AlliedSignal races to the Web

> Twin-cam site targets business users, car buffs

By Sharon Machlis

A division of AlliedSignal, Inc. will launch an ambitious $1.5 million World Wide Web site next month that company executives said will pay for itself within a year.

The site’s uniqueness lies in targeting both the die-hard car buff and the heavy-duty business customer. “I think that’s smart,” said Vernon Keenan, a senior analyst at Zona Research.

Chat rooms move into boardrooms

By Barb Cole-Gomolski

Mail boxes etc. in San Diego will use it to conduct monthly sales meetings with 2,700 franchisees. A major investment house is using it to host online events where clients pose questions to financial experts.

It isn’t a pricey videoconferencing system, and it isn’t a virtual private network. It’s Internet chat, the real-time messaging technology that to date has been most popular with teenagers.

Users and analysts said chat holds great potential for businesses because it lets people talk.

The end is near! Or is it? The year 2000 problem is causing a panic in some circles. But there are those experts who say there’s no need to sweat it. Have vendors and the press inflated it into an IT Armageddon? It depends on your circumstances.
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**Lotus to fix file viewer**

*Bug affects Notes 4.x and Excel spreadsheets*

*By Gordon Mah Ung*

LOTUS DEVELOPMENT CORP. said it is working on a fix for the file viewer in Notes that shows an incorrect number when viewing Microsoft Corp. Excel spreadsheets.

Lotus officials denied reports that the company knew about the bug six months ago and said a fix will be available soon.

The problem affects Notes 4.x versions and most versions of Excel. It appeared at the BugNet Alert World Wide Web site (www.bugnet.com) last week after a frustrated user complained about the work-around he was given by Lotus parent, IBM.

"Their work-around was to not use the file viewer," said Craig Lowenthal, vice president of information technology at Re- liance National Insurance Co. in New York. "How realistic is it to send out an E-mail and ask users not to use it?"

The bug appears when Excel spreadsheet attachments are opened through the built-in Notes viewer. Custom-formatted cells in the spreadsheet lose a decimal place, turning an amount of $46,190.92, for example, into 46,019,092. The bug doesn't affect the spreadsheet if opened through Excel.

Lowenthal said it came to his attention when the chief financial officer at his company saw a spreadsheet for a particular budget and hit the roof.

**SET protocol gets boost**

*By Sharon Machlis*

IN A MAJOR STEP forward for the Secure Electronic Transac- tion (SET) protocol, VeriFone, Inc. has rolled out a suite of commercial products based on the SET 1.0 standard.

But critics said SET is still a long way from widespread use for purchases in cyberstores.

SET, which is being developed by major financial companies including Visa International, Inc. and MasterCard International, Inc., is aimed at creating online transactions that can't be spoofed, hacked or altered.

VeriFone's suite includes software for handling the bank, merchant and consumer roles in a secure, online credit-card transac- tion.

VeriFone, a subsidiary of Hewlett-Packard Co., holds 65% of the U.S. market for point-of-sale terminals, so its support for an electronic buying standard is important, said Karen Epper Hoffman, an analyst at Forrester Research, Inc. in Cam- bridge, Mass.

BA Merchant Services, Inc., a division of BankAmerica in San Francisco, is satisfied with early SET pilot results and plans to continue working with the security standard as it matures.

"This is really the beginning," said Bill Campbell, vice president of product management at the company.

**NOT QUITE READY**

But some believe SET is still too immature and complex. At AlliedSignal, Inc. in East Providence, R.I., developers of a major World Wide Web site looked at SET but decided to stick with Secure Sockets Layer (SSL) encryption technology for now.

"[SET is] not up to speed," said AlliedSignal program manager Kristy Davis.

It is more likely to scare people away, she said, because consumers probably don't want to go through the process of obtaining a digital certificate to make spontaneous, one-time buys.

And SET client software for end users isn't widely available yet.

The VeriFone suite includes VPOS merchant software, priced starting at $995, VGATE for financial institutions, which is priced based on transaction volume; and "Wallet" end-user software, which banks will provide free to consumers.
Un-smart card

My credit-card company just pulled the plug on my free credit card. My offense? Paying my bills on time.

Perhaps more savvy use of information systems could have prevented this divorce. Two years ago, Beneficial National Bank and BJ's Wholesale Club, a consumer wholesale chain, announced with great fanfare a no-fee MasterCard that refunded customers a percentage of their purchases as cash-equivalent coupons. Those could be used at the wholesale club.

I became a regular customer, charging everything I could, but I always paid my bills in full to avoid finance charges.

In Beneficial's eyes, I was too good a customer. So were a lot of other people. This summer, Beneficial announced it wouldn't renew tens of thousands of BJ's MasterCard accounts of customers who were paying their bills in full and on time—just like me. Beneficial was losing its shirt on the deal. The announcement got big coverage in the local media, with Beneficial looking like Snidely Whiplash. The bank eventually reinstated the accounts but with an annual fee.

I suspect some creative data mining could have spared Beneficial and BJ's a public relations embarrassment. Better forecasting probably would have revealed that BJ's customers are the kind of financial opportunist who would make the credit card risky in the first place. Maybe BJ's could have defrayed costs by making customer spending data available for Beneficial to leverage in other promotions. Or perhaps customers like me would have been willing to part with some personal spending information in exchange for the free card.

Beneficial won't discuss its data mining efforts, and BJ's didn't return phone calls. Both companies would just as soon forget the whole thing. But the public relations damage has been done. I won't be renewing my BJ's card. And that's probably a relief to Beneficial.

By Paul Gillin, Editor
Internet: paul_gillin@cw.com

THE FIFTH WAVE
BY RICH TENNANT

Computer ills trigger health plan losses

By Thomas Hoffman

HIGH-FLYING Oxford Health Plans, Inc. has been hit low by a computer problem that caused the company to overestimate revenue and underestimate medical costs.

The announcement from the $3 billion Norwalk, Conn.-based health maintenance organization will post its first-ever loss tomorrow stunned investors (see chart). Oxford's stock price fell 6.2% last Monday to close at $56.87, before creeping back to $27.57 by last Wednesday.

Oxford had the problems dating back to last September in the migration of its claims processing system from the Pick operating system to a Unix-based system that uses Oracle Corp. database software and hardware from Pyramid Technology Corp.

But company officials told analysts this spring that it had fixed the mess that had delayed millions of dollars in back payments to scores of physicians and hospitals in the New York area.

A spokeswoman for one of the hospitals affected by the reimbursement delays—North Shore University Hospital in Manhasset, N.Y.—said its billing problems with Oxford have been largely resolved.

Despite the computer problems, Oxford's members don't appear to have been affected. In a recent survey of 2,964 respondents, Oxford was ranked first in customer satisfaction out of nine commercial health care plans in New Jersey, according to CareData Reports, Inc. in New York.

The study, which included Aetna/U.S. Healthcare and Prudential Insurance Company of America, covered 150 aspects of member satisfaction, including claims handling and billing issues, said Tod Cooperman, CareData's president and CEO.

Oxford's accounts receivable billing errors recently came to the company's attention "as a result of reviewing and reconciling previously delayed premium bills and medical claims," said Stephen F. Wiggins, Oxford's chairman, in a press release.

Because Oxford officials wouldn't answer questions about the company's problems, analysts said they couldn't estimate how much it will cost to fix Oxford's systems or whether the computer glitches will put a drag on future earnings.

Computerworld November 3, 1997 (www.computerworld.com)
U.S. will get peek at DEC Galaxy

> OpenVMS technology allows multiple systems

By Jai Kumar Vijayan

Digital Equipment Corp. is expected to unveil early details of its OpenVMS Galaxy clustering technology at this week's Digital Equipment User Society (DECUS) conference in Anaheim, Calif.

But questions about the future of the OpenVMS operating system following Digital's Alpha chip settlement with Intel Corp. last week could undercut interest in the technology (see story, page 33).

Digital's Galaxy technology for OpenVMS, set to ship in the second half of next year, will let users split one multiprocessor machine into multiple systems that run their own copy of the operating system. That kind of partitioning will increase system availability and make it easier for users to consolidate and manage large servers.

"What it means is that Digital remains serious about the VMS marketplace, especially at the high end," said Terry Shannon, editor of "Shannon Knows DEC," a newsletter in Ashland, Mass. "Galaxy offers some compelling cost of ownership and consolidation attributes."

Galaxy will run on current Digital servers but will probably ship on a new 32-processor Alpha server, code-named Wildfire, that Digital is readying for release next year.

Users welcomed the idea.

"If it does not degrade performance, it would be a great thing" from a server manageability point of view, said Fernando Yson, manager of Alpha systems at UNicare in Huntingon Beach, Calif.

"It would allow us to provide multiple types of services from a single box and give us the added security" of having multiple servers in one place, said Brian Culler, VMS manager at the State University of New York in Albany.

"But Digital's silence on the future of OpenVMS is disconcerting," Cuttler said.

The concern was prompted by last week's announcement by Digital that it will port its 64-bit Unix to the forthcoming IA-64 technology being developed by Intel and Hewlett-Packard Co.

"It is not the kind of feeling customers want if they have to make large investments" in technologies such as Galaxy, Cuttler said.

Digital also will unveil Wave 5 in its Affinity product line at DECUS. Aimed at linking OpenVMS environments with Windows NT, Affinity tools give users enhanced mail and messaging integration, system management tools and an integrated transaction processing monitor for both environments.

Digital pumps up Alpha servers. Page 63

Start-up pitches cheaper switches

By Bob Wallace

Looking to lure users with rock-bottom prices, NDC Communications, Inc. soon will announce a pair of 10/100mbit/sec. switches at half the cost of boxes from the Big Four switch makers.

The little-known Sunnyvale, Calif., vendor next week will unveil the NSH100, a five-port 10/100 switch that costs $127 per port; and the NSH850, an eight-port model that will cost $124 per port. Street prices are likely to be less than $100 per port.

"This is a great deal, considering that Bay, 3Com and others weigh in at $450 to $500 per port with their newest 10/100 switching systems," said Craig Johnson, an analyst at Current Analysis in Ashburn, Va. "Companies like NDC without huge brand recognition compete on price and hope to make up [margin] on volume sales."

More expensive switches tend to have more networking features, such as remote monitoring for switch troubleshooting, Johnson said. But the NDC boxes won't ship until the first quarter of next year, giving major vendors time to bring down their own prices.

Johnson said he expects advances in application specific integrated circuits to cut the price of boxes from Bay Networks, Inc., 3Com Corp., Cisco Systems, Inc., Cabletron Systems, Inc. and others.

FCC: Put V-chip on PCs?

By Patrick Thibodeau

The controversy V-chip soon could end up in any PC that can receive video images.

The Federal Communications Commission is soliciting comment on putting the V-chip in PCs. The signal-blocking V-chip, which was included in last year's telecommunications deregulation law, requires that makers of "any apparatus" designed to receive television signals include the chip. FCC officials said computers, because they can be used to receive TV signals, are potentially covered.

As long as TV is defined as something that is broadcast over government-licensed channels, "we will comply with that law," said Joe Tasker, a vice president and associate general counsel at Compaq Computer Corp. But if the government wants to use a V-chip for Internet content "that is absolutely wrong, and we will fight that absolutely hard because that's not television — the Internet is not television."

"We think this is sort of a veiled attempt to get something behind door things like the [Communications Decency Act]. Most computers are accepting video, and the distinction between what's going to be video for broadcast and video for the Internet is getting increasingly slim," said Dave Case, executive director of the Electronic Privacy Information Center in Washington.

Senior writer Sharon Machlis contributed to this story.

Tivoli tool enhances inventory tracking

By Patrick Dryden

The most significant benefit here will be to help the TME to adopt the inventory tool that plugs into its enterprise management framework so managers can better track the components of client/server networks.

TME 10 Inventory 3.2 can automatically discover the hardware and software configuration of more systems. And it can more easily sift through that information or apply it to tasks such as software distribution.

"This week upgraded the inventory tool that plugs in to its enterprise management framework so managers can better track the components of client/server networks."

TME 10 Inventory 3.2 now can scan NetWare software from Novell, Inc. and more than 4,000 Unix applications it already recognizes, said officials at Tivoli in Austin, Texas.

Additional databases and data defined by Desktop Management Task Force specification are supported. A new graphical query tool can extract data for viewing or export.

TME 10 Inventory 3.2 is available now. It costs $3,000 per server and $75 per client.

3Com and Tivoli partner to manage networks. Page 51
**Year 2000 fix uses compilers**

**Arrow** is to change the way computers recognize numbers, but some are skeptical it will work

By Thomas Hoffman

**Two brothers** in Encino, Calif., claim they have come up with a new way to deal with the year 2000 problem by changing the way computers recognize numbers.

A digit on a computer can hold up to 16 characters. When a computer adds '1' to '9', it recognizes '00' as 1900. Without changing programs or databases, the so-called '19To' technique would change compilers to define more than 10 possible numbers for a single digit, thus allowing computers to calculate beyond the year 1999.

**The Numbers Game**

"Think of a car's odometer with two digits and a light on the dashboard that tells you when you have gone over 99 miles," said Bill Lappen, 44, who developed the technique with his brother, David, at 19To Solutions in Encino. "Our method replaces the 'tens' wheel on the odometer with a larger wheel that just keeps counting past nine and doesn't turn on the light."

The fix would allow users to keep running date-sensitive applications until 2059, Lappen said. That gives companies "a pretty good patch before they have to go in and expand their date fields to four digits," he said.

**How Much Does It Cost?**

Individual users and small companies with revenue of less than $5 million will be offered use of the company's long-promised recovery and expanding program date fields to four digits, he said. That gives companies "a light," Lappen said.

Lappen said he has already talked to a handful of vendors about building new compilers to work with his technology, such as IBM and Digital Equipment Corp., but it is uncertain whether they will comply.

**Seeing Is Believing**

Potential users and vendors expressed interest in 19To but were skeptical of its abilities.

"I'm not sure about this," said Gary Blendinger, a senior support engineer at Digital in Pittsburgh who had just received information about 19To. "I'll have to go over it with our engineers and see if it's viable."

The 19To technique is some-

19To creator Bill Lappen claims:

### The 19To approach to fixing year 2000-sensitive code gives users a pretty good patch for another 60 years

Unix workstation vendors are creating new compilers embedded with the technique. The cost for bigger shops would be reflected in the costs of those compilers, which can range anywhere from $500 to $50,000, Lappen said. Lappen has reviewed the 19To model and said he found it difficult to use. "It's got to be simple to use or people will say, 'I don't understand it. I don't want it,'" like management did at my company," said the analyst, who requested anonymity.

Lou Marcoccio, an analyst at Gartner Group, Inc. in Stamford, Conn., said the 19To technique "has some problems with it," including difficulties with integration testing later on.

Lappen said that won't be a problem because users don't have to change any source code and the compiler makes date changes automatically.

Then again, the 19To technique might be a savior for information systems managers who are desperately short on time. Those who are looking for a quick fix before expanding program date fields to four digits.

"If you don't have to change your code, it's definitely going to cut down your [time] curve," said Jackie Backenbarg, an information consultant at Equifax, Inc. in Atlanta, who is familiar with 19To.

**Time Element**

But first, vendors such as IBM will have to come out with new compilers to run 19To. And even if that occurs, it's still a time issue," said Laura Nance, assistant vice president at Equifax.

It typically takes six months or more to build a new compiler, said Mark Stabler, vice president at Computer Associates International, Inc. in Islandia, N.Y.

"You don't just come out with quick compiler changes tomorrow because of the regression testing required against prior coding," Stabler said.

**Unix workstations**

**SGI results worse than expected:**

**McCrenack out, layoffs planned**

By Jaikumar Vijayan

**Three years ago,** computers from Silicon Graphics, Inc. made Jurasic Park possible. Last week, the question was whether the company's long-promised recovery hadn't been shaping up. Some of the problems were caused by manufacturing delays and an expensive acquisition last year of Cray Computer Corp., which was supposed to infuse high-end server technology into SGI.

"They simply dropped the ball on execution," said Garden, referring to SGI's manufacturing delays. SGI last week acknowledged problems with execution but said it will continue with McCracken's plan to infuse high-end Unix workstations into the commercial server and Unix market.

**Too Late?**

But analysts fear it may be too little, too late.

For instance, the company late last year announced a line of powerful high-end servers but failed to capitalize on early demand because of manufacturing delays. And although SGI recently said it plans to start manufacturing Wintel boxes, it won't ship them until late next year.

"The delay will further widen the gap between SGI and other Unix-only vendors. And it could cause users to postpone purchases until the new machines start shipping," analysts said.

**The senior management keeps getting surprised [by marketing trends], and that is not a good thing. It looks as though [SGI] lost touch with the reality of the marketplace.]**

- Andrew Allison, editor

**Inside the New Computer Industry** newsletter

"The senior management keeps getting surprised [by market trends], and that is not a good thing. It looks as though SGI lost touch with the reality of the marketplace," said Andrew Allison, editor of "Inside the New Computer Industry," a newsletter in Carmel, Calif. Meanwhile, other Unix workstation vendors such as Hewlett-Packard Co. and Digital Equipment Corp. long ago started shipping Intel Corp.-based Windows NT systems. Sun Microsystems, Inc. also quickly expanded into the high-end Unix servers and the Internet market.

"[SGI] didn't recognize the threat represented by NT workstations and hasn't moved quickly enough in terms of manufacturing."

"The result has been SGI stagnating from one weak quarter to the next over the past 18 months, racking up losses in three of the past five quarters. Part of the problems were caused by manufacturing delays and an expensive acquisition last year of Cray Computer Corp., which was supposed to infuse high-end server technology into SGI."

"They simply dropped the ball on execution," said Garden, referring to SGI's manufacturing delays.

SGI last week acknowledged problems with execution but said it will continue with McCracken's plan to infuse high-end Unix workstations into the commercial server and Unix market.
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South Carolina uses 'net to keep tabs on convicts

Project notifies victims of prisoners’ actions

By Tim Ouellette

SOUTH CAROLINA is turning to the long arm of the Internet to let crime victims keep tabs on aggressors.

By next March, the state will put the first pieces of its Internet Victim Information System (IVIS) online.

The system uses the Internet to link various state agencies and victim advocacy groups and notifies victims when criminals are about to be released.

About 25 states are installing automated telephone notification systems, according to the National Victims Center in Arlington, Va. South Carolina will take that a step further with its Internet link.

IVIS will replace a system that relies largely on paper shuffling, which leaves the possibility that some of the state’s 21,000 prisoners could be released without victim’s knowing about it.

An IBM RS/6000 SP and an Oracle Corp. database will anchor the system, which can be accessed by victims, state agencies and victim support groups via World Wide Web browsers. Victims without Internet access can get access through advocacy and support groups.

IVIS also will automatically phone victims with an automated message when prisoners are up for parole, due to be released or are appealing their convictions, for example.

“We have needed this for some time,” said Laura Hudson, head of South Carolina’s Victim Assistance Network in Columbia. “It has always been the criminal’s justice system, since they know what is going on in [the judicial process]. But IVIS is giving more [information] to the victims of crime.”

Notifying victims of their attacker’s whereabouts has become a hot issue for voters around the country, especially as violent crime continues to rise in many areas (see chart).

IVIS is giving more [information] to the victims of crime...

The U.S. Department of Justice estimates that crime costs victims nearly $450 billion per year, including pain, suffering and the loss of quality of life that comes from being fearful of another attack.

The university is building IVIS — expected to cost $200,000 per year — with federal and state grant money.

To provide extra security for the Internet-based system, the state is exploiting the RS/6000 SP’s number-crunching prowess to use 128-bit encryption for data transfer and a second level of encryption in the database.

Johnson said he expects to help other states build similar statewide systems based on IVIS in the future.
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Senators, you can't plug in here

Key members of the Senate Rules Committee Thursday told Sen. Michael Enzi (R-Wyo.) that he couldn't use his laptop while in the hallowed Senate chamber. Enzi asked permission to use the laptop to conduct legislative business more efficiently. Some colleagues were at a loss to explain why laptops shouldn't be used in the chamber, but one said the clicking noise would be intolerable. Ironically, the Senate chamber already has four laptop computers that are used by staff.

Emergent to run domain system

The Council of Registrars (CORE) has signed a letter of intent with Emergent Corp. in San Mateo, Calif., to develop and operate a Shared Registry System for Internet domain names. CORE is made up of 73 registrars that would administer the domain name registration system under an agreement signed in Geneva last spring. The National Science Foundation's contract with Network Solutions, Inc. in Reston, Va., to administer domain name registration expires next spring.

Truste seeks Web controls

Internet consortium Truste last week launched a drive to give customers more control over the information that World Wide Web-based businesses collect online. The Palo Alto, Calif.-based group said its Trustmark system has been adopted by few online retailers so far. The group warned that the Federal Trade Commission has threatened to step in if there are no clear signs of industry self-policing by March.

API allows shared Unix/NT apps

Five major hardware vendors last week announced they will support OpenMP, a programming standard that will let applications run on different types of multiprocessing hardware. The industry-standard application programming interface is aimed at developers who write shared-memory applications for Unix or Windows NT. The OpenMP standard was jointly developed by Digital Equipment Corp., IBM, Intel Corp., Silicon Graphics, Inc. and Kuck & Associates, inc. in Champaign, Ill.

Feds probe IBM sale to Russia

A federal grand jury in Washington is investigating the sale of 16 advanced IBM computers to a Russian nuclear weapons laboratory. At issue is whether the Russian Atomic Energy Ministry said Russia bought U.S. supercomputers illegally. IBM officials had no comment. The U.S. government must approve computer sales to Russian nuclear weapons facilities, according to State Department officials.

Schmidt: Novell will go it alone

Novell, Inc. CEO Eric Schmidt said the struggling company won't depend on large partners or alliances to expand its business. Speaking to reporters at a press conference in London last week, Schmidt shrugged off rumors of a Novell takeover by IBM, among others. "We are one of the largest software companies in the world. Size does matter, but with our other partners and resellers, we are a huge, huge operation, and I do not see the need for big partners," Schmidt said.

Big Blue stays true

During the stock market fray last week, IBM repurchased $3.5 billion worth of its common stock. The move continues a program by Big Blue to buy back IBM shares in recent quarters. But the recent major purchase also helped show confidence that the pronounced market swings on Wall Street last week won't be long term, especially considering that IBM is a technology bellwether stock, observers said.

Year 2000 tests for net gear

Bell Atlantic Network Integration, Inc. (BANI) last week announced the Network 2000 Assessment Program, an initiative to assess and solve year 2000 problems. Frazier, Pa.-based BANI said it has compiled a database with more than 500 network hardware products that could be affected by the millennium date change. BANI said it uses the data to determine the depth of the problem and to plan for upgrading or replacing noncompliant products to make the network entirely year 2000 compliant.

BAY TAKES Unisys Corp. will train and certify up to 2,000 professionals on enterprise products from Microsoft Corp. as part of a joint initiative. ... Dell Computer Corp. plans to announce its version of the NetPC this week, designed to reduce cost of ownership through built-in software and hardware management features. ... IBM is shipping Release 2 of its CICS Transaction Server for the OS/390 mainframe operating system, which supports the parallel sysplex clustering scheme. ... Electronic Data Systems Corp.'s third-quarter earnings fell 7.4% to $246.8 million but still managed to beat the consensus estimate of analysts by 5 cents per share, according to a poll by First Call Corp. in Boston. ... Mayer has the joint independent start-up formed earlier this year by Novell and Netscape Communications Corp., last week said it would include a full version of Oracle Corp.'s database in its forthcoming Enterprise Server Solution.
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Informix to come clean on financials, repricing

By Craig Stedman

IT'S SHOWTIME for Informix Software, Inc. as it tries to get back in the good graces of database users. The beleaguered vendor this month is expected to finally announce a restate-
ment of its financial results stretching back to 1995.
That will be followed by a promised software repackaging and repricing aimed at simplifying Informix's product lineup (CW, Oct. 13). Sources said Informix will put its four databases into a single product structure built around a core software engine and a menu of optional add-ons.
That move is expected to reduce the base price of Informix's object-enabled Universal Server technology, which now costs $1,000 more per user than its rela-
tional-only software.
The repackaging also reportedly will include an effort to relaunch Universal Server for mainstream uses rather than the multimedia and World Wide Web applications that Informix previously touted.

RIGHT STEP
For users such as Brad Jensen, a vice president at AMR Corp.'s Sabre Group subsidiary in Fort Worth, Texas, Informix finally appears to be getting things right.
"Informix needs to brag about how you can use [Universal Server] for business advantage, not just to make fuzzy Web sites," Jensen said.
Jensen is using Universal Server to develop an object-based data warehouse for AMR's American Airlines unit. Multi-
timedia isn't in the picture at all.
But the ability to store airline planning functions and calculations as database objects should speed up programming and provide "very efficient access to the data," Jensen said.
Universal Server's object technology "applies beautifully to advanced transaction processing," said Janice Richardson, manager of systems and operations for the city of Aurora, Colo. "But Informix flunked basic storytelling, and secrets don't sell."
Price also has been an issue, Richard-
son said. Universal Server could provide faster performance, "but I don't have the money to do a $1,000-a-user jump on a 300-user license," she said.
Informix, in Menlo Park, Calif., is expected to cut the base price of Univer-
sal Server by turning standard multi-
media plug-in modules into add-on options. Officials wouldn't comment on the upcoming repackaging.

