do the same with the embedded systems contained in its leased properties, and in other non-IT systems. It has so far reviewed and tested about half of them. All fixes are scheduled for completion by July 1, all at minimal (but unspecified) cost, the team said. Business partners: The Celtics organization says its year 2000 planning is critically dependent on third parties for ticketing, producing and broadcasting its basketball games and providing transportation. Most of those suppliers said they have addressed their year 2000 issues. The partnership is evaluating those assurances for adequacy and accuracy. Risks: The organization said risks can't be accurately estimated until its embedded systems have been tested. However, the risks could presumably include the cancellation of games if transportation or operations at its game or ticketing facilities fail. Contingency plans will be developed if Y2K-failure risks are identified.

BOSTON CELTICS rookie forward Paul Pierce

Are They Y2K-Ready, Or Not?

Study discovers 216 products drop in status

Infoliant Corp. in Pittsburgh, publisher of an online database that tracks the year 2000 compliance of vendor offerings, has reported that 604 commercial IT products changed their Y2K compliance status last month, up slightly from 595 in March.

Infoliant said that 216 — nearly 30% — of those products were downgraded to non-compliant status or labeled either "action required" or "vendor will not test." A statement from the company said that products' Y2K readiness can change as new bugs pop up or as evidence is found that patches didn't fix all known bugs. The statuses of some products have changed as many as nine times since the company began tracking year 2000 readiness in November 1997. — Rick Salz

BOSTON CELTICS SWISH REMEDIATION GAME PLAN

NBA club wrapping up season — and testing; 7-Eleven also on track

By Anne McCrory

The Boston Celtics NBA season didn't go so well, but the organization said it has a Y2K game plan in effect — and a fairly serious plan, at that. According to a recent filing with the Securities and Exchange Commission, everything from players' contracts to ticket sales are stored and handled by computer, either within the basketball organization itself or by third parties. Read on for a glimpse at the status, costs and risks of Y2K planning at the Boston Celtics Partnership Ltd., as well as 7-Eleven Inc.'s latest revelations.

The Celtics' systems comprise an internal PC network and commercially available software. As of March 31, the organization said it had identified, reviewed and fixed those systems. However, the organization said risks can't be accurately estimated until its embedded systems have been tested. However, the risks could presumably include the cancellation of games if transportation or operations at its game or ticketing facilities fail. Contingency plans will be developed if Y2K-failure risks are identified.

7-Eleven's Progress: The company has spent about $3.2 million. "We've gotten a lot done," said a spokesperson. "Inquiries can't be accurately estimated until its embedded systems have been tested. However, the risks could presumably include the cancellation of games if transportation or operations at its game or ticketing facilities fail. Contingency plans will be developed if Y2K-failure risks are identified."

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Health firm tracks discounts with 'next wave' of ERP

BY CAROL SLIWA

Premier Inc.'s group purchasing organization spends $1 billion per year on pharmaceutical, medical and surgical, and capital goods for 1,800 hospitals.

The need to better track and analyze those purchases prompted the San Diego-based company to seek out a contract management system.

When the system goes live in September, Premier will become the first major group purchasing organization to use a contract management system from Systems Consulting Co. (SCC) in Portland, Maine. Traditionally, SCC's customers have been the pharmaceutical companies that sell products to the hospitals and other institutions.

Until recently, many companies have been managing contracts that often can be quite complicated — with varying levels of discounts built in to them — via homegrown systems or spreadsheets, said John Hagerty, an analyst at AMR Research Inc. in Boston.

Companies may check the data on those spreadsheets periodically, but in many cases, they're left saying, "I guess we can't tell 'em what's going on, so we'll have to pay 'em," Hagerty said.

But as more companies install enterprise resource planning (ERP) backbones, they're getting the level of data they need to effectively track promotions and rebates. So now they're considering contract management systems — such as SCC's parameter-driven process that can handle complex rules — "as kind of the next wave of ERP," Hagerty said.

Manual System Couldn't Handle It

After Premier underwent a merger more than three years ago, the company opted for the old manual-oriented system of one of the merged companies to track its volume of purchases. But that system couldn't handle the added volume brought on by the merger and didn't give the company the level of detail it wanted for contract analysis, said Joe Pleasant, a senior vice president for information systems at Premier's Charlotte, N.C., office. He declined to say how much the system cost.

Premier negotiates contracts with manufacturers to guarantee pricing for its hospitals. Variable discounts can kick in as the hospitals meet certain purchasing levels. To make matters more complicated, those products get delivered by a distributor, and in some cases, Premier also manages the contracts with the distributors.

Disputes can arise when a manufacturer claims a purchase is ineligible for the special pricing. If a distributor is involved, there can be additional complications, because the distributor may not have access to the hospital's lower contract pricing. "That's one of the reasons you need a system like this to be able to keep track of all the components of a contract," Pleasant said.

With the new contract management system, Premier expects to be able to better ensure that contract pricing is applied, contract terms are met and volume purchases are credited to the right institutions.
Round-the-World Teamwork

Erran Carmel studied for three years how 17 major companies manage global software teams. The associate professor at American University in Washington has published his findings in a new book, Global Software Teams: Collaborating Across Borders and Time Zones (Prentice Hall PTR, Upper Saddle River, N.J.; 208 pages; $39; paperback). Freelance writer Rochelle Garner spoke with him about his findings.

If you could single out one or two cultural differences that have the greatest impact on cross-national teams, which would they be? The first would be how each culture reveres hierarchy. In some cultures, people listen to superiors very carefully before they will express an opinion. Studies show that Russia, China and Indonesia have a high regard for hierarchy. Other cultures revere equality. These include Israeli, German and American cultures. Those differences will manifest themselves in personal initiative.

Another key cultural element revolves around the notion of high-context vs. low-context communication. Low-context cultures (notably American, Northern European and Australian) use language very precisely. Language is the principal means of communication. This is in contrast to high-context cultures such as those found in Japan, China, Latin America and India. Here, the major component of communication is in the context: people's surroundings, past and present events and in the relationships between people. These cultures want to build a relationship first, and then they trust.

Can you give some examples of how cultural differences might manifest themselves in a development team? All specifications have implicit mental and value assumptions that are understood by one culture, but not necessarily another. That becomes an issue when you hand off specifications to a culture that doesn't understand business, say, or the components of an advanced consumer culture. This applies particularly to India but also to Russia. That means everything has to be very carefully spced out.

How does a project manager cope with different time zones, languages and cultures? The key lies in creating some methodologies and formalities for communication. There are certain protocols for how to write an e-mail that are critical when dealing with people whose native language is not English. The first is to purge cultural idioms, like "apples to oranges," which others find hard to understand. Beyond that, managers should direct team members to acknowledge every e-mail within one workday and to avoid sending messages to multiple recipients unless it's absolutely necessary. E-mail headings should be descriptive, and the message body for administrative messages should follow agreed-upon templates. And e-mail senders should state explicitly the sort of response they expect.

It's important to remember that effective communication is through multiple channels, with a lot of redundancy. What was concluded with a phone conversation should be replicated in e-mail. And people should repeat back what they think they understand.

Your book addresses the vital importance of occasional face-to-face meetings - at project kickoff, at various milestones and to celebrate completions - with all team members. Is this something a company must budget if those cross-national teams are to work? For a long-term project, periodic face-to-face meetings are recommended. Such get-togethers create relationships, relationships lead to trust, and trust leads to more effective teamwork. There's no getting around travel with a global team. Some people need to travel almost all the time. These include specialists and the project manager. But it also makes sense that some specialists be rotated to different sites for months, if not years, at a time.

You also write about virtual retreats as a way to build relationships across boundaries. Can you describe the practice and why it's valuable? I would classify the virtual retreat as one of the many metaphors from the real world where people sit around a room and talk about themselves. This can be done with discussion groups and chat rooms in teams that are in similar time zones. The point is not to talk about everyday problems with the project. Instead, they talk about their personal lives to establish a relationship, and they talk about the larger issues in the project.

Managers should encourage that participation, since it requires a lot of selling up front - with the manager contributing interesting and exciting posts that get others to join in.

What's the role of the cultural liaison? It's a fuzzy role, but it's someone who acts as an important conduit of communication between the two most prevalent cultures [on a team]. In India these days, that person is usually an Americanized Indian who had spent years in the U.S. and is sent back to manage a project. Many cultural liaisons are higher than the project managers.

Is there any piece of advice you would give companies about to launch global software teams? Everyone on the project team dealing with anyone outside the immediate unit needs to understand something about that other culture. That's why I recommend that everyone receive some form of cultural preparedness training, taught by professional cultural trainers.

Garner is a freelance writer in San Carlos, Calif. Contact her at rrgarner@pacbell.net.
The world isn’t small enough — yet

The “GLOBAL ECONOMY” is a myth.

I don’t know who first dreamed up the phrase or what they really meant by it, but just try to move your product or service from one country to another. Yes, information zips through the ether faster, people are more mobile and UPS, FedEx and DHL operate in more countries these days. But the only thing that really seems “global” about the world’s economy is that when one country has a financial hiccup, it can affect the economy of another. That’s because there is more trade among countries, and we lend one another a lot of money.

Why does this myth matter? Because today, the Internet really makes a boundaryless marketplace possible — possible, but not yet a reality. My wife and I experienced this recently when we wanted to buy a piece of furniture we had seen in a European magazine. It was a ready-made catalog item. No special manufacturing was required. So we followed our usual normal practice of searching the Web for the manufacturer’s page. We found it and also found our way to the company’s U.S. representative. But that’s where our global experience stopped. To get what we wanted would have taken lots of paperwork, lots of phone calls, and months of waiting. It was hardly an easy or pleasant customer experience.

We really don’t operate in an open global economy, so a company’s technology and distribution strategy is also affected. Recently, I saw the dilemma from the supplier’s point of view. A client had built a successful e-commerce site for its products here in the states. But the question now is how to expand into Europe and Asia. It was a ready-made catalog item. No special manufacturing was required. So we followed our usual normal practice of searching the Web for the manufacturer’s page. We found it and also found our way to the company’s U.S. representative. But that’s where our global experience stopped. To get what we wanted would have taken lots of paperwork, lots of phone calls, and months of waiting. It was hardly an easy or pleasant customer experience.

Java use is increasing substantially among international developers, according to new research from Santa Cruz, Calif.-based Evans Marketing Services. The marketing company’s April survey of 340 developers in more than 60 countries — titled “International Developer Opinion Survey” — showed that 40% of that group uses Java, up from 30% in September’s survey. In the North American version of the survey conducted during the same time frame, Java use remained flat, at 43%.

The 200-page report is available as part of a subscription.

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IT consultants with top skills continue to get filthy rich. Meanwhile, it seems like mediocre consultants feel entitled to the same high pay

By Leslie Goff

JOANNE LEAVEY knows what it means to go the extra mile to sign up a new consultant. As a recruiter at the Sheridan Consulting Group in Melville, N.Y., Leavey last year found herself driving all over Long Island looking for a car and an apartment for an SAP consultant who was relocating from out of state. “It had to be a four-door, midsize economical car, and the apartment had to be in a good school district,” Leavey recalls. “And both had to be within a certain budget. I had to work nights and weekends to find them, and I put a $50 deposit on one place that I never got back.”

But her client, a large, prosperous and loyal customer, wanted the consultant and was willing to pay “a tremendous fee,” Leavey says. “So even if time is money, we still made a profit on the deal.”

