



Microsoft at LinuxWorld?

It's true. And the company will have plenty of company, as Novell, HP and others make news at the open source gathering this week. **PAGE 9.**



Crash the 'Net?

How tough would it be? ... And why hasn't anyone done it? Columnists Mark Gibbs and Paul McNamara disagree on the answers. **PAGE 50.**



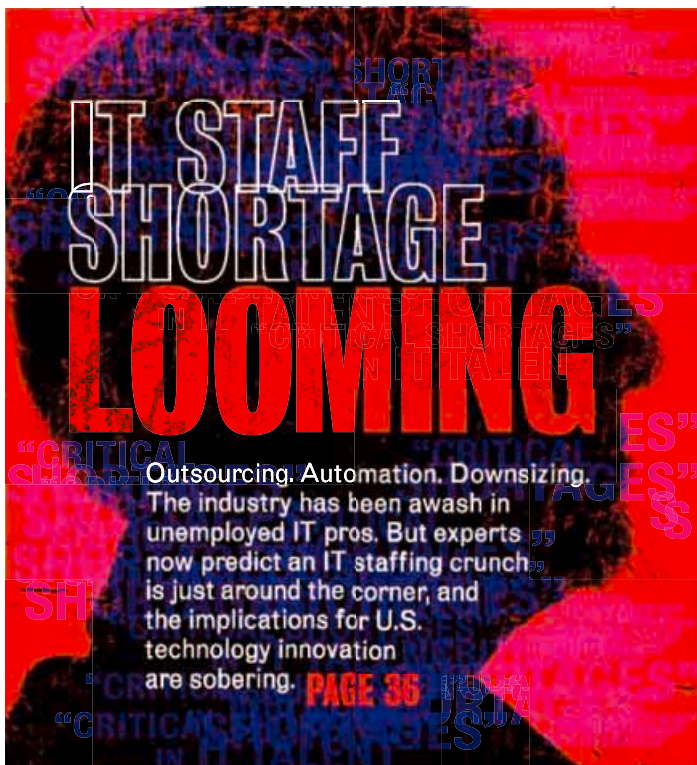
A closer look at Vista

Testing of Microsoft's newest operating system shows better file sharing; new security measures. **PAGE 10.**

NETWORKWORLD

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August 8, 2005 ■ Volume 22, Number 31



Questions dog Cisco routers

Company says testing may reveal wider impact.

BY ELLEN MESSMER AND PHIL HOCHMUTH

Heavy fallout continues on several fronts from a security researcher's recent disclosure that unpatched Cisco routers can be subverted by buffer-overflow attacks and shell-code exploits.

Among the developments last week: Cisco continually revised its security bulletin, adding details as to how versions of unpatched IOS software could be undermined by a "specifically crafted IPv6 packet." Sources at Cisco say testing will continue indefi-

nately and could include findings related to more than simply IPv6-related exploits.

The researcher who touched off the uproar, Michael Lynn, says he is now the subject of inquiries by FBI agents, and he continues to defend the propriety of his actions.

The episode rekindled debate about "responsible disclosure," the notion that information about major security problems should be made public in a way that brings minimal risk to customers.

According to Lynn and other experts, what Lynn described and demonstrated at the Black Hat

▶ **Lack of cost data slows IPv6 use. PAGE 8.**

See Cisco, page 12

InSite: Lessons from Leading Users

New York courts find security in IP video

BY PHIL HOCHMUTH

NEW YORK — You've heard of the long arm of the law: In New York, eyesight and memory stretch pretty far, too.

The New York State Unified Court System recently put the finishing touches on a network of more than 350 IP video surveil-

lance cameras. These network-attached eyeballs record every minute of every day in all New York court facilities statewide and link to a multi-terabyte storage system, giving court security officials a powerful tool to monitor and protect their facilities.

But for the court's IT group, high-

bandwidth video is just another stream on an IP network built several years ago with enormous capacity, now tapped to deploy a variety of advanced services. Also supported is a 10,000-seat IP telephony network and more than 100 IP videoconferencing units. Overall, these systems save the courts about \$1 million per year on various voice and video costs, and allow for advanced services such as comprehensive video surveillance, which were once cost-prohibitive.

The courts last year rolled out a limited IP video surveillance system, based on open source software written in-house. This pilot

See Courts, page 48

WiderNet

Mooching Wi-Fi

Debate rages over the legality ... not to mention the ethics.

BY JOHN COX

If you connect to someone else's open Wi-Fi router and start using that broadband Internet service you are:

- a) guilty of stealing from the service provider;
- b) committing an unethical act;
- c) really cheap;
- d) not guilty;
- or e) all of the above.

The correct answer is wide open to debate. But the range of possible answers — and there are plenty more we could list —

See Mooching, page 49



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Outsourcing. Automation. Downsizing.

The industry has been awash in unemployed IT pros. But experts are now predicting an IT staffing crunch is just around the corner, and the implications for U.S. technology innovation are sobering.

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IT STAFFING IS SHORTLAGE LOOMING

Clear Choice Test: Novell's OES provides ties between NetWare and Linux. **Page 39.**

Clear Choice Test: Performance Guard 4.0 offers application performance monitoring from an end-user perspective. **Page 41.**

■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 14 for more contact information. **REPRINTS:** (717) 399-1900

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A Wider Net

If you've missed any of our weekly stories that go beyond the speeds and feeds of the network and IT industries — like a look at the nation's elite science and technology high school or stories of married net pros — check out the Wider Net archive. **DocFinder: 8245**

IT Borderlands

IT pro Ken Fasimpaur tackles the tough issue of whether to check work e-mail while on vacation: "More than any other reason, I check it to ease the uncertain number of nebulous problems that I'll have to deal with when I return, along with their cumulative mental impact." **DocFinder: 8340**

Online help and advice

Nutter's Help Desk

Help Desk guru Ron Nutter answers a VLAN configuration question for a user studying for his CCNA. **DocFinder: 8341**

Small Business Tech

Eliminate static passwords. Columnist James Gaskin says CryptoCard offers guaranteed two-

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Home LAN Adventures

Is it time to jump to a Gigabit home LAN? Keith Shaw wonders: Is the time right for Gigabit speeds on the home LAN, or is it overkill? **DocFinder: 8343**

Seminars and events

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NEWSbits

Virus writer sets upon Microsoft Vista

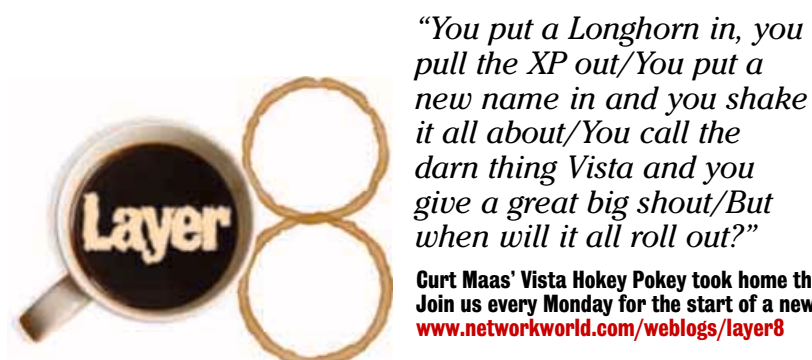
■ A week after Microsoft released the first beta of its Longhorn client operating system, now called Vista, an Austrian virus writer has published five viruses that target Microsoft's new command shell technology called MHS (previously code-named Monad). Microsoft had planned to ship MHS with Vista, but recent rumblings among Microsoft watchers say that might not happen. Microsoft has not made an official announcement on the availability of MHS. However, last week security vendor F-Secure said the viruses were the first "Vista viruses" discovered. Last year, researchers from Symantec concluded that the current version of the Microsoft Shell had enough functionality to allow a variety of malicious threats including file-infecting viruses. (See our test of Vista on page 10.)

Prepping for Patch Tuesday

■ Microsoft plans to release six software patches this week covering Windows flaws. The company also plans to release an updated version of its Microsoft Windows Malicious Software Removal Tool, and a non-security update for Windows. The patches, which Microsoft calls "updates," will come as part of the company's regular monthly patch release cycle. Microsoft releases most software patches on the second Tuesday of each month, a date that has come to be known as "Patch Tuesday" by security professionals. The company did not release details about the patches, except to say that some of them will be rated "critical," meaning that flaws could allow malicious code to be installed on an affected computer without user action.

MCI becomes a buyer

■ The fact that MCI is in the middle of being acquired by Verizon hasn't stopped the company from looking to do buyouts of its own. MCI last week announced it is acquiring Totality, a privately held service provider in San Francisco that offers remote application and infrastructure management. Totality's service lets users keep their application servers and network infrastructure in their own data centers while the firm manages these systems remotely. Financial details about the deal were not disclosed. American Airlines and Sony are among Totality's customers.



"You put a Longhorn in, you pull the XP out/You put a new name in and you shake it all about/You call the darn thing Vista and you give a great big shout/But when will it all roll out?"

Curt Maas' Vista Hokey Pokey took home the top slot in this week's contest. Join us every Monday for the start of a new round.
www.networkworld.com/weblogs/layer8



{ quote of the week }
 { quote of the week }

"We're like the frog sitting in the slowly boiling pot. It is happening so slowly no one notices, but pretty soon we're going to be dinner."

Harris Miller, president of the ITAA, discussing a future IT staffing shortage.

See story, page 36.

A good battery, and good for you

■ Researchers at NEC have developed a rechargeable battery that is based on organic compounds and could be useful in a wide range of IT-related applications, the researchers said last week. The organic radical battery is based on a cell structure similar to that of a lithium ion battery, the type commonly found in devices such as notebook computers and cell phones. However, there is one significant difference: instead of using poisonous ingredients such as lithium and cobalt it uses an organic compound called PTMA. The change not only makes the battery more environmentally friendly

TheGoodTheBadTheUgly

Microsoft: If you can't beat hackers. . .

Microsoft is working on plans to make a recent hacker meeting held on its Redmond, Wash., campus a semi-annual event, with the next Blue Hat security gathering to be held sometime this fall. In sessions at the initial event, security researchers demonstrated how flaws in Windows products could be exploited. "As we continue to engage with security researchers, we've become more comfortable getting into these face-to-face interactions with them," says Stephen Toulouse, a program manager in Microsoft's security unit.

Down on the farm. Computer usage, ownership and Internet access on farms are leveling off, according to a new Department of Agriculture study. A total of 58% of U.S. farms now have access to a computer and 51% have Internet access.

< Phishers have it too easy. U.S. banks are putting customer convenience ahead of security and, in the process, making it easier for online phishers to create counterfeit bank cards, according to a new Gartner report. With the Internet now a common source of stolen account information, phishers are accounting for a growing portion of the estimated \$2.75 billion in annual losses that card abuse is costing U.S. banks, the research firm says.

but also delivers some properties that could make it better suited to certain applications than existing batteries, the researchers say. Chief among these is a high-power density that could be useful, for example, in providing enough power to allow a PC to back up data and shut down properly in the event of a main power failure.

Sprint, Nextel deal nears finale

■ The \$35 billion merger of Sprint and Nextel is virtually a done deal now that the FCC and the Department of Justice have approved the transaction. Both government organizations last week gave their blessing to the union, which will solidify Sprint's position as the third-largest wireless service provider in the U.S. Sprint/Nextel will serve about 45 million customers, which is behind only Cingular Wireless, with about 50 million users, and Verizon Wireless, with 45.5 million subscribers. Sprint says it will announce the close of the deal shortly.

Cisco's vulnerable side

■ Cisco last week said it is resetting passwords for all registered users of its Cisco.com Web site after discovering a vulnerability in its search engine software that left user passwords exposed. The passwords are used by Cisco customers, employees and partners who have registered on the Web site to get access to special areas of the site or to receive e-mail alerts. Cisco was made aware of the problem early last week and corrected it immediately, a spokesman says. As a precaution, the company has been sending new passwords to all registered users.



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Unclear costs dampen IPv6 migration

BY CARA GARRETSON

The dearth of information regarding IPv6 migration costs, combined with the fact that many organizations are not sold on the purported benefits offered by the latest version of the Internet Protocol, is making the

case for upgrading difficult to argue.

However, help might be on the way. The Department of Commerce plans to release an update to a 2004 interim report on IPv6 migration issues that will give the costs a hard look. While designed

primarily for government use, the 2004 report outlined rough cost estimates for companies planning to upgrade to IPv6 (see graphic), and the follow-up report will offer specific dollar figures, says Brent Rowe, a research economist with RTI International, a not-for-profit research organization that aided the Commerce Department in the study. The updated report, under review at Commerce, is expected soon, he says.

One reason IPv6 upgrade costs are so hard to quantify is that, outside of government projects and test implementations at a handful of companies, few in this country use the 10-year-old protocol.