Monitors to track frame-relay service levels on WANs

By Patrick Dryden

MANAGERS OF wide-area networks, under pressure to meet service-level agreements for internal users, must make sure they get the best frame-relay service from providers.
Two popular tools that monitor frame-relay WAN performance are being enhanced this week to bet-
ter track key service-level agreement statistics via a printout, management console or web browser.
Concord Communications, Inc. in Marlboro, Mass., will introduce the Ser-
vice Level Reports option to Network Health, a software suite that analyzes net-
work performance.
Instead of building reports manually, Network Health users will be able to summarize service quality information on a single page for executives, engineers and customers.
And Visual Networks, Inc. in Rock-
ville, Md., will announce an upgrade to Visual UpTime, a hardware and software package that takes the pulse of a WAN at every entry point.

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sage charges. Use your Internet connection - or create your own private network. With Fabrik Partner Network, the choice is yours.

The energy services company started monitoring AT&T Corp.'s frame-relay service a year ago with Visual UpTime. It now has 118 sites under surveillance.
As a result, Kaltenbaugh said his group gets credit internally for proactive-
ly detecting slowdowns and publishing WAN uptime numbers. It also gets respect from AT&T for identifying prob-
lems accurately.
Concord officials said the company expects to ship the service report option for Network Health next month for $6,000.
Visual Networks plans to upgrade Visual UpTime users for free next month.
Many companies are saying, "We're just like Forte, only for the Web." What they mean is that they're targeting scaleable, reliable, mission-critical applications for the Web. Trouble is, they're talking futures. Meanwhile, Forte customers have already developed and deployed robust, component-based Web applications today. Customers like Eli Lilly, HOME Account Network, Mazda, TransCanada Pipelines, Banco do Boston and World Bank, to name just a few. So if you really want Forte power on the Web, the only place to get it is ... from Forte.

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Headhunters stake out Citicorp

Layoffs prompt outside recruiting frenzy to snatch up good IS workers

By Julia King

HUNGRY HIGH-TECH headhunters are swooping down on Citicorp's IS operations, even though it is still unclear exactly who is on its hit list of 7,000 workers to be dismissed.

"You're going to find ferocious headhunting firms just jumbling in. I'm sure some of them were already in there before the press release was even typed," said an information systems staffing specialist at a large New York entertainment company.

In the past several days, recruiting calls have been pouring in to workers at Citicorp's technology infrastructure group in New York. One IS manager described the mood there as glut since the company's Oct. 21 announcement that it plans to lay off as many as 9,000 workers. Some of the deepest cuts are expected in IS [CW, Oct. 27].

"In any situation where there's a downsizing or a merger or any significant change, you'll see people become a target," said Alan Johnson, managing director of Johnson Associates, Inc., a compensation consulting firm in New York.

And in the Big Apple, home to headquarters of banks, financial service companies and other big business enterprises with massive IS operations, the competition for Citicorp IS workers will be especially keen given the severe shortage in many information technology labor categories.

KEEP THE GOOD ONES

The challenge Citicorp faces now is how to hang on to the IS employees it wants to keep.

More money, Johnson said, would be an excellent opening gambit. The sooner the better.

"After a downsizing announcement, there's no sense in waiting if you're going to make promotions or salary adjustments," he said. Typically, companies offer 5% to 15% increases in base salary to workers they want to keep, he said.

Citicorp spokesman Jack Morris said the bank hasn't yet notified the workers whose jobs will be eliminated as a result of consolidating dozens of back-office computing operations and processing centers. The restructuring will take place over the next 12 to 18 months, he said.

In the meantime, Morris added, Citicorp wants to retain "as many people as we can, if they're willing to undertake retraining and undergo relocation." But he didn't disclose where workers would need to move or what kind of training they would need for continued employment.

Several analysts said they expect a significant number of the announced layoffs to come from overseas.

Citicorp operates in nearly 100 countries, with retail banking operations in 53 of those. Many of those international units also operate IS and back-office facilities, which will be consolidated to cut costs, analysts said.

Senior Editor Thomas Hoffman contributed to this report.

Manufacturers turn to 'net for improved supply chain

By Randy Weston

MANUFACTURING hasn't been considered cutting-edge since the days of Henry Ford's assembly line. But some manufacturers are bucking that tradition and turning to the Internet to improve the supply chain that connects customers and suppliers.

They are finding Internet technology an easy-to-use supplement to costly electronic data interchange (EDI) systems or infrastructure upgrades.

For example, Moit's North America, Inc. in Stamford, Conn., is using new Internet applications from SAP AG to extend its RJ enterprise resource planning software system to customers who now can view the status of orders from a World Wide Web browser.

GOING ALL THE WAY

"We have full EDI partners and have had for years, but this allows us to open it up full bore," said Catherine Riordan, director of business solutions at the food processing company.

"We are looking at using it for smaller partners who can't go EDI" because of the cost and complexity, she said. "We are also looking at taking it to our purchasing and supply side to start placing our orders and to manage our supply chain over the Internet."

Analysts predicted that more and more manufacturers are going to turn to the Internet for real-time data interchanges with suppliers and customers as competition forces them to adopt more of a make-to-order model.

For now, many are reluctant to adopt the technology. In a survey of 253 midsize manufacturing companies by Grant Thornton LLP in Chicago, 53% said the Internet had no impact on their business, and 34% said it had little impact.

"Most companies still see information and software as the enterprise," said Richard Maithoe, associate professor of information systems at the University of North Carolina in Wilmington. "But every business partner is a part of a manufacturer's enterprise."

But not all manufacturers are hanging back. Vixel Corp., a Bevill, Wash., maker of Fibre Channel storage products, has grand visions for using the Internet across all its operations.

It is setting up extranets to link its suite of Oracle Corp. applications with customer applications.

"We want to collapse the supply chain as much as possible," said Don Wenneinger, Vixel's chief information officer.

With the previous system, if one of those manufacturers had a problem getting a part, it took up to two weeks for Vixel to be able to notify the customer of a change in delivery date. Now, that part problem is immediately translated into a new delivery date that is sent directly to the customer.

The Impact of the Internet on midsize manufacturing firms

Although the idea to link IS volunteers and nonprofits began in Spokane, "the Web technology is such that it could literally be a global effort."

-Kris Rudin, Aurora project manager

"Part of the objective of TRAIN is to teach people like me exactly what we could do with technology," said Nancy Slack, a TRAIN board member and the marketing and communications director at Spokane's YMCA Inland Northwest.

"We want to get nonprofits to a point where, if someone came and set up a Web page, we'd be able to continuously keep it current," Slack said.

To register, computer professionals will enter their skills, contact information and how many hours a week or month they can donate into a Web-based database. Nonprofit groups also will register at the site.

"Eventually, we'll also put together back-end software that will allow matches between volunteers and nonprofits to be made automatically," said Aurora project manager Kris Rudin.

An electronic chat room and electronic mail archiving capabilities also are in the works so that TRAIN members can send memos and convene as a group electronically rather than meet in a physical place.
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Java developers keep faith despite vendor war

By Sharon Gaudin and April Jacobs

SOME DEVELOPERS building shrink-wrapped Java applications say they are nervous but will forge ahead despite the war between Microsoft Corp. and Sun Microsystems, Inc. that threatens to derail Java's platform-independence.

In the wake of Sun's breach-of-contract lawsuit against Microsoft filed Oct. 6 and Microsoft's countersuit filed last week, independent software vendors say they are reeling from what promises to be a dust storm.

But users said once the dust settles, they will keep developing Java applications.

"There's too much value with Java. We can't just pick it," said Shaun Maine, chief operating officer and president of Sanga International, Inc., a Barbados-based 100% Pure Java program developer that specializes in the finance and telecommunication industries. "We're telling our users not to go with Internet Explorer. We just tell them we don't want to get involved in that game."

He said if users go with Netscape Communications Corp.'s Navigator, they won't have to worry about being able to run Java applications.

In its suit, Microsoft charged Sun with breach of contract related to Sun's licensing of its Java virtual machine language.

Sun claims it has a version of Java in the latest version of its Internet Explorer browser doesn't comply with Sun's Java standard. Microsoft now says Sun's license didn't promise Java technology.

Regardless of who wins the spitting match, Java developers and users are left wondering if their supposedly write-once-run-anywhere applications will run the same on Navigator as they do on Internet Explorer.

"Java is a new technology, and it makes anybody using it professionally nervous because it's so unknown," said Kevin Perry, producer of author Tom Clancy's online company Red Storm Entertainment, Inc., in Morrisville, N.C.

ANXIOUS MOMENTS

"When you add in the infighting, it makes it even more of an unstable platform. Unfortunately, we're not in a position to be able to pull back. We don't have the resources to just hang out and say, 'Let's wait until you have to move forward into an unstable environment,'" he said.

Perry said Red Storm has several online business ventures in the planning stages and will think them through carefully before plunging ahead. "(Internet Explorer 4.0) has definitely caused us some anxious moments," he said.

Malcolm Colton, vice president of marketing at Cloudscape, Inc., an Oakland, Calif., Java software developer, said there is no way he will back off from building Java applications.

"Java is destined to be the next great development platform," Colton said. "We're completely committed to it. Worst case for us is it splits Java into two platforms, and that's still way better than the existing situation."

As expected, Microsoft countersues Sun

By Carol Siuva

IT WILL BE at least a month before a federal judge might be in a position to rule on the U.S. Justice Department's anticompetitive complaints against Microsoft Corp.

The Redmond, Wash.-based company has until next Monday to respond formally to Justice Department charges that it violated a 1995 consent decree by requiring PC makers to license and distribute its Internet Explorer browser as a condition of licensing Windows 95.

The Justice Department then will have 10 days to answer Microsoft's response.

The parties are due back in court Dec. 5, at which time a federal judge will decide how the case will proceed.

PRIOR KNOWLEDGE

Microsoft's initial memorandum, filed last week with the court, states that the Justice Department had full knowledge "more than two years ago" that Microsoft was incorporating Internet browsing technology into Windows.

According to Microsoft, the Justice Department didn't dispute Microsoft's right to design its operating systems to include Internet browsing functionality, and the consent decree doesn't specifically bar Microsoft from developing integrated products.

Justice Department officials declined to comment on Microsoft's response.

But they have made clear their view that the result -- Internet Explorer/Windows 95 -- isn't an integrated product, despite Microsoft's claims to the contrary.

To support its claim that Internet Explorer and Windows 95 are two separate products, the Department has cited standards organizations showing that Microsoft separately markets, licenses and distributes each version of Internet Explorer in ways different from any integrated features of its operating system products.

There is separate OEM and end-user demand for Internet browser products, and for Windows 95, and the two products can be physically and commercially separated, the Justice Department said in documents filed with the court.

A Microsoft spokesman said marketing information is "a pretty superficial way" to determine if the product is integrated into the operating system.

"Anyone who looks at the code will conclude that Internet Explorer makes fundamental modifications and extensions to the underlying operating system," the spokesman said.

Sun slags, OMG makes haste through ISO approval process

By Sharon Gaudin

SUN MICROSYSTEMS, INC. and the Object Management Group are wending their way through the International Standards Organization (ISO) standardization process. But the OMG is moving at lightning speed compared with Sun.

Sun, which is trying to become the sole submitter for Java language standardization, suffered a setback last week when the U.S. contingent voted against it.

The matter is far from settled, however. Twenty-seven countries have a vote. Six, including Denmark, France and Sweden, have approved Sun's application. The other countries have two weeks to submit their vote.

Sun's Java rival, Microsoft Corp. hailed the U.S. vote, saying that Sun is trying to monopolize the increasingly popular development language. Microsoft said an impartial organization should control Java's standards process.

"Standards are a good thing all the way around, especially in the early stages of Java," said Dennis Kremer, a programmer at Pittsburgh-based package shipper RPS, Inc.

"But users said once the dust settles, they will keep developing Java applications."
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A shortage of skilled database administrators is forcing companies to bring in high-priced consultants or put off work while they search for warm bodies to fill jobs.

"We're competing with Silicon Valley [vendors] for resources, and we just can't get resumes in here."  
— Bruce Watson, The Gap

Type: Business Chat

**Who's minding the database?**

> Dearth of administrators forces companies to bring in consultants

By Craig Stedman

Commerce applications, said one veteran system or with electronic commerce applications, said

"We're competing with Silicon Valley [vendors] for resources, and we just can't get resumes in here."

— Bruce Watson, The Gap

ers and programmers they work hand-in-hand with, database administrators are in short supply and have ample opportunities to jump at higher-paying offers. But their shortage can be even harder to take because databases have to be tended to day and day out, leaving information systems managers with little breathing room when a database administrator hits the road.

For example, The Gap, Inc. had to turn to outside contractors to help do normal maintenance work on its production databases after a slew of its 11 database administrators defected this year.

"That's something we've never done in the past," said Bruce Watson, senior director of information administration at the San Francisco-based clothing retailer. "But it's the only way we can cover everything the way we have to." The contractors cost $125 to $200 per hour, he added.

Watson said it has taken The Gap about 90 days to fill database administrator openings, despite combined salary/bonus offers that range from $100,000 to $125,000.

"We're competing with Silicon Valley [vendors] for resources, and we just can't get resumes in here," he said.

The company now is considering training junior-level staff members to fill database administrator slots.

But turning to internal training usually doesn't keep information systems departments from running up their database administrator consulting tabs, said Sandy Lauffer, an analyst at Gartner Group, Inc. in Stamford, Conn.

"Even though it takes money out of your wallet, the only thing you really can do is bite the bullet and consult dollars to help your people over the rough spots," Lauffer said.

The need to have the consultants on hand should eventually diminish, "but they do tend to stay there for a long time," she said.

Database development work and performance tuning for the city of Aurora, Colo., ground to a halt for nearly four months when the database administrator who managed the city's Infor n┉-Mail network, it couldn't support the flow of information at the company's stock market.

"There is an immediacy that is lost on E-mail," said Bruce Einstein, director of promotion research at MCA Records in Universal City, Calif. The company will supplement its Microsoft Exchange network with chat software to improve the flow of information at the company. "Sometimes people don't read their E-mail for days," he said.

In the case of Mail Boxes Etc., chat ensures that franchise owners can participate in meetings and distance learning provided by the home office, as long as they have a browser.

Users like that chat delivers basic collaboration without the overhead and integration hassles associated with full-fledged groupware systems such as Notes. Generally, no special client software is needed for chat.

"Projects were starting to get de-staffed, and database administrator didn't turn up any suitable prospects."

Richardson eventually decided to try an existing enterprise e-mail program, another four-month process that is still under way.

"It's not a great situation, but it's what we have to face."

Communicate in real time: The recipient can see the sender typing in the message. Workers can use it to get information fast from colleagues, thanks to "buddy lists" that let them know when their peers are online.

Beyond corporate boundaries, chat gives companies a way to "talk" to customers and trading partners without the expense of telephone calls or face-to-face meetings.

"This could be useful if you want to have a sales meeting but don't want to fly people to a central location," said Aaron Wiltz, a technical analyst at McDonald's Corp. in Oak Brook, Ill.

Electronic mail does that, too, but not in real time. E-mail is usually handled in store-and-forward fashion, which means mail goes to a "post office" and is redirected to the addressee. That could take five to 10 minutes, whereas chat is instantaneous. And in certain markets, such as online trading and online shopping, real-time dialogue makes a difference (see story Cover 1).

Business chat is most commonly used as part of a Worldwide Web-based customer service system or with electronic-commerce applications, said Kate Doyle, an analyst at Jupiter Communications, Inc. in New York. "Chat can spur commerce because customers can get answers to questions they have about products while online." It also can foster better client relationships and help companies market products, Doyle said. She predicts that 20% of the online population will use chat by 2002.

Until now, chat has been viewed by most as a complement to E-mail and groupware, not an replacement. Pushing chat more directly into the corporate spotlight are announcements this week from Lotus Development Corp. and Oracle Corp. Both companies are expected to reveal plans to bundle IChat with their messaging servers, which are due by year's end.

**NO HASSLES**

Qualcomm, Inc. also plans to bundle IChat's software in its popular Internet mail client. Officials at EShare Technologies, Inc. in Commack, N.Y., said it also is talking with messaging vendors about possible bundles.

Techniques to find and keep database administrators

- Pay up-front hiring bonuses
- Give extra pay for being on call
- Award time off for nighttime call-ins
- Offer extra vacation and flexible hours
- Provide advanced technology and tools

Source: Gartner Group, Inc., Stamford, Conn.

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Users like that chat delivers basic collaboration without the overhead and integration hassles associated with full-fledged groupware systems such as Notes. Generally, no special client software is needed for chat.

"It is a better alternative than E-mail, not only because it is real time, but also because chat can be limited to communities of people who want to work together. Anybody can access E-mail in-boxes. I think we regained our investment in about a week," said Tony Nunes, director of technical services at Pristine Capital Management in White Plains, N.Y.

The company runs a virtual trading room on the Web using a chat software from Houston-based IChat. Pristine charges about $500 per month for the service, which gives subscribers access to real-time trading tips, commentary and questions and answers. Nunes said chat is better than E-mail for that purpose because "seconds count in the stock market."

"There is an immediacy that is lost on E-mail," said Bruce Einstein, director of promotion research at MCA Records in Universal City, Calif. The company will supplement its Microsoft Exchange network with chat software to improve the flow of information at the company. "Sometimes people don't read their E-mail for days," he said.

In the case of Mail Boxes Etc., chat ensures that franchise owners can participate in meetings and distance learning provided by the home office, as long as they have a browser.

If the company tried to do something similar using its Lotus CC:Mail network, it couldn't be assured that all its store owners could participate, said Don Hopkins, the company's webmaster.
THIS MONTH users will be able to get their hands on two more thinner and lighter corporate laptops — packed with the new 233-MHz Pentium processor — from Dell Computer Corp. and Hewlett-Packard Co.

**LAPTOP LINEUP**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
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<tbody>
<tr>
<td>Dell Latitude CP</td>
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Features of all three:
- 13.3-in. display
- 233-MHz Pentium processor
- 6 to 7 pounds
- 2.1G-byte to 4G-byte hard drive

Round Rock, Texas-based Dell today introduced its Latitude CP line, and Palo Alto, Calif.-based HP will roll out its OmniBook 3000 CTX series. Both models target corporate users and cost less than $4,700.

The Latitude design is just 1.5 inches thick: Dell shaved an inch and two pounds off the old model. The notebook has a 13.3-in. active-matrix LCD screen, a 2.1G-byte hard drive and a second bay for batteries, allowing six to eight hours of continuous use.

HP's 233-MHz model comes with a 4G-byte hard drive and 32M bytes of memory. It costs $4,990; the 200-MHz version with a 2.1G-byte hard drive costs $3,700.

"The pricing's not bad at all," said Jerry Filler, an information systems manager in computer operations at Progressive Insurance Co. in Mayfield Village, Ohio, who has a beta copy of the new HP notebook.

The company's insurance adjusters use HP 7500 and 5500 notebooks because of their high-contrast screen display, but company executives carry Dell's Latitude machines.

Analysts said HP is focused on improving its laptop product.

"Before, full-size notebooks were an afterthought for them," said Mike McGuire, an analyst at Dataquest in San Jose, Calif. Now the company is trying to make inroads with a separate mobile business, he said.

Also this week, Digital Equipment Corp. is rounding out its laptop product line with the HiNote VP700 series, which has a 233-MHz Pentium processor and CD-ROM/diskette combination drive.

The VP700 falls between the company's higher-end Ultra 2000 series and VP500 value series. The VP735 has a 13.3-in. color screen and a 4G-byte hard drive. The VP715 has a 2.1G-byte hard drive.

The 166-MHz model costs $3,799; the 233-MHz machine costs $4,999.

Users expect to see a business version of Apple Computer, Inc.'s Emate.

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Central storage cuts costs

By Tim Ouellette

IT DEPARTMENTS are hoping to turn their disk subsystems into veritable data melting pots.

In the coming months, major storage vendors expect to expand the number of server platforms they support on one disk array, so users can centrally locate data from different servers — such as mainframes, AS/400, Unix and Windows NT — in one box.

Most information technology managers have already seen an influx of distributed servers back to the data center. They say centralizing corporate data on fewer and more accessible disk systems is the next step (CW, Aug. 11).

"That is what we would eventually like to do," said Art Louise, assistant vice president at Group Health, Inc. in New York. "We want to move some mainframe applications to open systems, but let them keep sharing the data."

By co-hosting data, IT managers also expect to save floor space; get a better grasp of storage-capacity planning; improve management; and get more efficient use of their staff, analysts said.

Using just one box for storage is one of the first steps to true data sharing, said Linnea Nichols, a data center branch manager for Fairfax County, Va. Nichols heads up a committee of Share, IBM’s mainframe user group, that is asking vendors to make storage transparent to end users.

"It is a way of not only cutting management costs, but of having more flexibility to respond to changing capacity needs of our various platforms," Nichols said.

The problem is that many enterprise applications need data from several different sources, which requires time-consuming data transfers among platforms and gives storage administrators a management headache (see chart).

Managers complained that their file transfers over the network suck up significant amounts of valuable mainframe MIPS.

To address this, Gulf States Toyota in Houston is using Encore Computer Corp.’s Infinity SP array to store and backup mainframe, Unix and Windows NT data.

Data sharing "basically saves all the hassle of automating file transfers between different servers and their storage systems," said Bob Lane, director of information services at the automobile distributor.

Although EMC Corp. in Hopkinton, Mass., and Encore, in Fort Lauderdale, Fla., currently lead the pack in co-hosting data, more vendors are picking up their pace.

IBM plans to announce native support for Sun Microsystems, Inc.’s Solaris operating system on its 7133 Unix disk arrays. And IBM is developing a version of the 7133 that will also store mainframe data. That system is expected to ship late next year.

By year’s end, rival Hitachi Data Systems Corp. in Santa Clara, Calif., plans to add support for Windows NT data to its 7700 arrays, which already can store mainframe and Unix data.

And Sun, in Mountain View, Calif., plans to expand its platform support beyond Solaris by buying Encore’s storage business. The deal, which should be sealed in the next month, will let Sun host mainframe data on a future line of disk arrays.

Not just a storage thing

Users and vendors agree that true data sharing will take more than just co-hosting data on a disk subsystem.

"You can’t lie at data sharing as just a storage thing," said Bill Pinkerton, vice president of storage marketing at IBM. His group works with IBM’s server divisions to try to improve the way data is shared across the different platforms, he said.

But this goes beyond just one vendor’s server and storage products.

Members of Share, IBM’s mainframe user group, include the following in their definition of true data sharing, which they dub the data delivery utility:

- Access that can be shared at the lowest level of data
- Format transparency
- Data consistency when moved between different platforms
- Continuous availability

— Tim Ouellette

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Novonyx delivers first round of products

By Laura DiDio

Novonyx, the independent joint venture formed earlier this year by Netscape Communications Corp. and Novell, Inc., last week began shipping beta versions of its first software products.

Novonyx, based in Novell's former offices in Orem, Utah, began shipping limited betas of Netscape Enterprise Server 3.0 for NetWare, a high-end World Wide Web server; Netscape Messaging Server for NetWare; and Netscape FastTrack for NetWare. Volume shipments are due by year's end, said Novonyx President Rob Hicks. Enterprise Server 3.0 will be fully integrated with Novell Directory Services (NDS) via the Lightweight Directory Access Protocol (LDAP), he added.

Early beta users and analysts said with Novonyx, Netscape and Novell have the potential to go head-to-head with Microsoft Corp. in the hotly contested Internet race. If Novonyx can deliver the goods, NetWare/IntranetWare users will be able to deploy NDS and the SuiteSpot servers as their Internet gateways, said Bob Saka-keeny, an analyst at Aberdeen Group, Inc., a Boston consultancy.

COMPELLING PRODUCT

Robert Forras, project leader for emerging technologies at Calvin Klein, Inc. in New York, said he "jumped at the chance" to test the Novonyx SuiteSpot servers. "The ability to add standards-based, NDS-integrated intranet solutions on top of our existing infrastructure is very compelling," Forras said.

Matt Rice, vice president and senior network manager of information systems at USTrust Bank Corp. in Cambridge, Mass., agreed. He said the combination of Netscape Web servers integrated with IntranetWare and NDS could preserve his investment in existing networks and reduce management tasks and training time.

"I currently administer my Web servers and my NetWare file servers as two separate entities. The Novonyx software will save me a minimum of 10 hours of management time each week and free up my network administrators to do other tasks that I might otherwise have to outsource," Rice said.

Len Steinbach, director of information technology at the Solomon R. Guggenheim Museum in New York, said that although he likes what he has heard so far about Novonyx's products and strategy, he remains a skeptic. "I've seen start-ups come and go. They're wonderful entrepreneurial experiments, but I won't put any money down until it looks like more of a sure thing," Steinbach said.

Hicks said pricing for Netscape Enterprise Server for NetWare, Netscape Messaging Server for NetWare and Netscape FastTrack for NetWare will offer NetWare users:

- Web and application server that supports JavaScript
- Scalable message server that supports Internet standards
- Simple Mail Transfer Protocol, Post Office Protocol 3 and Internet Message Access Protocol 4
- Integration with NDS and LDAP
- Admin Server, a common management console for SuiteSpot server
- NetWare Runtime capability to add Enterprise Server and Messaging Server to existing networks


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**User, IS not doing enough to safeguard laptop information**

By Kim Girard

Despite the threats of possibly losing a year's worth of work and sensitive corporate information, analysts say many IS departments are doing little to protect the data users carry with them on laptops.

"We do little backup," conceded James Staten, an analyst at Dataquest in San Jose, Calif. "It's nowhere as comprehensive as in the mainframe environment." There is a real lack of knowledge about what kind of applications are running on what kind of platforms and how critical any of them could be.

Such holes could lead to drastic consequences — including loss of service and data, analysts and users warned.

A good disaster recovery plan should include measures such as setting up special buildings or hot sites ready to assume operations in case the primary location fails; backing up data regularly and storing it in fire-safe, off-site locations; and establishing procedures to restore key personnel and services quicker than others.