It seems that even skyrocketing salaries aren’t enough to pull in a good consultant. Offer them the moon and the stars, and they’re apt to ask you to throw in the sun and the clouds while you’re at it. Consulting agencies have fallen into a black hole, infinite and vast judging by the increases in salaries and bonuses reported by 250 firms in Computerworld’s second annual Consultants Salary Survey. In five out of six consulting job categories, paychecks soared last year over 1997 by roughly 25% for entry-level consultants to as much as 240% at the senior partner level.

In one-on-one interviews with several survey respondents, they report average base compensation increases of between 10% and 20% but say both the quality and quantity of bonuses are also on the rise. And like Leavey, they say consultants with skills on the “Most Wanted” list (see story, next page) and the right mix of technical know-how and business finesse aren’t only driving up wages; they’re soliciting some exceptional perks to come on board.

Another SAP expert, after receiving a written offer, demanded 10% more than the stated salary, plus relo-
And a consultant who had prior experience with an agency's key client received a six-figure salary, four weeks' paid vacation and a $10,000 signing bonus. Covering relocation expenses for consultants has become the rule rather than the exception. Many agencies are taking care of all the paperwork and covering expenses for foreign nationals. Some are even reimbursing recruits for money they owe their former employers for training expenses.

Stephen Broyhill, director of business development at Battelle, an information technology consulting firm in Arlington, Va., has had relative novices ask for 3x their salary just because they "have two friends who are making that much."

The dramatic growth and outrageous requests follow what's perhaps the only law more reliable than Murphy's: the law of supply and demand. Last year's frantic year 2000 push, coupled with enterprise resource planning (ERP) implementations, e-commerce expansion and the scramble for Oracle Corp. software expertise, hit agencies with the force of a typhoon. Trying to recruit and retain the talent they needed without raising salaries and adding bonuses was like running into gale-force wind.

It's not that there aren't bodies out there — there aren't qualified bodies out there, agencies say. Lured by reports of the IT labor shortage (or skills crisis), it seems that anyone who's ever sat in front of a computer goes knocking on agencies' doors.
IBM e-commerce software powers the REI online store — and sales that exceed projections by over 360%.

Can IBM e-commerce software help you?

IBM software is helping thousands of companies build, run and manage powerful interactive e-commerce Web sites. For REI, that means everything from state-of-the-wilderness gear you can buy to clinics on outdoor skills, enthusiast bulletin boards and a world of trips and tours. The scope of REI’s offerings led them to IBM.

IBM software provides the building blocks for all facets of e-business, including secure payments, electronic catalogs, and order processing. For REI, proven products, such as Net.Commerce, DB2® Universal Database® and IBM Firewall deliver the scalability, reliability and security it takes to reach, sell and service a growing community of outdoor enthusiasts.

The results have been nothing less than astonishing. In the first quarter alone, REI’s sites generated online sales that exceeded projections by over 360%. And these e-sales are 4 times the size of those in their brick-and-mortar counterparts. Bottom line, REI is growing profits far beyond its wildest expectations.

REI is just one example of the thousands of e-commerce businesses IBM software has helped build and grow. From Web storefronts to integrating your business systems and supply chains, IBM offers a breadth of software products simply unmatched by anyone. All backed by the know-how and support of IBM and its Business Partners.

Profit from the learning of over 10,000 e-businesses with IBM online resources and our free e-commerce Roadmap. Visit www.ibm.com/software/ec/roadmap

IBM software can help you build, run and manage e-commerce solutions on all major platforms.

Net.Commerce
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MQSeries®
Helps you integrate new and existing applications into your e-commerce solution. Fully Java®-enabled, MQSeries is the world’s leading business integration product and works across more than 35 platforms.

DB2 Universal Database
Has the speed, scale and reliability to meet any demand, with seamless integration from virtual storefront to back-end core business systems.

WebSphere®
WebSphere Application Server extends core business functions to Web clients and vice versa. Built-in connectors to databases and other systems help meet high transaction demands on existing and future applications.

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I don't think retention is about money... it's about recognizing and rewarding [consultants].

TIM BRADSHAW, STAFFING SPECIALIST, INTERIM TECHNOLOGIES

I'm a freelance writer in New York.

MOREONLINE

Information about Computerworld's Consultants Salary Survey, which was conducted to determine average annual salaries by experience level and average additional compensation. The survey was conducted in February, with 250 companies participating. They provided salary data for 2,400 IT consultants, with an average of 10 consultants employed per company.

Steve Robbins, a technical recruiter at Professional Support Inc. in Rochester, N.Y., says he received a resume from one aspiring consultant whose list of experience included "designing a spaceship for interplanetary travel."

"And he was serious," Robbins adds. "We didn't go too far with him."

Raihall says he rejects 60% to 70% of the candidates he interviews because they lack the technical skills or the attitude for the job. "Sometimes, we see people with excellent technical skills, but they can't do more than sit in front of a computer and code," he explains. "They must have some business acumen."

Because agencies are trying to build lasting relationships with their clients, they're seeking individuals who can help deliver a full-service solution. It's not enough to send in a body who can chow down Microsoft Corp.'s Visual Basic programs — agencies need developers who can advise clients on why they need Visual Basic programs. And not only must developers advise clients, but they must do it with a measure of "diplomacy and finesse," says Tim Bradshaw, a staffing specialist at Interim Technologies in Houston.

Moreover, those astute, diplomatic IT pros should have a range of technical skills, "and that's never been easy to find," Broyhill says. Put them all together, and it's like alchemy: Ordinary material turns into gold.

"Stovepipe technical skills don't work and, by definition, when you're looking for people with multiple technical skills, it narrows the market. Then you narrow it further when you need business skills, too," Broyhill says. "So you have a growing industry with a stagnant pool of employees, and salaries are accelerating rapidly."

Consulting Farm

And that brings up another law governing consulting agencies: All consultants are equal, but some are more equal than others. And their salaries are accelerating rapidly, thanks to big bonuses.

Despite reports that ERP implementations are slackening off, SAP consultants continue to command salary premiums and sizable sign-on bonuses. At Nichols Infotec, consultants are the only ones who are offered sign-on bonuses. And Leavey says she has seen SAP consultants who have complementary skill sets offered as much as $30,000 to take a job.

An e-commerce-with-object-oriented-programming skills combo garners a premium, drawing close to six figures in some markets. Broyhill says that in the Washington area, where the skills shortage is "the worst I've ever seen," such experience brings an average of 30% more than other skills.

In an effort to stem the rising tide of salaries and tame egregious expectations, many consulting agencies are retooling their human resources efforts, adding project completion, employee referral bonuses, mentoring programs and more benefits packages. Squeezed by clients that want to pay lower rates and consultants who want to earn more, they're turning their attention to retention, seeking to alter the image of the cold, uncaring body shop.

For example, Nichols Infotec offers a full bouquet of health care benefits, including flexible accounts with an array of family coverage options, disability insurance and medical leave. Consultants receive additional compensation when they work and a quarterly bonus, both based on billable hours. "Earning an additional 10% over their annual salary is not unusual," Yelle says.

Then there are the extra perks. Innovative Client Solutions in Palantine, Ill., is about to go public and has decided to offer stock options and paid training to both its salaried and hourly W2 consultants, says recruiting manager Shaun Kirkwood. One agency, which asked not to be identified, offers its consultants interest-free loans so they can buy a home PC.

"I don't think retention is about money if you pay consultants competitively and fairly," Bradshaw says. "It's about recognizing and rewarding them."

Smells Like Team Spirit

Agencies also are trying to inject an esprit de corps into the ranks. At Interim Technologies, recruits are paired with a mentor who shows them the ropes and inducts them into the corporate culture. Others are creating opportunities such as after-work parties and golf tournaments for on-staff consultants who may not work together to have a little fun.

In spite of efforts to retain consultants by offering them more stability and benefits, many continue to "try to grab the brass ring while they can," Raihall notes. But agencies could soon find some relief, thanks to the inevitability of one of physics' most profound laws: For every action, there's an opposite and equal reaction.

In other words, what goes up must come down, and if Y2K was the cause for soaring consulting fees, it's also going to be the cure. Raihall says companies that have been overpaying for a vital service are getting back in touch with reality. "It's about recognizing and rewarding them."

Goff is a freelance writer in New York.

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**MOREONLINE**

In addition to the average salary and bonus information displayed here, Computerworld recently surveyed more than 500 IT professionals about their paychecks and a variety of compensation issues. For the results of how IT consultants and contractors reacted to salary and job satisfaction issues, visit our Web site.
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New Career Chart Toppers

THE DAYS OF THE SPECIALIST are over — bring on the generalist. The e-commerce tidal wave has spurred IT shops into providing full-service offerings via the Internet for the business products and services they support. The Internet’s success has caused a new customer focus on data communication as opposed to verbal intercourse.

The result: a number of new IT concerns, crises, projects and job opportunities. Current and future critical information technology projects call for multitalented professionals with skills in areas such as the Internet, networking, data security, data warehousing and “sticky” Web content development (keeping the customers on the site and creating value to keep them coming back). For IT professionals trying to chart their career paths, Internet experience is a hot commodity these days — and it most certainly will be a minimum requirement in the near future.

The Net era requires a broad range of expertise in every position. Here’s a look at the best jobs to invest in and what they require:

- **Internet Specialist**
  - Salary range: $75,000 to $85,000
  - This position requires skills in senior-level networking, LANs and WANs, the Internet, security, e-commerce, Unix, Windows NT and Novell applications. You must be able to communicate effectively, possess an outgoing personality and enjoy working with users. It’s a high-level technical post; the next step up is team leader or manager.

- **Windows NT Systems Architect**
  - Salary range: $60,000 to $80,000
  - Increasingly, IT shops are connecting via NT technology, making it imperative to have one person who can wrap his arms around the entire project and address topics like network design, network management, security, scalability and performance. You must have a background as a senior network engineer with solid NT troubleshooting skills, excellent detective abilities and team-play attributes. The next stop on that very senior technical path is management.

- **Cross-Platform Security Specialist**
  - Salary range: $100,000 to $120,000
  - You’ll function as the resident end-to-end network and data security specialist; your primary responsibility is to ensure there are no leaks. The job requires a strong networking background, firewall expertise and the ability to make the applications safe but not too cumbersome. If you have a strong background in applications programming, network technology, the Internet and security, this is the job for you.

- **Web Designer/Site Builder**
  - Salary range: $60,000 to $80,000
  - To build the spiffiest site in the competitive marketplace, you’ll need Web-site development skills such as C++, Java and HTML. You’ll support the information, automation of customer service, help desk functions, ongoing development and maintenance. You’ll need a strong understanding of the business you’ll be supporting and lots of intuition.

- **Web Strategist**
  - Salary range: $60,000 to $120,000
  - This position also calls for a unique person — someone who has a strong understanding of the business, technical skills and a marketing vision — to work with the Web-site builder. You’ll provide “sticky” Web content. You’ll also keep an eye on the competition to maintain a leading edge. You’ll work very closely with the technical strategists and department heads to communicate the services effectively. It’s the kind of high-visibility position that can open other technical leadership and strategy doors.

- **Technology Strategist**
  - Salary range: $120,000 to $150,000
  - To perform this job, you’ll need a breadth and depth of technical knowledge across all platforms. You’ll need to focus on the future; be able to transition old technology to new systems; show expertise in networks, the Internet, operating systems, operations and applications; and demonstrate business savvy. Next stop is chief technology officer.

- **Chief Technology Officer**
  - Salary range: $200,000 to $250,000

Next to CIO, it’s the highest post in an IT organization. The chief technology officer manages and plans technical standards across the organization and tends to the daily, high-level IT issues. You must be a forward thinker who understands the business being supported. You’ll also find ways to enhance service. Understanding the numbers is a critical facet of the position, as is knowing when and where to take business risks. The prerequisites for the position are a background as a technical strategist — knowledge that’s a mile wide and a mile deep — and an outgoing, magnetic personality.