"Nobody in this country has rolled it out in the way it will be rolled out in a few years," says Tom Patterson, executive director of the IPv6 Business Council, chartered with finding a place for the upgraded protocol in the commercial world. Council members include Boeing and Bechtel.

This presents a chicken-and-egg problem: Companies are hesitant to upgrade to IPv6 in part because the costs are unclear, but until some organizations make the switch, costs won't be clarified.

IPv6 is said to offer a number of technical benefits compared with its predecessor, IPv4, including easier administration, tighter security, and an enhanced addressing scheme. Despite those advantages, IPv6 has yet to become a must-have in corporate America, in part because organizations have found workarounds to a number of the limitations found in IPv4.

Yet attitudes toward the upgraded protocol could change following a mandate issued by the Office of Management and Budget last week dictating all federal government agencies must move their backbone networks to IPv6 by June 2008. Observers say this move will likely spur at least some adoption of IPv6 in the commercial market (see www.networkworld.com, DocFinder: 8347).

There's also been movement among vendors that sell IPv6-compliant products, such as

Moving up

Transitioning to IPv6 requires planning, upgrading, configuring and testing of an organization's infrastructure. While specific dollar amounts are difficult to pin down, here's a view of estimated costs relative to companies' budgets.

Hardware replacement costs

Routers, firewalls, interface cards, etc.	medium
---	--------

Software upgrade costs:

Network monitoring/management software	large
--	-------

Operating system	small
------------------	-------

Server applications	small
---------------------	-------

ERP software	large
--------------	-------

Vertical applications	large
-----------------------	-------

Labor costs:

Training IT staff	large
-------------------	-------

Creating a transition strategy to IPv6	medium to large
--	-----------------

Installing and configuring new hardware	large
---	-------

Establishing transition techniques such as tunneling	medium
--	--------

Upgrading software	small to medium
--------------------	-----------------

Testing	large
---------	-------

Maintenance	medium to large
-------------	-----------------

Other:

Lost employee productivity caused by unexpected downtime during the transition	medium
--	--------

Security intrusions	large
---------------------	-------

Interoperability issues	medium to large
-------------------------	-----------------

Note: Estimates are meant to show not incremental costs, but the difference in costs of transition-related elements.

SOURCE: DEPARTMENT OF COMMERCE'S NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

EMC refreshes Clariion storage line

BY DENI CONNOR

EMC last week gave its midrange Clariion storage line a face-lift, with an upgraded operating system designed to improve data management and availability, and hardware designed to boost performance.

Industry watchers point to EMC's new Virtual LUN technology as perhaps the highlight of the announcements. This addition to the Flare operating system is designed to help customers more easily shuffle data from disk to disk within an array or remove an array without stopping applications on a host computer. LUN, or logical unit networks, is a term used in storage-area networks to describe the connection between a server or host computer and an array.



The Clariion DL310 is one of four new virtual tape libraries from EMC.

"No other storage vendor is offering it in a midrange system right now," says Charles King, principal analyst for Pund-IT.

Astolfo Rueda, network administrator for Seattle law firm Preston, Gates & Ellis LLP, is beta-testing the technology.

"Virtual LUN technology allows you to move data without impacting the host computer or the client," Rueda says. "It allows us to take advantage of all the servers and arrays ... while guaranteeing the consistent state of an Exchange or Informix database."

UltraPoint Technology, another addition to the operating system, enables customers to detect and diagnose disk problems. It also automates the process of shifting selected data from more expensive systems to less expensive ones, such as from Fibre Channel to Advanced Technology Attachment (ATA) disks.

Both operating system improvements are backward compatible with older arrays.

On the hardware side, EMC introduced the Clariion CX300-s, CX500-s and CX700-s arrays, which are DC powered for mobile applications. The DC power helps to make the systems compliant with standards required for use in government, telecommunications, and oil and gas industries. The arrays, which are priced starting at \$15,000, replace the CX300, 500 and 700.

The company also introduced new models of its Clariion Disk Library, a disk-based backup and recovery product line. The DL310, DL710, DL720 and DL740 have up to double the performance and capacity of previous models. They use ATA drives and can scale up to 384T bytes of capacity. EMC has incorporated a technology it calls write-cache consolidation, which can aggregate small blocks of data into larger chunks to increase performance.

The Disk Libraries are priced starting at \$110,000. ■

supercomputer maker Cray, to use the protocol internally. But corporations have largely ignored the updated protocol.

Moving to an IPv6 world will be a slow process because so many elements are involved, Patterson says. "We see the cost of IPv6 creeping into American businesses, rather than blasting in," he says.

Routers and operating systems have included IPv6 for years. To migrate, most companies won't have to replace those components. Yet other organizations, particularly those in government, are far from standardizing the most recent releases of many products — word is the Justice Department still runs Windows NT.

"No one's going to go out and buy a new operating system or router just to get IPv6 benefits, which are up in the air anyway," RTI International's Rowe says.

Applications are the key to cre-

ating momentum toward IPv6, because those that take advantage of the upgraded protocol's main features will enable companies to do business in a new way, Patterson adds.

But IPv6-enabled applications also represent the greatest unknown — cost, says David Powner, director of IT management issues with the Government Accountability Office. "With application development, that's where you truly leverage the protocol, so that's the big unknown right now." ■

nww.com

More on IPv6

Read *Network World* columnist Johna Till Johnson's take on IPv6.

DocFinder: 8351

LinuxWorld to highlight enterprise role

Novell, HP among vendors planning announcements as show kicks off in San Francisco.

BY JENNIFER MEARS AND DENISE DUBIE

If there was any doubt about whether Linux is gaining ground in enterprise data centers, this week's LinuxWorld in San Francisco should put that to rest. Consider this: Microsoft is leading a session.

That session, titled, "Managing Linux in a Mixed Environment ... at Microsoft?" and to be led by Bill Hilf, director of Microsoft's platform technology strategy organization, is just one of several sessions and workshops that will look at how Linux fits into an overall data center architecture.

Microsoft's role at the show highlights the growing maturity of Linux, analysts say. Rather than helping IT managers decide if Linux fits in their environments, the show now is more geared to where the operating system fits and what open source products best fit on top of it. Talk also will center on beefing up security for Linux, running Linux in virtualized and grid environments, and enhancing management tools for Linux.

“[LinuxWorld] started out being specifically about Linux. But now Linux and open source has become so pervasive that even Microsoft is there.”

Gordon Haff, analyst, Illuminata

Show organizer IDG World Expo, a sister company of *Network World*, says it expects more than 11,000 people to attend. Last year, 11,400 showed up, while 8,300 people came to LinuxWorld in Boston in February. The number of exhibitors at this week's show has increased from about 180 last year to 200, organizers say.

The growing interest from vendors and customers illustrates the evolution of Linux into a mainstream operating system, analysts say. According to a Forrester Research study, Linux ranks third, behind Windows

Server 2000/2003 and IBM z/OS, as an operating system that respondents consider strategic. And 26 of the 56 respondents in the May survey said they are using Linux in their data centers.

"At this point, Linux is a done deal," says Michael Goulde, an analyst at Forrester. IT managers "are going to see what they can do with Linux and open source and how to expand their use of it, rather than just looking at how they can initially adopt it."

IT managers attending the show also will get a look at how the Linux community is

hoping to grow. Novell, for example, plans to announce that it will open up a version of its SuSE Linux to users and developers. The goal of the OpenSuSE project is to expand the adoption of Linux by making it more easily accessible, says Greg Mancusi-Ungaro, director of marketing for Linux and open source at Novell.

"The reason we launched the project is that we're trying to help drive Linux adoption everywhere. We're trying to raise the needle of Linux usage worldwide," he says. "We talked to Linux users and Linux developers and we're hearing that it's still very hard to get Linux unless you're a technical user. We want to change the dynamic and make it much easier to get Linux."

Similar to Red Hat's Fedora project, **See LinuxWorld, page 14**



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CLEAR CHOICE TEST

Getting IT's view of Vista

Revamped file system, new security measures will require IT planning.

BY TOM HENDERSON, NETWORK WORLD LAB ALLIANCE

Preliminary testing of the first public beta release of Microsoft's next version of Windows, Vista, shows that a reorganized system for managing files and folders and new security features aimed at thwarting malware will force enterprise administrators to think about how these features can be best deployed across their networks.

We tested the Build 5112 of the client version of the Vista code (see "How we did it", below). Beta code for the server version isn't publicly available yet. The client code is far from finished (the long-awaited search technology and promised configuration and management upgrades are missing), and it's not very stable — we had a blue screen and reboot within 10 minutes of initial testing.

That said, Microsoft has vastly expanded its file system characteristics through the use of file metadata tagging, virtualized folders, and peer and server file services. Microsoft has taken its traditional "documents and settings" file folder structure and, while keeping some ties to it for backward compatibility, has adopted the user "home" directory folder concept from Unix, Linux, MacOS and other operating systems.

In addition, a public folder for each machine is automatically made that is then available for cross-machine (peer) searches, making Vista a thoroughly team-enabled operating system that allows information sharing in ways not before seen in other Microsoft operating systems.

Files and folders also can now be easily cached and syn-

chronized to a server using a method that completes the vision of the Windows 95 Briefcase system of server-side back-up and availability services. This plays into Microsoft's recently announced Data Protection Services initiative, but we could not test those ties, as the production version of Microsoft's Data Protection Manager wasn't available. How synchronization works across both groups and individuals will require administrative thought to avoid multiple concurrent instances of data and program files.

File attributes — presented as file metadata in Vista — have been expanded. Metadata tagging information schemas have standard definitions, but they beg expansion, as the tags are limited to applications for which Windows has generated example tags. For example, beyond knowing the author, you might want to know if a document has had a legal review by a certain user.

This level of metadata tag usage will force IT execs to consider new policy management scenarios for the kinds of metadata tags that can be used by which users, how metadata is organized, and the means by which new data can be searched for across enterprise boundaries.

New user account protection

Vista uses a modified (from Windows XP) security model for enabling security hierarchy. One problem for XP has been that many users and processes have administrative-strength privilege, allowing unwitting and surreptitious installation of malware. Patches, fixes and updates also must be installed using administrative access rights, which makes it difficult to keep administrative account use to a minimum.

Microsoft strongly recommends user account protection (UAP), which dramatically demotes user account privilege. User-level logons can no longer even install basic and well-known applications such as Office XP without an administrative logon, which should help prevent the installa-

OPERATING SYSTEMS

Vista (Beta for next version of Windows)

Microsoft

www.microsoft.com/windowsvista/default.mspx

NetResults

Pros: Better visual organization; very good file/resource searching; some attention paid to security.

Cons: Many features missing or not yet working, such as system security components; unstable code at this point.

tion of malware. UAP is turned off by default in this release, as it can prevent applications from working. But even when it's turned on, it can be easily fooled/thwarted with application spoofing.

With UAP (much like what happens with MacOS X+), each installation — also the case if you want to make modifications to the Windows registry or check certain files — requires the installer to provide an administrative password. Passwords issued by the new operating system are tokens used only for specific acts, so it's possible to generate numerous token/authentication requests until databases can be built to protect multiple occurrences of protection requests per session. Simple execution of applications that try to install malware (we tested infected e-mail scripts and PIF files) can sometimes trigger an administrative password use. When we tested it with a common version of the Sobig virus, the downloaded virus that should have triggered the privilege or authentication request did not do so, and it easily infected the machine.

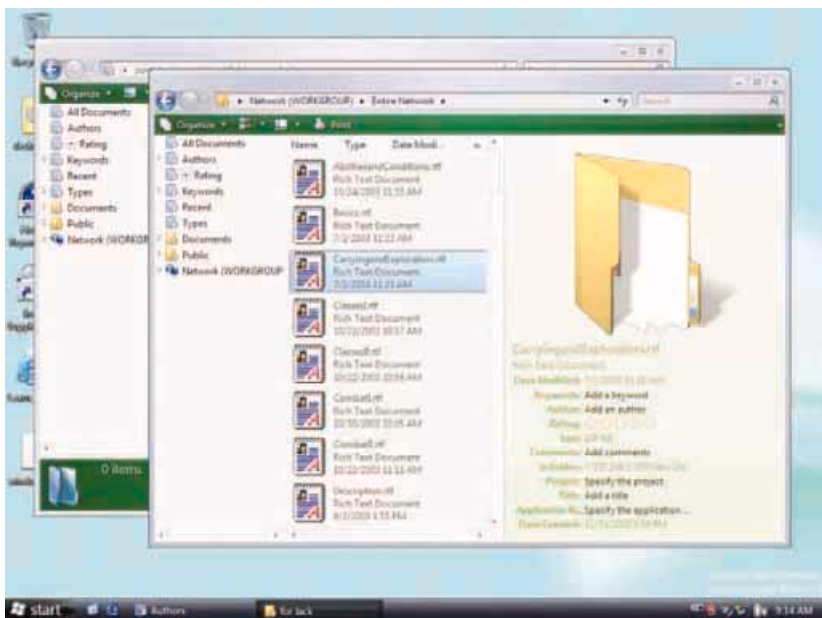
Applications used to living in an administratively privileged environment may or may not become exception-handling problems in the final edition. Microsoft certainly will have a long list of applications to accommodate as

See Vista, page 11

How we did it

We tested Vista on two platforms, a Toshiba Satellite Notebook with 704M bytes of dynamic RAM, Intel 1.5-GHz Intel Celeron CPU, and a Polywell 2200S server with two Advanced Micro Devices Athlon 64 CPUs and 4G bytes of dynamic RAM. We used an ISO DVD to install both on both machines and found no incompatibilities. Each machine was connected to a D-Link Gigabit Ethernet switch and a 4M bit/sec Internet connection. We tested compatibility (simple logon) with Windows 2003 Enterprise Server, Samba 3.02 (RedHat Linux ES 4.02 on an HP DL140, Apple MacOS 10.4 on Xserve, SuSE EL9 on an HP DL140, NetWare 7 on an HP DL140 and others) as well as peer connectivity to Windows 2000 Professional/XP Service Pack 2 and others.