In a distributed environment, typical planning gaps include things such as inadequate procedures for backing up data; not storing data backups off-site; lack of virus protection; widely dispersed and unsecured server hardware; and a lack of contingency procedures to restore service after a disaster.

"At the very minimum, users should do regular backups, store data off-site and have good virus protection," said Tom Oleson, an analyst at International Data Corp. in Framingham, Mass.

--

**Problems implementing disaster recovery procedures in a client/server environment**

- Widely dispersed systems
- Too many systems/platforms
- Lack of information on which systems are vital to business
- Lack of corporate support and staff
- Costly to implement

--

**SAFETY TIPS FOR LAPTOP USERS**

- Keep current copies of important data somewhere other than your laptop
- Quit programs before shutting down to avoid data loss and program corruption
- When compressing data, make extra backups because compressed data is more difficult to recover
- Never reformat your drive without testing your backup
- Don't move or jar a drive while it's operating

Source: DriveSavers, Inc., Novato, Calif.
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Cisco's Gigabit Ethernet delay won't hurt

**Analysis:** User need for technology isn't great yet

By Bob Wallace

Cisco Systems, Inc.'s delays in developing Gigabit Ethernet networking products won't damage the company or leave users in the lurch, industry analysts said last week.

Cisco CEO John Chambers recently told Computerworld that users shouldn't expect Gigabit Ethernet offerings from the company for five to six more months.

Gigabit Ethernet products, as the name implies, let users run networks at 4G bit/sec, using trialed-and-true Ethernet technology. The wires are most commonly pitched for campus backbones and for access to server farms.

"The delays won't hurt them a tad because there are no users at all that much have to have Gigabit Ethernet products today," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. "All that's going on now with Gigabit Ethernet is tire kicking.

"I don't expect the market to really take off until late 1998 anyhow," Nolle said.

E-mail tool vendors merge

By Barb Cole-Gomoliski

The recent acquisition of Baranof Software, Inc. by Tally Systems Corp. will result in a one-stop shop for electronic mail analysis and management tools, users and analysts said.

Hanover, N.H.-based Tally Systems, which has 145 employees, sells systems for taking inventory of applications running electronic mail and for access to server farms.

"The delays won't hurt them a tad because there are no users at all that much have to have Gigabit Ethernet products today," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. "All that's going on now with Gigabit Ethernet is tire kicking.

"I don't expect the market to really take off until late 1998 anyhow," Nolle said.

Cisco bought Gigabit Ethernet component vendor Granite Systems in September 1996 for $220 million. But when no products were forthcoming, rumors arose about problems between the two companies.

The rumors intensified as Cisco rivals ComCorp., Bay Networks, Inc. and a slew of start-ups announced Gigabit Ethernet products. Some smaller firms have already begun to ship the offerings.

Chambers dismissed the rumors and said Cisco will deliver Gigabit Ethernet products after a standard for the technology is completed. That should be by early to mid-1998, vendors said.

"What happened with the

Truce makes Alpha's future uncertain

By Jaiakumar Vijayan

Q: How did Digital use Intel?
A: Digital claimed that Intel had infringed upon 10 of its patents relating to technologies such as cache management and branch prediction.

Q: What was last week's settlement about?
A: It countersued Digital to return advance information on forthcoming Intel chip technologies.

Q: What is the future of OpenVMS?
A: Digital agreed to port 64-bit Unix on HP/Intel IA-64 architecture. Both Intel and Digital agreed to drop all litigation.

Q: What does this mean for Alpha users?
A: Probably little in the near term. The settlement could accelerate a move away from Alpha to the IA-64 architecture.

For OpenVMS, which is currently supported only on Alpha.

"This is something that needs to be immediately clarified by Digital" to reassure users that their investments in OpenVMS will be safe, Pollizzii said.

Digital Vice President John Rando claimed the arrangement with Intel will in fact extend Alpha's life. Intel's mass-volume manufacturing capabilities mean Digital will now be able to churn out new versions of its Alpha chip faster and more economically than before, Rando said. The next chip is due early next year.

He said Digital will continue with its plans of offering Alpha servers at the high end and Windows servers for a broader market.

Intel last week agreed to buy Digital's Alpha chip manufacturing operations for $570 million. Digital will own design and development rights to Alpha, which Intel will manufacture for it. Digital agreed to port 64-bit Unix on HP/Intel IA-64 architecture. Both Intel and Digital agreed to drop all litigation.

Similarly, the porting of Digital Unix to IA-64 means Digital users will get full-blowenn 64-bit application support on IA-64 architecture when it begins to ship in late 1998, Yong said.

Senior editor April Jacobs contributed to this story.
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That's the second round of electronic commerce — the flinty-eyed, money-making ROI kind — firing up its engines at AlliedSignal.

The automotive aftermarket division of this $13.5 billion manufacturer later this month will launch a unique Web site (see our exclusive story on page 63) aimed squarely at profitability. It will serve volumes of business customers, entertain avid race fans and draw in random consumers with lures such as downloadable software that diagnoses car trouble.

These days, the most ballyhooed examples of moneymaking Web sites hail from the computer industry itself (Cisco, Dell and Netscape come to mind) or the financial industry. An estimated $8 billion to $10 billion in goods and services will be sold online this year. But traditional, conservative manufacturers — the heart and soul of supply-chain economics — have done little more than create marketing brochures online. One survey noted that 80% of Fortune 500 companies have a Web presence. Yet another poll pointed out that 72% of company Web sites weren't even created with revenue generation in mind.

The second round of electronic commerce will change that attitude dramatically, as sites such as AlliedSignal's demonstrate how to make the Web a business venture rather than a cyberadventure.

Six months and $2 million ago, www.highperformance driving.com was just a lot of intriguing talk from one of AlliedSignal's IS departments. But IS ended up playing the pivotal role in creating the site, involving every department in the company along the way. The automotive division is counting on every IS department of the company to contribute to the site's success. IS departments are counting on the automotive division to contribute to their own success.

So ladies and gentlemen, start your E-commerce engines. The race is on.

Maryfran Johnson, Executive editor
Internet: maryfran.johnson@cw.com

Is it a crime to be successful?

E ditor Paul Gillin's column
in the Federal Trade Commis-
sion investigation of Intel "Federal Folly," CW, Sept. 29, couldn't be
said to be more dead-on!

Thank you for telling it like it is.

Intel chips come at a price —

And heck, I even like their commercials. So sue me, not

Tim Barrett
Louisville, Ky.
timbarrrett@reichabdesigns.com

Keeping up to date on skills will put an end to age bias

A fter reading your article on

Age bias, race bias, sex bias . . .

It all boils down to having a

Jerry Collins
Indianapolis
coelli@indy.net

A year 2000 getaway plan

So when Jan. 1, 2000, hits,

I feel lucky to be immersed in

Brian Stork
Consumer Credit Counseling Service
Seattle

Sun right on track with Java

M ost of the folks in the indus-

Java to some central standards body. Of course, none of these

Ellen Russ
San Francisco
ellen@sisinc.com

Computerworld welcomes comments from its readers. Letters should not exceed 200

To the Editor: My name is John T.,

John Zielinski
Lynnwood, Ill.
john.zielinski@infovers.com
Webmasters show IS how to talk to users

Michael Schrage

A not-so-dirty, not-so-little secret about webmasters and IS is that they frequently dislike each other's guts. There are reasons for this: The webmaster culture is a lot easier and more freewheeling.

IS also resents how the 'net can so wrongfully overshadow the genuinely hard enterprise issues that must be managed in this era of accelerated нетcentricity.

That said, intranets can evoke important behaviors that IS would do well to monitor and emulate. As much by default as by design, savvy webmasters are creating infrastructures for interaction that traditional IS can't seem to master.

A global apparel company I spoke to tenderly, for example, said she hoped to find a 21st century year when the calendar dates match those in 1997 and just turn her systems ahead to do testing. But she didn't know that her shop had recently signed software licenses that expire in 2003, risking system crashes if their clocks moved past that date.

Another growing worry is the "embedded" processors contained in everything from bank teller machines to LAN routers to telephone switches. CIO Arthur Gross at the Internal Revenue Service recently warned that such "infrastructure" bugs could require as much work as those in the more visible applications.

Some equally knowledgeable observers claim the "infrastructure" problem is overblown, but not knowing may be catastrophic enough.

Some observers speculate that the Nuclear Regulatory Commission will shut down nuclear power plants if their owners can't prove every chip and every line of code in those fiendishly complicated systems can tell the difference between 1999 and 2000. Anybody know how to design and perform those tests in the next two years?

Underlying all this is the realization of how dependent we've become on computers as we've wrung fat out of our economy. Automatic replenishment systems deliver parts just in time; "knowledge workers" eliminate the need for middle managers; global financial markets react instantaneously to news.

Imagine that just one major financial exchange stops, even for a day, because of two or three year 2000 bugs. And that, as CNN breathlessly reports that failure, just one regional automated teller machine network goes down because of a telephone problem. And that panicky customers in a neighboring state empty functioning ATMs of cash.

I hesitate to trust these bogeyman stories because they're so easy to spin and impossible to debunk before the fact. But with all the code and all the chips in all the systems — and IS's poor track record in delivering complex systems — it is realistic to think 10, 100 or 1,000 such glitches won't slip through the cracks in inconvenient and possibly dangerous ways?

Governments, businesses and IS organizations must prevent panic by explaining a) what could go wrong, b) what they're doing to prevent the worst problems and c) their contingency plans to keep necessities such as electricity, water and cash flowing if worse does come to worse.

Our society doesn't collapse from floods, blizzards or hurricanes because we take reasonable precautions and have emergency services ready. It's time to do the same for the year 2000 software bug. And it's time for IS — having helped create this mess — to help lead the way.

Schrage is a senior editor in Computerworld's Managing section.
AT 6:32 PM EVERY WEDNESDAY, OWEN BLY BUYS DIAPERS AND BEER.
If a data mining query discovers that between 6 and 8pm men buy diapers and beer, chances are you'll sell more diapers and beer. It's with this kind of valuable — and sometimes odd — information mined from company databases that Tandem is helping people in retail, banking, telecommunications and insurance uncover business opportunities. And coupled with our reputation in handling 90% of the world's stock transactions, 80% of all ATM transactions, 66% of all credit card validations, and two-thirds of all 911 calls in the U.S., our decision support solutions are as reliable as they are insightful. Contact us at www.tandem.com for more information. Or call 1-800 NONSTOP, ext. 8001 for our latest DSS Manager's Kit including the new Object Relational Data Mining™ white paper.

Every second, every transaction, every customer counts.
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Searching for information with IDG.net delivers what you want the first time because the information comes from IDG’s vast technology-specific network of more than 170 Web sites. On average, users spend 10 hours per week searching for information on the Web. IDG.net dramatically reduces that time by quickly providing relevant technology information.

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IDG.net draws upon the world’s largest network of technology-specific Web sites. They include Computerworld, InfoWorld Electric, JavaWorld, Macworld Online, Network World Fusion, and PC World Online—all accessed through one gateway.

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Is it right for your size business?

Windows NT Workstation: Is it right for your size business?

Inside: In the market for a new business PC? Why pre-installed Microsoft Windows NT Workstation is your best business move yet.
If there's one thing to be learned from the explosive growth in the number of small businesses, it's that size and success aren't necessarily related. Given the right tools, a small business can perform just like a big business. The bottom line? You don't have to be big to do big things.

Keeping that in mind, Microsoft—with our PC partners Dell, Digital, IBM, and others—has created a business computing solution that can change the way businesses of all sizes work and succeed. It's Windows NT pre-installed on new PCs.

We can guess your next question: "Isn't Windows NT just for enterprises?" The fact is, no it's not. We believe Windows NT is the world's most powerful business operating system. And small businesses everywhere are using this power on new PCs with big results. Why did they choose Windows NT Workstation? Here's what they told us.

"Windows NT allows my small company to do the work of a large company."

—Arabian, Hypnotic Fx

Windows NT Workstation is dependable. "Small businesses are no different from big corporations in one important respect," says Alton Loe of OSI. "Our computers need to run just as dependably. That's why we like Windows NT. It's bulletproof." Greg Hillenbrand of Fourth Shift concurs. "For us, running Windows NT on IBM ThinkPads was a no-brainer. We've been using ThinkPads for four years—but with Windows NT, we were suddenly able to do things we'd never done before. Windows NT is safe. It's stable. It doesn't disappoint us."

Windows NT keeps your data safe and secure even under the very toughest conditions. Ever accidentally leave your laptop in a cab? Or find out that someone who shouldn't have accessed your files did? We have, too. That's why Windows NT includes integrated security. This way more than one person can use the same personal computer, but each has access only to his or her individual files. "The key reasons we had Windows NT pre-installed on our new PCs was its security and scalability," says Mike Stone, Stan Wiley Realtors. "In our business, data integrity is paramount. Windows NT allows us to guarantee complete customer privacy, as only agents with a need to know can access customer information—even on our shared PCs."

Windows NT is not complicated. Windows NT features the same familiar user interface that is in the Windows 95 operating system. "The Windows NT user interface makes everything easy," says Leoung O'Young of Digimata. "We just finished a project that, just a few years ago, we couldn't have even attempted. But now that we have a Digital Personal Workstation running..."
Windows NT, we can take on big projects and really deliver.” Jan Denson of Pillsbury Madison Sutro LLP agrees, having recently migrated the firm to a Dell OptiPlex PC and Windows NT environment. “It hasn’t been hard at all to learn Windows NT—and we’ve got people here who, five hours before they got their system, didn’t even know what a mouse was. A little bit of training, and they’re up and running. That’s how easy Windows NT is.”

Windows NT is a multitasking wonder. What about doing multiple tasks at once? Windows NT preemptive multitasking allows you to work fast and furiously in several applications at the same time without worrying about overloading the system. “Windows NT task switching is ... bam! It’s immediate,” says Loe. “Windows NT runs every application in a separate memory space, so it’s like having a virtual machine for each task.”

Windows NT turns you into a brilliant manager of files, folders, applications—and time. Hate filing? That’s okay. Windows NT presents a view of information that makes browsing and managing files, drives, and network connections easy—and your time even more productive. “We’re able to get more work done in less time; we know the status of everything. And with our Digital Personal Workstation, the 3-D work really screams,” says Arabian, owner of Hypnotic Fx.

Windows NT saves big bucks. Industry analysts report that running Windows NT costs a lot less than running Windows 3.1.* And don’t forget the time saved by not calling technical support and how much more work your firm can accomplish—and bill—due to increased productivity. “When you consider the return on investment,” adds Loe, “you’ve really got to ask yourself, can I afford not to go with Windows NT?”

Windows NT is the best way to move your business into the future: a 32-bit world. Besides increased security, better performance, bulletproof reliability, and reduced costs, what else can a 32-bit operating system like Windows NT offer? Well, how about the satisfaction of a secure investment? As Denson points out, “We did the research, and it was clear to us that 32-bit was the only way to go. This was a strategic decision—our goal was to buy on the forward edge of technology.” What did their research tell them? “All indicators pointed to a 32-bit environment running Windows NT.”

Windows NT has a way of helping businesses of all sizes accomplish one important task: success. “It’s funny,” summarizes Arabian. “A lot of people think Windows NT is just for large businesses, but I think it’s actually the other way around. Windows NT is the way in. Being successful has little to do with size and everything to do with how quickly you move. And I can tell you this much: With Windows NT, we’re moving pretty fast.”

*Gartner Group, 1996; Forrester, 1997.
From our partners

Dell: built for your business. At Dell, we talk with thousands of business customers every day, and this is what we've heard. You want a powerful machine that won't become obsolete within a year (or even five). You want it configured for your specific needs. And you want it at a fair price. How do we respond to these requests? With one word: OptiPlex.

The OptiPlex system, like all of our other offerings, isn't something we pull from stock. We build it in the exact configuration you want, fully loaded with the software you spec, from the ground up. Today, more businesses are requesting OptiPlex computers pre-loaded with Windows NT Workstation than ever before, and we think that's smart. Windows NT is a powerfully robust system, and we should know—our validation lab puts it through its paces every day. But our partnership with Microsoft goes well beyond meetings and tests. We're also working with it to create a computing road map designed to give you the ability to see further. Like all the way to the future. Long before it arrives.

Digital: approaching warp speed. At Digital, we see a tremendous opportunity for businesses of all sizes to sharpen their competitive edge by moving to powerful Windows NT-based workstations. Built for the demanding design professional, our Digital Personal Workstations can drive down costs, improve productivity, and help you harness the latest, most innovative 32-bit applications. And the results are impressive. Digital Personal Workstations unleash the true power of Windows NT Workstation to help users visualize their creations faster and more realistically. At the same time, they offer access to state-of-the-art office and personal productivity tools. It all adds up to faster time to market. Even better, the combination of Digital Personal Workstations and Windows NT offers a total cost of ownership that is 39 percent lower than that of UNIX workstations, according to a study conducted by Deloitte and Touche. See what we mean? Impressive results. And exactly what you would expect from a powerful alliance between two market leaders: Digital and Microsoft.

IBM: think smart. At IBM, we're dedicated to helping our customers get the most out of their computing solutions, and our ThinkPads are a perfect example. Working closely with Microsoft, we designed all our ThinkPads to take on the very real challenge of running Windows NT Workstation on a notebook computer—and we're happy to report that the long hours have resulted in a smashing success.

Today, while all our ThinkPads run Windows NT, the IBM ThinkPad 770 provides what we believe is the industry's premier Windows NT Workstation implementation in a small business mobile platform. Every ThinkPad 770 features, among other things, full power management, Ultrabay Plug and Play, and hot plug PC Card support. Bottom line? Our customers can take advantage of Windows NT security, scalability, and reliability at 35,000 feet as easily as they can on their desktop system back at the office. Flexibility through partnership. At IBM and Microsoft, it's what we think small businesses need to succeed.
U.S., Russia working together

The Russians are coming! The Russians are coming!

Read your article "The Russians are coming!" and I totally agree with it. I immigrated to the U.S. six years ago, and for the past several years I have worked in L.A. as an independent consultant on client/server systems. I am very grateful that this country gave me the opportunity to come here and be all I can be. I would have never had such an opportunity in Russia, but I got good, solid education and some experience there.

I hope that the U.S. and Russia will have much more in common through such collaboration. Thank you very much for your article.

Alexander Polischuk
Los Angeles

IS hirers should look past disabilities to fill positions

My 27-year-old son is approaching the fourth anniversary of the date he received his B.S. degree in computer science, and he is still without any job prospects in the field. This shortage of skilled personnel that your weekly paper continues to report on is lost on me. It seems that the employers of IS personnel will not look beyond the possibilities, only the apparent lack of meeting "standard criteria" for meeting the objectives of a job.

The fact that my son held down various temp jobs in another field means nothing. The fact that he was able to complete his degree without any assistance from any support department on campus means nothing. But the fact that he "acts different" and is unable to carry down various temp jobs in an environment dominated by Microsoft products


Marc C. Di Giuseppe
Utica, N.Y.

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Utica, N.Y.
THE MONITOR BECAME HIS VOICE. With it he makes class reports and conversation. And keeps up with his class in the regular Osterville, MA public school system.

WITH THE PICTURES, HE MAKES SENTENCES. WITH THE SENTENCES, HE MAKES FRIENDS. Christian's monitor is the window between his non-verbal world and the speaking world of his friends. Through it, he teaches them many things.

Until he found this window.

MULTISYNC® MONITORS

<table>
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<th>Model</th>
<th>Max Res</th>
<th>Bandwidth CRT Type Pixe</th>
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<td>1600 x 1200</td>
<td>17780 Hz</td>
<td>Dot Trio</td>
<td>0.24 mm dot</td>
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</tbody>
</table>

Enterprise monitors feature CromaClear™ CRT technology, for unparalleled focus, contrast and intense color saturation.

And, of course, the industry-leading NEC warranty includes 3 years parts, labor and CRT.

For more information, call 1-800-NEC-INFO or visit www.nec.com.
Corporate Strategies

Case Studies + Trends + Outsourcing

Online commerce

Scare sparks site revamp

By Patrick Dryden

DALLAS

LIKE MANY companies, Pegasus Systems, Inc. first put some pages up on the World Wide Web as a sideline.

Then a "scary" reality hit: That sideline would become a major business conduit. So Pegasus information systems managers had to revamp the site to make content more manageable and to accommodate rising traffic and the need to deliver Web pages quickly.

Launched in 1994, TravelWeb (www.travelweb.com) simply provided brochures that described hotel properties and some search capabilities. The service helped promote Pegasus' real business of handling transactions among 13 of the 15 largest hotel properties and some hotel chains in the world and provided brochures that described hotel properties and some search capabilities. The service helped promote Pegasus' real business of handling transactions among 13 of the 15 largest hotels or booking agencies, then do it again for the next one," Reynolds said. Pegasus was outsourcing the page update process, and traffic volumes on the site were rising precipitously, he said.

The services offered by Pegasus constitute one of the Web's more fertile grounds for online commerce.

Consumers are more comfortable buying hotel reservations on the Internet than other products or services, ahead of software, online subscriptions and airline tickets, according to a survey by Yankelovich Partners, Inc., a New York-based market researcher. Forrester Research, Inc. in Cambridge, Mass. predicts the market for online hotel bookings will leap from $145 million in 1997 to $3.2 billion by 2002.

The situation worsened when Pegasus added a second Web server in December 1995 to let customers book reservations online. Activity soared, and Pegasus decided to make TravelWeb a strategic service for its hotel partners. But the fledgling site was not designed for such growth.

"We would potentially have to double the 30,000-page static site when we brought in new hotels or booking agencies, then do it again for the next one," Reynolds said. Pegasus was outsourcing the page update process, and traffic volumes on the site were rising precipitously, he said.

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Privacy can be lost in background checks

Companies must weigh against need to know

By Kim S. Nash

EVER MISS a loan payment? Get into a legal scuffle with a collague? Not only is such personal information not private, but it is also often uncovered by routine pre-employment checks.

Yet the technology hiring crunch has created a catch-22 for employers hot to hire talented job prospects.

If companies don't do them, they may get some bad apples and even face lawsuits for negligent hiring [CW, Oct. 27]. But employers also must be careful not to trample applicants' privacy.

Background checks, page 44

THE COST OF A BACKGROUND CHECK

<table>
<thead>
<tr>
<th>Company</th>
<th>Type of check</th>
<th>Price</th>
</tr>
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<tbody>
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<td>World</td>
<td>Address history, verification of Social Security number, criminal check and driving history</td>
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<tr>
<td>Information</td>
<td>All the above, plus civil check, credit report and past employment verification</td>
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<tr>
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<td>Criminal check</td>
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<td>Education history, previous employment, driving history, credit report, and criminal and civil actions</td>
<td>$100</td>
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To integrate data, use tech, tact

The State of Colorado's David Usery: "There was some skepticism that people could work together on this"

By Craig Stedman

OLD TECHNOLOGY habits die hard. And that can make life tough for IS managers who have to pull together a diverse mix of well-entrenched systems and for the users who are fiercely loyal to the machines they know. Just ask David Usery.

Usery is in charge of a $3.2 million project to link the information systems of Colorado's five state criminal justice agencies. Even with a legislative mandate behind him, getting everyone to pull in the same direction has required a careful blend of carrots and sticks.

"You can't mandate away turf wars, and you can only lead so much by brute force. It's a delicate balance," said Usery, the chief information officer on the integration project.

Colorado gave up on trying to make the agencies converge on a common platform. The project, which is due to go live in January after 18 months of development, uses Sybase, Inc.'s middleware to transparently map data among different systems. End users still will work within their familiar desktop interfaces, Usery said.

But if things work as planned, users will get seamless State users, page 44

People hold on to information because it is power.

"People hold on to information because it is power."

-Brettie Wham, Colorado senator

State prep for 2000

Maryland awarded a $100 million year 2000 contract to several contractors: to provide mil-lions of Web pages to more than 40 state agencies and departments, including community colleges. They include BDM International, Inc. in McLean, Va., and Integrated Software Solutions, Inc. in Seattle.

Recovery online

SunGard Recovery Services, Inc. in Wayne, Pa., lets small and midsize businesses subscribe to disaster recovery services over the Internet. The DR Made Simple program lets companies set up an annual recovery services contract through SunGard's home page (http://recovery.sungard.com).

Monsanto lays tracks

Monsanto Co. has signed a licensing agreement to use Simulation Sciences, Inc.'s OpenYield software to track production and materials among four plants in St. Louis-based Monsanto expects to begin implementing the yield accounting software by year's end. Simulation Sciences is based in Brea, Calif.

Java for banks

Meca Software LLC, a financial software consortium owned by a group of banks, formed an alliance with Sun Microsystems, Inc. in Mountain View, Calif., to develop Java-based financial services applications such as planning calculators and electronic bill-payment systems.
access to information from other agencies that previously was available only in paper form, if at all. That would give police officers, judges, prosecutors and corrections officials more complete pictures of the suspects and criminals with whom they must contend.

"The parole board hasn't had good information at their fingertips," said Dottie Wham, a Colorado state senator who chairs the legislative body's Judiciary Committee. "They're still doing things on paper, and it's just very slow and inefficient."

But the promise of improved public safety didn't make the integration project an easy sell. It has taken nearly 10 years of haggling and strong-arm tactics such as budgetary threats to get to the agencies to cooperate, Wham said. "People kind of hold on to information because it is power," she said.

Such squabbling also could endanger corporate integration initiatives, said Lesley Kao, a state and local government analyst at G2R, Inc. in Mountain View, Calif. "Many government agencies are especially wary of losing autonomy," she said.

"There's a fear that other departments might weaken havoc on their data," Kao said.