Fafard is research director and branch manager at Montgomery West in Torrance, Calif. She can be contacted at lfafard@montgomerywest.com.
Last November, San Francisco-based GreenTree Nutrition Inc., which runs an online vitamin store at www.green-tree.com, redesigned its Web site to make it more user-friendly for older shoppers. Now, with one click, users can get to a section of the site devoted to seniors, says marketing director Tim Hogan. There they can research health conditions and find out what dietary supplements can be used for treatment or prevention.

Separately, Healthgate Data Corp. (www.healthgate.com), a Burlington, Mass.-based Web publisher of health information, is gearing up for an August launch of a new webzine called Healthy Senior that will be syndicated on multiple health care sites.

The company already offers The Senior Health Advisor, a free service where people can submit health questions to be answered by experts.

GreenTree and Healthgate don't know what percentage of their online customers are over the age of 50, but chances are it's substantial.

According to Jupiter Communications Inc. in New York, there will be 7 million people age 50 and older online by the end of this year. When it comes to shopping online, “this group is running neck and neck with their younger counterparts,” says Fiona Swerdloe, an analyst at Jupiter.

Altogether, 68% of online buyers are over 40, according to a survey by Ernst & Young LLP and the National Retail Federation. Older Americans have the time, the money and the motivation to shop online. Lugging heavy items, or even getting out of the house, may not be as easy for them as it once was.

As a result, online merchants are scrambling to woo this audience. In doing so, they're confronted with some interesting challenges. Should they single out older Web surfers, and if so, how?

According to experts, the answer depends on what you’re selling.

Generally, the Web is a behavioral medium, says John Jordan, director of e-commerce research at Ernst & Young in Cambridge, Mass.

“The behavior is what matters,” Jordan says. “Companies should be paying attention to what people do on the Web, not who they are.”

By observing its customers, GreenTree learned that older shoppers had a higher need for information than their younger counterparts. “But they want that information presented in a simple way,” Hogan says. That's why the company allows Web surfers to easily reorganize the site to highlight products that are more likely to be of interest to people over the age of 50.

Simplification was also in order when it came to product selection. “We have 99 [different types] of vitamin C,” Hogan says. “That can be overwhelming to anybody.” To make it easier for shoppers, the company recently began highlighting three products in each category — GreenTree's pick, a market favorite and a best value.

GreenTree's Web site also has a lot of information about conditions “for which there is no magic pill,” Hogan says. For instance, lots of older men are concerned about prostate cancer. On GreenTree.com, you can read about the risks, but “we won’t try to sell you anything,” he explains.

It turns out that what older Americans want is generally the same thing that everybody else wants from the Web — security, good values and intuitive, fast-loading pages.

In a recent Jupiter survey, people over 50 were asked what would most help them to purchase online. “They said ‘finding good deals.' ‘finding what I’m looking for’ and ‘credit-card security’ — the same three things that younger people cited,” Swerdloe says.

Seniors can have special needs, though. “It may be more difficult for them to see,” says Don Lowy, president of The Senior Network, a Stamford, Conn., firm that helps companies market to older Americans. “Web merchants should be using bigger print” for seniors, Lowy says. Keep the site clean and easy to read without a lot of distracting motion and sound, he advises.

“I like fast-loading sites,” says Larry Larsen, 57, of Los Altos, Calif., who has recently purchased books, software and a treadmill online. “It really irritates me when I go to a site and it takes 20 seconds to load.” Another annoyance, he adds, are “sites that try to put too much information on their home pages. Larger print would be nice, too.”

Because members of the mature audience have more time than their younger counterparts, “information is king,” Lowy says.

“I agree with that,” says Larsen, a self-
described information junkie. For a recent new car purchase, Larsen used the Web to compare two models for "several hours a day for at least a week."

Brokerage Charles Schwab & Co. in San Francisco recognizes the importance of older Web surfers but has stopped short of redesigning its Web site to make it more appealing to the 50-and-over crowd. "We're focusing on educating this market," says Dan Hubbard, a Schwab spokesman. Schwab has an alliance with SeniorNet, a San Francisco organization that provides computer assistance and training at more than 150 sites across the U.S. The brokerage provides SeniorNet with educational information on investing via the Web.

CD-Now Inc., a Fort Washington, Pa., online music store (www.cdnow.com), also believes that alliances are key to reaching the older audience. The company has a strong presence on ThirdAge.com, a Web site run by ThirdAge Media Inc. in San Francisco. One of several sites aimed at older people, ThirdAge is looking at ways to market directly to seniors via e-mail. "If you can create a comfortable shopping experience, this audience "might not be as mobile," but they must be careful not to talk down or insult the group. "These people think of themselves as young," says ThirdAge founder and CEO Mary Furlong. "The word senior really doesn't work anymore," she says. Many older Americans, she adds, work past retirement age, enjoy good health and lead active lifestyles.

Older Americans don't appear to be any more reluctant to use their credit cards over the Web than younger people. But building a sense of trust — and affiliating with trusted brands — is important to this group, Furlong says.

Seniors are a savvy user group, adds Rick Lawson, vice president of marketing at CD-Now. To that end, CD-Now has started offering music from the 1950s and '60s that older shoppers may have owned as records but not yet replaced as CDs. "Lots of older Americans feel out of place in big, loud, music retail shops that cater to younger buyers," Crotty says. At the same time, he adds, they like to give music as gifts.

Overall, Web retailers have to walk a fine line to appeal to the 50-and-over crowd without putting them off. Sword-loe says merchants should play up the convenience of online shopping because this audience "might not be as mobile," but they must be careful not to talk down or insult the group.

TARGETING SENIORS: NOT FOR EVERYONE

Not all Web merchants are segregating senior categories, however. Roger Wood, vice president of e-commerce and direct marketing at Reebok International Ltd. in Stoughton, Mass., says it would be a mistake for the athletic shoe and clothing manufacturer to do that. "When it comes to food or clothing, you are talking about tastes," he says. "In these categories, people who are 45 wish they were 25, and people who are 15 wish they were 25." Because food and clothing suggest something about your identity, "people tend to aspire and have dreams about that point in life," Wood says. So don't expect to see images of older Americans modeling athletic shoes on Reebok's site.

For Austin, Texas-based Garden Escape Inc., which sells plants, seeds and gardening tools at www.garden.com, the choice to not target older Americans is based on conserving precious corporate resources. "Every time you fragment your site, it involves products, promotions and content, and that can mean 10 to 15 people," says Andy Martin, vice president of development and chief technology officer. Right now, that's a luxury that the 100-person company can't afford.

Most users at Garden.com are between the ages of 45 and 55, but purchases seem to be driven "by seasons and zones," more than age, Martin says. "We do see more older people in our chat rooms, presumably because they have the time." - Barb Cole-Gomolski

BUYING TO MILLIONS

Americans are finding the Net. Here's how your company can boost revenue by gaining mind share within this growing market

By Barb Cole-Gomolski
The front page of the inform
With buying decisions moving at such a frenetic pace, trusted information is more critical than ever. Which is why technology buyers turn first to IDG publications. For more than 30 years, IDG's award-winning editorial has captured every critical trend, product, issue and personality of the Information Age. Through our leading technology publications, we provide honest, insightful analysis based on the needs of IT decision makers. Answers that enable sounder buying decisions. Decisions that are driving digital society.

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Answers for the Information Age

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Should good suppliers worry about remedies?

GETTING A SUPPLIER to commit to service levels doesn't come automatically, but it's sure worth pushing for. Service-level agreements are essential if you want to get what you need out of any outsourcing or services deal. And if you want your agreements to have teeth, you need to be able to measure the supplier's compliance and have remedies in place should the supplier fail to meet service levels. But can you actually get vendors to agree to this? It's not easy, but it's not impossible: In some recent deals for desktop management services, several large health care, insurance and consumer products companies were able to get large integrators to agree to service levels and remedies — after much negotiation.

These days, more suppliers are stepping up to meaningful service-level commitments, but the customer has to establish significant negotiating power to gain those concessions. How? I find the best question to ask a supplier during remedy negotiations is this: "How much confidence do you have in your ability to perform?" Of course suppliers assertively respond, "Oh! We have 100% confidence in our ability to perform. It's no problem!" When you hear this, respond immediately with "Great! Then why are you worried about those remedies that would occur only if you don't perform? The more you worry about the remedies, the more you're scaring me to death!"

If the supplier still balks at remedies after you've led him down this logical path, maybe you should ask yourself if you've selected the right supplier. Only, do it out loud in earnest of suppliers. It tends to have a powerful effect on them. Sometimes you can even see them sweat and squirm.

Increasing the Procurement Functions

How is the IT procurement function viewed inside your company? Chances are, it's considered a necessary evil, at least from a budget or process standpoint. That's unfortunate. Not only can the procurement staff save a company millions, but it can also improve productivity by giving employees better tools to work with. Additionally, competent IT procurement can win performance assurances, customer rights and remedies from suppliers. But like anyone else, your procurement team needs to be motivated and supported. They must be given the authority to conduct negotiations with suppliers, just like military leaders need the authority to conduct wars like warriors.

It's demotivating — and counterproductive — to treat the IT procurement function as just overhead. Like anyone else, accountability and visibility get results. If your IT procurement staffers know they may become famous — or infamous — depending on the deals they make, they have more incentive to perform well. If they're aware their performance will be judged based on savings, reduced risk and how well the deal works, their incentive to make the best possible deal increases.

But if you're a procurement professional, there's no reason you have to wait to be appreciated. You can enhance the function's image and support in several ways. For example, produce a periodic summary of deal results for executive management. Include financial savings as well as areas where risk was significantly reduced. Here's another idea: Revisit deals after they've been in place and assess the vendor's performance. For that report, consider including project deliverables or milestones, the supplier's successes or failures to date and the remedies embedded in the deal in case those failures occurred. And here's something else: Start talking with other management about how to combine their knowledge and your procurement expertise to do a better deal. They are the stakeholders whose input you need, so get them on the team early.

Those are only a few examples. The main point here is that there are many benefits to be had by simply increasing the visibility and accountability of your IT procurement staff. It's the way to prod them to make the best possible deal, on each and every deal. I'm sure your support would help, too. It may sound like common sense — but it is common practice as well.

WORKSTYLES

What it's like to work at...Playboy Entertainment

Interviewer: Rich Cupertino, manager of technology services.

Company: Playboy Entertainment, a division of Playboy Enterprises Inc. (www.playboy.com and cyber.playboy.com).

Main location: Beverly Hills, Calif.

Number of IT employees: Six in Beverly Hills; 40 to 45 throughout Playboy Enterprises.

How many are women? None.

"Every time I've started to make a woman an offer, she's taken a job somewhere else."

Number of employees (end users):

Three hundred in six different West Coast locations; almost 1,000 throughout Playboy Enterprises.

Dress code: Business casual - Dockers and a nice shirt.

No silk pajamas? "Only for Playboy-themed events. Forget any other occasion. People spend a lot of money on the pajamas, and perhaps that's why they're called pajamas."

Security badge/card needed to get into building or office? "Yes, absolutely."

"Why absolutely?" "Being Playboy, we have to be particularly careful in that area, based on the enthusiasm fans have. That's why we've had to do this to protect our guests."

"Sometimes the enthusiasm in the fan mail raises concerns." Your decor? "We have a very, very artistic office. We have all original Playboy artwork on the walls - artwork by Varga, Larry Nieman, people like that."