We tested file search and sharing capabilities, installed several applications to test user account protection and found that some applications were correctly handled but others slipped by the protection scheme. Searches using metadata tags were fast and easily organized. We used Word documents, pictures and binary files with added tags to successfully aggregate content searches. We also tested RSS through subscription to sites using RSS 1.0 to 1.22.



Microsoft's Vista (formerly Longhorn, beta code for the next version of Windows) displays metadata tag information and performs as-you-type searches using the tagged data.

Longhorn Server beta also out to testers

BY JOHN FONTANA

Lost amid the recent fanfare around the unveiling of Microsoft's Vista client operating system, the company also shipped the first beta of its next-generation server software to a select group of testers.

Beta 1 of Longhorn Server, which according to Microsoft will not be called Vista Server, includes the core subsystems such as the Web service gateway called Windows Communication Foundation (formerly Indigo), and base-level APIs that will let developers and IT shops get a feel for the server.

"What Microsoft is asking is that as you are taking a first look at these low-level systems, now is the time to let us know if the core is correct," says Michael Cherry, an analyst with independent research firm Directions on Microsoft. "As more work moves up the

stack into the other features, it is harder to come back and fix [the core] if it is not right."

Cherry says there should be enough functionality in the betas to test basic interoperability between client and server.

The two operating systems are being developed in tandem, but Longhorn is slated to ship six to 12 months after Vista's target ship date of late 2006.

Eric Rudder, senior vice president in Microsoft's servers and tools division, said at the company's financial analysts meeting last month that Microsoft would ship Community Technical Previews and other betas of Longhorn Server throughout this year.

The company did not announce when the first public beta would be available, but the first public beta for Vista is slated for early next year.

Longhorn Server beta 1 was made available to 5,000 testers, including OEMs, hardware manufacturers, system builders, independent software vendors, developers and Microsoft's internal IT organization. Microsoft officials say some customer members of its technology advancement program also received the beta.

While Longhorn Server beta 1 contains just a subset of the functionality slated for the server, Microsoft says the feature set for the final release has not changed, including task-oriented management, centralized and filtered event logging, image-based setup and deployment, transactional file system and registry, reduced reboots and smaller server footprint. Longhorn Server also will include Network Access Protection, a feature that was pulled from Release 2 of Windows Server, slated

for release at year-end.

A Microsoft official reiterated the company line that Longhorn Server will not ship until it has

"received extensive feedback from beta customers and partners and after we have thoroughly tested the software." ■

Vista

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root users or find fixes for before the 2006 release.

One feature in the Internet Explorer 7 upgrade included in Vista that may require network attention is the easy access to RSS feeds. With the new tabbed Internet Explorer 7 interface, we could add and delete RSS subscriptions without rules or other impositions as to any item except the frequency of RSS polling and updates. Some organizations have placed limitations on RSS usage because of its network bandwidth requirements and perceived loss of worker productivity.

Vista manifests Microsoft's efforts to pay attention to security, availability and client-side management. While the feature set isn't complete in this beta, it is obvious that a wide deployment of this upgrade will require extensive planning.

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Cisco

continued from page 1

Conference on July 27 could potentially lead to manipulation of Cisco router tables, denial-of-service attacks and access to confidential data.

Through a security advisory, Cisco has indicated that the way some unpatched IOS routers handle IPv6, which has seen little adoption in North America outside of research labs, is a conduit for the type of buffer-overflow exploit revealed by Lynn. But last week, a Cisco spokesman acknowledged the exploit may be possible in other ways. "There's ongoing information gathering and more testing," says Cisco spokesman John Noh.

Cisco last week also released a new patch for Cisco IOS-XR, its new carrier-focused router operating system, which was introduced last year for its CRS-1 Internet core router, and ported to the 12000 series of carrier routers this year.

Experts and users say the hole in IOS appears not to be an immediate concern based on what is public knowledge at the moment, since patches are available. But what concerns some is that Lynn's exploit techniques take router hacking to a new level, which eventually could have security

the ability to open up other exploits. Now you can actually get code running that does god-owns-it-knows-what."

Responsible disclosure?

As for the question of responsible disclosure and whether Lynn represented that ideal or not, opinions continue to differ.

"I personally wouldn't have done it the way he did it," says Justin Bingham, CTO at security vendor Intrusic, referring to Lynn's action in defying Cisco and Internet Security Systems (ISS) — his employer until he quit just hours before giving his demonstration. "I like my career being a security researcher and a lot of that is based on trust with your customers and other companies."

Lynn, who has acknowledged breaking non-disclosure agreements in speaking out about the router exploit, says he took the step out of concern that withholding the knowledge would help would-be attackers and even posed a national security concern.

"The vulnerability which I demonstrated — but didn't give any information about — was properly disclosed to Cisco months in advance," Lynn says. "They had patches publicly available for months before I

“The vulnerability which I demonstrated — but didn't give any information about — was properly disclosed to Cisco months in advance.”

Mike Lynn, former researcher at ISS

implications for Cisco customers.

"Strategically, this is a very serious issue for Cisco," says David Lawson, vice president and director of global security practice at Greenwich Technology Partners, a New York integration and consulting firm that specializes in Cisco technology. "It proves something we've been saying in the security field for a long time, that a router is breakable."

Many IOS exploits in the past would simply cause a router to crash or reload itself, he adds.

"The big key to what [Lynn] did was to demonstrate a way to fool [the router] into thinking it was already crashing, so that it didn't initiate the shutdown sequence. If you can do that, that opens up

went on stage.

"That said, the disclosure debate is one that needs to happen. The idea of full disclosure is just about as dangerous as no disclosure at all. As with most things, we have to find the proper balance."

While Lynn has settled one lawsuit with Cisco and ISS, agreeing not to disclose anything he knows about the exploit, his problems don't seem to be over. The FBI is investigating him and interviewing friends and roommates, he says.

ISS, which declined to discuss the Lynn matter last week, has sought to stop the spread of the electronic version of the presentation slides that Lynn showed at Black Hat — many of which are

Cisco warnings

Major IOS-related Cisco Security Advisories issued this year:

Advisory	Date	Impact
IPv6 vulnerability	Aug. 3	Bad IPv6 packets may force IPv6-enabled routers to reload or execute arbitrary code.
TCP vulnerabilities	April 13	Could allow attackers to reset TCP connections into the router.
OSPF packet vulnerability	March 29	Bad Open Shortest Path First packets sent to a router running OSPF could reload the device.
BGP packet vulnerability	March 21	Bad Border Gateway Protocol packets sent to a router running BGP could reload the device.
MPLS packet vulnerability	Jan. 26	Bad MPLS packets sent to a router could reload the device, whether it supports MPLS or not.
IPv6 packet vulnerability	Jan. 26	Bad IPv6 packets may cause an IPv6-enabled router to reload.

labeled with the ISS logo — by threatening legal action against Web sites posting them.

ISS has benefited from its research by including preemptive protections for the vulnerabilities in its Proventia IPS product line and Internet Scanner products. ISS had been planning to make a big splash at Black Hat by unveiling the Cisco router flaw, but backed down when Cisco balked. But Lynn, after quitting his job at ISS, spoke out anyway.

Customers want more info.

Cisco customers say they would like to know about these types of security problems as soon as possible.

"I'd like to be the first one to find out," says Bob Lescalet, MIS department manager at Pace Suburban Bus Service, a government agency in Arlington Heights, Ill., serving a six-county region. "I'm not sure Cisco should have kept this quiet as long as they have."

John Monaghan, vice president of IT for Marnell Corrao Associates, a Las Vegas construction and architectural firm that uses Cisco routers and firewalls in its corporate and field offices, says he was troubled that Cisco was working with ISS on how to present the shell-code exploit at a hacker conference, but not telling customers about the potential threat.

"We are concerned that a vulnerability has existed, and that Cisco didn't come clean and let us know about it," Monaghan says. "As far as getting information from Cisco, it's more of a pull from our end than a push from their end. You had to dig through an awful lot of rhetoric to find out that this

vulnerability only has to do with IPv6."

"As a user, you worry if there's stuff out there already in the wild," says Dennis Schwind, network specialist at Miami University in Oxford, Ohio. "Cisco is not telling us anything about" the shell-code exploit, he says. "You're just left saying, I sure as hell hope this isn't big. That's really what you're left [with], because there isn't any real detail on what the real impact would be if this is exploited other than the 'execution of arbitrary code,'" he says, referring to language used in Cisco's security notice issued last week.

Microsoft weighs in

Microsoft last week offered its view on responsible disclosure, saying it entails seeking to ensure there's a fix in place before publicly identifying a flaw — but that there should be a time frame for this, says Stephen Toulouse, Microsoft's security program manager in the Microsoft security response center.

In general, Microsoft supports the "Guidelines for Security Vulnerability Reporting and Response" published under the aegis of the Organization for Internet Safety.

These guidelines, while declaring there's "no single universally appropriate time frame for investigating and remedying security vulnerabilities," does state that 30 days is a "good starting point."

The guidelines also suggest a 30-day "grace period" during which the remedy and information about the security problem is shared only with people and organizations "that play a critical role in advancing the security of users,

critical infrastructures and the Internet." However, Toulouse says if a security vulnerability is highly critical, he would consider releasing information within a day.

Symantec, which has IPS products but doesn't do the type of security research ISS does, didn't have the advance knowledge about the exploit that ISS did, says Alfred Huger, senior director of engineering at Symantec Security Response. Nonetheless, he noted that sometimes researchers do share information about exploits across vendor boundaries, usually based on personal relationships.

Huger says Symantec would probably have treated the situation differently than ISS and Cisco did based on its own corporate guidelines for responsible disclosure, which give an IT vendor 30 days to correct an identified problem before going public.

McAfee President Gene Hodges said his company's policy is "to share as much information as you need to share and nothing more." The Cisco router flaw is "a very important vulnerability, probably one that's had the biggest impact of anything we've seen all year."

Among the questions surrounding the Cisco router exploit is whether a researcher's attempt to use reverse engineering and disassemble code to discover flaws is illegal — a charge raised against Lynn by Cisco and ISS in legal filings.

"In the anti-virus business, that's exactly what we do," Hodges says. "You put it in the de-compiler and try to figure out how it operates."

Mark Rasch, chief security counsel at security firm Solutionary in Omaha, Neb., says, "Reverse engineering is not clearly illegal."

Lynn maintains that he was simply following orders from his then-employer.

"It seems to me there is a license agreement dispute over that now, but the license was with ISS, not me," Lynn says. ■

nww.com

Podcast: Black Hat wrangling

Hear what Network World Test Alliance member and Black Hat attendee Rodney Thayer says about the legal wrangling of researcher Michael Lynn.

DocFinder: 8350

FCC nixes DSL sharing rules for Bells

BY GRANT GROSS, IDG NEWS SERVICE

The FCC voted Friday to end regulations requiring incumbent telecommunications carriers to share their DSL broadband connections with competitors.

The FCC, in a 4-0 vote, removed regulations that allowed competitors such as EarthLink to offer DSL over lines owned by the four Baby Bells. While large ISPs such as EarthLink have negotiated agreements with the Bells, some consumer advocates and telecom observers predicted the FCC's decision could kill off DSL service from small ISPs when the DSL network-sharing rules end in a year.

The FCC's decision puts DSL regulation on equal footing with cable modem service after the Supreme Court in June rejected a challenge to an earlier FCC decision allowing cable companies

to close off their networks to competitors.

FCC Chairman Kevin Martin called the decision "momentous," with consumers benefiting from a "leveling of the playing field" between DSL and cable modem service. "Consumers will reap the benefits of increased Internet access competition and enjoy innovative high-speed services at lower prices," he says.