It helped that the executive directors of the Colorado agencies finally signed on. But even then, most of the staffs had to work delicately to guarantee each agency an equal say in decisions and to foster an impression "that you're going against the grain if you're against this."

Then came the technology considerations.

User groups of about 40 IS workers and end users for weekly meetings between last December and June, and to gather they hammered out a 2-in-thick set of text and flowcharts that documented how things got done at the various agencies. That was used to develop business rules to govern the sharing of data.

The users initially brought "an element of cynicism" with them, and disagreements were common along the way, Usery said. But the project team worked to create "the communal view that we could all bail ourselves out of hot water by doing this," he said.

Colorado will use Emergyville, Calif-based Sybase's EnterpriseConnect middleware and SQL Server database to shuttle data among the agencies' systems, which include an IBM AS/400, a Digital Equipment Corp. VAX, a Hewlett-Packard Co. HP 3000 and two Unix servers from Sequent Computer Systems, Inc. in Beaverton, Ore.

Virtually all the state's criminal justice data will still be stored in the various systems. The 4G-byte SQL Server database will hold just the names and case numbers of offenders, and pointers will let end users get at more detailed information in the agency computers, Usery said.

But even with everyone now on the same page, interagency trust goes only so far. All SQL database calls will go against a set of global stored procedures in SQL Server rather than directly from system to system. The agencies still aren't comfortable about giving direct SQL access to outside users, Usery said.

The solution is apparent now:

Build a dynamic site that links pages to content stored in a central database for easy updates. Pegasus management last year approved the conversion of TravelWeb from a static to a dynamic architecture. Officials said they wanted an adaptable site so that a hotel or agency could put its interface on common information quickly with a low cost for creation and maintenance.

For a site the size of TravelWeb, however, database connectivity tools were scarce, of limited capabilities and slow, Reynolds said.

The biggest problem was the lack of development experts in Netscape Communications Corp.'s LiveWire to build the site on an Informix Software, Inc. database, Reynolds said.

"We had to try and try again to tune performance. It was inefficient, but the only option we had," he said.

To keep on schedule, Pegasus' IS staff tried to stay away from unknown technologies.

Servers from one vendor and Sun Microsystems, Inc., are redundant for fault tolerance and scalable in processing, memory and storage for growth, said Trae Chancellor, technical services director at Pegasus.

Three months after the dynamic version of TravelWeb went online in March, traffic on the site exceeded Pegasus' capacity, forcing the company to hire a new Internet service provider. Pegasus shifted to San Francisco-based Genuity, Inc. Genuity's backbone provides high speed, redundancy and bandwidth adaptability, Chancellor said. Adaptable bandwidth is important at midday, he said, because "so many customers seem to book reservations during their lunch hour."

Today, TravelWeb supports more than 17,000 hotel properties through 42,000 dynamically generated pages.

About 35,000 customers spend an average of six minutes per visit. Those in the TravelWeb service can remotely modify information themselves. And best of all, Reynolds said, the response time for a dynamically generated page is now just hundredths of a second slower than that of a static page.

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Colorado's integrated criminal justice system will make it easier for judges to get data on the defendants they see.

But by law, past criminal activities can't be held against a worker unless they are germane to the job. A conviction for breaking and entering, for example, would probably disqualify someone for a job as an on-site PC repair technician. On the other hand, a conviction for stealing a car wouldn't necessarily preclude a programming job.

Companies can also check an applicant's civil court history to see if he has sued or been sued by a previous employer.

For example, Gateway 2000, Inc., 18 months ago began to conduct detailed checks, which has helped cut turnover by a half, a company officials said.

PRYING EYES

Some would-be bosses even want to know what the law prevents them from knowing.

"We do get requests from companies for information that we know we're not allowed to give out," such as medical histories, said Lisa Haugaard, manager of information systems at World Information Network LLC in Tacoma, Wash.

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BEFORE YOU LET A COMPANY CONNECT YOUR BUSINESS TO THE INTERNET, ASK YOURSELF, "WHO CONNECTS THEM TO THE INTERNET?"

If the answer is Cisco, you know your network service provider is supported by the products and technology that brought the Internet to business. In fact, the Internet as we know it today is built on Cisco equipment.

Cisco Powered Network service providers are equipped to make your network work for you. Whether it's Internet access, ATM, frame relay or other data services, you will know your business is getting the quality it can depend on.

Look for the new Cisco Powered Network mark or visit our Web site at www.cisco.com to find out more about the participating network service providers. Either way, you will know your provider is committed to giving your business the most reliable, secure and innovative service. And you will know it's powered by Cisco - the company that makes the world's networks work for business.
Where do today's leading-edge retailers discover new opportunities for growth? We guided REI, a well-known outdoor outfitter, to the IBM RS/6000®. Using proven e-business solutions, we showed REI how an RS/6000 can use the power of the Internet to reach new customers. We easily integrated it into their existing systems. And, because RS/6000 solutions are remarkably scalable, REI needn't worry about turning away business. How can the RS/6000 supply your business with a powerful e-business tool? For the solution that fits your needs, drop by www.rs6000.ibm.com/solutions or call 1 800 IBM-2468, ext. FA056.
Internet-based training passes audit

Coopers & Lybrand Web site provides tax info

By Nancy Dillon

Keeping up-to-date on new tax laws can be daunting for corporate tax professionals. But that crucial task may get a little easier next month with the debut of Coopers & Lybrand LLP's Virtual Campus World Wide Web site.

An estimated 2,000 subscribers of Coopers & Lybrand's Tax News Network, plus 3,000 company staffers, will have access to the online training Web site that includes a two-hour course on new tax legislation.

"The key to the online education market is anytime, anywhere training," said Ellen Julian, an analyst at International Data Corp. (IDC) in Framingham, Mass. IDC studies project the online training industry will grow to $58 billion per year worldwide by 2001, she said.

The password-protected Coopers & Lybrand site, which will debut next month, will have many of the features of a physical campus, including a registration building and rooms. Coopers & Lybrand supplied the site's content to University Online Publishing, Inc. (UOL), a McLean, Va.-based online education company.

Users access SQL data via intranet

By Carol Silva

Only four months after launching its first product, Netiva Software Corp. in Campbell, Calif., is shipping an updated version of its software for developing and deploying databases over intranets.

Netiva 2.0, which shipped last week, now lets users gain access to information stored in SQL databases. The previous version, which shipped in June, allowed access only to a local, proprietary Netiva database or to databases on proprietary or desktop databases over intranets.

For the County of Santa Clara in California, the software package came at the right time. The collector's office transferred 600,000 property tax records from a mainframe to a relational database from Sybase, Inc.

Because the county has a working intranet, the tax office SQL data.

Netiva 2.0 now accesses SQL databases in addition to proprietary or desktop databases.

By issuing bulletin on countermeasures...

...Response team targets spam epidemic

By Sharon Machlis

In another sign that junk electronic mail is becoming an increasing administrative headache, an organization known for helping to combat viruses and hack attacks has issued its first advisory on spam.

A year ago, the Computer Incident Advisory Capability (CIAC) team at the U.S. Department of Energy received most no complaints about unwanted messages. "Now, we're getting several a week," said team member William J. Orvis, a former engineer at Lawrence Livermore National Laboratory in Livermore, Calif.

"People are just starting to reach their level of frustration."

In its recent bulletin on spam countermeasures, the Response team, page 48

Spam filtering strategies

For a single account
http://spam.abuse.net/spam/tools/mailblock.html#filters

For an entire site
http://spam.abuse.net/spam/tools/mailblock.html

IP connectivity from spam sites
http://spam.abuse.net/spam/tools/ipblock.html

"The ability to follow the natural rhythms of education with real-time interaction is exciting."

- Conrad Scott-Curtis, Stanford University

REVIEW

Office supply Web sites

Office vendor Web expertise is out of stock

By Frank Hayes

If bringing in customers is the key to a successful business, then-office-supply superstores seem to have nailed it. Bright, attractive stores have made names such as Office Depot, Staples and OfficeMax into household words, as throngs of customers turn to them for everything from paper clips to computer supplies.

But making the transition from an appealing brick-and-mortar store to a customer-friendly World Wide Web site has turned out to be a challenge for these companies that have revolutionized the once-sleepy stationery business.

Office Depot, Inc. in Delray Beach, Fla., is the biggest of the office superstores, but it doesn't have a public U.S. Web site at all. It does have a Mexican site and has made a major commitment to a private extranet. However, Staples and OfficeMax have Web sites, but they have stumbled when it comes to duplicating the convenience of their stores on the Internet.

Office supply sites, page 49
'net-based training

CONTINUED FROM PAGE 47

line training company. UOL handled the programming and will track and record enrollment, testing, grading and site maintenance.

"We've made this type of information available internally in the past, but until now, there wasn't a cost-effective and timely enough way to get it out to our clients," said Dennis Sheriff, tax relationship manager at Coopers & Lybrand in Parsippany, N.J. "One of the nice things about the site is that we can keep adding more with little overhead."

Sheriff said he does expect several challenges with the site's deployment, however.

"Will the dogs eat the dog food is the real question," he said. He explained how he plans to monitor performance carefully, because user acceptance is closely linked with download time and browser compatibility.

POPULAR PLAN

Those issues challenge any Web-based training application, but the popularity and accessibility of the Internet are drawing more trainers online.

Instead of using a third party to program publishable curriculum, the Stanford University Education Program for Gifted Youth (EPGY) is using software on its own servers to conduct live, interactive classes over the Web. EPGY, in Stanford, Calif., is one of the nation's top continuing education programs for gifted kindergarten through university-level students.

JAVA APPLICATION

The Java-based software is Symposium from Lexington, Mass.-based Centra Software, Inc. It combines multipoint audio into its online program so EPGY students around the country no longer need two telephone lines — one for a computer modem pool and one for a conference call bridge — to call in to classes.

Symposium also integrates existing computer-based training applications, live application sharing, chat rooms and instructor-led whiteboards and group Web browsing sessions.

"The ability to follow the natural rhythms of education with real-time interaction is exciting to me," said Conrad Scott-Curry, coordinator of English education at EPGY. EPGY plans to use the program to teach English, math and physics to 60 students during the next year.

"We have a new software product to sell, we can bring our agents from around the world online, walk them through a demonstration as a group and accept questions and input," he said. St. Germain added that an instructor-led program is more effective than sending out a demo CD-ROM with the hope that agents will inquire, review and understand the material.

Symposium 2.0 shipped last month and runs on Unix, Windows 95 98 or 2000, Windows NT, Solaris 2.5 and Linux platforms. It costs $35,000 per server with up to 50 users. Similar instructor-led programs include Live-Net from Interactive Learning International Corp. in Troy, N.Y., and PlaceWare's Auditorium from PlaceWare Inc. in Mountain View, Calif.

"Companies are learning that while there can be an initial high cost for online training tools, delivery of the tools over the Web is inexpensive," Julian said. "Over the long term, online training saves time and money."

Nonexpert users get Pretty Good Privacy

CONTINUED FROM PAGE 47

CIAC advised that scanning information in message headers, then filtering unwanted material is the most effective antispam strategy. For example, an administrator can block messages from mail programs that are popular with spam generators, such as Floodgate, Extractor, MaxxMail and others.

System administrators also block mail from known spammers. However, those methods run the risk of banning mail from legitimate users as well as spammers, the CIAC cautioned. And spammers typically use different accounts, aiming to thwart individual blocking attempts, making filtering a less-than-perfect solution.

NO IN AGREEMENT

The Internet Mail Consortium agreed. "Many of the technical solutions will alleviate some of the problems today but do not adapt well to smart, motivated, uncooperative, unsolicited bulk E-mail creators," the group concluded in a report last month on spam.

Sending requests to remove a name from a bulk mailing list is pointless with most spammers, Orvis said, although legitimate businesses will usually honor such requests. Fly-by-night bulk E-mailers, though, will probably only use a remove message to verify that the address is valid and that the recipient actually opened and looked at the mail.

PAY THE PRICE

Cautionary tales about the Internet are passed limiting spam or requiring it to carry identifying marks, there is little legal recourse for victims if a message isn't caught some-thing illegal. Meanwhile, spam is becoming a price administrators and users must pay if they want to keep out junk email.

At Bell Atlantic Corp. in Marlboro, Mass., tight security aimed at preventing malicious code from infiltrating the computer network also effectively blocks spam, according to staff director Dave Savary. Any individual who wishes to send E-mail to the engineering staff at the company must first be put on an approved list. That can keep out legitimate business mail, Savary admitted, but security demands justify the policy, which gives the added benefit of blocking junk.

"It's a price we are willing to pay," he said.

SQL data over intranet

CONTINUED FROM PAGE 47

wanted to create a way for employees to access those records through a web-centric application.

Markup Language create the inquiry screens that launch queries on the Sybase database, said James Ruznak, director of information systems for the county.

"You can basically produce applications in days or weeks that would normally take many weeks or months to do," he said.

The Santa Clara tax collector's office also uses the Netiva database to store information entered by clerks when they accept payments at the counter. In the past, days would go by before the files got posted to the system. Staffers now will have instant access to those records.

Netiva 2.0 consists of the following three pieces:

A Designer for building intranet database applications.

An application/database server that makes applications available to multiple users, processes application logic and stores data.

A Java applet that runs in the web browser, allowing users to connect to the server then display or run the applications locally.

The Netiva software runs on Windows NT and Windows 95.

A license for two concurrent connections to the server costs $4,999.
Office supply sites

CONTINUED FROM PAGE 47

That has left the door open for competitors, both large and small, who are carving out their own pieces of the office-supply market on the Web. But whether they will be able to duplicate the office superstores' success in cyberspace still depends on bringing in those customers.

STAPLES
What would you expect on the Web from the second-largest office-supply chain? Electronic commerce? Up-to-the-minute advertising? At least for now, Staples, Inc. in Westboro, Mass., has missed those opportunities.

The Staples site at www.staples.com looks good, but it isn't the place to go to buy office products. For that, the site will direct you to the nearest Staples store, using maps generated by MapQuest, Inc.

You can request a free printed catalog, contact customer service or browse through a very complete set of information for job seekers, including the schedule of Staples recruiters on college campuses. But if you hope to buy a ream of paper or a box of staples online, you are out of luck here.

You are also out of luck if you are using Netscape Communication Corp.'s Navigator and want to order a catalog. That

OFFICEMAX
If confidence is lacking on the Staples site, OfficeMax, Inc. — at www.officemax.com — is up short on trust. The No. 3 office superstore is a nice place to visit in person, but online it feels like a fortress.

You can't enter the site without divulging your Zip code. If your corporate firewall blocks cookies, you can't get far into the site at all. And OfficeMax really wants you to register before you even start browsing the online catalog.

In fairness, once you have been electronically frisked, you can easily search the OfficeMax catalog and make purchases. The home page lists several sale items, and navigating the site is easy once you are through the gate. There is also corporate information on the Shaker Heights, Ohio, company.

But if attracting customers is OfficeMax's goal, this isn't the way to do it. There are ways to build a secure shopping site that aren't so hard on customers.

BOISE CASCADE
The hardest thing about Boise Cascade’s Office Products Corp.'s site may be finding it. The site's Web address is 197.bcpc.com — that's pretty obscure for a major paper products company.

But there is nothing obscure, or fortress-like, about the Itasca, Ill.-based company's Web site. The home page welcomes nonregistered visitors, and through a wizard for use with Microsoft Corp.'s Internet Explorer 4.0 browser.

Searching for a particular product is quick, but you had better know what you are looking for. Boise says it can't browse through general product categories. And comparison shopping isn't especially easy here; product listings include only list prices, along with a blurb saying "our customers always pay less."

But Boise Cascade makes it easy to find replacement products, or those from minority- and women-owned businesses. That feature alone can make it worth the trip if your business requires those characteristics in the office products it buys.

SUPPLIES ONLINE AND CYBERSUPPLY
Ironically, the Web sites that offer a look and feel most like bricks-and-mortar office superstores are Internet-only startups such as Supplies Online at www.suppliesonline.com and CyberSupply, which is at www.cybersupply.com. These sites are bright, colorful and easy to browse. They are stuffed with products, offer overnight delivery and don't ask for any information before you have decided what to buy.

Supplies Online in Dallas is more oriented to computer suppliers and the search engine turned up no staples or paper clips.

It includes help on navigating the site and lets you create a personal shopping list and store it on the site.

CyberSupply in North Bergen, N.J., has exceptionally good facilities for searching or browsing, and it stocks regular office products along with computer supplies. It includes predbuilt lists of popular products.

And in convenience and friendliness, both are a large step ahead of the Web sites from the office superstore giants.

If the big boys aren't careful, that stationery-store revolution could happen all over again.

NEW PRODUCTS

INTERNET SECURITY SYSTEMS, INC. has announced Internet Scanner 5.0, a network security audit tool.

According to the Atlanta company, the tool uses a database of hacker methods and vulnerabilities to detect security holes such as misconfigurations and weak passwords. Graphical reports of network probes include the corrective actions required to achieve maximum security. It can scan Unix, Windows NT and Windows 95 machines as well as the firewalls, World Wide Web servers, routers and applications.

Scanner 5.0 costs $4,995 for a Class C license.


According to the Omaha, Neb., company, the new version has customizable tool bars, a floating window that displays thumbnails of all images in a directory and a project link-verification feature. The editor can access remote file transfer protocol servers for uploading and downloading files. And it has a Channel Definition Format wizard for use with Microsoft Corp.'s Internet Explorer 4.0 browser.

HomeSite 3.0 costs $79.

AGAVE SOFTWARE DESIGN, INC. has announced SQML Web 1.0, a World Wide Web-to-database application development tool.

According to the Dallas company, the tool helps integrate database information such as electronic catalogs and price lists with Web sites or corporate intranets. It can generate HyperText Markup Language documents on the fly with information from existing SQL databases and can automatically update Web sites as the connected databases are updated.

The five-user Unix server edition costs $455. The five-user Unix server edition is $955.
Introducing Microsoft® Site Server. It’s about a new level of control. For the first time, everything you need to run your sophisticated intranet or internet site is in one smart box, from creation to deployment* to maintenance; from electronic commerce** to cross-platform analysis and tracking. The concept is Web site lifecycle management. It means that while the intranet or Internet may have a life of its own, you’re in charge of it. It’s orderly, it’s logical, it’s intelligent, and it’s integrated with your Windows NT® Server.

www.microsoft.com/backoffice/siteserver/info

*To replicate content with content replication system, you must acquire at least one additional license to install on a second server. **Feature included in Microsoft Site Server Enterprise Edition.
Novell tool bridges services gap

By Laura DiDio

Novell's BorderManager sits at the "border" of a company's intranet and Internet. There, it acts as a secure centralized gateway that accelerates World Wide Web access for multiple users. Instead of requiring separate connections to a particular Web site each time individual users request it, the Microsoft and Novell offerings use their respective proxy engines to cache the most frequently accessed sites.

The result is savings in time, money and precious bandwidth. "BorderManager is a kick-butt product that gives us fast, secure Internet access. It lets me customize user access to the Novell, page 52

3Com, Tivoli link management tools

By Patrick Dryden

3Com Corp. and Tivoli Systems, Inc. last week announced plans to pool their skills in managing networks and assuring prompt delivery of critical business data. Early next year, 3Com will bundle the agent software for the Tivoli Management Environment (TME) 10 enterprise manager with the nearly 2 million network interface cards it ships each month. By mid-1998, 3Com will offer a remote software update tool based on Tivoli's software. Those steps can eliminate some costly trips by support technicians to networked PCs to install management agents and upgrade drivers, users said. "It's extremely important to have management agents bundled at the card level," said Paul Edmunds, a senior network analyst at Duke Energy Co. in Charlotte, N.C. Embedding software in the card can free some PC resources, he said. And deploying TME to servers and 3Com, page 52

Cisco CEO: John Chambers

Worry-free is not the way to characterize John Chambers, president and CEO of Cisco Systems, Inc., the largest internetworking vendor, with a market cap of $57 billion. He says paranoia about the competition and the challenge of keeping up with users whose needs are rapidly changing keep him up at night. But he doesn't lose sleep figuring out which emerging technology to support. He prefers to use his $800 million research and development budget to support all options and let the customer decide which is best.

Chambers recently shared his views of the industry and discussed challenges facing the San Jose, Calif., networking giant with Computerworld Senior Editor Rob Wallace and Executive Editor Maryfran Johnson.

CW: What's the most important emerging trend you see?

CHAMBERS: The most important trend is that data, voice and video are coming together. We Cisco CEO, page 52
Novell tool spans service gap

CONTINUED FROM PAGE 51.

Web based on individual user IDs," said Phil Easter, a technol-
yogy strategist at Greyhound Lines, Inc. in Dallas. Although Microsoft's Proxy Server has been shipping for a year, users at four commercial and two academic accounts said the Novell product gives them more features. Those include faster throughput and easier, centralized management capa-
biilities.

But the extra features do cost more: BorderManager (with a two-user IntranetWare license) is $2,495 for five clients, com-
pared with a price of $1,000 for Microsoft's Proxy Server (not including Windows NT 4.0).

NOT ENOUGH
"Proxy Server is a good product, but it wasn't an option for us," said Joe Meadows, information technology manager at the Met-
ropolitan School District of Pike Township in Indianapolis, which supports 9,000 users. "The integration with Novell Directory Services (NDS) allowed us to get all four Bor-
derManager servers up and running in four hours, which is awesome. It has more integrat-
ized services than competing products," Meadows said.

Users also said BorderManag-
er lets them leverage their exist-
ing investment in Internet access gear and saves their busi-
nesses thousands of dollars per month on recurring leased-line costs.

Analyst Bob Sakakenny at Abbeens Group, Inc. in Boston said BorderManager is just the type of product Novell needs. "Novell must jump-start momentum in the face of Windows NT's continued as-
sault. BorderMan-
ger, with its inte-
grated suite of services and ties to NDS, could be a big step in that direction," Sakakenny said.

"It's allowed us to keep our origi-
ナル T1 line, which we were planning to replace with a fatter 10M bit/sec.
link," Meadows said. "And the Proxy Cache fea-
ture cuts down on bandwidth usage, saving us $2,000 per

CONTINUED FROM PAGE 51.

first started hearing this about a year to 15 months ago from a rea-
sponsible number of customers. The other day, I gave a speech before 105 customers and asked them how many expect to have data, voice and video over the same network in the next three years. Ninety percent raised their hands. I was shocked.

CW: What is your greatest fear
about Cisco and its future?

CHAMBERS: It's easy. It's
keeping up with customer expec-
tations, because they're increas-
ing so rapidly. My second one is
staying close to the customer. We
get almost all of our ideas for prod-
ucts, features, acquisitions and
trends in the industry from cus-
tomers.

It was Motorola that told us
about SNA-TCP/IP integration and helped us work through that.

CW: What does Cisco have to spe-
cifically avoid for continued
success?

CHAMBERS: What really
anglers me is when a Cisco
employee is arrogant to a cus-
tomer and says 'I know better
than that and told us what
company to buy [Crescendo
Software].'

CW: What can really get us into trou-
ble. At Wang and IBM, we did the
same thing. At the beginning,
neither company did.

We eat our own young at an
unbelievable pace.

That's something most cul-
tures don't do. If we either see the
trend changing faster than
before or see a new trend coming
on, we jump on the bandwagon
regardless of implication on cur-
rent products.

acquired [ATM switch ven-
dor] Lightstream for $120 mil-
lion. It was a good product with
ticularly trained engineers. They
had a good next-generation prod-
uct on the emerging boards. But all of a sudden, our cus-
tomers said, 'John, you don't
understand. We're going to make
decisions over the next year or
two for vendors who have the
products available now. If you
don't have it, you can't partici-
pate.' So we scrapped the switch
and bought Stratacom.
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COMPAQ
Long-distance carriers rate higher

Continued from Page 51

Surveys in recent years show local carriers rate higher with business customers than companies in the wireless or cable categories, but not as well as the big long-distance companies.

Consumers, however, tend to rate their local carriers higher, surveys show. Analysts expect users' perceptions of their current providers to shape the development of the $60 billion local carrier market following deregulation. The market is now dominated by six companies, but as soon as state and federal regulators grant them the OK, all six will scramble to sell long-distance data and voice services and Internet access.

But local carriers also have begun to compete in the local market. "I'd rather have another local provider ... but where we are, that's the only one" said Tony Dattola, a network engineer at Perot Systems, Inc. in Plano, Texas. Perot uses GTE Corp. in Stamford, Conn., as its local provider.

"They're not responsive when you have problems, and they have lots of unexplained busy signals," Dattola said. "In my opinion, their [network] is undersized for the area we're in. They won't come and tell you about problems, or they'd have to pay penalties."

GTE officials said they were sensitive to Dattola's concerns and are seeking to exceed his company's expectations.

Another indicator of customer dismay with local carriers comes from Ken McGee, an analyst at Gartner Group, Inc. in Stamford, Conn. He recently asked a crowd of several hundred business telecommunications managers at an Orlando, Fla., conference if any favored using their company's local provider as their long-distance provider. None raised their hands.

"I've been doing that same survey for 10 years, and the results are always the same," McGee said later in an interview. "There's a groundswell to fire the local carrier. It's a product of a number of years of being held captive — and pent-up resentment."

William Lazarus, the telecommunications manager at Horizon/CMS Healthcare Corp. in Albuquerque, N.M., said after years of experience in telecommunications, he hasn't met a manager who likes his or her local provider.

The perception of distrust of local carriers by business users is widespread but is somewhat unfair, said Rosemary M. Cochran, an analyst at Vertical Systems Group in Dedham, Mass. "The local carrier is the last link in a voice or data connection, and it's naturally going to be blamed for whatever the problem is," she said.