"We have a very intricate and fancy staircase between the second and third floor that people refer to as the 'Million Dollar Stairway.' It was modeled after the spine of a fancy staircase between the second and third floor."

"It was going to take $1 million to build. "Oh, yes. I've been in his company many times because I am responsible for supporting Playboy Mansion." Quote: "We have a very casual way about working at Playboy.""
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Boeing didn't want to be restricted to Microsoft's Internet Information Server

BY SHARON GAUDIN

Customers Sort Out Roles for Windows CE, NT Embedded

BY DAVID ORENSTEIN

Windows CE aimed at small handhelds,
NT Embedded at larger office products

BY SHARON GAUDIN

As Office Depot.com continues to grow, it may need to migrate to a more scalable platform than IIS on NT, Juliano said. It could use server-side Java technologies like servlets or use ChiliASP to run its ASPs on another operating system such as Solaris, Juliano said.

Windows NT Embedded is still in beta testing, is aimed at larger devices such as fax machines, copiers, and automated manufacturing machines and medical monitors that will be linked to corporate systems.

Embedded NT will run on I2M bytes of RAM and is expected to ship to manufacturers before year's end, according to Vince Mendillo, Microsoft's lead product manager for Windows NT Embedded and appliance strategy. The manufacturers will bundle Embedded NT into products that will reach the market next year.

"Once you weed through what these things do, it's pretty interesting stuff," said Paul Soares, general manager and senior vice president of finance at Alden Buick Pontiac GMC in Fairhaven, Mass. "It looks like we'll be able to do a lot more work with what we have been doing previously."

"With NT Embedded, my machines could talk back and forth," Soares said. "I could even talk with my postage machine or my inventory scanner."

I could download information on what we spent on postage that day and which department spent what percentage of the money. At the end of the month, you could download the activity and allocate the expense by department."

Isaac Apilbaum, president and CEO of Concorde Solutions Inc., the Concord, Calif.-based IT division of Bank of America, said he's looking forward to Microsoft adding NT Embedded to the already-shipping Windows CE.

"I just see the flow of our information being so much greater," he said. "NT is going to [increase the usefulness] of a lot of my dumb machines in the office, and I see CE helping me personally. I'll be able to stay connected to my e-mail, my faxes and online sites through a wireless phone."

Bill Peterson, an analyst at International Data Corp. in Framingham, Mass., said Windows CE will gain in importance as IT departments begin to issue handheld devices, smart phones and pagers, much as they do laptops today.

"A lot of organizations don't have a personal digital assistant policy, but will that still be the case in a couple of years? No, it won't," Peterson said. "Organizations will have to have the policy because salespeople and other business travelers will want to have their tools — e-mail and calendaring — accessible no matter where they are."
The difference between a controlled and an uncontrolled reaction doesn't depend on the participants as much as the environment where it takes place. Fuel, oxygen and a spark, in a carefully engineered, controlled casing, enable a rocket to travel to other planets at speeds in excess of 25,000 miles per hour. Yet these same ingredients, combined in a vulnerable shell plagued by structural weaknesses, can become a deadly bomb.

These laws apply to e-business as well as chemistry. In a controlled environment, where Internet technology serves as the catalyst reacting with business processes and users, e-business can prosper, supplementing or replacing traditional operations. In a not-so-controlled setting (such as one lacking scalability, flexibility or security), the results are unpredictable. Reactions that appear positive at first can quickly degenerate into a series of negative events that can adversely affect and, in the worst case, even destroy a business.

Scott Kandel, a partner in the e-business and Internet technology practice at Deloitte & Touche, says that many firms establishing e-business initiatives overemphasize time-to-market at the expense of designing a flexible and secure foundation. His team performs attack penetration (white-hat hacking) to uncover security weaknesses. "We were able to get into one place's online systems externally and access all the credit card data they had collected," he says. "Such situations are much more common than you'd expect."

Clearly, without the right mechanisms in place—security as well as reliable connectivity and centralized resource control—an e-business remains quite vulnerable. Yet such safeguards cannot impede function. Within a controlled environment, e-business applications need the ability to:

- Locate people, information and other applications in the network
- Connect customers, partners and employees to resources located across multiple systems, and
- Secure communication of data and transactions.

By integrating directory, connectivity and security, IBM SecureWay Software, the first family of software to bring together these fundamental capabilities, reduces cost, complexity and risk. Within the context of the IBM application framework for e-business, SecureWay Software brings control to the e-business environment so companies can reap the rewards of a globally connected economy.

**Locate and connect across multiple types of computer systems**

The demands of e-business create a hierarchy of requirements where, as each new capability comes into play, the need for the next one becomes apparent. Starting with the basics, an e-business must be able to connect and communicate with customers, suppliers, partners across the Internet and employees across an intranet using a variety of computing systems. And these parties must be able to locate the resources they need. The solutions must also be operating system-independent. Any setup that doesn't conquer these basic challenges can't be considered an e-business.
Leverage current data and applications via the Web

Since Internet technology offers the most cost-effective way to connect different platforms, the next logical requirement is to enable access to existing applications from the Web so that any authorized Web browser user can leverage company data and services from anywhere. As this happens, a business opens up its assets to a wide audience. It adds a certain amount of risk to its operations, just as adding fuel to a rocket intensifies its explosiveness.

Reduce complexity and costs

One of the things that make work so complex is the need to know how to find all the different resources located on that network. Resource information resides in different directories throughout the network. If an e-business is going to make progress and grow, there needs to be a way to update and synchronize information—no matter where it's located.

Decrease risks associated with Internet-based operations

Consequently, a greater need to protect data and applications arises, which of course implies security. In 1998, when International Data Corp. (IDC) surveyed IT executives on Internet security, nearly half the respondents said they believed the number of security threats to their organizations would increase by approximately 20% each year.

Without the right security controls in place, a company could suffer some very embarrassing consequences. Group Health, Inc., the largest not-for-profit health services corporation operating in New York State, has a Web site where, among other services, customers can check the status of their claims. Art Louise, Assistant Vice President of MIS at Group Health, says, "We insure many of New York City's finest: the police, firemen and people in some very critical positions. The last thing we need is to have a high-profile New Yorker's medical records show up on somebody's Web site." Given the importance of security to e-business success, cost and complexity cannot remain barriers to its implementation.

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"We have heard from our providers and hospitals that they are very happy with the service on our Web site," says Mr. Louise of Group Health. "But if we don't keep moving ahead, we can potentially lose them to another insurer that's more technologically advanced." An e-business needs to ensure that any customer, employee, supplier or partner—located anywhere on the network—can access new services and up-to-the-minute information.

The result of defining a system where each necessary capability builds upon the prior one is a set of interconnected requirements. When any of those requirements aren't met, the overall structure becomes unwieldy and unstable. Mr. Kandel of Deloitte & Touche goes a step further. "Today, you cannot have a complete e-business infrastructure without a highly integrated, interoperable security and directory solution," he explained. "For authentication and encryption with digital certificates, you need both the certificates and the revocation... secure...

Produced by Computerworld Enterprise Business Solutions
lists stored in an accessible, high-performance directory service.

Furthermore, Mr. Kandel thinks it is clearer to use a single vendor to create an integrated infrastructure. Theoretically, with open standards you can mix and match components from different vendors, he says. "But the reality is—and we've seen this in our testing—that they don't interoperate off the shelf. With a single-vendor solution, you know the integration work has been done. Plus some important function points, such as directory replication, that aren't included in the standards will still be there."

If security is there, but complicated and expensive to implement, it affects the speed with which a company can offer new online services. Actually, the complexity and expense have caused many companies to shy away from linking to the Internet or even an intranet.

Jim Feiler, CEO of Computer PS, a software reseller specializing in high-availability security solutions, has seen companies drop e-business projects completely. "Customers were thinking about putting a part of their business on the Web," he says. "But their worries about security and its associated costs made them stop. That happens a lot."

Even if companies are prepared for the costs and the complexity, then the fight becomes one against time. They may implement new applications but it takes too long to roll them out. By the time the application is available enterprise-wide, the competition has gone on to something else—possibly leaving a business in perpetual catch-up mode.

SecureWay Software: a simpler, more secure foundation for e-business

Given the dependent nature of e-business requirements, the simplest solutions must integrate the key elements that fulfill those needs. In other words, interrelated requirements call for integrated solutions. Satisfying each requirement independent of the others becomes a formula for creating unnecessary complexity.

Many development houses have produced very good solutions to individual security problems. As a result, a company may use one vendor's software to control access to sensitive information and another's to ensure user identity. For each policy change that affects both solutions, an explicit action needs to be taken on each product. Inadvertently skipping one compromises the integrity of the overall system.

Complexity isn't the only problem that arises when companies look for independent solutions; instability also becomes a threat. "When I think about what I need to satisfy the requirements of e-business, I visualize building blocks," says Doug Ring, director of emerging technologies for GEAC Smart Enterprise Solutions. "So if I pull out just the corners of those stacks, the whole thing comes tumbling down." Mr. Ring is implying that the failure of any one package can compromise the entire e-business support structure. Through several points of integration—some available in the short term and others a little further out—SecureWay Software simplifies the e-business environment to lower costs and reduce risk.

The importance of standards

Offering an integrated set of products to support a flexible e-business environment would be impossible if SecureWay Software were not based upon open, cross-platform standards for directory, connectivity and security. The certificate-based standards for security accommodate e-business growth. They also benefit companies immediately by simplifying access to multiple applications. Once a user enters her certificate, she can freely move among standards-compliant applications.
Centralized scalable enterprise directory

Today, almost every networked application has a proprietary directory for storing information about its authorized users. A Forrester Research report indicates that, on average, Fortune 500 enterprises have nearly 200 separate directories with the same information appearing in many of them. Therefore, integrating directories goes a long way towards simplifying a network.

Without a single, central repository, administrators need to keep all directories synchronized. If a user changes her name when she gets married, the administrator needs to update the directories for each application she uses. An integrated directory scheme eliminates this administrative quagmire, and consequently reduces network operating costs.

Policy integration

Another high leverage point of integration is policy. Through a common administrative console and repository for policy information, SecureWay Software will offer both security and network policy integration. With these integrated functions, an organization can define an enterprise-wide policy on how applications and users should behave. These rules, stored in a common directory, are available to all "policy consumers," namely SecureWay Software products and other compliant applications.

For example, with SecureWay Software's common means of describing who has access to what, a business can enable consistent and secure business practices throughout the enterprise. Consistency, combined with the intrusion detection offered in SecureWay FirstSecure, makes it easier to detect potential threats by identifying users repeatedly trying to gain access to unauthorized resources. In addition, SecureWay Software will integrate virtual private network (VPN) policy, to further protect an organization's integrity by defining secure tunnels through the unsecured Internet.

Longer term, the network policies in SecureWay Software will specify the service level agreements for the network or the quality of service (QoS) that a particular application user can expect. A common way of defining, storing and accessing network policy can improve factors such as customer satisfaction by handling network traffic according to business priorities.

In general, when policies can be established and managed with relative ease, it's more likely that the entire enterprise will adhere to them. By enabling this greater ease, SecureWay Software will create a more secure and well-run e-business environment. Furthermore, the effect of integrating both policy and directory allows SecureWay Software to offer the additional development and deployment benefits that are gained when e-business applications can exploit common security and user structures.

Host integration

One of the fastest ways to start benefiting from Internet technology is to integrate host systems with an intranet, extranet or the Internet. SecureWay Software's host integration products protect and extend a company's investments in existing applications by enabling Web browser access to host applications. SecureWay Host Publisher and Host On-Demand can jump-start e-business because they require no changes to original host applications. SecureWay Software moves existing applications to the Web at a justifiable cost and in an aggressive time frame.