The remaining Bells inherited much of their telecom networks from the breakup of the AT&T monopoly in the 1980s. In an effort to spur competition, the FCC and Congress have required them to share parts of their networks with competitors at discounted prices, but in the last two years, the Republican-led FCC has moved away from those regulations.

SBC and Verizon cheered the FCC's decision, saying old rules

requiring them to share parts of their networks with competitors discouraged them from investing in new products and offering new services. The decision will help the Bells meet President Bush's goal of nationwide broadband availability by 2007, Verizon says.

EarthLink noted the current DSL line-sharing rules will stay in

place for a year, and the company already has contracts with the Bells to provide DSL. "We have every confidence we'll be able to extend those with them to offer DSL service," says Dave Baker, vice president for law and public policy at EarthLink. "We have hundreds of thousands of customers, and the Bells will want to pre-

serve them."

Consumer groups suggested that DSL customers could still lose out. "Changing these rules is . . . anti-competitive and will lead to fewer choices in the marketplace, which means higher prices and worse service," says Kenneth DeGraff, a policy advocate at Consumers Union. ■

IBM extends portal to Big Iron

BY STACY COWLEY, IDG NEWS SERVICE

IBM is looking to broaden the reach of its WebSphere Portal. A recent upgrade made the 4-year-old software available for the first time on IBM's zSeries mainframe and iSeries midmarket servers, a move IBM hopes will spur customer interest in deploying portal software on platforms for which it has previously not been widely available.

"Most sales, in terms of volume, have been on Windows," says Ken Bisconti, an IBM vice presi-

dent. "This [upgrade] is notable in its expansion of our market coverage."

IBM offers an Express version aimed at smaller businesses, and that software was already available for iSeries servers. However, IBM's full-strength WebSphere Portal strongly outsells Express.

The new WebSphere Portal 5.1.0.1 also includes tweaks to simplify deployment and management and to support the latest Web services standards. The WebSphere portal starts at \$89,186 per CPU. ■

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IM vendor embraces AOL, Microsoft

BY JOHN FONTANA

Instant messaging server vendor Antepo plans to add integration with AOL's Instant Messenger service and the newest versions of Microsoft's IM platform when it releases the next edition of its software later this month.

The integration features are the highlight of Antepo's Open Presence Network (OPN) XT, which lets corporate users interact with users of various IM platforms and desktop client software.

OPN XT supports Extensible Messaging and Presence Protocol, as well as Session Initiation Protocol (SIP) and SIP for IM and Presence Leveraging Extensions (SIMPLE).

Antepo has added support for session-based messaging through SIMPLE, which is the same mechanism used by Microsoft's Live Communications Server (LCS) to interoperate with AOL. Microsoft and AOL began supporting in-

teroperability between their platforms in May.

Now that Antepo has added the session-based support, OPN XT can interoperate with users running LCS with Service Pack 1 and the new Office Communicator client.

The server also works with the older Windows Messenger client and with Macintosh iChat and Linux GAIM, a clone of the AOL Instant Messenger client. OPN XT also supports BlackBerry and Pocket PC devices.

With OPN XT, translations between SIP/SIMPLE and AOL's proprietary IM protocol happen on AOL's network. Antepo, however, has added enhancements to its Web-based console so users have local control over policy management and access control lists, which can be built using a combination of domains and directory-based, user group listings.

OPN XT is compatible with Microsoft's Active Directory and with the user directory of

Microsoft Exchange 5.5.

"This is a legitimate way to go [for corporate users] as an IM server or as a protocol translation server," says Robert Mahowald, an analyst with IDC. "It contains some of the functionality that users [otherwise need to buy] from third-party IM integration vendors such as FaceTime, Akonix and IMlogic."

Antepo also has added a clustering deployment wizard to ease setup of multiple OPN XT servers and added built-in Transport Layer Security certificate management. The software includes firewall and anti-spam capabilities and a software development kit to integrate presence information into applications.

Antepo also is working on a Web-based client it intends to release in October, and plans to add integration with IP telephony and calendar applications in the next release.

The OPN XT server is priced at \$30 per user. ■

LinuxWorld

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OpenSuSE will give users and developers access to operating system code to create a transparent and open development environment, Novell says. Novell will make a beta release of SuSE Linux 10.0 available at the show.

The OpenSuSE project will give IT managers earlier access to new features in the operating system for building internal applications. "Then the jump from SuSE Linux to SuSE Enterprise Linux is a small one," Mancusi-Ungaro says.

Al Tobey, senior Unix engineer at Priority Health in Grand Rapids, Mich., says he plans to attend LinuxWorld to hear more about how vendors such as HP are providing support for Linux and open source deployments.

"Finding support has been an issue since open source started falling on people's radars," he says. "It will be interesting to hear what HP is offering."

HP is set to make several announcements at the show, including expanded support for open source applications such as Zope content management software, which Priority Health runs and supports in-house.

"We have an existing relationship with HP, and it will be nice just to add on to that rather than having to go somewhere else for support," Tobey says.

The desire to centralize support for Linux also will be highlighted by the release of products aimed at making it easier to manage

Leading with Linux

About 180 vendors will be showing their wares at LinuxWorld. Here's a sampling:

Company	Announcement
ANTs Software	Enhances compatibility of its open source SQL database with databases from Microsoft, Oracle and Sybase; adds support for data management software from TimesTen, a firm Oracle recently acquired.
Dell	Two dual-core Pentium servers; support for LAMP (Linux, Apache, MySQL, Perl/Python) environments, the JBoss application server and the MySQL database on its PowerEdge servers.
Emic Software	New version of m/Cluster, software designed to provide a highly available and scalable environment for open source applications.
HP	Virus Throttle, which is designed to protect Linux environments from downtime as a result of viruses; support for open source on NonStop and Unix systems.
IBM	"Grid and Grow," a packaged grid bundle that can run on Linux.
Novell	Opening its code for the first time and releasing its first public beta of the software, SuSE Linux 10.0.
Opsware	Global Shell, which lets systems administrators manage machines running different operating systems, including Linux, from one command-line interface.
Penguin Computing	Two Linux blades built on Intel and Advanced Micro Devices 32-/64-bit chips.
Platform Computing	Enterprise Grid Orchestrator, which expands the company's grid management software beyond high-performance computing into the enterprise; an updated version of Platform Rocks, Linux cluster management software.

Linux and other operating systems.

Opsware, for example, plans to unveil a feature in its Server Automation System (SAS) 5.1 that the company says will help systems administrators manage multiple machines running various server operating systems from one command-line interface. Called Global Shell, the feature provides secure access to Linux, Unix and

Windows servers through one shell and provides access to Windows registries. It also uses the command-line interface and scripts that systems administrators are more comfortable using with servers, Opsware says.

"Systems administrators can adapt their Unix scripts to work within the Opsware data model and securely connect to multiple

machines," says Tim Howes, CTO at Opsware. "The feature shuts the back doors that might be open to server access and cuts the grunt work out of managing multiple machines running different platforms."

Opsware Global Shell is available now in SAS 5.1, which costs about \$1,200 per managed server.

Open source management software maker GroundWork also will be showcasing a new open source project designed to make the open source monitoring software, Nagios, easier to navigate. GroundWork earlier this year unveiled its commercial software, GroundWork Monitor, which is built upon Nagios' IT monitoring technology. Nagios has had more than 660,000 downloads since 2001, the company says.

LinuxWorld will give attendees a broad look at the role Linux and open source can play in enterprise data centers. Much of the news will be similar to what end users would find at other mainstream shows, analysts say.

"Linux really is maturing, so you're not seeing the kind of radical month-to-month, LinuxWorld-to-LinuxWorld changes that you had a couple of years ago," says Gordon Haff, an analyst at Illuminata. "LinuxWorld really is becoming a broader show."

"It started out being specifically about Linux. But now Linux and open source have become so pervasive that even Microsoft is there," he says. "It has evolved into this much less exclusive sort of show." ■

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Short Takes

■ **Chelsio Communications** last week announced a 10G Ethernet network interface card for high-powered servers, based on the CX-4 copper standard for short-range 10G links. Chelsio's T210-CX server adapter uses twinax, or InfiniBand-like, copper cabling and can connect to a 10GBase-CX4 switch up to 50 feet away. Approved last year by the IEEE, 10GBase-CX4 is the first non-fiber standard for 10G Ethernet, although the standards body is expected to approve a version of 10G Ethernet for Category 5e/6 cabling next year. For users that need standards-based 10G copper now, the Chelsio T210-CX4 is available for \$800.

■ **NFR Security** this week is expected to announce three new high-end versions of its network-based Sentivist Enterprise Series Smart Sensors line of intrusion-prevention systems. The Smart Sensor ES500 appliance, which costs \$35,000, reaches 500M bit/sec; the ES1000, which costs \$73,000, attains 1G bit/sec; the ES2000, which costs \$100,000, runs in the 2G-bit/sec range. Previously, the NFR Security IPS sensors were limited to approximately 200M bit/sec. NFR Security expects to ship the new high-end IPS models late next month.

■ **Solidcore Systems** this week is expected to announce S3 Security, change-management control software that aims to prevent unauthorized changes to an operating system or applications running on Windows, Linux or Unix servers. S3 Security, which costs \$2,000 per node and is scheduled to ship in late September, provides a way to detect run-time tampering of software.

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Q&A 3Com CTO spells out strategy



3Com acquired intrusion prevention leader TippingPoint Technologies in December 2004 and last month installed TippingPoint CTO Marc Willebeek-LeMair as CTO for the entire company. Willebeek-LeMair recently talked with Network World Senior

Editor Phil Hochmuth about moving from the CTO post of a former start-up with 105 employees and \$5 million in sales to a \$700 million company with a workforce 20 times greater.

How have 3Com product managers and engineers taken to your appointment?

I got a lot of phone calls from heritage TippingPoint people and 3Com people, and it was an overwhelmingly positive response. One of the things I heard from these people was that 3Com needs someone to unify a lot of the pieces in the company into a more coherent strategy and vision. That's something I've done quite a few times in my past. One of the first exercises I went through was to articulate a vision for the company in the form of a document that was produced as a collaborative effort between many of the leaders in 3Com and just about anyone who had an opinion and wanted to offer thoughts.

What does this document say?

I feel that we're at a significant inflection point in the network industry. We've had IP networks in existence for quite some time now. It's one of the greatest technologies ever invented from a network standpoint. It can connect anything to anything, servers to clients, PCs, laptops, PDAs, refrigerators.

But it is a connectivity plane. What has happened in the last several years is that the type of traffic that this IP network has been asked to carry has evolved dramatically. An IP network today just happily looks at a packet header, sees where it needs to go, and forwards it on its way as quickly and efficiently as it can. That's not enough anymore. And so what we're seeing are different proposals in terms of what the next evolutionary step of this network is going to be. We've formulated our own, which we will start to share as soon as we go through the vetting process of how we think the network is going to evolve.

How might this play out in terms of new products?

What we imagine is a network that is bi-planar, where there is a traditional connectivity plane that exists today, and then there is a layer on top of that, a level of intelligence; some people call it a services plane or an intelligence plane, that offers a much more policy-driven capability to manage what's going across the network.

I envision a network that can discover the types of traffic that it is carrying without modification of those applications on the endpoints. So just like our systems today discover that a particular flow is malicious, they can discover that a particular flow

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VPN gateway fills hole for Krispy Kreme

Doughnut-maker's Web portal was key to the company intranet, extranet.

BY TIM GREENE

Krispy Kreme, the doughnut people, had a problem: The maker of their Web portal was going to upgrade its software, and the portal would no longer be compatible with Krispy Kreme's SSL VPN gear.

Following research and trials of several other VPN gateways, the company found Whale Communication's e-Gap, which supports the portal and also gives remote users the same view of the portal they would get if they connected to it via the LAN. This benefited the company because it could continue to use the portal without having to retrain the 1,000 or so end users that connect through it to reach centrally located applications, says Sam Gray, director of tech-

nical services for the doughnut franchiser.

Krispy Kreme was using CoreSecure SSL gateway software on Windows servers to protect Internet connections between remote users and the Krispy Kreme data

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center in Winston-Salem, N.C. Users connected through the company portal supported by CorePort, later bought by OpenText.

Gray tried Nortel's Alteon switches, and Juniper's and Aventail's SSL gear. "With all of them we were able to get to a certain point but were not really able to get all of the various applications that sit behind our portal to work properly in that environment," Gray says.