Analysts, carriers and users agreed that most business customers want to simplify their purchases of telecommunications equipment and services. And that means carriers will put on the full-court press in marketing their guarantees, prices and attributes to network managers.

Cochran warned network managers that as local carriers focus more on providing long-distance and other services, they could end up reducing services to favored, large customers such as banks that operate in a specific region.

"If you're the top dog in a region, you'll get the attention of a local carrier," Cochran said.

"But when the local companies focus attention nationally, all of sudden, you're not so big. As deregulation catches on, the local carriers might end up spreading their resources more thinly," he said.
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Flavored Java still wins users

Users say they like Java with or without cross-platform functions

By Sharon Gaudin

Some users are nervous about Sun Microsystems, Inc. and IBM working on Java native compilers. But Java is gaining a following of developers who place it above the industry's powerhouse languages, Sun and IBM, are working on native code compilers designed to light a fire under Java's often-maligned performance [CW, Oct. 27]. But using the compilers would mean killing the language's cross-platform capabilities, the very thing that attracted an estimated 750,000 application developers in the past 18 months.

Several developers, however, said they would continue to use the fledgling language — often attacked for its sluggishness and immaturity — even if forced to write applications that worked on only one platform. "Our productivity is so much better for our programmers when they're using Java," said Thomas Taylor, chief technology officer at Workfire, Inc., an Internet software company in Bellevue, Wash.

"For a large-scale enterprise program, Java is very much superior. If you're going to the moon, you're not going to try to get there by climbing a tree. That's what it would be like with C++,"

Normally, Java applications and applications can run on many different platforms and World Wide Web browsers because they are compiled into byte code and executed by a virtual machine. A Java native code compiler turns Java code into machine code, enabling it to run applications faster but Java, page 60.

Workflow software aids app development

By Barb Cole-Gomolski

Workflow software, typically used to speed the processing of business forms, may help companies get a handle on traditionally application-specific projects. Workflow systems have a few characteristics that come in handy when managing groups of programmers, users said.

They assign roles to workers, which helps project managers enforce corporate policies on who can authorize system changes. Workflow systems use a classic cross-platform engine code, enabling

Software reduces grunt work for Windows users

By Howard Millman

Even the best of software usually has room for improvement — especially simple, affordable enhancements that can minimize drudgery.

File-Ex

In the top tier of avoidable drudgery is the need to change the file and directory listings in Windows' Save and Open dialog boxes. That's because these two standard dialog boxes always return to a default directory, usually the same directory the application resides in. Naturally, you don't store every one of your documents and files in that one directory; you must always change to the directory you want.

Cottonwood Software's File-Ex ($49.95) elegantly eliminates that exercise. This first-rate, yet unassuming, utility enhances the Open and Save dialog boxes of every application that doesn't offer its own customized dialog boxes (such as Microsoft Corp.'s Word and Corel Corp.'s WordPerfect).

Version 2.1 is available now and works with Windows 95 and Windows NT (gaining the benefit of long file names). A Windows NT version will ship early next year.

Cross-platform, page 60

Antivirus patients

Four IBM researchers received a patent for using neural network technology to hunt for computer viruses. The technique uses a form of artificial intelligence that attempts to simulate the way a human might look at the behavior of computer code and identify viruses. The neural networks are being used in IBM AntiVirus software.

PKZip debuts

Ascent Solutions, Inc. in Miamisburg, Ohio, released PKZip for MVS 2.1 Plus, compression software for mainframe files. It includes a hypertext interface that can swap between 31- and 24-bit adressing to optimize storage during 1/O requests. It also supports magnetic tape handling so users can compress files directly to tape storage. Prices range from $15,000 to $27,000. Upgrades from PKZip for MVS 2.1 range from $3,795 to $5,400.

Intelligent mainframes

Burlington, Mass.-based Intelligent Environments announced Amazon 3270 Server. The package supports more than 300 simultaneous mainframe 3270 connections over the World Wide Web without requiring users to modify mainframe applications. Amazon 3270 runs on Windows NT and costs $4,995 for 50 concurrent sessions.

Hardware and Software Review

Software

Room for Improvement

Software development project statistics

40% canceled before completion
33% over budget or late
27% successful

Base: 360 IS professionals

Macintosh Market

Users wait for cross-platform Office 98

By Gordon Mah Ung

LAN manager Steven McCaffrey has a classic cross-platform dilemma.

With more than 250 Macintoshes to support, he can't move his Windows 95 users to Office 97 until the PC and Macintosh systems can exchange files easily.

"We don't plan to implement Office 97 or 98 until it's available on both platforms," said McCaffrey, who works at Boeing Aerospace, Inc. in Houston. "If it doesn't work on both, it's not worth investing in."

That's a problem Microsoft Corp. said it recognizes and hopes to address when it releases Office 98, Macintosh Edition, this winter.

Microsoft, with an estimated $1 billion in Macintosh software sales, has a considerable stake in the Apple Computer, Inc. user community. In August, Microsoft invested $150 million to shore up the financially troubled Cupertino, Calif.-based computer maker.

Office 98 for Macintosh promises to be completely cross-platform with previous Macintosh Office file formats.
(You'd be surprised at all the connections you

If, by chance, you're not surprised at how open IBM Serial Storage Systems manage to be, then their remarkable performance will raise an eyebrow or two.

First, these open disk systems are designed to connect to UNIX® servers, including HP, Sun and DEC. And NT servers, like HP and Compaq. Not to mention IBM systems, too.

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Solutions for a small planet™
Sun, IBM plan Java compilers

CONTINUED FROM PAGE 57

only on a particular target plat- form, such as 32-bit Windows or Sun's Solaris version of Unix. Sun and IBM are working on compilers for various platforms. An IBM spokesman said the company doesn't want to defeat Java's platform independence but wants to give developers a chance to optimize the application's performance.

SuperCede, Inc., an application development toolmaker, has built a Java development environment that gives developers the choice of having their Java applications compiled into byte code or machine code.

JAVA SUPPORTER
Ted Schadler, a software analyst at Forrester Research, Inc. in Cambridge, Mass., said Java is starting to come into its own as an important development language. He said Java is a good language because it has garbage collection and automatic code generating.

“These are things that language purists dream of for good reason. We're at the tip of the iceberg in the real benefit to developers with Java,” Schadler said.

Frank Manci, a network technical manager at Colonial Savings F.A. in Fort Worth, Texas, said he is worried that Sun and IBM will devote less development time and money to improving Java's cross-platform performance. And although he is focused on platform independence, Manci said Java is a good language, even for platform-specific applications.

“It was an immature language, but it was really new, and that's the way it goes,” Manci said. “But it's coming along. Sun's doing a lot a it, and it's a decent language now.”

GAINING MATURETY
Link Alander, coordinator of division research and systems at Western Illinois University in Macomb, said Java has matured just fine.

“We've been watching it for awhile,” Alander said. “Cross-platform issues are being completely erased. Java has matured enough for us that we're looking at retraining and retrofitting.”

CONTINUED FROM PAGE 57

Workflow software aids app development

Users wait for cross-platform Office 98

CONTINUED FROM PAGE 57

with Office 97 for Windows 95. It will offer most of the features of the Windows version and will be able to replace shared files that were deleted. IS managers will be able to configure Office before deploying copies of the suite to desktops. Microsoft also hopes to address user criticism that Office looked and felt too much like a Windows application. Users had complained about the shape of Office dialog boxes and even the non-Macintosh colors.

One thing the suite won't offer is a Microsoft database application, which some users said was a flaw. "I wish they would have Access. It is a shortcoming," said Darrell Dewey, graphics technical director at the Cleveland Clinic Foundation, a medical center in Cleveland.

Dewey said Macintosh users now access the Microsoft database using emulation software that is clumsy and slow.

McCaffrey echoed Dewey's hopes for Access on the Macintosh. "There are better tools through Microsoft Excel to reach his company's Oracle database. Matthew Price, a product management group for Office, said Microsoft won't offer Access until there is a clear market for it. The Office suite for Macintosh will be integrated with Visual Basic for Applications, a popular Windows-based application development tool.

Mike Logan, program engineer at AlliedSignal, Inc. in Wayne, N.J., said the workflow underpinnings in the StarTeam software process management system from Irvine, Calif.-based StarBase Corp. provide a model on which the company can base its development projects. For example, Logan is building software programs to guide the navigational elements of AlliedSignal's search.

PROJECT STRUCTURE
"In the past, "software development was pretty loose," Logan said. Now, project requirements and documentation are tracked in the system. StarTeam's collaboration features, such as threaded discussions and links to electronic mail, also allow developers to stay in close communication about a project.

At Eaton Corp. in Milwaukee, StarBase was designed to copy data from NT production servers to target servers. That lets users conduct tape backup on target servers while keeping production servers online and accessible 24 hours per day.

Real-Time Replicator's minimal bandwidth approach replicates only data that has changed either at the byte level or at the file level.

It costs $4,995 per server. Network Integrity (508) 460-6670 www.netint.com SMART STORAGE, INC. has announced SmartCD, software that lets network users share a CD recorder in a Windows 95 workgroup environment.

According to the Andover, Mass., company, the software uses a variable packet writing approach that lets users save data to a CD just like they would to a floppy disk or hard drive. No CD premastering is needed.

One or many users can copy files to a CD — as well as open, edit, rename and delete — while keeping an audit trail because CD is a permanent storage medium.

SmartCD costs $435.

Network Integrity, Inc. has announced Real-Time Replicator for NT, software for Windows NT servers.

According to the Marlboro, Mass., company, the software was designed to copy data from NT production servers to target servers. That lets users conduct tape backup on target servers while keeping production servers online and accessible 24 hours per day.

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SmartCD costs $435.
Software reduces grunt work for Windows users

CONTINUED FROM PAGE 57

File-Ex installs effortlessly, immediately supercharges Windows' puny Open/Save dialog boxes and is absolutely transparent in use. Online help files provide most of the information needed to manage the application. Free support from Cottonwood, via telephone or electronic mail, fills in any blanks.

With the latest version, dialog boxes now list more files and directories, so you scroll less. New buttons (including delete, rename, move, copy and find) let you manage files and directories without opening another window or resorting to summoning Windows 95's Explorer or Windows 3.1's File Manager. You can already do some file management with a right-click shortcut in Windows 95, but File-Ex makes it much more obvious, especially for the novice user.

The one improvement I'd like to see is the inclusion of more preconfigured applications. File-Ex ships configured just for selected versions of Word.

KEYBOARD EXPRESS

Keyboard macros offer another way to avoid repetitive work. But in some applications, creating a macro demands more time than it saves.

Insight Software Solutions, Inc.'s Keyboard Express ($24.95) lets you add hot key-activated macros to multiple applications. It's fast, simple and reliable. It caused no problems or conflicts running in a fully loaded Windows 95 machine.

Building a macro takes as little as a few seconds. You load Keyboard Express by executing it manually or, as I do, by placing it in the Start menu so it loads automatically. To create or execute a macro, you summon the configuration dialog by combining the Control key with a right mouse button click. Next, click on the oversize "Add Hot Key" button at the top of the application window.

Keyboard Express lets you build your macros using a combination of special-function and control keys (such as Alt, Page-down, F1 through F12, Arrow and Space). Other special-purpose keys create a delay (measured in seconds), post a message in a predefined area of the screen or call a program. You can nest macros, repeat events and add sound support. For example, you can play a .wav file in conjunction with an alarm.

When it comes to programming, no matter how simple it is, I try to make it even easier. So instead of building a macro, I opted for the Capture Key-strokes option.

Once assigned to a hot key, Keyboard Express' macros automatically enter repetitive text or execute a series of tasks in any application. Use the hot key macros globally in any word processor, spreadsheet or E-mail application or configure the macros so they execute only when a specific window is open.

A comprehensive online help system clearly anticipates common requests. After that, it's a matter of experimentation. As an aside, when I ordered Keyboard Express, Insight Software generously sent me a shareware copy of a Windows Clipboard enhancer, SmartBoard. I advise caution before using this utility. SmartBoard caused intermittent lockups and other behavior problems.

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AlliedSignal juggles data

**Software tools help ease storage shuffle**

*By Tim Ouellotte*

ALTHOUGH ITS mainframes and servers were finally in the same place, the moving had only just begun for AlliedSignal, Inc. Now, instead of moving physical systems and servers into one location, AlliedSignal had its hands full with huge chunks of corporate data that had to be juggled around to provide reliable service levels and to keep a lid on costs, said Jess Fawns, systems project manager at AlliedSignal's Tempe, Ariz., operations center.

As more companies like AlliedSignal centralize their data center operations, they are finding reasons to shuffle that data among different disk subsystems to gain efficiencies. For example, users are migrating data from older disk arrays to newer, more powerful systems. Off-loading data to different disk arrays for year 2000 testing, isolating some departmental data on certain disk systems and creating mirrored copies of critical data in case of disaster.

AlliedSignal turned to Andersen Corp.'s Transparent Data Migration Facility (TDMF) to help populate 2T bytes of the latest mainframe disk arrays from EMC Corp. and IBM and then use the older arrays to host 2T bytes of year 2000 test data.

Previously, this would have meant taking key applications, said AlliedSignal, page 65, a freight shipping company in Philadelphia.

**Business version of Apple's EMate on tap**

*By Kim Girard*

BUSINESS USERS are eagerly awaiting a new version of the Apple Computer, Inc. EMate — one without the funky, shiny dark-green case designed for children.

For many users, the EMate is perfect for writing short documents and surfing the World Wide Web from the road. A cross between a handheld and a laptop with the heft of a lunchbox, the EMate uses the Newton 2.1 operating system and has a PC card modem. The 4-pound machine has a 25-MHz ARM 710A processor, 1M bytes of RAM and a backlit screen.

In online discussion groups, the lingering question is, when will Apple release a business version of its education-friendly handheld — a machine you won't feel silly about pulling out at a business meeting.

Apple isn't talking, but analysts said the EMate 1000 is due within several months and will target small Internet service providers as well as database, data warehouse and data mart applications. Prices start at about $16,700.

**Compaq NT model extends reach**

*By April Jacobs*

WORKSTATION USERS looking for price breaks and performance parity are getting more options from the Wintel camp as PC market leader Compaq Computer Corp. continues to push new Windows NT models as a Unix alternative.

The Houston-based company, which entered the workstation market a year ago, plans to extend its reach into the price-sensitive low end and the performance-based high end in the next year. It is an attempt to take on workstation vendors such as Hewlett-Packard Co., Sun Microsystems, Inc. and IBM, all of which have long histories in the workstation market, analysts said.

Pricing could pull some users over the fence, with Compaq workstations using commodity Intel Corp. processors and averaging $7,000 to $10,000 less than competing RISC-based systems.

**Syquest aimed at Jazz**

Syquest Technology, Inc. in Fremont, Calif., this week will announce the SparQ, a 1G-byte removable cartridge disk drive. The unit is positioned to compete with Roy, Utah-based Iomega Corp.'s 1G-byte Jazz drive. The SparQ drive costs $199, and a three-pack of SparQ cartridges is $99.

**Pentium prices cut**

Intel Corp., last week announced price cuts ranging from 13% to 40% on its Pentium and Pentium II processors. The Pentium II runs at 266 MHz, and costs $550, down 31% from the previous price of $809. The price of the 233-MHz chip dropped 24%, from $550 to $427, an Intel spokesman said. A 300-MHz Pentium II processor was reduced 13%, from $851 to $738. A spokesman said Intel made the price cuts based on market demand, production yield and the life cycle of a specific processor. The price of the new 120-MHz MMX chip for mobile devices fell 14% to $106, and the desktop version of the 166-MHz Pentium with MMX fell 23% to $113.

**Servers**

**Digital builds on Alpha line**

*By Jaikumar Vijayan*

Digital Equipment Corp. last week pumped up its Alpha server line, even as analysts were debating the long-term future of the Alpha chip following a settlement between Digital and Intel Corp.

The highlight of the announcement was the new dual-processor AlphaServer 1200, based on the 400- and 533-MHz Alpha chip and supporting up to 2G bytes of memory.

The midrange system supports Windows NT, Digital Unix and OpenVMS operating systems. It will target small Internet service providers as well as database, data warehouse and data mart applications. Prices start at about $16,700.

"It looks like it is coming in at a pretty good price. It is a nice replacement for the [previous] 2100" midrange system," said Rob Young, VMS manager at Alpha user BDP International, a freight shipping company in Philadelphia.

Digital also introduced chips, Alpha, page 67.
RDBMS had a good run.

Your relational database once ran well, but now you frequently encounter the demons of technological obsolescence. However, relief is in sight. You can now develop transactional applications without the limitations of relational technology. With Caché, the post-relational database, from InterSystems. Caché provides the performance and scalability needed for complex transaction processing. Unlike "object-relational" products that layer objects onto a relational database engine, Caché incorporates a lightning-fast transactional multidimensional data model and advanced object technology. In addition, even in backward compatibility mode with SQL for legacy applications, Caché achieves a several-fold improvement in performance and scalability. Now is the time for Caché, the post-relational database, available for GUI and Web-based applications on Windows 95 and NT, OpenVMS, and major UNIX platforms. Call us at (617) 621-0600, or visit our website at www.intersys.com.
es for several disk subsystems at the nine data centers it used to maintain, the American Red Cross was able to afford EMC’s iSeries Remote Data Facility software when it pared down to two data centers, said Tom Wotecki, the Red Cross’ chief information officer.

But these tools aren’t just for the mainframe world. As more Unix and Windows NT servers find their way into the data center and open systems storage devices systems and networks down, something that is even harder to do in a newly centralized data center (see chart, page 63).

“We want to limit exposure to our customers [users] and making them endure shut downs,” Fawns said. “They don’t want to know that the data is being moved; they just want access.”

TDMF can move data without systems interruption among disk subsystems from various vendors. Competing tools from IBM, Hitachi Data Systems Corp. and EMC move data only among their own company’s disk arrays.

And though some users may shy away from the expensive price tags on mainframe-based data replication schemes — often hundreds of thousands of dollars — the trend of data center consolidation is helping to bring the price down.

For example, instead of buying licens-

**Advertisement**

Reliability for Security and Flexibility

Philippines Social Security System relies on the strength of PATROL to manage its distributed computing system

When the Philippines Social Security System (SSS) decided it needed a strong tool to manage the distributed Oracle databases and Unix servers across its nine fully functional data centers, it chose the PATROL product from BMC Software.

“Our aim was to stop the IT department from getting trapped in a cycle of systems failures which commonly occurred due to database errors and crashes. In addition, our huge database of applications, systems resources and files needed automated enterprise-wide monitoring and coordination along with proactive systems management to analyze and control the performance of our distributed computing environment,” says Tony Maralit, manager, database administration group, SSS.

The SSS evaluated various products and found, with the exception of PATROL, they did not support all multiple platforms in the organization. In particular, PATROL was the only evaluated product that could support SSS machines running on DEC Ulitix.

“With PATROL’s multi-vendor support, its ability to improve management efficiency and speed up system maintenance, through the automation of many routine tasks, it was the natural choice,” Maralit explains. The SSS also took into account the support and technical expertise that would be provided by BMC Software’s distributor Leveraging Systems Technologies; and that with PATROL’s product-specific modules, time and effort required to train staff would be substantially reduced.

The 16 million members of the government-owned SSS access a range of financial services, such as housing, salary, and stock share loans, through 54 branches across the country. Of these, nine branches serve as fully-functional data centers.

The results with PATROL implemented were immediate. Reduced downtime led to improved customer service and heightened staff productivity. Costs relating to technical support were reduced too as the SSS no longer had to rush support personnel to various branches to correct system errors and restart crashed systems.

PATROL, product-specific expertise for monitoring and automating processes, also leveraged the technical skills of the administrative staff and helped reduce training requirements, as well as administrative overheads. Reporting also became more efficient as PATROL kept automatic and regular track of network and database activity. PATROL also addressed the issue of central monitoring of remote Oracle databases as it automated and centralized the control of critical elements.

Currently, PATROL consoles are running on the organization’s SCO Unix, DECOSF and IBM RS/6000 machines. Its agents are running on SCO Unix, DECOSF, IBM RS/6000. Sun Server and DFC Ultra machines. All databases and Unix machines in the remote offices are monitored centrally from the head office using PATROL.

With proactive systems provided by the product, only two database administrators and two systems administrators are needed at the head office to monitor and control the databases and Unix machines in all nine offices.

The SSS is now planning to establish a back-up and recovery center with an additional license of PATROL. “To be successful in a changing global marketplace, an organization must be flexible and able to address new business opportunities,” explains Maralit. “Hence, each SSS data center has its own database to help it respond quickly to the local environment.”

“PATROL is event driven and can manage virtually any application providing a pragmatic alternative to centralized corporate databases. As a result, we now have PATROL-based management control from the head office,” says Maralit. “We would like to have the same flexibility and support for the back-up and recovery center, which is why we have requested another license.”
Go explain to the CEO why you thought 94% virus defense was good enough.

Let's talk percentages. If your anti-virus package delivers 94% detection, there's still a 6% chance you'll be totally screwed. And when that happens, there's exactly a 0% chance the CEO will understand. Fortunately, there's McAfee, the anti-virus defense with 100% protection.

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Compaq
CONTINUED FROM PAGE 63

Users said they like the Pentium and NT-based workstations for several reasons, including their lower price than RISC-based systems such as those from Hewlett-Packard and Digital Equipment Corp.

Users also said it is easier to administer Windows NT workstations with Windows NT servers than it is to support Unix-based workstations and Windows NT servers.

NT IS BETTER
Larry Garden, manager of technical operations at Brewsters Retail, Inc. in mississauga, Ontario, said he has about 1,250 workstations that run Windows NT Workstation as well as more than 40 Windows NT servers. He has been moving users away from Sun SPARCstations because he finds the NT environment easier to manage.

But the company will continue to use Sun servers for its Oracle database because performance is better, Garden said. "Most of my users are now aware they can run all their applications just as well on NT-based workstations," he said. Analysts said that although Compaq's strategy is to let the NT workstations prove itself sound, it may have trouble reaching high-end users, particularly in specialized areas that require extensive partnering with application developers.

To that end, Compaq announced low-cost, midrange and higher-end systems over the past six months with Pentium Pro and Pentium II-based configurations that feature three-dimensional graphics support, dual-monitor support and Unix interoperability through third-party software aimed at engineering and high-end financial users.

John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H., said users with CPU-hungry applications such as intense 3-D graphics may remain loyal to RISC-based systems until NT has wider third-party application support for applications such as 3-D graphics and databases.

He said competitors such as IBM have far more experience in the workstation market and extensive software partnerships, making them attractive to high-end users. The Pentium processor also has to prove itself in the high-end workstation market, Dunkle said.

Smooth Transitions
Louis Poulsen & Co. smooths their transition to SAP R/3 and open systems with PATROL

Denmark's Louis Poulsen & Co. A/S is known internationally as the manufacturer of the world-famous PH lamps, and as sellers of electrical appliances. Louis Poulsen has its production wing based in Denmark, but sales and distribution offices are spread around the world on four continents. Consequently, it is a company with simultaneous requirements for advanced production management, effective logistics, and continuous budget control across a geographically distributed environment.

To more effectively meet these requirements, Louis Poulsen decided to move their IT operations from an IBM mainframe system to an SAP R/3 solution running on IBM RS/6000 hardware with the Informix RDBMS.

The benefit is obvious when the entire system is running smoothly — no matter where in the world requests come from, everyone receives up-to-date and exact information. However, when things are not running smoothly, the problems are also obvious.

Louis Poulsen realized they could more effectively utilize client/server solutions if they made automated management part of their overall management strategy. Their first step was to introduce the IBM NetView product for management of their network environment. The next step was to incorporate automated application and database management through the PATROL® Management Suite of products from BMC Software.

Peter Jacobsen, manager of IT operations at Louis Poulsen learned of a number of important parameters in their application environment that could be monitored and tuned to support higher application availability and improve performance — parameters they didn't even know the existence of before PATROL. Now, at any time, they have instant access to this important information. Says Jacobsen, "With PATROL, we have a tool that allows us to drill deep into our systems, applications and databases for information. Plus, PATROL lets us know if changes we are making in one area of our environment will have a negative impact on other areas. There are still many things we have to learn about PATROL, but we definitely know it is necessary for future management and tuning of the system as well as our insurance for keeping up with the end users' demands for availability."

When BMC Software announced in 1996 a PATROL Knowledge Module that would proactively manage SAP R/3, it was an easy decision for Louis Poulsen to trial the product. "SAP R/3 comes with a systems management tool called CCMS," says Jacobsen, "but to use it you need manual interaction. PATROL gave us the ability to automatically monitor relevant R/3 parameters and, at the same time, have information about them presented to us in context with other information from PATROL about our databases and platforms. With PATROL, we get a complete overview about how our application environment is operating."

Through PATROL, Louis Poulsen learned of a number of important parameters in their application environment that could be
Despite an early lead in technology, will America end up playing second fiddle?

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America needs to know.

Organizations already providing national sponsorship include: Cellular Telecommunications Industry Association Foundation (CTIA), Digital Equipment Corporation, and MCI Foundation.
Overview
International Data Corp. (IDC) believes that 36-track tape technology will ship well into the next decade and will maintain a dominant position in the high-end half-inch installed base for at least the next five years. Our research shows that 36-track technology is well-suited for high-access, performance-sensitive small object tape workloads. The large installed base of 36-track drives may further elongate the technology’s life cycle.

Highlights
- 36-track tape will continue to dominate high-end data interchange workloads for the foreseeable future.
- Vendors are continuing their investments in higher-performance and lower-cost 36-track devices.
- Understanding workloads and applications can help users select the right technology.
- Application-specific middleware investments are abundant for 36-track technology.
- Data interchange and document/imaging management workloads are a “sweet spot” for 36-track technology.