Simple secure access

Single sign-on technology simplifies access for users. Users can access any secure resource in the network by entering their credentials (usually, just user ID and password) only once. Besides the productivity gain, implementing single sign-on technology can directly impact costs too. A Forrester Research study found that 80% of help desk calls are password-related and that single sign-on can reduce help-desk calls by 40%. Therefore, a company with 20,000 users can potentially realize a savings of nearly $4.4 million.
Maintaining personal preference information on the network

Integration of SecureWay On Demand Server, which is planned for subsequent SecureWay Software releases, will standardize how network resources are accessed and stored on the server so that they can be retrieved by whoever needs them "on demand." These resources include information that has been stored on client systems, such as preference information. Combining the centralized control that comes with traditional mainframe computing with the more natural interface and independence of PCs can yield a number of substantial benefits.

Adding a personal preference capability—where the network maintains a profile of each user, based on user ID as opposed to network address—can strengthen policy-based computing. Applying this preference layer so that the network can identify individuals adds another dimension to IT's ability to implement business practices. For example, during forecast periods, salespeople using a forecasting tool would have higher priority than other traffic.

By limiting deployment of new applications or updates to servers rather than to all the connected clients, a company can significantly compress rollout schedules. A company with this kind of setup is always prepared to make quick responses to market changes, which makes it a formidable competitor.

Server-based computing frees users from being tied to a specific client because they can reach information and applications from anywhere in the network. Furthermore, software that translates user interface code into formats suitable for any user device strengthens this centralized model. People can choose device types other than PCs and laptops to access and interact with applications residing on a server. For example, a mobile workforce using handheld devices can have immediate access to the resources on the network.

The whole is greater than the sum of its parts

SecureWay Software enriches an e-business by creating an environment where directory, connectivity and security work in concert. Most individual SecureWay Software func-

Imagine the Future with IBM SecureWay Software

SecureWay Software's integration of the core e-business technologies—host site, connect and secure—implies the network environment that whole new ways of doing business becomes not only possible but feasible.

Keep mobile workforce online

With SecureWay Software, a salesperson visiting a customer's office can check stock levels directly from the inventory system as easily as he runs his credit card. The same sign-on procedure he uses to get e-mail will give him the necessary authorization and authentication to tap into valuable IT assets, yet keep them secure from intruders.

...and in line with restricted access to highly confidential data. Certain sensitive transactions are best not done from the road. SecureWay Software lets you respect accessibility depending on location. So although it makes sense for a human resources executive to access some aspects of the benefits system, it is not appropriate to make salary adjustments from an off-site location.

Shift administrative burden to suppliers...

through electronic ordering to cut down on paperwork, reduce inventories and avoid out-of-stock situations. Through an e-business built with SecureWay Software, your suppliers can monitor stock levels and usage, update systems with delivery information and link directly to the accounts payable systems. Yet you can be confident these suppliers can access and update only the authorized systems.
tions are available from other vendors, but these vendors tend to focus on one or two requirements. IBM is the first to offer an overarching strategy that reduces complexity, cost and risk, so that an e-business can enjoy explosive growth with confidence.

Integration in action

Delivering a host application to employees on an intranet or launching an e-commerce Web site is like sending a rocket to the moon. It's not just a matter of getting the rocket on the launch pad; all the support elements need to be in place before igniting the engines. And it all happens much smoother and quicker with a centralized control point.

In the case where a host application is moved to an intranet, other host applications and data sets are more exposed. Hence it's important to get access control in place. With access control comes the need to verify the user through certification standards. Also, information about the users must be stored in a directory. SecureWay Software includes all the necessary pieces: host integration, access control, authentication and the directory.

Without a solution like SecureWay Software that integrates all the required elements, moving a host application would entail creating a unique directory for each: the application, the access control program and the authentication program. And if another new application were added, a complete new set of directories would need to be built to support it. By virtue of its integration, one SecureWay directory is all that is needed to properly secure and connect this host application to authorized users on an intranet.

Stabilizing e-business environments

SecureWay Software not only reduces the cost and complexity of building and running an e-business, it protects it from the elements that destabilize an application's ability to locate, connect and secure. For example, SecureWay Software can help avoid situations where a Web user can't reach a back-end database, locate a network printer or remember a password. As a result, it creates a controlled and trusted e-business environment where the only unexpected reactions come from exceeding profit expectations. SecureWay Software is the critical foundation for faster success.

Innovative customer interactions

When your customers can connect to networks that are rock solid and secure, they feel comfortable supplying personal information and conducting financial transactions online. A trusted e-business environment, combined with an integrated directory structure and innovative programming, means you can offer services that keep your customers loyal and create processes that lower costs.

Utilities

Share the wealth. Encourage customers to receive and pay their bills on the Internet by giving the Web customers discounted rates. Offer online information about energy consumption that helps customers budget their monthly energy costs.

Healthcare insurance

Participate in disease management. With his knowledge and agreement, you can monitor his medication consumption of a customer with a chronic condition to make sure his usage pattern benefits his condition. If through his claims it appears he's not taking his medicine at the right rate, you can notify him.

Beyond the Web...empowering travelers

With the strategic placement of kiosks, along with smart cards and SecureWay technology, traveling can become a lot easier. By encrypting airline tickets in a smart card, a traveler can go directly to a kiosk at the airport for boarding passes. At a hotel, a key outfitted with the right hardware can access customer preferences from the smart card and then encode the magnetic strip on the smart card so it becomes the room key. If someone loses their smart card, it's not a big deal to replace because the information can be loaded on a new card from his PC, and the missing card isn't a threat since anyone who finds it won't have the PIN number.
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Produced by Computerworld Enterprise Business Solutions
Spotfire Offers Low-Cost Mining Tool

BY STEWART DECK

Medical research isn’t often turned to for its economic wisdom, but now a data visualization tool aimed primarily at life-science and pharmaceutical researchers may well point the way toward a form of low-cost data mining for business users.

Spotfire 4, just-released by Cambridge, Mass.-based Spotfire Inc., was designed to provide those low-cost capabilities. It gives users the ability to visualize, analyze and mine large sets of technical and multidimensional data.

Company officials acknowledged that Spotfire doesn’t carry the heft or the capabilities of traditional mining tools from the likes of SAS Institute Inc. or Thinking Machines Corp., but its price tag, starting at $5,000 per seat, has attracted many users.

Finding Patterns

“It has solved a lot of headaches at once for us,” said Curtis Lockshin, a researcher in the drug discovery division at Sepracor Inc., a Marlboro, Mass.-based pharmaceutical company.

Without Spotfire, Lockshin said, he would have to query for a single answer at a time, then compare results in a spreadsheet graph. That probably wouldn’t highlight the patterns and connections that turn up with data visualization tools.

Although focused on the research market now, Spotfire plans to target a larger business audience with forthcoming releases. But one analyst said such a move might not be a simple one.

“They’ve done the smart thing in customizing their visualizations for particular industries,” said Herb Edelstein, an analyst at Two Crows Corp., a Potomac, Md.-based consultancy. “But this may make it difficult initially (for them) to translate that to the general business community.”

“I like to dig beneath the surface, to observe a trend that’s not widely reported or recognized. I look for the contrarian view, the gems others may have missed.

In fact, that’s Computerworld’s strength. We bring a level of understanding to our readers that very few publications do. I feel very lucky that what I write about is so important to business and to our lives. I don’t skim every story, it’s full of gold coins, but I always have something in there that delivers value to our readers. And I want all my articles to be fun to read...because they’re certainly fun to write.

I’m proud to be a reporter. That’s what I am. That’s what I do.”

Gold Miner

Gary Antin, Senior Editor, Special Reports
**Micron Rolls Out Xeon-based Servers**

Micron Electronics Inc. has released NetFrame 5200 and NetFrame 5201, servers that support one or two 550-MHz Pentium III Xeon processors.

The servers offer up to 20 bytes of synchronous dynamic RAM and up to 1086 bytes of internal storage, according to the Nampa, Idaho, company. The 5200 comes bundled with Windows NT Server 4.0. The 5201 can be configured with NetWare. Pricing starts at $4,799.

**Videoconferencing System Bows**

Polycom Inc. has announced the ViewStation SP group videoconferencing system for small meeting rooms and offices.

The system supports video up to 15 frames per second at 128K bit/sec., according to the San Jose, Calif., company. The 5200 comes bundled with Windows NT Server 4.0. The 5201 can be configured with NetWare. Pricing starts at $4,799.

**Wedge Adds Notebook**

Wedge Technology Inc. has announced the ShowBiz 9000P, a presentation notebook computer that can be equipped with either a 300- or 366-MHz Pentium II mobile processor.

The notebook features a video display that converts to a projection panel. When used as an overhead projector, the panel can display an image up to six feet away, according to the San Jose company.

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Cellular Phone Encryption Challenged

BY ANN HARRISON

Information technology managers may be leery of allowing sensitive business conversations over cellular phones after cryptographers last week charged that the encryption used for certain cell phones is vulnerable to eavesdropping.

Members of a California-based group of privacy activists called the Cyberspunks distributed the source code for a widely used cell-phone encryption algorithm in hope that others can evaluate its strength. The algorithm, called A5/1, is an over-the-air, voice-privacy algorithm used to secure the Global System for Mobile Communications (GSM).

GSM is the most widely deployed cellular telephony system in the world, with more than 100 million subscribers. The A5/1 algorithm — embedded in every GSM mobile phone and base station — requires a full 64-bit encryption key to secure phone calls.

But Marc Bricero, one of the researchers who released the code, said GSM providers don't tell their customers that they "zero out" 10 of the 64 key bits. "Most or all providers deliberately weakened the key strength by a factor of over 1000," Bricero said.

Charles Brookson, chairman of the GSM Association Security Group, a Dublin-based group of security experts from the world's GSM operators, said the key space of A5/1 had been reduced from 64 to 56 bits to meet export restrictions. But Brookson denied that the reduction left the algorithm vulnerable to attack.

"Can A5/1 be cracked? Absolutely," said analyst Craig Mathias at Farpoint Group, a research and consulting firm in Ashland, Mass.

However, Mathias said, an eavesdropper would also need to know the entire channel structure and follow the signal as it hops to different frequencies to intercept and decode a GSM signal.

MOREONLINE
For resources related to cryptography and encryption, visit our Web site: www.computerworld.com/more

Palm VII Review

ing, allowing you to download only parts of messages to see if you want the whole thing, it doesn't do attachments. Moreover, though the Palm's Graffiti handwriting system is acceptable for inputting very short messages, it can be a real nuisance for longer messages.

Even a tiny keyboard, such as those found on Research In Motion Ltd.'s Blackberry or Nokia Corp.'s Communicator smart phone, would be a welcome improvement for sending e-mail. Despite these limitations, however, the Palm is a dandy package combining the extensive data storage of its organizer forebear with easy wireless communications.

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MCI WORLDCOM OFFERS OUTSOURCED GLOBAL VPNs

New offering outsources everything from design to ongoing operations

BY BOB WALLACE

Companies looking to build international virtual private networks (VPN) will find that outsourcing to MCI WorldCom Inc.'s managed global VPN service can offload network design, construction, management and monitoring.

MCI's UUnet Technologies unit recently detailed USecure VPN, a service that handles system setup, support, security, performance and VPN management.

"By combining global reach with standards-based VPN security, UUnet is delivering a unique managed VPN service," said Erik Zines, VPN analyst at TeleChoice Inc., a Boston consultancy. "Others offer managed services that are not standards-based or locally supported."