The company was trying to grant users access to the portal and to use the portal as they always had to reach the applications they needed, he says. The problem was that with most of the vendors, users had to first

See Krispy Kreme, page 16

Krispy Kreme

continued from page 15

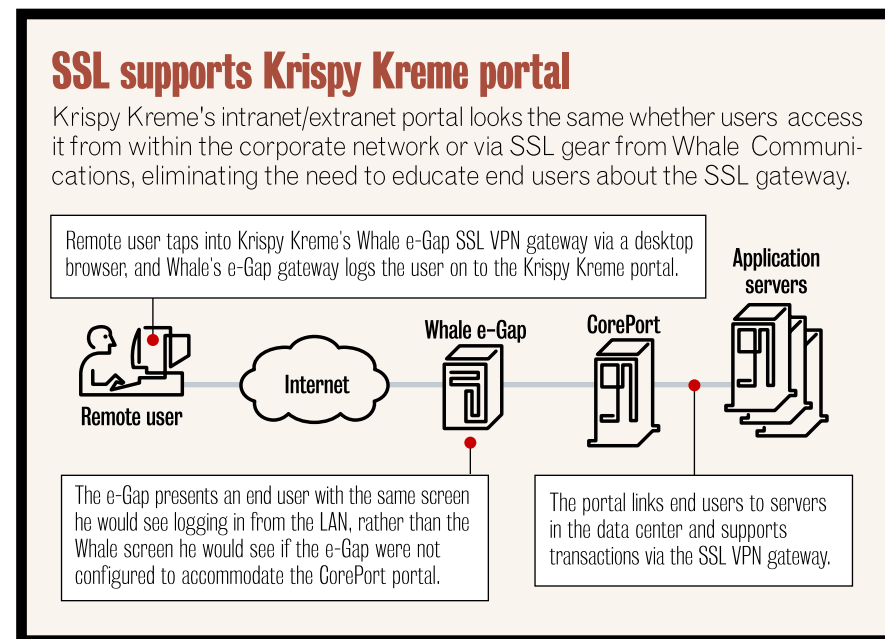
go through the SSL vendor's interface before reaching the portal. Once in the portal, they may have to re-access it via the SSL vendor's interface to reach a separate application.

The portal for Krispy Kreme is a master Web page for the company intranet and extranet, a launching place for other applications such as e-mail and its supply chain system. "Just having an SSL appliance that gets you to the portal page and it looks right — that's one thing. But once you drill down into all the various applications that this portal is a front end for, everything behind it has to work, as well," he says.

In SSL gear trials, no vendor gave Krispy Kreme exactly what it wanted, he says. "Nobody was ever able to pull off a 100% successful pilot. They'd maybe get 50% to 90%, but there were always some applications or some systems that just didn't function properly," he says.

Even Whale wasn't ideal.

"It's not plug and play. It's not like you pull



it out of the box and assign a couple of IP addresses to it and it just magically works. There was a lot of upfront work from their engineering staff to get all of our stuff set up

behind their box and get it working," he says. Whale says the work it did to give Krispy Kreme what it needed is now part of Whale's e-Gap platform so users with similar

requirements to Krispy Kreme can configure the boxes themselves.

The company was looking for an SSL gateway appliance as opposed to CoreSecure, which ran on a Windows server. "It gets away from managing the [operating system] and hardware environment from one side and the application from another. We'd rather have it all in one pocket," he says.

Upgrades and management were also a problem, especially after CoreSecure was bought by a Swedish company, PortWise. "The time zone differences and the language differences made it difficult to get support," he says. "A lot of times your only option was to leave a message and wait for a return call."

Krispy Kreme chose SSL because the portal is an extranet access point, Gray says. The company didn't want to use technology that required a remote client. "We don't really own or have control of a huge portion of the end user PCs that have to connect, so we want to make sure whatever components have to be installed on that remote PC are easy to install and easy to support." ■

McAfee, Sygate add USB blocking

BY ELLEN MESSMER

Unauthorized use of USB hardware to gain access to information in laptops and servers is a growing concern. With that in mind, security vendors McAfee and Sygate this week are expected to unveil their own approaches to blocking USB hardware access to computers.

McAfee is adding a way to prevent USB devices — which can hold 1G byte of information or more in keyfob-sized hardware — from gaining access to laptops and servers through its host-based Enterecept intrusion-prevention systems (IPS) product. The new functionality is in a free upgrade for current Enterecept 5.1 customers.

Sygate this week will announce that its host-based policy-enforcement software, Sygate Enterprise Protection (SEP) for desktops and servers, now will block USB devices. SEP also is gaining IPS functions that transform the product into a closer competitor to Enterecept, says Sygate's Seth Knox.

SEP 5.0 has added a way to control access to USB ports and CD-ROM drives on computers so that network managers can stipulate acceptable procedures such as prohibiting access via iPods. The SEP software has been expanded to include IPS capabilities to prevent buffer-overflow attacks on unpatched systems and other attempts to compromise security — thereby competing more directly against host-based IPS vendors.

The underlying IPS technology relies on signature-based identification of specific exploits and behavior-based monitoring to identify anomalies, Knox says. "Behavior-based is not as effective as signature-based, which is 100% precise," he says. "But behavior-based will catch some things early before there's a signature to identify it."

McAfee's Enterecept costs \$400 per server and about \$9 per desktop, depending on volume. Sygate's SEP 5.0 costs \$115 per server and \$65 for 1,000 desktops. ■

Taking care of business

About half of 873 IT pros surveyed by StillSecure called "too many other business demands" their biggest obstacle for intrusion prevention, vulnerability management and patch management.

3Com

continued from page 15

is mission critical and then take the appropriate action against that traffic based on the policy that the owner of that network has dictated.

You will get an overlay of this intelligence plane onto any existing connectivity plane. It may manifest itself in the same switch chassis — there is still a logical separation of those planes. You will have intrusion-prevention capabilities inside of a switch chassis or a router chassis, both at the edge of the network and on the inside of the network. And they'll handle different levels of policies that are instituted across the network in different ways.

How will this play out with the joint venture between Huawei and 3Com?

Generally, the joint venture is focused primarily on what we would consider the connectivity products, the Layer 3-4 standards-based components of the network. We are working with them tactically on bringing a blade to market that takes our intrusion prevention technology and puts it into those chassis. I've strongly encouraged everyone at 3Com to leverage the joint venture wherever we possibly can.

Where is the future for 3Com in the network market with regards to just the transport layer?

It maps very cleanly to the vision that I described earlier. Where you have two planes of the network, at the connectivity plane we're going to offer very solid products at a more attractive price than our competitors are going to offer. And that's basically through our partnership, the joint venture. At the other plane, our forte is going to be the leadership of our [security and voice] products and innovation that we bring to bear.

Regarding VoIP, where does 3Com need to improve or change in light of the fact that its VCX line — a multi-thou-



sand seat IP PBX product — hasn't had much traction with customers, and that 3Com's smaller market NBX product has also lost market share?

I was surprised to find that 3Com even had these technologies. We need to make a little more noise about what we have. That's not a technology statement; that's an awareness statement. Our NBX product is best of breed, in terms of how easy it is to install, how complete it is in its feature set. And it has demonstrated that in its growth. The VCX is also unique from a technology standpoint, that it is fully [Session Initiation Protocol] compliant, and its distributed nature of the architecture, which makes it extremely resilient.

Where does 3Com fit into the landscape of wireless LAN switch vendors and competitors who put WLAN features into their wired gear?

We have a very complete wireless offering, but we need to look at that from a more strategic viewpoint. That's something we're going to do over the next couple of months. We have these neat security voice technologies; how does wireless fit in with those? There are obvious things, such as let's marry our security technology with our wireless technology. Let's marry our VoIP technology with our wireless technology. Let's take a wireless access point blade and put that into one of our chassis. Then you have a security blade and networking blade, and you have a complete solution in one. Let's take some of our security technology and potentially embed that within the access point itself. Those are things we clearly need to do and there are portions of that happening already.

Are there any areas 3Com is in right now that maybe it should not be?

3Com has an enormous portfolio of products. We need to assess which of our products still make sense for us to continue to offer, and which ones are just not strategic. ■

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Short Takes

■ **Alienware** has announced a series of rack-mounted servers that feature one or two 64-bit Intel Xeon processors and that can run 32- and 64-bit applications. The company's Hivemind servers support up to 2.4T bytes of Serial Advanced Technology Attachment or 1.8T bytes of SCSI hard drive storage and up to 12G bytes of error checking and correcting double data rate-2 memory. The systems cost \$1,064 to \$2,134.

■ **Avocent** last week introduced the DSR1031, an eight-port digital KVM switch designed to enable companies to manage IT resources remotely over IP networks. Diagnostic testing, patch management and other tasks can be completed via Avocent's DSView 3 management software. The switch can be connected to a control enabling technicians to power devices on and off remotely. The switch starts at \$2,000.

■ The Mozilla Foundation, which distributes the open source Firefox Web browser, last week announced it has created a corporate subsidiary to help widen the use of its products. While the goals of the subsidiary, **Mozilla Corp.**, include generating revenue and profit, its primary interest is to sustain the development of Firefox and other products and help the foundation promote open standards on the Web, the group says. Mitchell Baker, a former Netscape lawyer, is president.

■ **ActiveGrid** last week unveiled Version 1.0 of its Application Builder and LAMP Application Server products. The company aims to provide customers with a cost-effective approach to develop and deploy Web services, specifically applications that must scale to handle thousands or even millions of transactions. The early version has had 5,000 downloads, the company says. The 1.0 releases add features such as support for Web services, says Peter Yared, ActiveGrid founder and CEO.

Open source rating system debuts

Start-up, Intel join university to judge software efforts.

BY CHINA MARTENS, IDG NEWS SERVICE

A university, a start-up and a chip giant are pushing a proposal for a standard model to rate open source software to provide customers with a better sense of the maturity of the more than 100,000 open source projects available today.

The Business Readiness Ratings (BRR) model unveiled last week is the brainchild of Carnegie Mellon University West's Center for Open Source Investigation (COSI) and is co-sponsored by Spike Source, an open source testing and certification start-up, and Intel.

"The model allows users and developers to get a feeling for the appropriateness of open source software for their environment," says Joaquin Ruiz, vice president of product marketing at SpikeSource.

One way of thinking about the BRR model is as a kind of tailored Netflix service, he says. Like the online video-ordering service, users and developers will rate the different open source projects.

The model should save organizations a good deal of time they would have spent in-house trying to assess the wealth of available open source projects, Ruiz says. For instance, if a company is looking for an open source Wiki-type application, seven are available, and he estimates 135 open source general content-management tools are in the market.

For the next three months, COSI, SpikeSource and Intel welcome comment on the BRR model from users and developers, Ruiz says. Based on those comments, the model will be enhanced, and the organizations hope to have the model in production by the year-end, he adds. The model will need to be adaptable to reflect different usage assessments, with the requirements of a university, for example, distinct from those of a large corporation,

Ruiz says.

COSI, SpikeSource and Intel have defined 12 categories for assessing open source projects, including how well the software meets users' needs, its usability, scalability, performance and support.

Each category has a number of metrics. For instance, under the rating "quality," metrics include users' estimations of the quality of the software's design, the code and the testing and how complete and error-free each of these are.

Users rate the categories for a project using a scale of 1 for "unacceptable" up to 5 for "excellent," and then the 12 categories are weighted in terms of importance.

On the BRR Web site, the model's sponsors provide a white paper and discussion forums together with samples, standard templates and worksheets of the model. In the white paper, the sponsors state the aim of the model is to offer "a vendor-neutral federated clearinghouse of quantifiable data on open source software packages to help drive their adoption and development." ■

WIRED WINDOWS

Dave Kearns



Lots of digital ink has been spilled over the past week or so as pundits, visionaries and other important (and self-important) commentators rushed to explain the whys and wherefores of Microsoft's announcement that its next operating system would be named Vista. Lots of talk about the internal "debate" to choose a name. Lots of bad jokes quoting one of Arnold Schwarzenegger's more famous movie lines. All of this, though, merely obscured what I feel is the real reason the name was announced now.

It distracted many folks from the shipment of the first beta version of the software, which was also announced!

Even I had thought we were on beta 532 by now. But, no. Evidently for all these years we've been talking about alpha (or earlier) software. Back in 2002, in my Windows Networking Tips newsletter (www.networkworld.com, DocFinder: 8333), I wrote: "most

Is Vista vision, revision?

folks were saying that the next version (code-named Longhorn) won't be out until the second half of 2004." A year later, I had to report: "the big news for those of us who follow operating systems was that [Longhorn] won't ship until 2005."

Now we're being told that Vista, the operating system formerly known as Longhorn, might — if we're really lucky — be with us for the 2006 "holiday season." But no one is specifying which holiday. Even then, we're told, this might necessitate cutting a few more features out of the package.

Soon, of course, there won't be anything left but a boot loader, GUI and browser.

We've been hearing about Longhorn/Vista for a half dozen years, since even before the Longhorn code name was chosen. An entire industry seems to have grown up just to cover what's being added to, removed from or modified in the next desktop operating system from Microsoft. That feeds the feeling that, because it's been so long since the last desktop operating system shipped, this next one needs to be a blockbuster. Maybe it's time we all paid attention to something else until the day Vista ships.