36-Track Tape is Alive and Well
and dominating high-end interchange workloads

By JOHN McARTHUR and DAVID VELLANTE
INTERNATIONAL DATA CORP.

Square tape technology or, more specifically, 36-track tape, continues to be the mainframe and midrange tape technology of choice. IDC research shows that 36-track technology accounts for more than 80% of vendor revenues for half-inch tape drives supporting high-end and mid-sized system applications. Introduced as the data interchange standard for tape in the early 1980s, half-inch cartridge technology has evolved over the past two decades. One breakthrough occurred in the late 1980s with the introduction of 36-track technology,
The introduction of 36-track technology doubled track density, raised performance and improved reliability of half-inch cartridge technology. Even as vendors develop higher-capacity, high-performance tape drives, their investment in 36-track technology continues. Application software and middleware vendors continue to develop application-specific solutions that support 36-track technology. Even as vendors develop higher-capacity, high-performance tape drives, their investment in 36-track technology continues. StorageTek in particular has enhanced 36-track performance and automation with faster controllers, libraries and improved tape handling techniques. The company recently announced that its Virtual Storage Manager, which is to begin shipping in early 1998, will support both TimberLine 36-track tape and high-capacity RedWood tape. Sutmyn Storage is shipping a "virtual tape" solution with support for 36-track tape. IBM recently announced 36-track offerings for the midrange market. Finally, at least one 36-track tape manufacturer—StorageTek—is planning to deliver Fibre Channel connectivity for 36-track tape. Leasing companies have also endorsed the technology by making 36-track tape their investment of choice. The wisdom of this strategy is demonstrated by high used equipment values and a scarcity of product. Perhaps most importantly, application software and middleware vendors continue to develop application-specific solutions that support 36-track technology.

Applications and workloads

To better understand the application of tape technology, IDC uses a three-dimensional model, consisting of:
- Tape workload
- Application
- Industry

Tape workload describes the type of activity performed by the tape devices. It includes:
- Backup (for onsite application

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*Data access times depend highly on workload characteristics.*
recovery, offsite disaster recovery and application testing)
- Archival (including near- and long-term archiving)
- Data interchange (where tape is the lowest common denominator of data exchange)

Application refers to the type of business activity supported by the technology. IDC uses four categories to describe application:
- Business processing
- Decision support
- Collaborative computing
- Scientific

Business processing refers to traditional activities that support business-critical operations, such as accounting, HR and payroll. OLTP and database-intensive applications are also in this category. Such applications tend to be mission-critical (24x7) and update-intensive, and have highly random access patterns. These environments show high levels of tape use, with tape data sets created to support report generation, report archive and backups for application recovery, data interchange and application testing.

Decision support applications environments (which may involve a data warehouse) typically employ OLAP, data mining and data analysis tools to give users information access. These applications tend to be bandwidth-intensive with heavy read activity, often reading the “data interchange” tapes created by business processing workloads. They tend to be business-critical (i.e., 8x5) but are not necessarily mission-critical.

Collaborative computing applications, such as E-mail and Lotus Notes, are often referred to as "workgroup" computing. Like business processing and decision support applications, they tend to be read-intensive but have a more unstructured data content.

Scientific applications are compute- and bandwidth-intensive, and vary greatly in data and content types. They tend to have larger I/O request sizes with a mixture of read and write intensity, and frequently (i.e., in the case of geospatial applications) require enormous tape capacities.

Data life and data access patterns are often a function of industry. For instance, banking applications such as checking and credit card tend to be on predictable monthly and annual cycles. Transactional volumes are affected seasonally (especially credit card activity), but the highest activity period for credit card billing inquiries and checking account statement inquiries tends to occur shortly after the statements are sent to customers.

Data (in the form of reports) will likely be kept on disk or fast tape for the first 30 to 60 days, then migrated to deep archive as inquiry activity declines. Restoration to high-performance 36-track tape or disk may be required to support year-end reporting and statement processing.

Insurance applications, such as claims processing, are most affected...
not by predictable monthly and annual cycles, but by less foreseeable natural disasters and seasonal factors such as weather. As a result, extremely high data access rates may be required during times of "disaster."

**Document management**

Document management and imaging, which is emerging as a tape-intensive environment, is hard to classify. Is it an application or a workload?

IDC characterizes document management as an archival workload that supports a variety of applications. It may require near- or long-term archiving and might lend itself to multiple alternative technologies like tape, optical or magnetic disk, depending on data life, data access patterns and cost/performance tradeoffs.

In many document and image management applications, data moves through a hierarchy, from higher-performance, higher-cost technologies to lower-performance, lower-cost ones. Early in the life of a data object, data may be stored on disk. But the subsecond response time of disk products comes at a high cost, and once the use of the object is primarily customer service-related, the business value of subsecond response time falls off dramatically.

In many customer service applications, response times of 30 seconds are acceptable and dramatically more cost-effective. For these applications, high-performance 36-track tape combined with high-speed automation is the next logical choice for object storage.

This tape strategy is often used in institutional investor applications with daily report cycles. In such applications, report access frequency diminishes rapidly with time. As a result, data is likely to be kept on disk or high-speed tape for the first few days to months, then migrated to high-capacity, slower tape for deep archive as access frequency falls off.

For applications such as credit card image statements and check image processing which capture images on a daily basis, but generate reports on a monthly basis, a better strategy may be to write image data directly to tape until reports are sent to customers, then migrate data to disk when access frequency increases after customer statements go out.

Document management and imaging can be found in support of business processing applications, such as claims processing in the insurance industry, HR applications (e.g., resume storage and retrieval), or the storing of portfolio information in the brokerage industry.

Each application and industry differs in the data access patterns and required response time to meet expected service levels. A range of technology exists to meet service levels and access patterns. The challenge for users is to match the performance cost with business value.

**Where does 36-track tape fit?**

Factors to consider when choosing a tape technology include average data set size, data access characteristics, drive performance, controller performance, connectivity options, robotic performance, scalability, application and middleware software support, and cost.

As with disk storage, one size won’t fit all. IDC believes 36-track tape will continue to dominate high-end data interchange workloads for the foreseeable future. Applications that require high data access frequency, less than a full volume of data per request and access times of less than 30 seconds remain the 36-track sweet spot, especially when combined with high-speed automation and application-specific middleware supporting access at the data set level and not the volume level.

**About the authors**

As IDC’s Research Director, Asset Management Storage, John T. McArthur provides residual and current fair market value estimates for storage products to leasing companies, equity investors, equipment manufacturers and technology users. He also helps IDC clients develop asset management strategies.

As Senior Vice President, Systems, Software & Storage Research, David P. Vellante directs research activities in the areas of commercial systems and software, which includes storage. He has overseen IDC’s examination of critical issues such as the future of enterprise information management.
WORTH all the fuss?

THE YEAR 2000 IS CAUSING A PANIC IN SOME CIRCLES, BUT SOME EXPERTS SAY THERE'S NO NEED TO WORRY. HAVE VENDORS AND THE PRESS BLOWN IT UP INTO AN ARMAGEDDON? IT DEPENDS ON YOUR CIRCUMSTANCES.

By Gary H. Anthes

Rick Flagler, information systems manager at Miniature Precision Bearings Corp., says he originally "freaked out" at his year 2000 problem.

He also freaked out over a consulting firm's $2 million estimate to fix the problem — for just one of the Keene, N.H., company's divisions. Instead, Flagler's group developed its own methodology and conversion software. He now estimates he'll do the whole job — on millions of lines of IBM AS/400 Cobol, RPG and C code — for less than $200,000.

Flagler is one of a growing number of IS managers who are finding that Jan. 1, 2000, won't end the world as they know it. Vendor and press hyperbole notwithstanding, there are ways to approach the problem — and some lucky circumstances — that allow them to sleep nights.

Indeed, some companies and federal agencies are spending millions on pound-foolish

Worth all the fuss?, page 70
MANAGING Computerworld: "the most hyped issue in the century surveyed say they're spending $1.50. than the oft-cited industry estimate 95 cents per line of code for year 2000 work by year's end, but he concedes that he's less confident that his vendors and business partners will be ready on time. "The area I'm still uncomfortable about is outside the data center," he says. Wayne Lambert, chief information officer at Colorado Compensation Insurance in Denver, is another member of the what-me-worry club. "It's not a big issue for us because we rewrote our systems in 1992 to handle the century change," he says. They were overhauled again this year for client/server, and they remain year 2000-ready, he adds. But like Flagler, Lambert admits to having less confidence in his software vendors and business partners. "We are asking for letters certifying they are Y2K-compliant or giving a date when they will be so we can test their applications," he says.

HEAT FROM THE TOP
According to Meehan, IS managers are being pressured by CEOs who have gotten scare letters from vendors, auditors and lawyers. "These IS directors have just been beat over the head," he says, "but we've been our own worst enemies because we haven't taken the lead on this." Although it clearly would be foolish to dismiss all year 2000 angst as unfounded, there are organizations that have little to fear from the date change. A company comfortable with the problem probably falls into one or more of the following categories:

- It started early, worked diligently and is now finished or nearly finished with conversion work.
- It has replaced its date-challenged legacy systems with client/server applications that proudly display four-digit year fields.
- Its software is provided by others, and its vendors or outsourcers have certified that they comply with year 2000 requirements.
- It has a world-class IS shop, with low turnover, plenty of legacy programmers, good control of source code, excellent documentation and a healthy budget.
- Its systems aren't date-intensive and don't affect daily cash flow.

There is some evidence that the wave of concern over the year 2000 may have crested. A recent report from Forrester Research, Inc. said the problem has become "the most hyped issue in the history of IT." The Cambridge, Mass., IS research firm says companies it recently surveyed say they're spending 95 cents per line of code for year 2000 work, more than a third less than the oft-cited industry estimate of $1.50.

"Companies that have gotten into it are starting to say, 'Now that we are actually fixing code, this isn't quite as daunting as we thought,'" says Russ Maney, a director at Forrester. Flagler says the following factors make him relatively comfortable with the year 2000 challenge: low IS turnover, good documentation, an ear-
The world, by the end of 1999, 30% of externally fo-
tional sustainability, meaning the company will be
grades. Even major applications such as
will have failed to achieve full year 2000 compliance. says, and the budget items most likely to
plaint, and another 30% will have achieved "opera-
to rem-
curred, experts say. "You will never find
all the date problems," Maney says. "Of those you do find, you'll never fix
them all right. And of the ones you
fix, you'll never test them all right."

"LA-LA LAND"
Many of the companies saying the year 2000 is no big deal are "in la-la
land," especially those that haven't
started their work, Kappelman says. For example, he says, a large manu-
ufacturing firm recently said it might
use brand-new applications from SAP
America, Inc. to solve its legacy year 2000
problems. "But they are a four-
year SAP project," Kappelman says. "They
should be doing triage — what do they have to fix now?"

As for those companies that might
appear to be replacing legacy systems unnecessarily, there's a method
to their madness, according to Kappel-
man. Under standard accounting
principles, the capital cost of new sys-
tems can be amortized over several
years, whereas "repairs" to existing
systems must be
expensed immedi-
ately. Also, it's a
way for IS man-
gers to avoid the
suggestion that
they're spending
huge sums to rem-
cedy past coding
blunders.

Patricia Boyce, a
project leader at
Scottsdale Insur-
ance Co. in Scotts-
dale, Ariz., scoffs at the notion that
the problem can be easily solved in
the course of routine maintenance.
The company is about 75% through
its year 2000 project, which despite
the use of an automated tool to con-
vert date fields, has so far taken
17,000 hours from 30 people in IS,
plus six outside consultants. The
company employs 100 IS people.

Boyce agrees that windowing can
be a valuable shortcut if used judi-
ciously. The company expanded the
year fields in its data files but left
them unchanged on many of its
1,000 screens, and that may have
saved 10,000 hours of effort, she es-
timates.

The sharply divergent views of the
year 2000 problem at Scottsdale In-
surance and the city of Sacramento
possibly can be explained by how de-
pendent they are on their applica-
tions. The insurance company's core
systems are online applications that
must be available nearly 24 hours a
day for processing policy and claims
information. But Sacramento's billing
systems are batch systems that could
be down for a day or so for repair
without catastrophic consequences.

All the debate about windowing,
application triage, automated tools
and so on misses a key point about
year 2000, says Bruce Webster, chair-
man pro tem of the Year 2000 Group
in Washington. "I don't think it's a
technically overwhelming problem,
but I think it's going to whack us on
the head just because I know how
closely corporations deal with software
development in general."

Indeed, it seems likely that most
organizations will get at least a little
whack on the head from the year
2000 problem. But quite a few com-
panies have found ways to limit their
vulnerability. Realistically assessing
that vulnerability is not easy.

Anthes is Computerworld's senior edi-
tor, special reports. Senior editor Robert
L. Scheier also contributed to this re-
port.

YEAR 2000 SCOREBOARD
An occasional series on year 2000 trends, issues and statistics

It's looking uglier, Gartner says
With two years and two months to go, the outlook for
beating the year 2000 problem isn't good. Bill McNee,
a vice president and research director at Gartner
Group, Inc. in Stamford, Conn., cites the following
probabilities:

Many companies won't achieve compliance. Around
the world, by the end of 1999, 30% of externally fo-
cused mission-critical systems and 50% of all systems
will have failed to achieve full year 2000 compliance.
In North America, 60% of all systems will be fully com-
plaint, and another 30% will have achieved "operational
sustainability," meaning the company will be
able to function through work-arounds, triage and simi-
lar stratagems. Conversion takes up a big chunk of in-
formation systems budgets. Year 2000 conversions
will take up 25% of traditional IS budgets through 2000.

Where the money will come from. Forty percent of IS-
driven year 2000 spending will be taken
from existing maintenance and enhance-
ment budgets. The rest will come by delay-
ning, canceling or scaling down strategic in-
formation technology projects and
short-term crisis functions. "There's not
enough money to do everything," McNee
says, and the budget items most likely to
lose out are training, "soft (return-on-inves-
tment) applications" and infrastructure up-
grades. Even major applications such as
SAP, Baan and Oracle will come under more scrutiny.

Much of the world is still waking up to the problem.
While North American companies are well aware of the
problem, that isn't the case across much of the globe.
Companies in Latin America still don't believe there re-
ally is a problem, McNee says. And even in the U.S., many
companies still haven't taken action, according to another
Gartner analyst.

McNee spoke Oct. 6 at a
Gartner Group Symposium
session titled "Rethinking the
IT Investment Paradigm." The
event was held in Orlando, Fla.
have reviewed, and you have doubtless read, numerous books about the "new economy," where the knowledge worker is king and managers have to focus on how to hire, retain and motivate scarce resources. Easy to say, hard to do. Here's how one manager seeks to transform himself into a "new manager."

Guy Smith is manager of client services at a southern utility. His group of 20 information systems staff are responsible for systems development, operations and the help desk. He's been with the company for 12 years and is completing his MBA.

In Smith's view, "with traditional managers, the big focus was on being tough-minded and maintaining authority. Traditional managers also tend to be analytic types who concentrate on performance metrics — the old 'if you can't measure it, you can't manage it' philosophy. Most managers in the IS profession today still fall into this category." For Smith, "it's not just about the nuts and bolts of work life but also about perceptions. As managers, we have to,..." (partial text)

Warning: Infrastructure spending ahead
You probably aren't spending enough on information technology infrastructure.

Companies that wish to embrace advanced practices, such as sharing distributed IT resources and data across the enterprise, must make a "major investment in infrastructure." That investment "will be something like 50% more than you were spending in the legacy environment," says Mark L. Hess, a vice president at Gartner Group, Inc.'s GartnerMeasurement benchmarking service in Stamford, Conn.

Hess estimates that fewer than 5% of companies have reached such an advanced level of enterprises-wide distributed computing and says it isn't an appropriate model for all companies. But IS organizations hoping to build data mining and advanced workflow applications, secure Intranets and Extranets, and other enterprise-wide applications are "seriously underestimating" the necessary increases in personnel, application development, networking and other costs. Responsibility for infrastructure will remain with the central IT organization in most companies, Hess predicted.

That 50% figure "probably sounds right if we don't do something to offset it," said Michele Larmore, vice president of corporate technology at J. P. Morgan & Co. in New York. Users can't just go out and buy their own equipment. "We'll try to show people that we need to work together, plan ahead and share responsibility for enterprise-wide data...." (partial text)

Nominations, anyone?
American Management Systems, Inc. (AMS) in Fairfax, Va., and Carnegie Mellon University's Graduate School of Industrial Design in Pittsburgh are seeking nominations for the eighth Awards for Achievement in Managing Information Technology.

The awards recognize senior executives who've made outstanding contributions to their organizations — and often their industries — through the effective use of IT. Nominations are due Nov. 25. Winners will be selected in March, and an awards dinner and ceremony will be held in Washington May 6.

For nomination forms, contact AMS at 703-227-4246 or by electronic mail at awards@mail.amsinc.com.
When we designed our new high capacity drive, common sense dictated it should also work with standard diskettes.

"Over 300 percent faster than the [competitor's] drive." 1997

The fact that we make the best-selling brand of standard diskette had nothing to do with it.

Okay, so maybe it had a little bit to do with it. But the big news here is that with our new SuperDisk Drive, you can access 120MB of storage, up to five times as fast as standard floppies.

And here's the kicker: it still works with 4.4MB diskettes. Just plug it into your PC's parallel port. Or look for SuperDisk LS-120 drives built into new PCs. To make more room, call 1-800-888-7289, ext. 3001 or surf www.imation.com.
Because even the smallest company is vulnerable to attack when connected to the Internet, savvy managers everywhere are installing firewalls. The number of firewall products is growing almost as fast as the interest in installing them.

But which firewall do you choose? To help you make that decision, Computerworld asked Client/Server Labs to put several enterprise-level firewall products through their paces. We chose to focus on software-based solutions implemented on commonly available hardware. We also looked at a hardware-oriented alternative to software solutions.

Three of the packages we tested — Eagle from Raptor Systems, Inc.; FireWall-1 from Checkpoint Software Technologies, Inc.; and Gauntlet from Trusted Information Systems, Inc. — were run on a Sun Microsystems, Inc. Ultra 2 server configured with two Fast Ethernet cards, 128M bytes of memory, a 2.1G-byte disk drive and a 16-in. color monitor. A fourth package — Sidewinder from Secure Computing Corp. — ran on an Intel Corp.-based Compaq Computer Corp. system, private-labeled by Secure Computing and running a version of BSDI Unix.

SUMMARY
To give you a quick idea of our findings, let’s just say that we tried ... we really tried to break through each of these products as hard as we could. But they just wouldn’t bend under pressure. But there are always good and not so good features in every product. We discovered the following:

- Checkpoint’s FireWall-1 is highly configurable, but there were errors in the documentation.
- Raptor’s Eagle has good real-time monitoring, but its hardware configuration is more complex.
- Trusted Information’s Gauntlet has good operating system integration but is too centered on the proxy service model.
- Cisco Systems, Inc.’s PIX is a dedicated single-function machine but has physical access limitations.
- Secure’s Sidewinder was a snap to install, but because of a hardware configuration problem, we were unable to test the product any further.

TEST BED
The use of a software-based solution provides flexibility in selecting hardware to host the firewall. Most of the products we tested run on several Unix platforms, so selecting known hardware was less of a problem.

Applications designed to run on Windows NT platforms are beginning to emerge, but none appears ready to play at the enterprise level where the combination of strength, robustness and speed is crucial.
Our test environment consisted of the tested firewall system; two multi-CPU Intel-based servers running Windows NT 4.0 behind the firewall; and 48 PC clients running a mix of Windows NT Workstation 3.51 and NT 4.0 outside the firewall.

The client machines were connected to two 24-port 10Base-T switched Ethernet hubs. The hubs and one adapter on the firewall system were connected to a 100Base-T Ethernet hub. The two servers and the other adapter of the firewall system were connected to a 10Base-T Ethernet hub. This somewhat backward arrangement allowed us to simulate a really large “Big Bad Wolf” huffing and puffing at the firewall doors.

We could have run World Wide Web and file services on the same server that hosted the firewall software, but chose not to. It wouldn’t have been possible with the hardware-only solution and wouldn’t have provided a good comparison. And we felt it was unrealistic; a server housing firewall and other services is too vulnerable.

**PUT TO THE TEST**

Besides the basic tests relating to installing, configuring and adjusting the firewalls, we performed two types of stress tests. In the first, we “hammered” the firewalls by placing a simple but heavy traffic load on each firewall, using a modified version of Client/Server Labs’ IntraMARK benchmark (see www.cslinc.com for an explanation of IntraMARK).

In this test, the 48 PC clients were used to generate Hypertext Transfer Protocol (HTTP) traffic against Web servers running on the two servers behind the firewall, with the firewall configured to allow HTTP traffic to and from only one of the servers. A single comparison run also was conducted with no firewall in place.

The good news is that none of the firewalls broke (or even seriously hiccuped) under the strain of a rack of machines. Each ran 40 virtual clients and had HTTP requests hammered against the system at a full-switched 10M bit/sec. In fact, in all cases the target NT servers keeled over from the load well before the firewalls were even puffing hard.

For the second round, we used the Internet Security Scanner (ISS) from Internet Security Systems, Inc., as a powerful set of tongs to see what we could pry loose from each of the firewalls. This high-intensity security probe software was used in two different modes against each firewall.

First, it was used in a targeted mode, designed to specifically probe more than 100 vulnerabilities in a standard packet-filtering firewall. Those vulnerabilities ranged from leaving default passwords in place to relatively obscure Unix system software exploits such as the “phi” program in a Unix Common Gateway Interface directory.

Second, it was used in a sort of “shotgun” mode, designed to probe for a wider list of some 150 vulnerabilities in the firewall and the hosts behind it.

One interesting observation emerged from our attempts to intentionally cripple a firewall to provide fodder for ISS’s more obscure tests: All the systems we tested proved remarkably resistant to foolish configurations despite our best (or worst) intentions.

It proved to be a somewhat greater challenge than we imagined to “accidentally” leave a gaping hole in one of our firewalls.

Every time we tried to set a firewall up for failure, each package would warn us fairly stridently not to do what we were attempting.

**EAGLE**

Vendor: Raptor Systems
Location: Waltham, Mass.
Web site: www.raptor.com

**PLATFORM**

Hardware: Sun’s Ultra 2
Operating system: Sun Solaris 2.5.1
Price: $25,000 (unlimited)

A basic and functional package that needs just a bit more polish, Eagle appears to be a reasonably good product. With some improvements on the customer-service side (key management, more standard software media, and so on), it could become a strong contender.

Our initial try at configuring a security policy failed because of a problem with the network configuration. The other tools we tested set up the network interfaces by using the information provided in the installation process; Eagle requested the same information but did nothing with it. Once we manually set up the interfaces, it was quite easy to define and change security policies.

We would have liked to have seen some tools that would help us decide the security policy, though there were several references to books on the subject.

It struck us as somewhat peculiar that this package was available only on digital audio tape when CD-ROM readers are much more common on workstations today. During the installation, it wasn’t immediately obvious that we had to submit a license key request form to the vendor. In all, primary installation took 30 minutes, not including the time to get the key.

Monitoring of the firewall is done in real time through two different logs: a Gateway window and a Logfile window. The Gateway shows active connections and can be used to watch specific connections and even terminate them. The Logfile shows specific events, including all informative and warning messages. The Gateway window also provides an excellent level of assurance that the system is functioning.

Notifications can be triggered by any of the messages mentioned above. Those notifications can trigger actions such as playing audio messages, sending electronic mail, sending a page, launching a client program and sending various Simple Network Management Protocol (SNMP) messages. The firewall software starts automatically when the host system boots up. It can be turned off via the Gateway window.

Two manuals covered installation and configuration. Clearly targeted at fairly skilled system or network administrators, the manuals had several good examples and screen shots showing the installer what he should expect at each significant point in the process.

Eagle seemed fairly limited in the proxy services provided; it included only the basic file transfer protocol (FTP) and Telnet proxies.

The list of authentication services they support was a bit broader. It included Security Dynamics, Inc.’s ACE/Server; Cryptocard Corp.’s Cryptocard; Accent Technologies, Inc.’s SecureNet Key; Belcore’s 5/Key; Gateway password; TACACS+ and Remote Authentication Dial-in User Service (RADIUS)

Simplicity may have its virtues, though, because Eagle showed no vulnerabilities to the ISS probes when in the firewall-targeted mode.

The “shotgun” mode revealed three minor and one medium vulnerability: the presence of the rhwho daemon, SNMP and traceroute, as well as a problem with predictable TCP/IP packets.

Raptor’s customer support called back quickly and gave helpful answers in easily understood terms.
This was definitely one of the more pleasant experiences we have had with a customer support function.

**FIREWALL-1**

**Vendor:** Checkpoint  
**Location:** Redwood City, Calif.  
**Web site:** www.checkpoint.com

**PLATFORM**  
**Hardware:** Sun's Ultra 2  
**Operating system:** Sun's Solaris 2.5.1  
**Price:** $18,990 (unlimited)

**Great WALLS of FIRE**

CONTINUED FROM PAGE 75

When reviewers were setting policies

Trusted Information's Gauntlet generally worked well when reviewers were setting policies.

Overall, Checkpoint's FireWall-1 is polished and well-organized. The product, sales force, engineering and packaging all lead to a very positive impression.

Defining a policy seemed easiest with FireWall-1. Although it may be either good or bad, depending on your point of view, even "unsafe" rules could be implemented easily. FireWall-1 would warn the administrator (occasionally multiple times), but would allow the administrator's judgment to govern.