USecure will be available in 14 countries by year's end and will compete in the nascent managed international VPN market with offerings from IBM, AT&T Corp., GTE Corp. and Equant, experts said.

However, the service lacks support for dial-up access and is hitting the market later than established offerings from those rivals, which have built sizable customer bases, Zines said. Beyond that, most managed international VPN services offer similar features.

A managed global VPN service is attractive because it takes a lot of manpower and money to manage international communications," said Ram Prabhu, corporate communications manager at filter maker Millipore Corp., which is based in Bedford, Mass., and has sites in more than 30 countries. "It's an attractive option that we're going to look at."

To address network setup, UUnet will provide, configure, ship and install an all-in-one device from Xeda Corp. that handles security and has firewall and bandwidth management features. UUnet also provides support in the language of whatever country it's in.

"A huge hurdle for prospective VPN users has been network setup; a bunch of companies have given up in this phase," Zines said. That's because it's resource-intensive and requires skilled technical staff in the U.S. and abroad, he added.

To allay user fears about performance, all traffic is carried on UUnet's Internet backbone, not the Net itself, and is constantly monitored from a dedicated UUnet network operations center. The Xeda devices help users avoid bandwidth bottlenecks by measuring usage on lines that access UUnet.

In stressing the tag team of the Xeda devices' security capabilities and the specialists in its network operations center, UUnet hopes to address this longtime user concern.

"Managed security is on the rise. Security specialists are in short demand and are increasingly tough for even large companies to hire and retain," said Greg Howard, a principal analyst at The HTRC Group, a San Jose consultancy. IT managers will find managed VPN security an attractive and less-expensive alternative, he said.

Analysts said the major reason to skip a managed VPN in favor of managed service is to retain control of the network.

USecure Service
Reach: 14 countries by year's end
Transport: UUnet's Internet backbone
Security: IPSec encryption (56K or 160K bit) and firewalls
Support: In-country local language service and support
Monitoring: From dedicated UUnet VPN Network Operations Center
SLA: For latency, available in the U.S. and abroad

SNAPSHOT
Satellite Communications Skyrocket
Revenue projections for worldwide global mobile personal communications via satellite:

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SOURCE: INVESTMENT RESEARCH CORP. FARSHADAN N. J.

Russian New Year Article Sparks E-Mail

We mistakenly implied that e-mail clients aren't vulnerable

BY DEBORAH RADCLIFF

Thanks to all of you for a most excellent technical education. My article "Russian New Year's Diabolical Twist" [CW, May 10] set off such response that I had to follow up.

The article explained how a once-harmless attack, Russian New Year, can now exploit the CALL function of Microsoft Corp. Excel (which calls other Excel functions such as create, write and sum) and get onto a desktop without a user opening the e-mail attachment, which is how the attack is delivered.

You had several valid points, and one question that was tough to answer. I'll tackle the trickiest question first.

Henry Edward Hardy wrote that Netscape Navigator 4.5 and above isn't affected by this problem. Mike LaGuardia, Navigator product manager at Netscape Communications Corp., concurred.

But David Misakian, technical director at Finjan Software Ltd., an Israel-based maker of mobile code security software, said lab tests show that Navigator's Messenger client makes it vulnerable.

I screwed Netscape on Finjan and let them duke it out.

Netscape emerged the winner -- sort of. When an Excel file containing a CALL function is about to be opened or downloaded, Navigator and Messenger, by default, issue pop-up warnings.

The problem is that many users disable or ignore them. Make sure the e-mail comes from a trusted source when those warnings pop up.

Point No. 2: "John" and "Andrew" complained the didn't distinguish between a browser and an e-mail client. They also suggested that only the Outlook Express client is vulnerable. A paragraph deleted during editing would have prevented confusion:

"...under certain conditions, HTML-enabled e-mail clients like Eudora, Outlook Express and Netscape Messenger automatically render the HTML content of an e-mail message or send it to a browser.

er. And Web-based e-mail services like Hotmail, YahooMail and Excite Mail require a browser to access the service, said Finjan's Misakian. Once the message is opened, the browser or HTML-enabled Web client may launch the Excel file, executing the CALL command...

Many of you also pointed out the misleading subhead. Russian New Year is not a virus, but a method of attack. And the e-mail message must be opened to launch the attack. But neither the attachment nor the HTML link need be.

One more point: "Keith" said my dates were off. Russian was discovered earlier than January. In fact, Microsoft posted patches on its Web site on Dec. 10, 1998. Don't know how I missed that one.

Radcliff is a freelance writer in San Francisco. Her Internet address is dready@aol.com

MOREONLINE
For more on Russian New Year, check the following Web sites:
www.saltersgroup.com/russian
mobilestin.com: www.finjan.com/rn
Although the hack has been on the Web for months, Intel Corp. continues to shrug off an exploit said to show how malicious code can steal users' Pentium III serial numbers without their knowledge.

Zero Knowledge Systems in Montreal, which develops privacy tools that let users surf the Web anonymously, said it posted the exploit to demonstrate that Intel's scheme for protecting the serial number is flawed. Zero Knowledge System's program is on a Web site, which warns users that downloading the program will reboot their system.

Antitheft Goal

Intel embedded the serial number in Pentium III processors as a secure-commerce and machine-tracking device. In March, privacy activists filed a complaint with the Federal Trade Commission alleging that it could be used to track users on the Web.

Though activists demanded that Intel pull the chip from the market, Intel instead released a patch that it said disabled the serial number.

Zero Knowledge Systems developed a small ActiveX program that bypasses the software utility used in the patch. The ActiveX control, which can be hidden in a banner ad, simulates a computer crash when the user clicks on the ad. The program then loads a "Trojan horse" program that bypasses the utility. When the computer reboots, the ActiveX control grabs the serial number, places it in a cookie and shows the user how to find it on a Web site before erasing it.

Disabling Numbers

Zero Knowledge Systems President Austin Hill said that at the time of the Pentium III controversy, Intel told manufacturers they could securely disable the number at the BIOS. Intel spokesman George Alfs noted that antivirus software developed by McAfee Associates Inc. and Symantec Corp. protects users' serial numbers from being stolen with the ActiveX control. He said Intel has spoken with Zero Knowledge Systems about the exploit and is working with BIOS vendors and manufacturers to strengthen the BIOS. "We are looking for ways to tighten up or harden serial number protection," Alfs said. "There is a lot of malicious code out there, and we are always looking for ways to protect the PC platform against attacks."

Hill notes that antivirus programs guard against his company's consensual exploit but are ineffective against crackers who use the same type of attack to steal serial numbers.
MANNA: REAL TIME BECOMES REALITY

FrontMind updates Web sites to suit surfers' tastes — on first visit

BY CYNTHIA MORGAN

As customer asks a salesclerk for gum, "We're out," says the clerk, not looking up from his book, Candi's "Sorry." The customer walks out empty-handed, and the clerk shrugs. The next time that guy comes in, he'll want gum. Fat lot of good that'll do if the customer doesn't come back.

That's the problem. Newton, Mass.-based Manna Network Technologies Inc. wants to solve. Using tools from the world of artificial intelligence, its first product monitors site visitors' actions and immediately alters a Web site's presentation to match what it thinks a customer wants — before that customer leaves.

With most of today's Web personalization tools, the next visit, not the current one, results in a more personalized offering. Because it's too easy for visitors to look elsewhere on the Web, the site that can't satisfy the customer on the first try has probably lost the chance. Sure, today's personalized Web sites keep a watch on visitors' actions, segregate them into groups, then pour the appropriate content into dynamic Web pages. Amazon.com, for example, recommends new books based on the ones you're browsing. But personalization tools are barely out of the custom development project category. They are generally based on Java, Microsoft Corp.'s Active Server and other dynamic Web technologies that need hard-to-come-by Web developer talent to update.

The programming foundation for those systems can be tough to build; the rules that keep them going swell to hundreds or thousands when the site's in active use, making scalability a problem. That also makes a system tough to alter quickly when inventory or customer preference data dictates a change.

Worse, a new rule's debut is often on the live site. The slow reaction time of an unwieldy personalization system could annoy — and thus cost the business — hundreds of potential customers.

Manna's Java- and Extensible Markup Language-based FrontMind for Marketing, scheduled for a June 14 debut, puts a wizard-like Web front end on the rules creation and editing process that requires little training to use. It also "stages" the rule by simulating its effects before it goes live, so inexperienced users can see the results before unleashing a potential disaster on the live site.

Business managers can fine-tune online sales presentations or add special offerings quickly, without an intermediary from the information technology department. The feature may ultimately prove the most valuable for corporate e-commerce because giving managers control of their online product presentations speeds the site's reactions to changing market conditions. It also shifts that responsibility from resource-stretched IT managers to the people who sell the product.

FrontMind can develop demographic reports to help managers refine strategies. A manager whose inventory is overstocked can ask the system to profile the customer most likely to buy that product, then use the profile to create a rule that presents a special sale price on that product only to the customers most likely to buy.

The system can offer buying hints to customers it detects are unfamiliar with the product category, recommending best-fit products. It can be easily stretched to accommodate information from other parts of the corporation; a customer on record as being kept waiting for technical support could be offered a free gift by the commerce site.

Of course, all that capability doesn't come cheap. Artificial intelligence systems are expensive to build and maintain, and FrontMind is no exception at a base price of $250,000. The high cost is liable to restrict the product to areas where extreme personalization pays off: huge corporate commerce sites that carry a wide range of very diverse products at relatively high profit margins.

Still, FrontMind is definitely a glimpse of things to come in Web site personalization.
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TV Tuner Cards: Not Ready For Prime Time

BY DAVID STROM

The idea of integrating television into your PC so you can catch the latest news on CNN or keep an eye on the World Series might seem like an innovative use of time and resources. TV tuner cards can do that, but the cards' reality falls short of their promise. Tuner cards on the lower end of the spectrum may be inexpensive, but they're time-consuming to set up and configure.

For this review, I looked at lower-end tuner cards that let you watch news broadcasts, review corporate training videos, or tape and replay a videotape. I also reviewed two of the three products reviewed by Strom in his column in the May 17, 1999 issue of Computerworld.

The cards come in a variety of flavors. A few include an FM radio tuner. Unlike the other two cards, it doesn't include an FM radio tuner. TV trays are a bit difficult to operate, but the off-air broadcast quality of the displayed video was acceptable.

The card has external jacks for a TV antenna, AUX OUT, and Composite Video and comes with a patch cable to feed audio directly into a sound card on the side of the computer. When the card is plugged, it will include the company's video linear editing software along with the TV tuner card. Unlike the other two cards, it doesn't include an FM radio tuner.

I found the current card somewhat unstable. It kept forgetting the audio settings I used, requiring me to click on a series of configuration menus every time I ran the software. Its video-capture software controls are a bit difficult to operate, but the off-air broadcast quality of the displayed video was acceptable.
Policy-based Networking

**Definition:**
Policy-based networking is a set of automated rules to control congestion. These rules govern which users or applications can use specified network bandwidth at any given time. Policy-based networking helps manage user and application priority, quality of service and security rights, based on corporate policies.

**Q&A Looking At The Big Picture**


Ash Singh, director of AMSCAT’s Next Generation Infrastructures lab in Fairfax, Va., talked to Computerworld.

**How would you define policy-based networking?**
It is about having a central console from which to configure network policies associated with security and [quality of service]. At a low level, it’s about how this is implemented. You need to understand the business and application requirements themselves.

**What advice would you give to a company developing a policy-based networking infrastructure?**
Simplify your architectures. Don’t get sold on the grand vision that every molecule on your network needs to be controlled. Architect the policy-based networking realistically, in a manageable fashion. Also, don’t expect it to be a simple effort. There are a lot of pieces involved and expertise in many different areas that need to be coordinated.