When I heard the name announcement, I didn't think of Schwarzenegger's quote from "Terminator 2: Judgment Day" No, I thought back to the old Fibber McGee and Molly radio program. Fibber lived at 79 Wistful Vista, and wistful ("Full of wishful yearning," according to the dictionary) was how I felt, with a yearning to finally get this operating system onto retail shelves.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the week

■ The second definition of "wistful" is "pensively sad; melancholy." If that's what's troubling you, bunky, check out what Microsoft can do that's still exciting. To see the beta version of Redmond's new mapping and location services, visit www.networkworld.com, DocFinder: 8334.

Builder relies on wireless as key tool

BY JOHN COX

Over the roar of belching diesels and the hiss of cutting torches, a worker wearing the distinctive robin's egg blue hard hat of California builder Rudolph and Sletten taps on a Tablet PC to view a CAD drawing on a remote server.

Elsewhere on the sprawling construction site, a manager's Palm Treo delivers a schedule change for a meeting with a subcontractor, and a budget overseer from the contractor's regional office flips open his wireless laptop for a meeting in the job site's mobile-home-like quarters.

The Redwood City, Calif., company, one of the leading West Coast builders, specializes in high-tech buildings for high-tech clients, including bioscience companies, and for high-profile universities and hospitals. Past efforts included Microsoft's Bay Area campus, Sun's R&D campus and large projects for CalTech and Stanford.

Today, the general contractor routinely uses four types of wireless nets, all with a single purpose: to allow an increasingly mobile and computerized workforce to gain access to the company's crit-

ical applications. These include construction planning and management programs, calendars and e-mail.

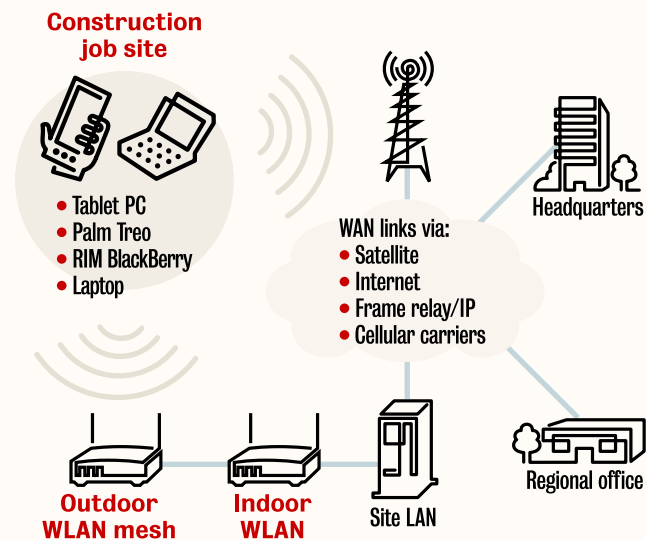
The network strategy was forged by CIO Sam Lamonica, who joined the company two years ago. His goal was to exploit mobile technologies to put computer power into people's hands, so they could connect to central applications at any time and tie into the stream of e-mail and schedule changes that govern the daily and weekly rhythm of the company.

The first step was to make mobile e-mail and scheduling available via Treo and Research-in-Motion BlackBerry devices over cellular services from Sprint and Nextel. "We rolled these out, and they caught on rapidly," Lamonica says. "This has been a huge benefit for us."

The Treo, a combination cell phone/PDA, is "darn near a replacement for some laptops," he says. "They have wireless access to e-mail, contacts, calendars, voice and the Web. It opens any attachment, including PowerPoint and Excel. It provides someone like me pretty much all the functional-

Wireless mix

Commercial builder Rudolph and Sletten routinely deploys several types of wireless at job sites.



ity I need when I'm on the road."

The next step was creating connectivity for laptop users moving between Rudolph and Sletten's headquarters, three regional offices, and as many as 50 job sites. Lamonica chose Airespace

(now part of Cisco), in part because of the depth of its wireless security features.

Airespace wireless LANs were rolled out first at the headquarters and regional sites, and then to a growing number of work sites. "The wireless LAN is now almost a standard deployment," he says. There are roughly 40 access points up and running, all centrally controlled. Laptop users simply open up their computers, authenticate and start computing.

The WLANs also simplify network functions at job sites where railers are set up near each other over time. "People can just start working right away, because the wireless LANs overlap," Lamonica says. Visiting architects or subcontractors can get guest access accounts, which lead only to the Internet, for example. These users then fire up VPN software to reach their corporate networks.

Was there a way to get WLANs to overlap an entire job site, to support the growing number of Tablet PC users and more dispersed office trailers? Lamonica's team evaluated outdoor WLAN mesh products from BelAir, Strix, and Tropos, and they chose BelAir.

In a wireless mesh, similar to the Internet's topology, access points can interact without wires to create an optimal path for data pack-

ets. Conventional WLANs require each access point to be wired to a LAN switch. A mesh can be simpler, faster and cheaper to deploy, and has a greater range compared to conventional WLANs.

The initial pilot test ran into a variety of problems, almost all of them related to the nodes' firmware, Lamonica recalls. Once those got resolved, the mesh "came right up," he says. "Performance has been good." Tablet PC users now have "total access to the business applications on our servers."

Satellite links, which are relatively slow and expensive, are reserved for special cases. "Sometimes we can get voice service but not broadband or T-1 data links," Lamonica says. "Just recently, we found one site that couldn't even get voice." The contractor sets up a dish and router to deliver the network connection. Lamonica is starting to look at VoIP services, including Vonage. One option is to use Vonage over the IP satellite link to support voice at an isolated job site.

Driving the wireless deployments are not hard savings or other quantifiable metrics, but rather the benefit of being connected anywhere, anytime. "We're seeing our dependence on wireless," Lamonica says. "When it's not working, the number of calls I get at the help desk jumps way up."

Two main mobility challenges have been the durability — or the lack of it — of mobile devices at construction sites and the generational differences in computer literacy among employees.

"We love the Treos, but they're not as rugged as we'd like," Lamonica says. But the alternative — handheld PCs designed for use at hard locations — is cost prohibitive, especially given the rate of change in handheld computers, he says.

Older employees have been slower to adopt the new technologies. Lamonica is addressing that partly through training for all employees and partly by relying on a kind of gentle peer pressure to motivate workers. "If you miss an e-mail from the boss, and the guy next to you gets it [through a mobile device], you notice that," he says. ■

Start-up extends virtual reach

BY JENNIFER MEARS

When Virtual Iron Software debuted in February, analysts singled out the company for taking a unique approach to server virtualization by not only slicing up single physical servers, but also by making multiple small machines appear to be one big symmetric multiprocessing box. This week, the start-up is bringing another twist to the fast-growing virtualization market by announcing that it will support virtualization software from other vendors with its management products.

Virtual Iron plans to announce at LinuxWorld in San Francisco that its management platform will support Xen, an open source server virtualization technology.

This means end users will be able to use Virtual Iron's management tools to handle not only Virtual Iron VMs, but also those created with the Xen VM monitor.

A VM is basically a software file that contains an operating system and application.

"What they're doing that's interesting now is saying, 'OK, we may not be the only people providing the virtual machine software that people want to use,'" says Dan Kusnetzky, an analyst at IDC. "They realize that management and provisioning and security are very important issues to people... They have developed this really powerful management environment, and they're extending it to encompass more of the kind of work people are likely to be doing."

The Virtual Iron management platform enables end users to set policy-based rules to move workloads across servers according to application demands.

The Virtual Iron management platform provides the ability to create VMs, move them from one physical server to another with-

out disrupting applications, start VMs, pause them, restart them, track performance, and — perhaps most importantly — enables users to distribute workloads across all of the different physical servers available.

By extending its management tools to include Xen, Virtual Iron is giving end users an even more unified view of their data center, Kusnetzky says. "Whether they will manage [SWsoft or VMware] environments seem to be the next obvious question to ask," he says.

The Xen VM monitor management module will be available in the fourth quarter as a standard part of the Virtual Iron platform. Virtual Iron also will release the module under an open source license.

The Virtual Iron platform is priced per CPU bundle, typically 32, 64 or 128. The average price per CPU is less than \$1,000. ■



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WIDE-AREA FILE SERVICES

Bringing LAN-like file delivery to WANs

Gold's Gym had been asking its network and end users to do some heavy lifting. End users trying to work together across 40 gyms and three corporate offices were using e-mail to exchange files and faced the challenge of keeping track of changes to different versions, as well, says Kurt Koenig, IT manager for the fitness company in Falls Church, Va.

But that system wasn't sustainable, Koenig says. He wanted to relocate files previously housed at each location to a centrally accessible data center in Columbia, Md. To make the transition, he turned to an increasingly popular technology called wide-area file services (WAFS), designed to provide LAN-like file delivery across WANs.

"We now have one G: drive with national access, so no matter where users are, they can get to their data quickly" he says.

Gold's is using a WAFS product from Avaiil Software, one of a number of vendors in this market, which also includes Brocade, Cisco and Swan Labs (see graphic). WAFS products come in the form of software, which runs on file servers, and appliances.

WAFS works by reducing the "chattiness" of Microsoft's Common Internet File System (CIFS) and the Unix/Linux Network File System (NFS) protocols. It also works by decreasing the latency of WAN communications by eliminating much of the round-trip traffic caused by opening and closing files. CIFS and NFS were designed to work in LAN environments where latency is low.

"The CIFS and NFS file protocols are extraordinarily chatty," says John Henze, director of product marketing for the Caching Services Business Unit at Cisco. "These files consist of hundreds and hundreds of synchronous, short byte-length messages that go back and forth before any payload is actually sent, causing high latency and low throughput. This differs from on the LAN where you have virtually no latency."

Seeking a way to centralize

Brian Laska, technical architect at Computer Sciences' Consulting Group/Global Infrastructure Services in Southborough, Mass., chose Cisco's File Engine after discovering and evaluating the problems with transferring files across the WAN.

From WAN to WAFS

Some vendors concentrate on accelerating Web traffic; others focus on speeding up wide-area file services (WAFS). But, increasingly, companies are handling both.

Company/Product	Type of acceleration	Caching/disk store	Price
Avaiil Software/ Multi-Directional Replication	CIFS	Not unless available on server	\$1,500 per site
Brocade Communications/ Tapestry Wide Area File Services	CIFS, NFS	100G to 700G bytes of cache	Available from OEMs
Cisco/FE511 File Engine	CIFS, NFS	Cache/80G bytes of storage	\$12,000 for 50 users
DiskSites/FilePort and FileController	CIFS, NFS	Cache	\$14,000 FilePort, \$9,000 FileController
Expand Networks/Accelerator	WAN data, CIFS, NFS	Cache	Starts at \$4,500
HP/StorageWorks Enterprise File Services WAN Acceleration	WAN data, CIFS, NFS	Cache/80G to 512G bytes of storage	Starts at \$11,170
Novell/Enterprise Branch Office	NetWare Core Protocol	Cache/Disk space if it exists on server	\$2,500 per server
Orbital Data/5500	WAN data CIFS, NFS	Cache	Starts at \$5,000
Riverbed/Steelhead	WAN data, CIFS, NFS	Cache/80G to 512G bytes of storage	Starts at \$24,000
Swan Labs/ WANJet SL400 and SL200	WAN data, CIFS, NFS	Cache	Start at \$1,500
Tacit Networks/iShared Server, Remote and Symmetric	CIFS, NFS	100G to 700G bytes of cache	Start at \$7,500

"When we went to upgrade our server hardware to support Windows 2000, we saw that about 20 smaller branch offices were primarily doing file services," he says. "We wanted a way to centralize them, to support them, back them up and save on data-vaulting expenses. But we saw that centralizing file services would be a heavy load on the WAN. The file protocols that are in use are not very tolerant to high-latency, low-bandwidth wide-area networks, which is what most companies have."

With the number of remote offices increasing, more and more data is transported across the WAN. Randy Kerns, an independent storage analyst in Boulder, Colo., estimates that Fortune 500 companies have as many as 4 million employees working from remote locations.

Further, many of these workers use file and print sharing extensively. Often, no skilled IT staff is available to handle operations such as network management and data backup. All of which adds up to

a need for products along the lines of what the WAFS vendors are offering.

How it works

The software from Avaiil being used by Gold's Gym differs from appliance-based packages. In an Avaiil implementation, the software is installed on each Windows file server in the remote office and at the data center. As users make changes to files, they are replicated to the data center. As it is with most WAFS software, updated files are transferred to the remote offices only when requested.

In a typical WAFS configuration, an appliance is installed in the data center, where it connects to primary storage. This appliance connects over the IP network with an appliance situated in the branch office. Users' requests for files are transmitted to the appliance in the data center, and the file is opened and sent to the branch office. Changes that the users make to the file are similarly encrypted, compressed and sent to centralized stor-

age whenever they are made.

In this fashion, IT can reduce much of the bandwidth required by file operations. Users also can benefit from the centralized management of file data on the WAN. And because data from remote offices converges at the data center, it's no longer necessary to back up the remote.