Although FireWall-1 lacked the policy development tools for which we kept wishing, it did at least come with a sample policy file that could be used as a model on which to build your own policy.

Changing policies was easy. Selecting network objects, rules, and so on, and then choosing "modify" even let you change items on which other parts of the policy depended. Consistency checking was done on the whole set at once, so recompiling a policy might take some time on a very complicated setup.

The ISS probe found no vulnerabilities in the FireWall-1 firewall, and only two very minor vulnerabilities in the "shooting test" — the use of SNMP and traceroute within the network.

One of the nicest features of the installation, which took us about 30 minutes, was that a demonstration license was included in the package. The full license registration process was available via Web browser and already had our key in it. After answering a few registration questions, we were given our license. We spent another five minutes installing the optional Motif graphical user interface (GUI) client.

Several books of documentation, which were written for experienced systems or network administrators, covered the various aspects of the firewall — including each of the GUI clients, installation, architecture and administration — and their remote connectivity product.

An irritating glitch in the documentation cropped up in an example command for extracting the archive from the distribution CD. Unfortunately, the example as shown was wrong. We applied a little Unix know-how and used the correct command, but it could have tripped up a less experienced administrator.

Checkpoint also supported a limited number of proxy services, including Telnet, FTP, HTTP, RLOGIN and the ability to create custom proxies. Authentication techniques supported include S/Key, SecurID, Operating system passwords, FireWall-1 passwords, RADIUS, and AssureNet Pathways Defender.

Other than using the company's Web-based system for acquiring our license keys, we didn't need to call Checkpoint for support.

**GAUNLET**

**Vendor:** Trusted Information Systems  
**Location:** Rockville, Md.

**Web site:** www.tis.com

**PLATFORM**  
**Hardware:** Sun's Ultra 2  
**Operating system:** Sun's Solaris 2.5.1  
**Price:** $17,000 (250-plus users)

The use of Solaris' embedded software management tools shows a good focus on that market. And the inclusion of a browser-based firewall management tool makes Gauntlet flexible enough to merit serious consideration in any large Solaris shop.

Most elements of policy were easy to define and change, but problems arose when we tried to configure policy elements that were contrary to "good security." A specific problem showed up when we tried to allow unobstructed HTTP traffic from the "world" to more than one Web server. Gauntlet was fairly determined to push us toward using a proxy server for this access, despite repeated efforts.

Gauntlet also brings remote management with a Java-enabled Web browser. The firewall must be configured to allow each remote management machine to connect to a Web server running on the firewall. From a host on an external interface, remote management can be accomplished only by using the Gauntlet PC Extender to encrypt the traffic. PC Extender also can be used as an option from the internal interface side to avoid eavesdroppers on your LAN.

Our testing with ISS revealed only two minor risks in the targeted firewall test — the presence of Telnet banners and the availability of "finger" on the firewall host with account information being made available. And the shotgun test identified four additional vulnerabilities: who, SNMP, traceroute and a TCP predictability problem.

On the plus side, the installation uses Solaris' package features, which should make maintenance upgrades, software removal and the like more straightforward for a Solaris administrator. One small glitch occurred when a lengthy update with no prompts caused us to accidentally restart the installation. At 45 minutes, installation and initial configuration of this package wasn't unreasonable, but did take the longest of the software packages.

Separate documentation is included for Firewall Installation, Firewall Administration and the installation of a utility called the PC Extender Installation. As with the other packages, all the documentation is written for skilled administrators.

The documentation makes specific mention of most of the fundamental networking security concepts and as such should prompt some thought about what should be included in policy, but no specific recommendations are given.

Firewall events are logged using the standard system log command. The reporting features seemed somewhat limited. Although periodic reporting can be configured for several different frequencies and recipients can be notified by E-mail, all reports are E-mailed to the recipients. There didn't appear to be any of the more sophisticated notifications, such as pager.

Gauntlet provided the most impressive list of preconfigured proxy services, including FTP; multimedia, such as Microsoft's NetShow, Real Networks, Inc.'s RealPlayer, Zing Technology Corp.'s StreamWorks and...
A half century has passed since scientists at Bell Telephone Labs invented the transistor, which launched the first great wave of the commercial computing revolution. And now the Internet and World Wide Web have launched the second great wave.

For nearly four decades, change on the information technology scene occurred for the most part in an incremental or evolutionary way. It took nine years for fax technology to attract 10 million users; nine years as well for the installed base of personal computers to reach 10 million.
Then came the World Wide Web. In less than 24 months following its introduction, 10 million people were pointing and clicking their way through cyberspace. Today that number is more than 70 million worldwide and still growing 50% annually. In very short order, the Web has radically changed enterprise computing. By the end of 1998 more than half of corporate queries will be executed by Web browsers, according to The Patricia Seybold Group, an industry consulting firm.

What’s more, findings from market research firm International Data Corp. show that, among corporate users, the Web browser has emerged as the primary interface for all new application development work. And nearly 40% of the managers polled by IDC listed Web browsers as the primary interface for updating or enhancing previously developed applications. “This is the clearest statement yet of how central Internet technologies are becoming in the enterprise,” says Frank Gens, IDC senior vice president of research.

SAS/Int*Net™ Software Unites the Ease of Point-and-Click with the Power of SAS Decision Support Tools

So just what is the driving force behind the enterprise-wide rush to Web-enable mission-critical applications? In a poll by Computerworld of its Premier 100 top Internet users, the number one reason for Web-enabling applications is cost savings.

Much of the cost savings are expected as a result of the Web deployment of applications to thin clients, whereby powerful servers from companies such as Sun Microsystems, Inc. distribute data and applications on demand to slimmed-down desktop devices. This thin client model uses the Internet and the Web as a universal data transport medium. The result is a far lower cost-per-desktop, with an increase in data access to just about anyone with a browser.

Yet although IT managers have been busily constructing Internet-based distributed computing networks, many of the hoped-for benefits have eluded them. That’s because it has been difficult, if not impossible, to unite distributed network computing with data analysis and decision support. Though there are many vendors whose products let users query data with Web browsers, what’s been lacking is the critical capability to conduct Web-enabled analysis, exploitation and reporting of data. Until now.

SAS Institute, the company that in 1997 Software Magazine labeled the “Best Decision Support Tools Company,” moved that much further ahead recently with the introduction of SAS/Int*Net software.

New Meaning for Web-Enabled Applications

Server-based SAS/Int*Net software makes SAS Institute the only vendor today providing all three classes of Web technology: Web publishing, dynamic data services and dynamic compute services. For Web publishing, there’s an HTML output formatter for providing SAS output to HTML, as well as an HTML formatter and graphics drivers. Data services let you query enterprise data via the browser without having to run SAS software locally. And compute services make it easy to run a specific SAS program on demand through an Applications Dispatcher.

For on-line analytical processing (OLAP) users, SAS/Int*Net software includes an MDDB Report Viewer and Java Viewer that allow OLAP processing to take place via the Web browser.
National Semiconductor Corp. is determined to benefit from the global movement to network-centric computing...in more ways than one.

As a leading chip maker, National Semiconductor is at the vanguard of providing enabling technologies for high-speed, high-volume transfer across the Internet. The $2 billion company's chips are found in Internet access appliances such as PCs, workstations, personal digital assistants and cellular devices.

As a technology user itself, National Semiconductor is exploiting the benefits of Internet-based network computing and doing so with the help of a pair of technology allies: Sun Microsystems, Inc. and SAS Institute Inc.

As a long-time user of both Sun operating systems and hardware and of SAS decision support and analytical software, National Semiconductor in 1997 began something new. It started tapping into the power of SAS/IntrNet software to deliver real-time production data to its engineers moving SAS data and reports across the Internet.

The SAS/IntrNet ball got rolling at the company's Santa Clara, California based research and development site, which supports a half-dozen manufacturing and test sites on three continents. Engineers there analyze production data on Sun SPARCstation 20s running the Solaris 2.5.1 operating system, taking data feeds from the Sun Ultra Enterprise 1 server.

Easy Report Generation

Supporting National Semiconductor's lot tracking application, which monitors standards for a manufacturing process, SAS/IntrNet software is helping engineers and developers sidestep what used to be a very labor-intensive process.

"An engineer used to gather all the information manually and then generate a report that got distributed just once per day—not in real-time," says Sam Hung, principal software engineer. Now SAS/IntrNet software lets engineers build reports on demand automatically using real-time data, Hung says. Access to that data is via the Web browser.

Lending a Transcontinental Hand

Across the country at National Semiconductor's South Portland, Maine, production site, Syloke Soong is laying plans to further Web-enable his SAS software tools, reports and analyses. As the site's senior software engineer, Soong needs to ensure that company production engineers have the most current production data available. He sees the Web browser emerging as the interface of choice.

Analysts and engineers at the South Portland site use a variety of hardware, including Sun Ultra Enterprise 1s as well as a pair of Ultra Enterprise 2s running Solaris 2.5.1.

"I was weaned on Sun; that's the same with lots of other people at this company," Soong says. "And when it comes to data analysis, SAS software is the industry standard."
The Warehouse Meets the Web

With SAS/IntrNet software, IT managers can deliver the SAS Data Warehouse—named in 1996, and again in 1997, the "Data Warehousing Product of the Year" by Datamation magazine—directly to the Web. SAS/IntrNet software's Warehouse Viewer lets users access warehouse data directly through the Web browser, even without having SAS software installed on their clients. Available today on MVS, PC and UNIX platforms, including the powerful line of servers from Sun Microsystems, SAS/IntrNet software enables sharing of data, reports and analyses not only with other SAS users but also with non-SAS users who are using a standard Web browser to access the data.

To ease warehouse navigation, Warehouse Viewer offers a choice of three interfaces: Directory lets users see and then select warehouse subjects and access data; Search lets users search information by name or description; and Administration lets administrators cruise through the structure of the warehouse, focusing on the metadata that defines it.

Making Your Web Browser a Universal Interface

SAS/IntrNet software cuts to the heart of the rapidly rising cost of desktop computing. This cost has skyrocketed in recent years as IS managers deployed hundreds of applications and tools to thousands of desktops—in addition to maintaining and updating those desktops on an annual basis.

"With SAS/IntrNet software, you build your SAS application once and then deliver it to all the clients right away," notes Chip Kelly, SAS Institute's program manager for Web enablement. "Then the end user just points and clicks with a very familiar interface, the Web browser. Our software reduces the interface requirement to any browser. It's that simple."

Sam Hung, long-time SAS software user and early adopter of SAS/IntrNet software, finds other timesaving and therefore cost-saving benefits. The principal software engineer at National Semiconductor Corp. notes that using SAS/IntrNet software, his applications and data can be deployed through the company's Sun servers with no CGI programming required. Using SAS/IntrNet software, researchers at National Semiconductor generate real-time Web graphics and reports to monitor the status of semiconductor production. They formerly relied on data that wasn't current.

The Web enabling of SAS applications through SAS/IntrNet software can also have direct benefits to your customers and partners as well as to internal users. Because of the universal access to SAS data through standard Web browsers, your suppliers—for example—can track your inventory levels and better anticipate restocking needs. And if your company is supplying materials to its customers, those customers can easily track shipments by accessing the same SAS-generated data via their Web browsers.

"What we've done is allowed for the distribution of SAS applications, data and reports to a very wide audience," notes Kelly. "We've made our back-end data analysis and exploitation tools available to everyone with Web access."

To learn more about SAS/IntrNet software, and to download free SAS Web Publishing Tools, visit SAS Institute at www.sas.com/web.
SIDEWINDER

Vendor: Secure Computing
Location: Roseville, Minn.

We felt that Cisco's hardware-based firewall system, because of its popularity, deserved a comparative look while we were considering software firewalls.

PIX

Vendor: Cisco
Location: San Jose, Calif.

A LOOK AT A HARDWARE FIREWALL

We felt that Cisco's hardware-based firewall system, because of its popularity, deserved a comparative look while we were considering software firewalls.

PC Secure is one of several firewall products for individual users and small workgroups...
Great Walls of Fire

CONTINUED FROM PAGE 77...

what our tester saw as a significant drawback. With the serial port on the back of the rack-mounted PIX, access could be difficult in the event of a serious system problem. A network crisis isn't the time to struggle with connecting a terminal to crucial equipment. Though the firewall is on Cisco's proprietary hardware, a management tool running on a Windows NT server on the same network as the PIX unit allows the rest of the setup to be done with any Java-enabled browser. All logging is done to the same NT server.

Defining a policy was quite easy with the Web-based management tools. Modifying a policy, however, was less straightforward. Although it was simple to add to a policy, it could be a significant problem to modify rules. In our experiments, modifying any part of the policy appeared to require removing all parts of the policy that depended on it. Our ISS tests found no vulnerabilities in the targeted firewall tests, and only the familiar SNMP and traceroute vulnerabilities in the "shotgun" test.

ISS One of the challenges in selecting the firewall you use to secure information assets is to assure yourself that the system is in fact protection against real-world attacks. To achieve any sort of realism and consistency in such testing, automated testing tools are mandatory. We selected the ISS for this comparison. Used as a standard by many government agencies and professional security analysts, the ISS tool allows for repeated, high-speed testing of literally hundreds of well-known and obscure security vulnerabilities on firewall and host systems. We performed in minutes a serious analysis of firewall reliability, which would have been not just impractical but realistically impossible if attempted manually.

Hayes is systems control manager at Client/Server Labs, a primary test lab partner of Computerworld. He can be reached at ghayes@csinc.com.

Up to NCSA snuff


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Cisco Systems, Inc.
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» Cntcti firewall, Version 3.1

Cyberguard Corp.
Fort Lauderdale, Fla.
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» CyberGuard Firewall
Version 2.2.3

Global Technology Associates, Inc.
Orlando, Fla.
www.gta.com
» GFX Internet FirewallSystem, Version 2.5
» GNAT Box 2.0.1

IBM
Atlanta
www.ibm.com/security/
» Firewall, Version 3.1
» Firewall for AS/400,
Version 4, Release 1

Internet Devices, Inc.
Sunnyvale, Calif.
www.internetdevices.com
» AFS 2000, Version 2.02

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www.raptor.com
» Eagle 4.0 (Solaris)
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NDS® also closely integrates with Novell BorderManager® technology, Novell's newest Internet product.
BorderManager is the industry’s first integrated family of directory-based network services that manages, secures and accelerates user access to information at every network border—the point where any two networks meet.

NDS and BorderManager are object-oriented network services that can be integrated under Novell’s Network Object Services for Java. This unique set of Java initiatives allows developers to fully build robust and scalable server-based solutions for the Internet using open public API specifications for Java applications for global computing.

And GroupWise 5.2 leverages the ubiquity of the Internet to deliver expanded e-mail capabilities such as calendaring and scheduling, document management, workflow, imaging, threaded discussions and status tracking—for any user with any browser on any server.

Networks will continue to get bigger, faster and more complex. But they’re still just networks. And no one knows networks like Novell.

We have the tools, the technology and the talent to make the networking future a practical reality today. Internet, intranet, extranet—anynet—the name of the network is Novell.
Envision a network ready, remotely manageable, dual Pentium II processor-based server that can diagnose each and every client. And tell you who’s going to call in sick.

Acer introduces the award-winning AcerAltos 9100. Enterprise networks are growing. Virtual and mobile offices are commonplace. To gain a competitive edge, the need for anytime, anywhere access to corporate information is vital. The AcerAltos™ 9100, with dual Intel® Pentium® II processors, ensures network availability with tools like Acer Advanced Server Manager™ Pro and Remote Diagnostic Manager™. Resulting in higher productivity, connectivity, and uptime. The bottom line — a powerful server solution with manageability, expandability, compatibility, scalability, and network security. But, perhaps best of all, it'll keep your clients happy and healthy.
Macro viruses. Boot-sector viruses. Clever boys who join the “elite” by wiping out your hard drive. And on deck, ActiveX. For the labs that battle destructive code, business is (unfortunately) booming. We invited ourselves to spend a few days with...

The server is flat black. Perfect.

But it ought to be named Deathstar, or Blackhole, or maybe Pandora’s Box. And it ought to be etched with cocky graffiti like a World War II bomb: Rewrite THIS, punk! From LA with love. Instead it’s just labeled “AVLo,” and like everything else in the lab, it’s neat as a pin.

And it contains every virus the Symantec Anti-Virus Research Center (SARC) has ever captured.

Welcome to the front lines of the fight against computer viruses.

SARC and Network Associates, Inc.’s Anti-Virus Emergency Response Team, or AVERT, are two of the antivirus laboratories founded by vendors. (Network Associates was formed last month when McAfee Associates, Inc. merged with Network General Corp.) Part promotional tool, part public service, the laboratories find, fix and document malicious code. SARC and AVERT team members swear they would like nothing better than to put themselves out of business. But recent visits to both laboratories indicate that they needn’t update their resumes any time soon.

As recently as two years ago, most viruses were created by an underground network of highly skilled show-offs. But those traditional viruses have largely been supplanted by macro viruses, written in Microsoft Corp.’s Visual-Basic — everyman’s programming language opened the doors to everyman’s virus.

There are plenty of bulletin boards with friendly interfaces where you can create a virus by dragging and dropping icons. Choose a payload. Click. Choose a delivery method. Click. Will that be polymorphous today, sir? Click. It’s no wonder macro viruses now account for 80% of all viruses.

The ease of creation leads to more viruses than ever — more than 1,300 macro viruses exist today, up from 40 one year ago. That means vendors update their antivirus software more frequently, which means you need to make sure your users have the latest protection.

Businesses don’t like to talk about viruses, but... .

A large East Coast financial institution thought it had been infected and shut down three floors of its offices. The institution was a Symantec Corp. client. Carey Nachenberg, a SARC engineer, got paged, hopped a red-eye and spent all day combing through 150 PCs by hand. Nachenberg found nothing. The “virus” was a false alarm reported by company employees. The company lost at least $2.3 million. And that’s a very conservative estimate, according to Symantec and other virus fighters who requested anonymity.

Most “viruses,” like that financial institution’s false alarm, aren’t viruses at all. Alex Haddox, a Symantec product manager, says 60% of the reports SARC receives are false alarms. Many end users cry “Virus!” when they lose a file, when an application locks up or when their monitor flickers strangely.
You have the right to remain calm.
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   Yes  
   No  

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)
   Operating Systems
   (a) Solaris  
   (b) NetWare  
   (c) OS/2  
   (d) Unix  
   (e) Mac OS  
   (f) Windows

APP. DEVELOPMENT PRODUCTS
   Yes  
   No

Networking Products
   Yes  
   No

Intranet Products
   Yes  
   No

4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?  
   Yes  
   No

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)
   Operating Systems
   (a) Solaris  
   (b) NetWare  
   (c) OS/2  
   (d) Unix  
   (e) Mac OS

APP. DEVELOPMENT PRODUCTS
   Yes  
   No

Networking Products
   Yes  
   No

Intranet Products
   Yes  
   No

4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?  
   Yes  
   No

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)
   Operating Systems
   (a) Solaris  
   (b) NetWare  
   (c) OS/2  
   (d) Unix  
   (e) Mac OS

APP. DEVELOPMENT PRODUCTS
   Yes  
   No

Networking Products
   Yes  
   No

Intranet Products
   Yes  
   No

4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?  
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   (a) Solaris  
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   (c) OS/2  
   (d) Unix  
   (e) Mac OS

APP. DEVELOPMENT PRODUCTS
   Yes  
   No

Networking Products
   Yes  
   No

Intranet Products
   Yes  
   No

4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?  
   Yes  
   No
CONTINUED FROM PAGE 83

IN OTHER WORDS

While waiting for an elevator, Symantec engineers search for a polite way to explain certain virus "payloads" — the messages and images that appear to inform users they've been hit. Payloads may be patriotic (flags from Italy and Eastern European nations are common), menacing (skull-and-crossbones stuff) or amusing (there's a virus called Cussout that swears like a stee-dore at the bewildered victim).

Very often, though, payloads are ... how to put it ... "phallo-centric," the SARC engineers working at a large Virus writers, it turns out, have dirty minds.

Virus writers tend to be 14- to 24-year-old males who seek nothing more than to become elite virus writers. Henri Delger, moderator for Prodigy's Virus Help forum and is thus devilishly tricky to lasso, the repair work often takes just minutes.

You become a star in the virus underground by writing clever viruses that are widely propagated. You write them, save them, trade them with your friends. That's about all there is to it.

AVERT and SARC have developed a pretty sophisticated profile of their quarry, but does that cloak-and-dagger stuff help fix viruses? Nope. "Code's code," Haddox says.

FUTURE TENSE

The vendor-sponsored laboratories aren't universally beloved. Several antivirus information systems workers contacted via electronic mail for this story question the labs' impartiality. One IS worker at a large company, who requested anonymity, says he found Network Associates "very sloppy" with samples and communication. And Delger, when asked about SARC and AVERT virus predictions, says, "Hogwash ... you're listening to their marketing people."

Those slings and arrows don't surprise virus fighters, who often are accused of writing malicious code themselves to drum up business. "That hurts," Haddox says.

Public opinion aside, the job of antivirus laboratories won't get easier any time soon. It's not hard to write a macro virus. E-mail has emerged as the virus delivery vehicle of choice, according to Microsoft's ActiveX virus (which means it changes form and is thus devilishly tricky to lasso), the repair work often takes just minutes. Testing, then, becomes the bottleneck. Each fix must be tested on various hardware and software setups. That can take four to eight hours.

Still, both SARC and AVERT turn around most nonpolymorphic virus reports in 24 hours.

When asked what it takes to be a good virus-hunter, Talbott says, "They need an assembly language background. It helps if they've done low-level bug testing." She smiles. "And they need to work fast."
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More minorities are seeking opportunities in the IS field. But the lack of mentors and role models is still holding many back

By Melanie Menagh

“DIVERSITY IS GOOD BUSINESS.”
“WE WANT A VARIETY OF PERSPECTIVES AT THE TABLE.”
“WE DON’T LOOK AT ETHNICITY, WE LOOK AT SKILLS.”

To hear companies talk, the 1990s are a golden age for minorities in information systems. Firms crow about their cultural awareness seminars, sensitivity training programs and minority recruiting policies.

It only makes sense: Desperate for competent staff, the hot issue at IS shops is seeking out new pipelines for personnel.

In theory, if you’ve got the right skills set, you get the job, regardless of your racial or cultural admixture. That’s the theory. But what about the reality?

Just because there’s a scarcity of good people, has that changed entrenched attitudes about ethnic groups traditionally underrepresented in IS? Do companies whose diversity policies look good on paper follow through with equitable salaries and opportunities? These days, what can an African-American man or an Hispanic woman do to improve his or her career trajectory?

Detroit Edison’s Jacqueline Benson says many IS organizations don’t practice the diversity goals they preach.

NEEDED URGENTLY: MENTORS AND ROLE MODELS

Despite the best intentions of many companies and managers, diversity goals aren’t always borne out in the real-life work experiences of minority IS staffers, according to Jacqueline Benson, IS director of administration at Detroit Edison.

“There is a trust gap, a respect gap, a personality gap,” Benson says. “People not coming from the minority experience sometimes don’t have the same perspective. They think it’s just a matter of doing good work; they don’t see some of the additional problems that their [nonwhite] coworkers have.” And, she says, “I do believe there is a glass ceiling.”

She isn’t alone in her feelings. “On paper, everyone loves you,” says an African-American senior manager at an IS consulting firm in the Dallas/Fort Worth area, who preferred not to be identified by name. “On paper, it looks like this [company] is home; you get there, and it’s not,” the manager says. “The issue is whether the diversity policies are implemented all the way down the line. Does the company follow through? Do those in decision-making positions make sure policies are enforced? I’ve had good experiences and bad experiences.”

Part of the problem: “Corporations all have good policies. Many have extensive diversity programs, but if there’s a lack of enforcement of
those principles, the effort is wasted," says the anonymous IS manager. "Often, it’s not deliberate, but some companies just don’t follow through.

Another problem is a lack of minority peers, role models and mentors in IS. "In most cases, there are no more than four or five people of color in an IS department of several hundred," says the manager from Texas. "And although some companies may report a high minority rate, many are not talking about blacks; it might be people from India, for instance." He says the black community is especially underrepresented in information technology, at the higher levels.

"It’s difficult to find mentors who can help minority students come up. It’s a strong disadvantage," Benson says. "In the last five years, my CIO, who is white, became my mentor. It’s been a tremendous boost; my career has really taken off. He’s been able to steer me into what I want to do and show me what he thinks I should be doing."

PERFORMANCE ANXIETY
Some of the difficulties minority IS professionals experience come from internal factors. "Confidence is an enormous problem," says Byron Gutierrez, a member of the senior technical staff at Oracle Corp.’s Tools Division in Redwood Shores, Calif. He has tutored gang members in San Diego and East Los Angeles.

"The most important thing was giving them confidence, letting them know that they could work with computers," Gutierrez says. "For so long, they’d been told they couldn’t do that. When they realize they can succeed in IS, then they push. In fact, once they get there, they overperform because they still feel they’re not up to the position."

It’s a problem not limited to Hispanic IS staffs.

"When you’re one of the few black people on staff, your visibility is exceedingly high, so your mistakes are immediately known, but your successes may or may not be," says the manager from Texas. "Being in the spotlight all the time can cause you to go to extremes to make sure you’re extremely technically competent."

NO LONGER SUCH MINORITIES
"No doubt about it, the numbers of African-Americans in IS are increasing. Companies are salivating after our students," says Harold Gray, senior director of the Center for Professional Development at Howard University’s School of Business, a historically African-American institution in Washington.

At Howard, graduates with a technology focus have found the future in IS.

"The most important thing was giving them confidence, letting them know that they could work with computers," Gutierrez says. "For so long, they’d been told they couldn’t do that. When they realize they can succeed in IS, then they push. In fact, once they get there, they overperform because they still feel they’re not up to the position."