**What’s the status of policy-based networking?**
You can do it today, but it’s not a plug-and-play situation. You need expertise, including people [who understand] the networking side and next-generation devices like switches, routers, and [you need] those who understand the business value of its components. To put it all together is a fairly intensive systems integration effort.

**Is it realistic to implement policy-based networking infrastructures today?**
In terms of network traffic priorities, yes. But something as low-level as maintaining a policy for every user and every application...it is very unrealistic. In terms of security, it makes sense to do security on a role basis for, say, 100,000 users. But if you try to do that on an individual, granular level, the management is a huge task. It is similar to phone companies and price plans. There are specific price plans that users can open their networks to more users and applications. Policy-based networking enables network administrators to manage network security and network traffic so that important applications and users receive network priority over secondary applications and users. “There is great demand for policy-based networking from the user side,” says Charles Rutstein, an analyst at Forrester Research Inc. in Cambridge, Mass. “Everyone sees it as compelling to align technological policy with business policy. It has the potential to change the way our networks work in a rapid way.”

In order for policy-based networking to work, rules need to be established. These rules are based on business priorities that are set by business managers. For example, a CIO may mandate that the accounting department receives network priority at the end of each month.

In addition to business managers, network administrators and application managers must be involved in the implementation of a policy-based networking infrastructure.

Once rules are defined, they’re stored in a central repository. Although there’s no single recipe for a policy-based networking deployment, deployment often focuses on a separate policy server. The policy server receives traffic requests from switches, firewalls and important applications.

The server then calls policy information from the directory and dynamically configures the network based on the defined policies. “The problem is in its complexity. We are unlikely to see widespread heterogeneous adoption of policy-based networking until beyond five years,” Rutstein says.

The need for policy-based networking is particularly relevant today as voice and data traffic requirements push network bandwidth limits. “It is a business necessity now as we see the convergence of mixing network traffic with real-time delivery requirements,” says John Armstrong, an analyst at Dataquest in San Jose.

“Rather than throw raw bandwidth at network challenges and problems, companies need to manage their network and maximize bandwidth potential,” he adds.

Although great in concept, there are roadblocks to policy-based networking. For starters, there are no standards. So vendors’ products don’t work well together. Also, many users find it difficult to decide who owns and creates the policies. But the biggest issue in preventing widespread adoption of policy-based networking is infrastructure costs. “The most important thing...is to make sure that you have a clear plan as to what you want to accomplish,” says James Mancini, vice president of engineering at Virtual Networks, a division of Ikon Office Solutions Inc. in Irvine, Calif.

Mancini has helped deploy policy-based networking implementations for Ikon’s customers, and he says he has noticed that “as networks become more congested...management will continue to increase.”

Walker is a freelance writer in Cambridge, Mass.

**To-Do List Tips for implementing a policy-based network:**

2. Involve business managers, network administrators and application managers when developing policies.
3. Use a single-vendor approach because standard aren’t in place.
4. Allow access to update network policies by using simple tools. For example, business managers should be able to change business-related policies without involving IT.

**MOREONLINE** For more information about policy-based networking, visit our Web site: www.computerworld.com/more
Support Savings Drive Office

Administrative tools and self-help features draw early adopters to Office 2000

By Kevin Burden

The new version of Microsoft Word is coming! Yee-haa — where does the line begin? It's been a long time since individual Office applications, such as Word, could stir much excitement. But make no mistake, Microsoft Corp. Office 2000, with all its 300M bytes of required disk space, is a major release. And several corporations that have tested it say they're ready to make the upgrade.

This latest edition of Microsoft's digital workhorse, due to ship June 10, reflects the vision that today's office workers rely heavily on e-mail and the Web to do their jobs. Therefore, much of Microsoft's efforts went into building tools that simplify Web document publishing and that help utilize the Web as a platform through which users can collaborate and share documents.

Yet to beta tester Andrew Drooker, the new Web capabilities aren't compelling enough reasons to upgrade. "It's a very myopic view if they were. They are just features — they are not reasons to upgrade," says Drooker, who's vice president of network systems architecture at Turner Broadcasting Sales, the sales arm of Turner Broadcasting Systems Inc. in Atlanta.

Drooker says Office 2000's support for the Zero Administration for Windows Initiative is a much better reason to upgrade, "because we can see a savings in support costs right away." Microsoft's initiative refers to a set of technologies that gives administrators tools for automating tasks such as operating system and application updates and provides a powerful console for central administration.

Drooker says he likes how the administrative capabilities fared in his tests,
and he has given the go-ahead to upgrade all 1,200 systems in advertising sales by year's end.

From his tests, Drooker says, he's even more enthused by the self-repair aspects of the new suite. Office was designed to regularly check its applications' health, and, if necessary, fix errors. For example, if users accidentally delete executable files or load software that overwrites necessary Dynamic Link Libraries, Office 2000 automatically detects the errors and reinstalls the correct files from the distribution server, without interrupting the user's activities. "So users perceive less downtime from their mistakes, like loading software before checking with IT for its compatibility. And we get fewer calls to help desk," Drooker says.

User errors aren't things information technology departments want to deal with any longer, says Larry Leibrock, chief technology officer at the University of Texas at Austin's Graduate School of Business. Supporting more than 1,000 desktop computers, 500 laptops and moving to Office 2000

In addition to saving on help desk calls through the self-repair feature, Office 2000 also promises to reduce costs by allowing IT to establish and distribute several common operating environments. Office 2000 is fully componentized, according to Microsoft, so each workgroup can now have its own customized installation, unlike Office 97, in which one configuration for everyone is the only option.

Drooker is taking full advantage of this new flexibility at Turner. Each workgroup is getting a configuration tailored specifically to its needs, Drooker says, "because why put something on a user's desktop that they don't need?" For instance, the interactive group will get FrontPage, but the salespeople won't. "It makes administration cost sense: I don't want someone in marketing playing with FrontPage and possibly messing up our Web site. We also don't need to pay for licenses for machines that don't need FrontPage."

Custom installations will also solve a compatibility issue for Turner's accounting group. They'll get Office 2000 but remain on Excel 97. That's because Turner uses PeopleSoft Inc. applications, which aren't yet compatible with the new Excel.

Collaboration

Leibrock says he will use Office 2000 to establish an atmosphere of collaboration at the University of Texas. That's because the school's corporate advisers told the school they want graduates who know how to work in teams. "They told us to stop sending them lone cowboy technicians and start sending them collaborators," Leibrock says.

Office 2000 lets users share and alter documents in real time, directly within their Web browsers. Office makes that possible by letting users choose HTML, the Web programming language, as their native format rather than having to convert to HTML, which is required in Office 97. So posting documents to the Web in Office 2000 is as easy as saving to the hard drive, Leibrock says.

The collaboration capabilities are what convinced Denver-based software vendor J.D. Edwards & Co. to upgrade to Office 2000. The company is turning it into an industrial-strength publishing system to replace the Interleaf Inc. system it currently runs. But it's also counting on the collaboration features to improve communication between its software developers and those who write the documentation.

"Staying current with the developers has been a perennial problem for the publications team. [Real-time collaboration] should improve documentation quality tenfold over what we've been able to do through pushing e-mail around," says Kip Wheeler, systems architect for worldwide publications.

J.D. Edwards will initially confine collaboration to its four-building campus but plans to use it with Office's language translation capabilities. "We haven't tested it to see if it works. But we'd like to get feedback from our European offices in real time rather than after we publish," Wheeler says.

Drooker is also interested in Office's collaboration features because users will be able to work together without a third-party product. "Microsoft NetMeeting is great for collaborating, but you need NetMeeting. With Office 2000, you just need a browser, which most users are very familiar with."
Unix, Net: ’60s Brainchildren

BY MARY BRANDEL

The 1960s ended with a bang. As it had hoped since the early 1960s, the Advanced Research Projects Agency (ARPA) saw the Arpanet—the network that we now know as the Internet—take shape in the last year of the decade. And at Bell Laboratories in Murray Hills, N.J., a group of computer programmers built the first version of a multiuser time-sharing operating system called Unix. In time, the two events would come together, with Arpanet borrowing heavily from its birth-year twin.

The Arpanet came to life in 1969 when—with the help of Bolt Beranek and Newman Inc. in Cambridge, Mass., and teams of grad students and programmers—the first four nodes went live at the University of California at Los Angeles, the University of California at Santa Barbara, the University of Utah in Salt Lake City and Stanford Research Institute in Stanford, Calif. The four-node network was fully operational the following year.

One of the early problems to solve on the Arpanet was establishing standard commands that all participants would use. “A group of graduate students from the University of Illinois at Urbana said, ‘Hey, look at Unix. This is the thing we should be using on the network,’” says Peter Salus, author of Quarter Century of Unix, (1994, Addison-Wesley Publishing Co.). For example, commands such as file transfer protocol come from Unix.

Those wouldn’t have been available had it not been for the work of Ken Thompson, Dennis Ritchie, Doug McIlroy and others at Bell Labs. All had been working on the Multics project, a $7 million, seven-year effort to create the first multiuser, multitasking operating system. Bell Labs withdrew from the project in 1969, and the group was disappointed about losing Multics’ interactive computing environment.

“There was a lot of unhappiness at the Labs,” Salus explains. “So Ken and Dennis, with Doug’s prodding, decided they’d try to write a system that would make them happy.”

Thompson wrote the operating system essentials in one month. “He set a timetable of doing one each week on the kernel, file system, editor and compiler,” Salus says. “At the end of that time, he had a barely functioning system.” Not named until 1970, the system was called Unix, a play on the word Multics.

Less straightforward was securing funding for further development of the operating system. After Bell Labs turned down their request for a PDP-10 computer, Thompson and Ritchie “scrubbed up an unused PDP-7 that was being stored in a closet,” Salus says. Unix was first implemented on that machine. The two eventually obtained a PDP-II by promising AT&T a Unix-based text-processing application.

But the turning point for Unix was in 1973 when Ritchie devised a language called C, which he used to rewrite the operating system. Because C was a high-level language, it greatly reduced the difficulty of porting Unix to different hardware platforms.

It was this version of Unix that Ritchie and Thompson presented to about 200 people at the Symposium on Operating System Principles in 1973. “This was one of the first

President Nixon authorizes the secret bombing of Cambodia.

Massachusetts Sen. Ted Kennedy’s car accident at a bridge on Chappaquiddick Island results in the death of Mary Jo Kopechne.

A half-million people attend the three-day Woodstock music festival at Max Yasgur’s Farm in upstate New York.

President Nixon orders the removal of 25,000 of the 540,000 troops in Vietnam.

Actress Sharon Tate and six others are brutally murdered by Charles Manson’s cult.

The U.S. Supreme Court orders immediate desegregation throughout the country.

Technology Happenings

- IBM unbinds its software products, allowing customers to buy software separately from its computers, creating the software market.
- Data General Corp. introduces the Nova, a 16-bit minicomputer.
- Xerox purchases Scientific Data Systems Inc., for $1 billion.
- Siemens buys the Honeywell Corp. for $800 million.
- Bell Labs introduces the “Kitchen Computer System.” The system includes a Honeywell Inc. N-381 minicomputer and a keyboard computer, selling for $10,000.

Space

- July: Neil Armstrong and Edwin “Buzz” Aldrin and Michael Collins travel to the moon aboard Apollo 11. Armstrong becomes the first man to walk on the moon.
- November: Apollo 12. Charles Conrad, Richard Gordon and Alan Bean make the second landing on the moon.