Some WAFS appliances, such as Tacit Network's iShared Remote or Expand Networks' Accelerator, have local cache memory, which holds frequently accessed files so they can be instantly available to remote office users. File server-based software, such as Avaiil's, synchronizes all file changes with the data center and other remote offices.

Other advantages of WAFS

Much WAFS software has coherency, file locking and consistency checks to prevent files from overwriting those that users are working on and ensure the most current version is the one users access.

In some ways, WAFS offerings sound like WAN acceleration products, and in fact, vendors are increasingly offering dual-purpose products. Last week, Expand, a Web-optimization vendor, announced a product called Accelerator that handles WAFS; Swan Labs last month unveiled an appliance called WANJet, which it says cuts WAFS traffic by as much as 500%; and Riverbed Technology, which makes the Steelhead line of accelerators, last month announced software that supports WAFS.

WAFS deals with file data — Word documents, spreadsheets, Microsoft Exchange data — while WAN acceleration or optimization appliances work with other forms of data — HTML, HTTP, DNS and VoIP.

"File services are absolutely a huge piece of it and a pretty big pain point," Henze says. "But there's a whole lot of other traffic going on — HTTPS, HTTP, FTP, messaging [MAPI] or voice over IP — all that stuff is going on across a distributed environment."

Cisco's FE 511 File Engine handles WAFS, but don't be surprised to see Cisco offer an integrated WAFS and WAN acceleration product. After all, the company recently bought FineGround, which specializes in application acceleration, management and security. ■

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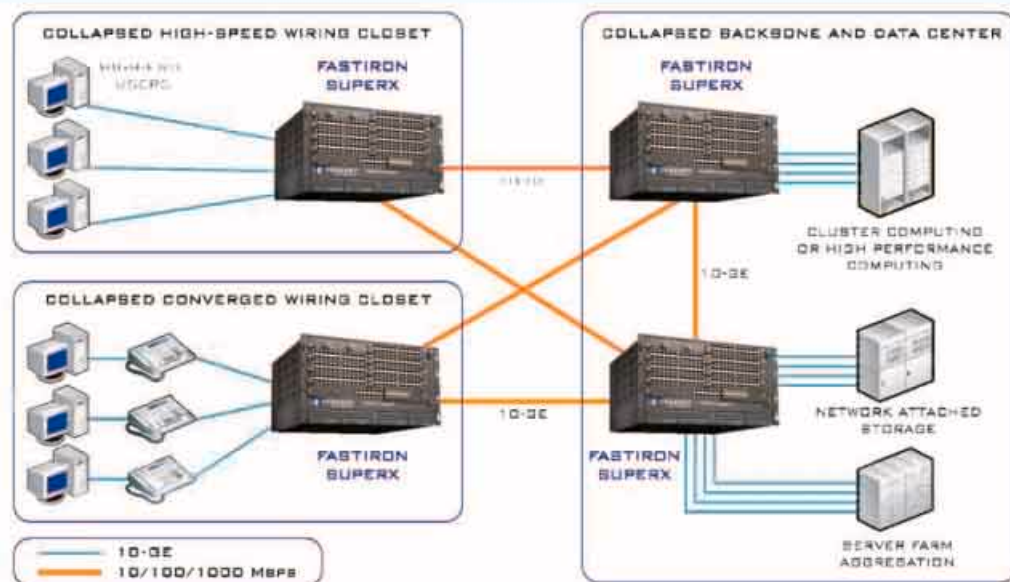
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APPLICATION SERVICES

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No slowdown in software investing

Quarterly venture capital survey also shows signs of life in network equipment makers.

BY CARA GARRETSON

While network and telecom start-ups this year are beginning to see some renewed interest from investors, the software sector continues to attract the most funding, particularly those companies with products having anything to do with security.

Software companies saw \$1.3 billion in investments in 231 deals during the second quarter, up from \$1.2 billion for the first quarter, according to the latest MoneyTree Survey, published quarterly by PricewaterhouseCoopers, Thomson Venture Economics and the National Venture Capital Association (NVCA). Companies that fall into the software category — which the survey defines as software programs for business or consumer use and includes both general-purpose and vertical applications — have gained the most investments for the past seven quarters, clearing the \$1 billion mark every time (see graphic, right).

Five of the top 20 investments went to companies with security-related products last quarter, as they together secured more than \$72 million (see graphic, below).

Investors have been pouring money into software companies for the past few years because these investments have seemed safe compared with sectors such as net-

work and telecom that skyrocketed during the Internet bubble only to crash and burn when it burst. In addition, the trend toward doing business over the Web and the recent focus corporations are placing on security have given rise to new software categories that are deemed essential, and therefore viewed as good investment bets.

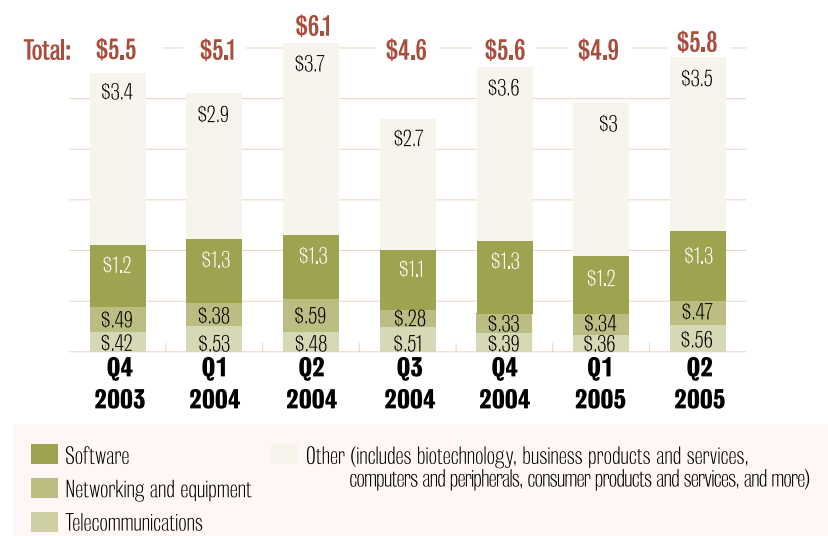
Although he generally describes the security market as over-funded, one venture capitalist says there's still plenty of room for investing in these companies. "We're really looking for either new approaches to existing problems in large markets, or white spaces — markets that are small today but we expect to grow in the future," says Asheem Chandna, venture partner with Greylock Partners. Examples of companies targeting white spaces are makers of regulatory and industry compliance software and products designed to protect corporations from information leakage.

Despite software's dominance, networking and telecom companies are starting to pique investors' interests again, as evidenced by this year's first- and second-quarter investing trends. VoIP service provider Vonage, which attracted \$200 million in its sixth financing round, sealed the second-largest deal of the quarter. Also ranking among the top 10 deals were switch maker Caspian Networks, which received \$55 million, and access equipment vendor Entrisphere with \$50 million.

This renewed interest is "in part pent-up demand. People literally spent nothing on new [network] equipment for quite a few years," says Shanda Bahles, managing part-

Software rules

For the past seven quarters, software companies have attracted the most investments among all the sectors tracked by the MoneyTree survey. (Dollar figures shown in billions).



ner with El Dorado Ventures, which invested in Entrisphere during the second quarter. "Driving this is the desire to put video, voice and data on the same network."

Recent acquisitions by large network vendors also are helping to bolster start-ups in this area. "Cisco and a few others have started nibbling again at acquisitions," says Tracy Lefteroff, global managing partner at Venture Capital & Private Equity Practice at PricewaterhouseCoopers, adding that merger and acquisition activi-

ty usually is the first sign of interest in a sector.

What's missing, he adds, are a few successful public offerings from network or telecom companies that would put the sector in good graces with investors on a more permanent level.

Investors put \$5.8 billion in 750 companies during the second quarter, up from \$4.9 billion in the first. This isn't surprising, says John Taylor, vice president of research with NVCA, because the second quarter traditionally sees more investment activity.

The majority of the funding went into early-stage or late-stage deals, although NVCA expects to see more investments in early-stage companies going forward as investors look for fresh businesses to invest recently raised funds in. ■

Short Takes

■ **IBM** last week announced it had entered into an agreement to acquire **DWL**, a maker of customer data integration middleware, for an undisclosed amount. The deal will equip IBM with the Atlanta- and Toronto-based company's transactional data integration technology, which for example lets users gain a single view of customer information across front-office and back-end systems. The DWL Customer software works as a hub connecting multiple systems containing customer data and ensures compliance with regulatory standards. Big Blue will integrate the Java-based software into its information integration portfolio.

Money magnets

During the second quarter, security-related companies dominated the top-20 investments list:

Company	Product	Amount invested	Stage
Ingrin Networks	Encryption software	\$15.4 million	Expansion
Voltage Security	Encryption and policy enforcement platform	\$15 million	Late
Genzic	Security and policy enforcement testing	\$15 million	Late
PortAuthority Technologies	Information leak prevention software	\$13.4 million	Expansion
Bluelane Technologies	Patch emulation software	\$13.3 million	Expansion

SOURCE: MONEYTREE SURVEY

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Browse through the entire Q2 funding list online:

DocFinder: 8331



NET INSIDER
Scott Bradner

Making Verizon giddy

(take a closer look at the proposed bill at www.networkworld.com, DocFinder: 8328) introduced by Ensign, chair of the Senate Commerce Committee's Technology, Innovation and Competitiveness Subcommittee, is far from all bad — but also far from all good.

The bill removes most facilities-based telecom and satellite TV providers from any state, federal or local regulation such as regarding prices or quality. The most mentioned effect of this is that local governments would not be able to stop video service deployment by telephone companies.

The only exception is that incumbent local exchange carriers (ILEC) would have to continue to make available their copper access loops and sell telecom services at wholesale rates to com-

petitors for a while. Providers of broadband (defined as anything more than 64K bit/sec) would not be able to block customer access to legal content or services, including VoIP. But they could offer a special reduced-access service for those that want blocking. Under the bill, the ILECs would have to offer a basic telephone service at current rates throughout their territories, with the quality characteristics defined by the FCC, at least until 2010.

The bill does not actually ban municipally owned networks but it does put restrictions on them that will be hard to overcome, so the effect is about the same. What the bill does not do is back away from the old and restrictive service-based thinking. The bill still refers to broadband, telephone, satellite TV and video services

and treats them differently.

Other than requiring that ILECs offer basic telephone service, because of the historical importance of such a service, and sell access to their copper access loops, because of the regulated monopoly under which this was installed, there should be almost no regulations.

Half of this bill could go away if it just said the above and that governments could not control what services different connectivity providers wanted to offer.

The bill also should state that connectivity providers could not restrict or affect the performance of customer access to legal services offered by third parties, except in a provider-neutral way to protect their network. The same logic should apply to controlling local rights of way, which the bill

addresses only for video services providers.

The proposal does not address the Universal Service Fund, state or local taxes on broadband services or services provided over broadband. Neither does it address wiretapping legal intercepts (or other law enforcement needs) and any final bill will need to do so. This is an interesting first step, but I will say that the image of a giddy Verizon does something unpleasant to my stomach.

Disclaimer: Even though being giddy at Harvard is not all that uncommon, I know of no university view on the giddiness level of phone companies.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

The first public step on a potentially long road to a replacement for the Telecommunications Act of 1996 has now been taken. Sen. John Ensign (R-Nev.) just introduced the Broadband Investment and Consumer Choice Act of 2005, which would replace large parts of the older act. I don't think anyone could claim with a straight face that this is a balanced proposal.

If anyone somehow thought that, they would have been quickly corrected by the almost giddy reaction from traditional carriers, such as Verizon, and their trade associations. The 72-page bill

Mercury polishes applications testing tool

BY STACY COWLEY, IDG NEWS SERVICE

Mercury Interactive has released an updated version of its application quality assurance tool, adding user-acceptance features to the software and expanding its integration with other Mercury testing tools.

Mercury's initial Business Process Testing product, first released about a year ago, is part of the company's Quality Center suite of software for automating and tracking application-testing functions. The new version adds a user-acceptance certification step to the testing process, which now features a Web interface that business executives can use to try out a new application and provide structured feedback on it.

The addition is intended to automate a step that is often left to ad hoc manual documentation, says Matt Morgan, Quality Center director of products. "This was driven by [customers'] need to have a closed-loop system that documents all of this on a nice audit trail," he says.

In the new version, Mercury has also enabled integration with its WinRunner regression testing software, allowing customers to plug current WinRunner test scripts into Business Process Testing. Mercury says it hopes the move will expand the product's customer base by making the tool more attractive to WinRunner's estimated 75,000 users.