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THE GROWING RANKS OF IS AND PERCENTAGE OF IS MINORITIES

<table>
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FIVE OPENINGS FOR Project Manager,

Research, Design and Development of semiconductor software systems in UNIX environment using C++. Must have a degree in Computer Science or Mathematics, and three years experience in project management. Must be able to relocate to various locations in the USA every 4 to 10 months. Salary is $40,000-$50,000.

FIVE OPENINGS FOR Senior Programmer,

Research, Design and Development of semiconductor software systems in UNIX environment using C++. Must have a degree in Computer Science or Mathematics, and three years experience in software development and integration of software systems in UNIX environment using C++. Must have strong knowledge of UNIX, PL/I, and TSO/VS. Must be able to relocate to various locations in the USA every 4 to 10 months. Salary is $40,000-$50,000.

FIVE OPENINGS FOR Lead Programmer,

Research, Design and Development of semiconductor software systems in UNIX environment using C++. Must have a degree in Computer Science or Mathematics, and three years experience in software development and integration of software systems in UNIX environment using C++. Must have strong knowledge of UNIX, PL/I, and TSO/VS. Must be able to relocate to various locations in the USA every 4 to 10 months. Salary is $40,000-$50,000.

FIVE OPENINGS FOR Junior Programmer,

Research, Design and Development of semiconductor software systems in UNIX environment using C++. Must have a degree in Computer Science or Mathematics, and three years experience in software development and integration of software systems in UNIX environment using C++. Must have strong knowledge of UNIX, PL/I, and TSO/VS. Must be able to relocate to various locations in the USA every 4 to 10 months. Salary is $40,000-$50,000.

Software engineer with 3 years of experience as a software engineering professional, who will develop new systems, apply computer science, engineering, and mathematical analysis, with specialization in UNIX, PL/I, and TSO/VS. Must have experience with Oracle Manufacturing Distribution, Application, and Integration. Must have experience in software development and integration of software systems in UNIX environment using C++. Must have strong knowledge of UNIX, PL/I, and TSO/VS. Must be able to relocate to various locations in the USA every 4 to 10 months. Salary is $40,000-$50,000.

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SOFTWARE ENGINEER required for technical, model, and database development work on Windows NT & UNIX platforms. Must have object-oriented design experience using C++ and object-oriented development tools, including VDM. Will develop and test software modules using object-oriented development methodologies. Work experience using UNIX, C++, and C+ required. Must have experience in designing and implementing systems. Must be able to work in a fast-paced environment and have excellent communication skills. Must have a B.S. degree in Computer Science or a related field. Must have 5 years of experience in the fields of computer science, engineering, or related disciplines. Must have a strong work ethic and be able to work under pressure. Must be a U.S. citizen. Must be able to work in a fast-paced environment and have excellent communication skills. Must have a B.S. degree in Computer Science or a related field. Must have 5 years of experience in the fields of computer science, engineering, or related disciplines. Must have a strong work ethic and be able to work under pressure. Must be a U.S. citizen.

SOFTWARE ENGINEER required for technical, model, and database development work on Windows NT & UNIX platforms. Must have object-oriented design experience using C++ and object-oriented development tools, including VDM. Will develop and test software modules using object-oriented development methodologies. Work experience using UNIX, C++, and C+ required. Must have experience in designing and implementing systems. Must be able to work in a fast-paced environment and have excellent communication skills. Must have a B.S. degree in Computer Science or a related field. Must have 5 years of experience in the fields of computer science, engineering, or related disciplines. Must have a strong work ethic and be able to work under pressure. Must be a U.S. citizen. Must be able to work in a fast-paced environment and have excellent communication skills. Must have a B.S. degree in Computer Science or a related field. Must have 5 years of experience in the fields of computer science, engineering, or related disciplines. Must have a strong work ethic and be able to work under pressure. Must be a U.S. citizen.
Looking for better IS opportunities and lifestyles? Many relocatees are finding both in Florida.

TRANSPANT

In Jacksonville, Orlando and Tampa, leading-edge client/server and mainframe skills are all in high demand. Consulting positions also are rampant in all three markets. Computerworld spoke with three IS transplants for their take on each city.

JACKSONVILLE

Anthony Bielobockie
Independent consultant
Relocated from: New York
Moving date: November 1996

Anthony Bielobockie had no intention of moving to Florida. He even told the recruiter he wouldn't consider the job she had in mind for him.

He accepted the initial interview just to be polite. He moved not long after. "They really won me over with the project," Bielobockie says. "I left New York to follow better work."

The project was a three-tier client/server database application at mortgage company HomeSide Lending, Inc. Bielobockie, 29, signed on as an independent consultant with a long-term contract.

In New York, he says, he was a "grunt," a contract programmer who coded a call center application for Nynex Corp. In Florida, he is the senior technology architect for the mission-critical application, which ultimately will automate the full mortgage application, processing and approval process.

When it is finished, the Java/Oracle/Common Object Request Broker Architecture application will let homeowners apply for and qualify for loans over the telephone.

Jacksonville offered better pay and a lower cost of living than New York. Bielobockie’s salary increased 50%, and he traded in his high New York rent for a monthly mortgage on a three-bedroom house with a two-car garage that he bought for less than $50,000.

The HomeSide project should last until April 1999. Once it ends, Bielobockie expects to move back to New York, even though the local job market is strong and experienced programmers are in high demand — particularly C++ and Java developers.

Socially, Jacksonville doesn’t have a lot to offer a young, single professional, Bielobockie says. While he enjoys the beaches, parks and mountain bike trails around town, he misses New York’s live music scene — especially the many jazz clubs — and the restaurants where he could get a four-star meal on a shoestring budget.

TAMPA

David O’Malley
Programmer/analyst, Time Magazine Customer Service
Relocated from: Portage, Ind.
Moving date: April 1997

When David O’Malley gets home from work each day, he puts on a pair of shorts and sandals and lounges by his pool.

Later in the evening, he and his wife go out to try a new restaurant and enjoy the warm breezes off the Gulf shore.

It’s a long way from shoveling snow six months of the year in northwest Indiana.

“I like the lifestyle here. I’m not sure I would consider it easier; it just presents a different set of issues,” O’Malley says. O’Malley has found more in Tampa than a new lifestyle.

The former data center manager has launched a second career, returning to his roots as a mainframe programmer/analyst. In exchange, he’s getting what he considers a paid, 10-year trial run in the area he and his wife had chosen for their retirement. His new employer, information systems contracting firm Computer Management Consultants (CMC), reimbursed him for a large percentage of his relocation costs.

He devised his grand plan when his employer of 30 years, Inland Steel Co., offered him an early retirement package as part of a downsizing move in 1994. O’Malley accepted and would have left Portage to prospect warmer climes then, at age 50, but Inland hired him back as a consultant for two years.

In February, O’Malley hit the World Wide Web to scout jobs in the Carolinas and Florida; he settled on Florida because it doesn’t have a state income tax.

CMC hired him for a DB2 database project at Time’s customer service operation. After six months on the job, Time exercised its option to hire him, and O’Malley joined the company on Oct. 20.

ORLANDO

Jim Waters
Vice president of IS, Universal Studios Florida
Relocated from: Denver
Moving date: January 1997

On his lunch hour, Jim Waters strolls the streets of New York, Los Angeles or San Francisco, depending on his mood. As the vice president of IS at Universal Studios Florida in Orlando, recreated movie sets are his playground.

Waters was the head of IS at a small marketing firm in Denver when a friend told him Universal Studios needed an IS chief to lead a total replacement of its legacy systems. He leaped at the chance faster than you can say Bates Motel.

“I had previously lived in Sarasota, Fla., so I knew what living in the state was like,” Waters says. “But what interested me most was the job. Because we’re a theme park, we have a large variety of core systems — food service, merchandising, ticketing, call center, travel services — as well as the systems any company would have.”

As a new resident of the area, Waters says the biggest misconception about Orlando is that it’s only a tourist town. It has a cosmopolitan population, drawing relocatees from around the world, he notes.

Goff is a freelance writer in New York.
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- **Must have knowledge of Microsoft Visual C++ and Visual Basic. Advanced structured programming skills experience with several relational databases, OS/400 RPG or Synan SE desired.**

**SENIOR PROGRAMMER ANALYST**

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Senior Programmer/Analyst

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May 17-20, 1998

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### The Week in Stocks

#### Gainers

<table>
<thead>
<tr>
<th>Company</th>
<th>Last Week</th>
<th>This Week</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compaq Computer Inc</td>
<td>48.50</td>
<td>51.13</td>
<td>+2.63</td>
</tr>
<tr>
<td>Dell Computer Corp</td>
<td>55.56</td>
<td>55.56</td>
<td>0.00</td>
</tr>
<tr>
<td>IBM</td>
<td>30.13</td>
<td>30.13</td>
<td>0.00</td>
</tr>
<tr>
<td>Intel</td>
<td>20.25</td>
<td>20.25</td>
<td>0.00</td>
</tr>
<tr>
<td>Microsoft Corp</td>
<td>88.50</td>
<td>88.50</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### Losers

<table>
<thead>
<tr>
<th>Company</th>
<th>Last Week</th>
<th>This Week</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Inc.</td>
<td>27.00</td>
<td>26.00</td>
<td>-1.00</td>
</tr>
<tr>
<td>Oracle Corp.</td>
<td>56.25</td>
<td>54.25</td>
<td>-2.00</td>
</tr>
<tr>
<td>Sun Microsystems Inc</td>
<td>30.00</td>
<td>28.00</td>
<td>-2.00</td>
</tr>
<tr>
<td>Adobe Inc.</td>
<td>36.00</td>
<td>34.00</td>
<td>-2.00</td>
</tr>
<tr>
<td>Symantec Corp.</td>
<td>29.00</td>
<td>27.00</td>
<td>-2.00</td>
</tr>
</tbody>
</table>

#### INDUSTRY ALMANAC

**Internet stocks inch back**

Taylor positive for Internet stocks. Yahoo, Inc., in Santa Clara, Calif., was selling at more than $35 per share days before the drop. It fell to just under $129 Monday but moved up 18.88 to $142.88 by the end of Tuesday. Orders for Internet-based stocks are having a tougher time climbing back to prepullup price levels.

### WEALTHY 'LOSERS'

Paper losses incurred by industry execs last Monday (some of which was restored by Tuesday)

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Loss in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill Gates</td>
<td>CEO, Microsoft</td>
<td>$2.079B</td>
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<td>Larry Ellison</td>
<td>CEO, Oracle</td>
<td>$674.06M</td>
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<td>Gordon Moore</td>
<td>Chairman and co-founder, Intel</td>
<td>$518.88M</td>
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<td>Scott McNealy</td>
<td>CEO, Sun</td>
<td>$32.1M</td>
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<td>Steve Case</td>
<td>Chairman and CEO, America Online</td>
<td>$31.87M</td>
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<td>Jim Barksdale</td>
<td>CEO, Netscape</td>
<td>$12.91M</td>
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<tr>
<td>Lou Gerstner</td>
<td>CEO, IBM</td>
<td>$4.84M</td>
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Methodology: Computerworld used the Forbes ASAP "Technology's Very Richest" for calculating percent of shares; the closing price on 10/24 vs. closing price on 10/27; and outstanding shares as of 9/29 quarter close.
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Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

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The Business of Better Decision Making
Stock drop tests online brokers

CONTINUED FROM COVER 1

Cambridge, Mass. “Sure, there were problems, but that was true across the board in the industry.”

In fact, some full-service brokers could come up with trades placed in the morning until late afternoon, and all the while telephone lines were jammed, industry watchers said.

“If you and 25 other people are calling your broker, you’ll stay on hold for half an hour. The Internet was the fastest thing going,” said Bill Burnham, an analyst at Piper Jaffray, Inc. in Minneapolis.

Still, online brokers saw volumes that few had been prepared to handle, even though users have been flocking to online trading during the past year (CW, Sept. 29).

“In the planning stages you say, ‘Let’s build for the worst case, so we don’t worry about going out of business’ during a crash,” said John Holman, managing director of Internet services at National Discount Brokers in New York.

“But you can’t duplicate a 1.3 billion-share day” in quality assurance tests, he said.

Even though online brokers rushed to free up access to their sites (see story at right), not all users were happy.

ETrade Securities, Inc. and Charles Schwab & Co. were blasted on Internet discussion groups by disgruntled users who had problems accessing their sites on the Internet. But an ETrade spokeswoman pointed out that about one-third of its 200,000 account holders accessed the system on Tuesday alone.

That is little consolation for those who lost the chance to make a deal.

“Imagine you are sitting in a traffic jam, and your wife beside you is about to deliver a baby. That is the feeling you get when you know you can make a major profit but just can’t get your hands on your money,” said Xiangdong Shi, a San Diego investor who had to wait all day to get a morning trade confirmed on ETrade’s site.

Gazala said online brokers could take a page from their full-service brethren and do everything possible to reassure customers such as Shi.

For example, he said, some full-service brokers planned to reimburse customers for money lost in trades that weren’t completed when requested. Others performed trades commission-free at branch offices if users couldn’t make a trade over the phone.

But the Internet creates different problems in verifying such trade attempts.

“If we have a ticket and don’t execute a trade, then there is no problem in reimbursing a customer,” said Mike Anderson, president of Ameritrade, Inc. in Omaha. “But with the Internet, I think that can turn into a black hole. That is why we offer six different ways to place trades” in addition to the Internet.

But online brokerages should make those methods clear so that if users can’t get through, they know the best option to get their trade in, Burnham said.

Still, “technology has taken over the Street,” Holman said.

“If this would have happened five years ago, even the New York Stock Exchange wouldn’t have been able to handle the volume.”

When it rains, it pours

Internet stock trading hit new heights in last week’s stock market deluge:

* ETrade, which normally handles 24,000 trades per day, hit 50,000 trades on Tuesday alone.
* With Web access slow, ESchwab’s phone system volume went from 250,000 calls per day to 430,000 on Monday.
* Volume on Ameritrade’s site was 42% above normal on Monday, Tuesday it jumped 62% above Monday’s tally.
* The Motley Fool’s Internet investor chat room saw traffic increase from a normal 50 users to nearly 300 on Monday.

AlliedSignal races to the Web

CONTINUED FROM COVER 1

could cut $500,000 in yearly electronic data interchange (EDI) costs.

Moving orders to the Internet also would make it economically feasible for smaller retailers to buy electronically from AlliedSignal, Keenan said, because EDI start-up costs can be prohibitive for such firms.

For the auto-racing enthusiast, the site will feature a car-racing section with photos shot for the site, live audio of drivers and their pit crews and special stories from ESPN commentator Bob Frey. (Allied expects to promote the Frey columns during some ESPN race broadcasts.)

DIGITAL RACING CAR

Site visitors will be able to create their own “digital racing cards” with a driver photo and audio to send electronically to their friends. Most services will be free, although after five minutes of free audio, the site will sell time from a telephone-based service called FanScan from Racing Radios, Inc.

And for the average car owner, there will be artificial intelligence software to help diagnose car problems. Free for a 30-day trial download, the AutoTech software will likely retail in stores next year for $49.95.

The site has involved every aspect of AlliedSignal’s auto-aftermarket business unit — sales and marketing to shipping and customer service — as the project team thrashed out which service to put online. “There’s no department that it didn’t touch,” program manager Kristy Davis said.

Like many manufacturers, AlliedSignal had to face the sensitive issue of how to deal with existing distributors, retailers and sales territories before moving all its conventional product sales online. AlliedSignal decided that at the motor sports section of the site, consumers will be able to look up parts numbers for items such as oil filters, although they will be able to buy only relatively rare goods not generally stocked in stores.

Actual sales to consumers will be limited to novelty items such as racing hats and jackets. This creates a new source of revenue for the company.

Working with Agency.com, a Web site design firm in New York, the project team sought an uncluttered look for its fairly complex site. The opening screen has just three choices: Motor Sports, Catalog and The Answer Man. Once in the catalog section, corporate customers click on business partners and others get access by password; other users can navigate through consumer options.

AlliedSignal will host the site on mirrored Compaq Computer Corp. servers running Windows NT with links back to the company’s IBM A5/400. Secure Sockets Layer encryption will be used for financial transactions. The site has been benchmarked for 300,000 hits per day.

AlliedSignal considers the site a new product and expects it to generate revenue, not merely wave the corporate flag in cyber-space. Singleton said. “This venue is the venue for the supply chain, no matter where they are,” he said.

Software tools help AlliedSignal, others juggle data among storage systems. Page 63

Handling the onslaught

Online brokers moved immediately last week to do what they could to handle the tsunami of trades.

* At National Discount Brokers, 15 Internet staffers were put up in Manhattan hotels and told to order in all meals in case they needed to jump on an access problem.
* Datek Securities Corp. in Iselin, N.J., added three Web servers on Tuesday night to double its capacity.
* DLJ Direct, a division of Donaldson, Lufkin & Jenrette Securities Corp. in New York, added servers Monday night to increase capacity by 66%. Tuesday night it added even more servers to bump capacity up another 33%.
* ETrade Group, Inc. added servers over the weekend and again on Monday after seeing results from Asia.

— Stewart Deck, Kim Nash and Tim Ouellette
Before

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Microsoft fought the law: secret tapes . . .

Bill Laberis

As I entered a hotel meeting room last month, who should be leaving the room but Ralph Nader, Janet Reno, Sun CEO Scott McNealy and West Coast tortmeister Gary Reback.

They left behind a tape of their proceedings.

Reno: I've agreed to come to this informal meeting to hear all sides of the arguments, and I see Scott and Gary here. But where's Mr. Gates?

Nader: Oh, I'm representing him, Ms. Reno. Bill has always said his is a company built upon computing power to the people, and who better reflect 'the people' than old Ralphie?

Reno: Well, I guess that's fair. Look, I don't have a lot of time today. I have these dang Senate hearings, plus the Dolphins are playing tonight. So let's get right to the facts.

McNealy: Facts? Why?

Reno: Because, Scott, that's the way this administration and this attorney general do things.

McNealy: (Aside, to Reback) Did she just wink at me?

Reback: Chump, she just winked at all of us.

McNealy: Huh? Oh. Yeah. Right!

( Loudly, for all) Let's look at them facts! Reno: It looks like we have two issues, one dealing with Microsoft and Java and the other with Microsoft's alleged bundling of its Explorer browser. Let's start with Java. Now Scott, it's your position that Microsoft is trying to balkanize Java into different kinds of Java, including one that runs best on Windows.

McNealy: Hairballs. They want to . . .

Reno: Scott, didn't your mother teach you that if you don't have anything nice to say about people, then . . .

McNealy: Sorry. Anyway, the issue is that the people, Ms. Reno — and I do stress the people — want a competing standard, and Java is just that standard.

Reno: But isn't there a standard already? You know, Windows?

McNealy: Yes, but Java has the people behind it, the little people. You know, like Oracle, IBM, Motorola . . .

McNealy: And Microsoft would seek to silence the people, the dirt bags.

Reno: Hmmm. I see. Maybe we should move on to this Explorer thing. Ralph, help me out here. Microsoft is giving Explorer away now, and you want the government to stop them?

Nader: Janet, this is the heart of the issue with Microsoft. They continually bundle things into their operating system, from utilities to disk compression to networking, and now their browser. They use their market clout to give these things away to corporate buyers.

Reno: Wow. That must be killing their bottom line.

Reback: Well, not exactly. Their gross profit margins in the last quarter were 92%.

Reno: Then they must be using these giveaways to control the browser market.

Nader: Actually, Netscape has about 65% of that market, Jan, but not for long, if Microsoft continues its ways.

Reno: But I just read a big review in Computerworld November 3, 1997 some trade rag where Explorer blew away Netscape's Navigator. I also read where people like Mike Dell are saying that if he sold PCs without Explorer, his buyers would revolt!

McNealy: Lintheads. Reno: That's enough, Scottie. Microsoft has been a monopolist for some time, so surely by now we must be seeing the upward price movement of software in the segments they dominate.

Reback: Well, actually, their prices have been declining. I suppose you could argue that their products have been getting better, too, if you consider what NT has done in the enterprise. But all that is beside the point.

Reno: What's the hell is the point?

Reback: We thought you'd be interested in how Mr. Gates himself characterized his company's conduct. He said . . . he said . . . "This is called capitalism."

Reno: He said what?

Reback: "Capitalism."

Reno: (Shouts to her aide) Tom, we've got one on the hook. A big one. Full speed ahead!*

Editor in chief of Computerworld from 1986 to 1996, Laberis is now president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass. His Internet address is bill@laberis.com.

... and an international perspective

David Moschella

What if Microsoft were a foreign company? If you're trying to sort through the legalities and morality of the Department of Justice's efforts to show Microsoft in contempt of its 1995 consent decree, consider this change in perspective.

Suppose Microsoft is a Japanese company. A new U.S. company called Netscape begins to grow rapidly in an important new software category called browsers. Because the browser appears to threaten the central role of the PC operating system, the Japanese giant responds by offering its own browser for free and requiring the world's PC makers to bundle it with all new sales.

What would be the reaction in the U.S.? Is there any doubt that Congress, the executive branch and the American people would demand and soon get action? Remember the fierce attacks against Japanese dynamic RAM vendors in the 1980s? All they were accused of was selling their products below cost. Imagine the furor if they had suddenly started offering free DRAM just to preclude weaker competitors.

Public perceptions are shaped much more by perceived national interest than by any sense of right and wrong. One of the reasons Microsoft has been free to roam virtually unchecked for the past decade is that all its trampled competitors happen to be American. If WordPerfect, Borland, Novell or Netscape were French or German, the dialogue would have been more heated.

In the face of this widespread political and citizen indifference, it took a lot of courage for the already beleaguered Janet Reno to challenge the world's most powerful corporation. What's in it for her?

Understandably, the Department of Justice has chosen to move carefully. It can make a strong case that the forced bundling of Explorer has in fact violated the consent decree. Other than Microsoft employees, do you know anyone who doesn't think that for the past two years, Internet Explorer has been much more of a separate product than an integrated Windows 95 feature? Microsoft will deny and deny, but its own actions and statements confirm the Justice Department's position.

The end of forced bundling might seem like a minor victory, but the implications could still be dramatic. If the courts decide that today's Explorer is indeed a separate product, how can they possibly avoid the conclusion that Microsoft's providing it for free constitutes a predatory act? If Microsoft could be forced to charge a reasonable price for Explorer (say in total cost of development, marketing and distribution divided by total unit sales), today's competitive dynamics would change a lot.

Pundits are quick to argue that with next year's release of Windows 98, the issue is moot. There still will be hundreds of millions of Windows 95 machines that Microsoft will want to upgrade to Explorer 4.0 and future browser releases. Whether it is allowed to do this for free is still important to Netscape and the future of Internet software competition.

The bottom line is that if Microsoft wants to develop integrated browser/operating system software, the company should be free to do so. But it shouldn't be able to offer two separate products and give one of them away based on false claims of an integrated offering.

That is what Microsoft has been doing. Hats off to the Justice Department for finally trying to set the record straight. It may well prove to be too little, too late, but at least Justice has shown the courage to act.

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Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is david_mosc@comcast.net.

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Computerworld November 3, 1997 (www.computerworld.com)
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in-flight air turbulence via existing instruments. The data will be compiled in a federal database and eventually used to create "turbulence forecasts" to help pilots steer clear of the bumpy air.

A novel software program that analyzes the brain and computes the user's IQ may have a new role: detecting the early stages of Alzheimer's disease and other forms of mental deterioration.

The software from Cognitive Diagnostics in Newport Beach, Calif., is being tested to see if it can screen for people who should get early drug treatment for Alzheimer's.

In the labs

D r. Gary Haynes, an anesthesiologist and researcher at the Medical University of South Carolina in Charleston, has developed a hospital wristband that has a memory disk the size of a watch battery. Reuters reports the bracelet will allow patients to carry identification and key portions of their medical records wherever they go. The disk can be connected to a handheld PC for updating.

T he National Center for Atmospheric Research in Boulder, Colo., has developed software for commercial airliners that measures in-flight air turbulence via existing instruments. The data will be compiled in a federal database and eventually used to create "turbulence forecasts" to help pilots steer clear of the bumpy air.

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Digital archives

20 YEARS AGO (NOVEMBER 1977)
- Headline: Banner year for Data General
- Digital Equipment announces a 32-bit VAX minicomputer.

10 YEARS AGO (NOVEMBER 1987)
- Borland ships Quattro spreadsheet, including emulation of Lotus 1-2-3 commands, triggering a legal battle over whether software's "look and feel" can be copyrighted.
- Compaq makes its 1 millimonth PC.
- Lotus announces the Agenda package for managing textual information.
- Kaypro discontinues the "luggable" 26-lb. Kaypro II PC that made it famous.

NO 'OOPS' IN THE O.R.

Athletes and musicians practice their skills a lot. But it's hard for surgeons to get much practice before working on patients. So HT Medical Systems in Rockville, Md., is developing a virtual reality system that allows surgeons to engage in realistic "operative rehearsal" without risk to patients. Partial funding is provided by the U.S. Department of Commerce's Advanced Technology Program.
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*Gartner Group Continuous Services, Research Note, 7/18/96. *Upgrade from 16MB to 64MB on Pentium® Pro 200 MHz. Testing was conducted by an independent service for Samsung Semiconductor, Inc. Kingston Technology Company, 17600 Newhope Street, Fountain Valley, CA 92708, USA, (714) 435-2600, Fax (714) 435-2699. © 1997 Kingston Technology Company. All rights reserved. Computing Without Limits is a trademark of Kingston Technology Company. All other trademarks and registered trademarks are the property of their respective owners.