Born in 1969

- Jack Dyson, lead singer of the Wallflowers, son of Bob Dylan
- Brett Favre, quarterback, Green Bay Packers
- Sergei Fedorov, Detroit Red Wings
- Ice Cube, rap singer
- Marilyn Manson (Brian Warner), rock singer

Other Notables

- There are 65 airplane hijackings.
- The U.S. prime rate is raised three times, ultimately reaching 8.5%.
- Canadian government allows U.S. military draft dodgers and deserters to settle in Canada.
- Underdog New York “Miracle” Mets beat the Baltimore Orioles in the World Series.
- Beatle Paul McCartney marries Linda Eastman; John Lennon marries Yoko Ono.

Best Picture: Midnight Cowboy. It was originally rated X.

Flashback is produced with the assistance of The Computer Museum History Center in Mountain View, Calif.
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Midwest Lures
Family-Based IT

Des Moines, Iowa, and Omaha combine up-to-date IT opportunities and technologies with traditional values and lifestyles
By Kim Fulcher Linkins

Family values, a strong work ethic and friendly folk are all things you think about when someone mentions the Midwest. But one phrase people don't always associate with the region is "high technology." Des Moines, Iowa, and Omaha are welcoming a growing population of information technology professionals as people seek an area where they can not only hone their technical skills, but can also experience an environment conducive to raising a family.

The skills most in demand in Des Moines and Omaha include C++, Java, Cobol, programming, database administration, network engineering and client/server expertise, according to industry experts.

The area is dominated by insurance and financial services firms and is also host to companies in the food, tele-marketing and health care industries.

"There's more high technology here than many people realize," says Dan Connolly (dconnolly@alient.org), CEO at Alegent Health in Omaha. "There is an incredibly robust telecommunications infrastructure that was initiated due to the Strategic Air Command being positioned here, just south of Omaha," Connolly says. "There are a number of national companies with their headquarters here, which would surprise many folks."

Fortune 500 companies in Omaha include ConAgra Inc., Mutual of Omaha Insurance Co., Berkshire Hathaway Inc., Inacom Corp. and Peter Klewinski Inc.

Fortune 500 companies in Des Moines include Principal Financial Group; nearby Newton, Iowa, is home to Maytag Corp.

American Dreamin'

"The No. 1 draw for a person with a family is [that] the school systems are wonderful, and the day's labor, a fair day's wage," says Bill Scales, chief technology officer at Principal Capital Management LLC, a subsidiary of Principal Financial Group. "I think the work culture is one that is a participatory culture. They will pitch in to get the job done. But IT professionals in Des Moines can expect approximately $41,000 for entry level, $55,000 for junior-level people and from $60,000 to $70,000 for senior-level personnel."

"If you can spell information systems, you can think you can start out at about $27,000 to $30,000," Connolly says. "And if you are a very skilled, technically competent individual, it's not ... all that difficult to get a job in the $60,000 to $70,000 range, which is a pretty fair living in this town."

In addition to trying to offer competitive wages, companies in the area try to employ retention strategies designed to invest in the careers of the employees," says Carol Campbell (ccampbell@ffni.com), senior vice president of service delivery at First National Mutual of Omaha: "We want to know about them to make sure that this is the best possible match for them and for us."

Experts say the most important thing to remember when recruiting to the Midwest is that it isn't a one-way street. Says Kurt Kline (kurt.kline@mutualofomaha.com), first vice president of human resources at Mutual of Omaha: "We want people to know about us and we want to know about them to make sure that this is the best possible match for them and for us."

Linkins is a freelance writer in Austin, Texas. She can be contacted at KFLinkins@aol.com.
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UNISYS LANDS ON STEADY GROUND

Focus on services market drives vendor's revenue

BY JAIKUMAR VIJAYAN

The INFORMATION technology services business is paying off big-time for Unisys Corp. The once-struggling mainframe vendor has racked up five better-than-expected quarters in a row, trimmed operating costs and increased formerly drooping revenue. It nearly doubled profits between 1997 and last year. Unisys finished 1998 with revenue of $7.2 billion, compared with $6.6 billion in 1997. Profits, at $387 million, were up 94% from $199 million a year ago. Earnings per share grew 130% to $1.06 in the same period. The company's stock has risen steadily from about $27 six months ago to just under $34 last week. "They have far exceeded expectations both in terms of the [speed] of their financial improvement and the degree to which they have improved their [long-term prospects]," said Richard Jacobs, an analyst at Janney Montgomery Scott Inc. in Philadelphia.

Much of that momentum is the result of its tight focus on the services business, a strategy begun by former CEO James Unruh and accelerated by current CEO Lawrence A. Weinbach, who took charge of an ailing Unisys in September 1997 after an eight-year stint as chief executive of Andersen Worldwide. Weinbach's strategy has centered on selling services such as large-scale systems integration and maintenance. Unisys has also developed hardware, software and service bundles for vertical industries that include the financial services, transportation and government sectors.

Today, more than 68% of Unisys' revenue comes from such services—a figure that Weinbach says he hopes to push to 75% in the next few years. It has also slashed debt and repurchased more than half its stock, saving millions of dollars in interest and dividend payments. "The new management has fashioned a comeback that few of us believed they would be capable of pulling off," said Michael Garan, an analyst at Pershing, a division of Donaldson, Lufkin & Jenrette Securities Corp. in Jersey City, N.J. "The challenge will be to grow it from here."
**Most Companies Already Bitten by Y2K Bug**

Many glitches minor, but some suppliers ditched

**BY THOMAS HOFFMAN**

On the surface, the figures are startling — 72% of 152 large companies have already experienced some sort of Y2K-related glitch, according to a newly released results of an ongoing survey by New York-based Cap Gemini America LLC and Rubin Systems Inc. in Pound Ridge, N.Y.

To date, most of the problems have been minor, with a negligible impact on the bottom line, observers said.

"We've had a couple of minor Y2K glitches with minimal impact," said Jerry Miller, CIO at Sears, Roebuck and Co. The Hoffman Estates, Ill.-based retailer ran into a snag a few months ago when one of its partners entered Y2K-sensitive software code into an electronic data interchange system both the retailer use. Sears was unable to schedule orders with the manufacturer for a few days, Miller said.

Granite Rock ended up using just the AS/400 green-screen software after tests of OneWorld bogged down its widespread rollout.

Dave Girard, chief operating officer at Denver-based J.D. Edwards, conceded that early years of Y2K "were not production-ready and stable" across the board. Consequently, the company last year set up a 50-employee team to work free of charge with users to help resolve problems with OneWorld's manufacturing applications.

The SWAT team is now "working through the final stages of problems in that area," Girard said. He added that a OneWorld upgrade due in mid-June should fully stabilize the software and round out its functionality with missing pieces such as support for managing contract bidding.

J.D. Edwards — which this week is due to report a first-quarter operating loss of more than $25 million — expects the B3J.3.1 upgrade to make it possible for users to meet all their needs with OneWorld. "That's the magic bullet," Girard said.

John Reinhardt, a consultant at Decision Technologies Inc. in Fremont, Calif., who works on OneWorld installations, said next month's upgrade should be a "waterproof release" for the software.

"But Reinhardt said a current client — the orthopedics unit of Johnson & Johnson Inc. in New Brunswick, N.J. — still plans to start a mixed installation of OneWorld and the WorldSoftware green-screen software in the summer while waiting for other users to test out the upgrade.

OSF Inc., a Toronto-based management software company, is another user that was forced to split its installation between the two J.D. Edwards applications. As a result, "we basically have two different systems accessing the same data," said David Mudie, a senior application specialist at OSF.

For OSF, Mudie added, the OneWorld upgrade won't eliminate the need for the green-screen software. The company doesn't expect to get a version of OneWorld supporting Canadian payroll requirements for at least another 18 months, he said.

Granite Rock hopes to begin migrating its construction division to OneWorld in September by combining the B3J.3.1 release with Microsoft Corp.'s Windows Terminal Server software to relieve the pressure on its WAN.

But the green-screen applications probably won't be fully eliminated until 2001 at the earliest, said Brad Stimson, Granite Rock's project manager. In the meantime, the division's workers will have to switch back and forth between the products. "To the users, this is not going to be transparent," Stimson said.

Capers Jones, chief scientist at Artemis Management Systems Inc. in Burlington, Mass.

The study also found that 8% of the 152 companies and 14 government flotillies surveyed have severed business relationships with a supplier, partner or customer.

Prudential Insurance Company of America, widely said to be a year 2000 front runner, had replaced several of its suppliers by the end of 1998 because of concerns about their Y2K readiness, said Irene Dec, year 2000 program director for the Newark, N.J.-based insurer.

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**J. D. Edwards**

are having to mix the applications they say don't regret choosing J.D. Edwards.

J.D. Fieri said Steve Snodgrass, Granite Rock's corporate controller. When the company began using J.D. Edwards' software a year ago, he said, a mixed installation "was really the only option" because applications such as payroll and fixed-asset management were missing from OneWorld.

For a follow-on implementation that went live last month at its construction division, more online...

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It's the users, stupid!

FINALLY! AT LONG last, IT gets some credit for the booming economy. Back on May 6, no less an eminence than Federal Reserve Board Chairman Alan Greenspan announced that IT is a driving force behind continuing economic growth. IT is increasing worker productivity, said his Fed-ness, keeping inflation low as the U.S. economy keeps growing. Ever since Greenspan's pronouncement, IT's deep thinkers have been patting themselves on the back, saying how much easier it should be now for corporate IT shops to get the budgets they ask for. After all, Greenspan has finally settled the question of whether our IT departments are paying for themselves — right?

Not so fast. The Fed chief didn't credit corporate IT departments for the boom. He said successful corporate IT investments get the credit.

Here's a minority view: It's not IT shops that have changed the equation, confirmed the business value of IT and generated an economic miracle:

It's IT users.

As PCs and the Internet became pervasive, users stopped treating IT like a specialized function under the control of the high priests in the glass house. Instead, they started treating it like a business tool they can use themselves.

That control changed the productivity numbers — more than 4% in recent quarters, after hovering around 1% in the '70s and '80s — and caused Greenspan to toss that May bouquet in our general direction.

It's certainly not that IT departments are suddenly smarter or more effective. We've been putting computers and networks to business use for decades. We've dumped truckloads of money into mainframes, minicomputers, servers, terminals, PCs and a couple generations of wire. And as recently as a few years ago, productivity still hadn't budged.

We haven't changed. Users have — in how they use IT.

It wasn't that long ago that the mainframe never crashed, new systems took two years to build and users sat through whatever training we sent them to. Today, PCs crash all the time, new programs show up at CompUSA every week, and business users figure out a shocking amount of IT stuff by themselves. And on the Internet? Hah! Everything crashes (or locks up or fails to respond) a half-dozen times before lunch, the Web changes constantly, and none of us much as slow users down.

Twenty years ago this month, business users got their first reason to treat IT as a tool they could handle when VisiCalc, the first desktop-computer spreadsheet, was introduced at the 1979 West Coast Computer Faire.

Two decades later, users have absorbed it all. They're the ones who changed the way IT is used because they're the ones who began using it. Once users started to control what IT does, instead of IT controlling what users do, they created all that wonderful IT-based productivity we've been trying to generate for decades.

Sure, we did our part. We built the systems and kept them running. We deserve credit for holding up our end of the IT bargain.

But let's not get stupidly self-congratulatory. When we had an iron grip on IT, we were just spending money.

It wasn't until users really bought in and took control of how they use IT that we finally saw big-time results.

But at least we can take comfort knowing that, between IT shops and users, we're finally making the difference.
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