In the 10 months it has been on the market, Business Process Testing software has been used by 150 organizations, Mercury says. Raymond James Financial has signifi-

cantly sped up its testing process since purchasing Quality Center two years ago, according to Quality Assurance manager Leanne Stumph. The St. Petersburg, Fla., financial services company initially deployed Mercury's QuickTest Professional testing tool, another Quality Center component, but found the software too developer-centric for its business-analyst users. "We talked to Mercury about our options, and

they led us to" Business Process Testing, Stumph says. "It was much easier for [the business analysts]. It led them step-by-step, and they can understand it from their standpoint, the business side."

Using Business Process Testing and QuickTest Professional in combination, Raymond James has run several applications through testing with Mercury's products, including a mutual fund order-entry

system and an application to transfer information from the company's PeopleSoft ERP system to a custom application.

Mercury estimates that a 15-user deployment of Quality Center, including Business Process Testing, costs around \$50,000. ■

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WebEx acquires conferencing rival

BY STACY COWLEY, IDG NEWS SERVICE

WebEx Communications last week announced it agreed to buy collaboration software developer Intranets.com for \$45 million. The deal allows WebEx to take out a rival that had aggressively chased the smaller end of WebEx's core market, Web conferencing services. WebEx President Bill Heil says the company plans to preserve Intranets.com's products and pricing.

"Our strategy is to aggressively go after the small business market," he says. "We think that takes lower price points as a fundamental thing, and a software-as-a-service strategy."

Intranets.com cycled through a variety of business models as it rode the dot-com boom and bust. The company offers corporate collaboration applications such as document management, database, group

calendar and scheduling tools priced on monthly subscription. Its target market is small businesses with as many as 100 employees — organizations that have outgrown ad hoc products but don't want the complexity and expense of enterprise collaboration software.

In early 2004, Intranets.com began offering Web and audioconferencing. The move was aimed directly at undercutting Microsoft's Live Meeting software and WebEx's service. "Intranets.com now provides all of the functionality of similar Web conferencing offerings from WebEx and Microsoft Live Meeting, but at a fraction of the price," the company proclaimed in a September press release. The company's Web conferencing pricing has fluctuated since its introduction; a monthly subscription covering five presenter licenses costs \$199.

Effective last week, WebEx took over the back end of Intranets.com's conferencing service, replacing NetSpoke's technology. Heil says WebEx plans "substantial improvements" to Intranets.com's products before year-end, but he declines to offer more details. Intranets.com says it has a customer base of 300,000 paying subscribers from 10,000 companies. ■

nww.com

Convergence

Read up on WebEx's recent convergence- and compliance-related product improvements:

DocFinders: 8329 and 8330

SERVICE PROVIDERS

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Carrier boundaries challenge MPLS VPNs

Need for an MPLS interconnect arises to ensure service reach, consistency.

BY JIM DUFFY

Enterprise customers looking to utilize multiple carriers to provide global reach for their MPLS VPNs might find themselves thrown for a loop.

Differences in the way carriers assign QoS attributes to separate MPLS paths can result in service inconsistency. And because no single carrier has a footprint in every possible locale an organization might have to reach, each has to establish MPLS intercon-

nect agreements with other carriers that might have configured VPN QoS profiles much differently.

"Not every carrier can have a point of presence in every single possible location," says Andy Malis, chairman of the MFA Forum, which is defining specifications to resolve the MPLS interconnect issue between carriers. "And at this point, the interconnections that are happening are basically for best effort [service] only."

The MFA Forum began work late last year on an MPLS cross-boundary interconnect to enable QoS, privacy and security, Malis says. The forum expects its initial specification to be published in the first half of 2006.

"We recognize in the standards community that there are deficiencies in the standard to be able to have a full-service MPLS interconnect in between carriers," Malis says.

Vendors are also attempting to tackle the problem in associations such as the new IPSphere Forum, which spawned from Juniper's Infranet Initiative Council, and with single-vendor products such as Cisco's MPLS inter-provider features for its routers (www.networkworld.com, DocFinder: 8335).

The forum is looking to extend work done by the IETF to define up to eight ser-

vice classes in an MPLS header, using Differentiated Service (Diff-Serv) code point markings, in a single carrier's network. The MFA is looking to broaden this specification so it works on an inter-provider basis, as well, Malis says.

"The hard part is going to be on the carrier's part to have some amount of alignment on what the meanings are of the Diff-Serv markings in the headers," he says.

There's a possibility, Malis says, that two carriers don't use the Diff-Serv markings to mean the same thing. In that case, the carriers will have to figure out how to resolve this by re-marking packets at a router at the boundary of the network.

Malis says there is text in the IETF's RFC 2547bis specification for MPLS-based Layer 3 VPNs that states how to establish such interconnections. But that is for best-effort Layer 3 VPNs only.

So the forum is working on a template to function as a guide for mapping a subset of services between different service providers not only for Layer 3 MPLS VPNs, but for all MPLS services: Layer 2 virtual private LAN Services (VPLS), point-to-point pseudo-wires, traffic-engineered label switched path intercarrier trunks and VoIP among them.

The need for a VPLS network-to-network

Virtually impossible

End-to-end MPLS VPN QoS through multiple carriers is hard to achieve because of...

- Inconsistent QoS provisioning from customer edge to customer edge.
- Performance statistics differ because of dissimilar measurement techniques.
- Sub-optimal inter-provider QoS profile/class mappings.
- Lack of interoperability in reporting systems results in no performance path visibility.
- SLA enforcement does not scale or becomes unmanageable as requirements grow.

interface to extend switched Layer 2 VPN services came up at the recent Supercomm 2005 conference in Chicago (DocFinder: 8336).

"There's a lot more going on than just the Layer 3 VPNs, so we really need a more general MPLS-based interconnect," Malis says.

After the initial phase is released in the first half of next year, the forum hopes to release updates — or subsequent phases

See MPLS, page 28

Short Takes

■ **BellSouth** last week launched a commercial wireless broadband service designed to travel with subscribers as they move from place to place. The service debuted in the university community of Athens, Ga. The carrier is pushing the service as an alternative to its DSL offering. The network covers an area around the University of Georgia campus and has a range of 3 to 5 miles. The small wireless broadband deployment is among the first by a major U.S. carrier, though other fixed-line and cellular providers, including Nextel, Sprint and Qwest, have explored the technology. BellSouth also plans to use it to reach rural customers who can't access DSL, the company says. It plans to start commercial services in some rural Florida communities later this year.

■ **Juniper** has added **Nominum**, a provider of IP address management products, to its J-Partner OSS & Network Management Alliance. The companies will cross-market each other's network infrastructures and IP address management products as scalable DHCP services for broadband Internet applications and mobile connectivity. They will combine Juniper's E-series edge routers with Nominum's Foundation Dynamic Configuration Server. Nominum customers include British Telecom, Verio, Colt Telecoms, Telewest and KPN.

Sprint boosts international MPLS net

BY DENISE PAPPALARDO

Sprint says it has greatly increased the capacity on its international IP MPLS network by adding wavelengths along routes throughout Europe.

The carrier has been beefing up its MPLS network outside the U.S. since late 2004, says Dan Dooley, vice president of international markets for Sprint. But in the next month it plans to double bandwidth on nearly all routes in Europe, he says.

Sprint has also increased capacity on its transatlantic connections by adding wavelengths along several undersea cables it has from the U.S. to Denmark, France and the U.K.

The service provider's MPLS network spans 110 countries, including Argentina,

Bangladesh, Hong Kong, Japan, New Zealand and South Africa. Sprint owns about 30% of its MPLS network nodes outside the U.S. and all of its MPLS nodes domestically. The remaining 70% of its international nodes are provided through partner networks.

Sprint says it has plenty of switching capacity throughout Europe with dozens of Cisco GRS devices deployed, but it needs to increase bandwidth to keep pace with customer demand.

"The amount of sales we have had this year has dwarfed our forecasts. Our largest international deal last year wouldn't even crack our top 10 of international deals this year," Dooley says.

He says Sprint is winning more customers that need 200- to 300-node MPLS

networks that span the globe. One such customer is Motorola, which last quarter inked a three-year deal for a 230-site MPLS network that spans 40 countries across five continents. "This is representative of the five or six bigger deals we've seen recently," he says.

Sprint would not disclose how much it has invested in its international expansion since last year. But this year, the carrier has earmarked about \$300 million for its long-distance networks, which include international facilities.

In the next 12 months Sprint is planning to add MPLS switches to beef up network reliability, Dooley says. The additional expense has been approved, but the carrier has yet to publicly announce this latest upgrade, he says. ■



EYE ON THE CARRIER
Johna Till Johnson

VoIP security concerns cannot be ignored

Privacy (PGP) — introduced an architecture to deliver encryption to VoIP phones, positioning it as part of an overall requirement to secure critical infrastructure.

Who's right? Are VoIP security vulnerabilities overblown, or do IT executives need to be concerned?

My take: Yes, and yes. I tend to group security vulnerabilities into two classes: privacy issues and denial-of-service (DoS) issues. In other words, bad guys might see (and abuse) your data and resources, or they might make your resources unavailable to you.

VoIP privacy concerns encompass things such as eavesdropping and what used to be called toll fraud. In other words, someone might listen to your calls, or

hack into and make calls from your IP PBX.

VoIP DoS issues encompass IP telephony-specific concerns such as Spam over Internet Telephony as well as vulnerability to overall data network security breaches, including client or server slowdowns; or freezes caused by viruses or spyware, distributed DoS attacks and the like, which make the IP telephony system unavailable to users.

Taking these threats in order, eavesdropping is less of a concern for IT managers than for the general public, simply because most enterprise VoIP users rely on private (and relatively protected) IP networks rather than the Internet. IT executives still need to

be concerned about the possibility of internal espionage; a tech-savvy employee, consultant or other third party has ample access to the IP infrastructure. And protecting the IP PBX from getting hijacked by third parties is a concern. (One reason IT executives often express skepticism about Windows-based servers is that they're perceived as more vulnerable to assault.)

But the real concern, in my book, is protection against DoS. Rolling out VoIP in the absence of a proven data security architecture is basically rolling the dice — it's a matter of time before your network goes down, taking VoIP with it. According to recent Nemertes benchmarks on

security best practices, most companies are actively working to beef up their basic security, but many have a long way to go. Enhancing basic infrastructure components such as anti-malware, firewalls and VPNs are among the top-funded security initiatives for these firms (more than 80% said these initiatives were among their top three priorities). The bottom line: If you're rolling out VoIP, make sure your data security is up to snuff.

Johna Till Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

MPLS

continued from page 27

— every six to nine months thereafter.

In the meantime, some carriers have established their own MPLS interconnect services in which they hammer out specific wholesale peering arrangements with other carriers to ensure service consistency and global reach. InfoNet, for example, rolled out its service four years ago to extend the reach and service capabilities for multinational corporations via global class-of-service (CoS) data services across multiple IP VPN backbones.

BtNAccess, a retail and wholesale carrier in Reston, Va., has MPLS interconnect agreements with 15 other carriers in North and South America, Asia, Europe

and the Middle East for end-to-end VPN connectivity to 35 countries. And Global Crossing last fall unveiled its iMPLS service, which allows MPLS-based service providers to essentially resell Global Crossing's IP VPN service beyond their own regions with guaranteed QoS.

"You can expect feature and CoS and QoS transparency consistent with RFC 2547 standards, provided the implementation is done properly," says Anthony Christie, chief marketing officer and executive vice president at Global Crossing. "Because [iMPLS] is a product of the wholesale side of the house, it behooves us to make sure that there is feature transparency, QoS, CoS and [service-level agreements] between networks. It's not just a way for us to provide an extended-

reach capability to our enterprise customers."

Christie says Global Crossing has about 20 partners for iMPLS.

Carriers say MPLS interconnect is more of a challenge for carriers than it is for corporations. Billing, settlement and customer SLA assurance are all matters carriers have to agree on, while the customer usually deals with only one carrier for service and support.

If a customer doesn't receive contracted SLAs, some carrier within the chain won't get paid.

"All these [reach and QoS] things are addressed as you're going through the opportunity itself," says Alessandro Bucelli, MPLS VPN product manager at BtNAccess. "Usually companies that are considering MPLS VPNs are intelligent enough to realize that one company can't provide

you connectivity to the whole world. They understand the whole partnership model."

Some analysts say MPLS VPNs are still too new to users for them to be concerned about inter-carrier service consistency. They also try to deal with only one or two carriers, not several.

"Most enterprises are still kind of going, 'What's MPLS again, and

how is it going to help me?'" says Johna Till Johnson, president of Nemertes Research and a *Network World* columnist. "Inter-carrier MPLS is sort of like, 'Wow, that would be really cool if I could figure out why I needed it. There's no absolutely earth-shattering business driver for multi-carrier MPLS from an enterprise standpoint.'" ■

Vonage, wireless carrier offer last-mile bypass

BY STEPHEN LAWSON, IDG NEWS SERVICE

A provider of high-speed wireless service to businesses in several U.S. cities is selling Vonage's VoIP service along with its data connections.

A deal announced last week between fixed-wireless provider TowerStream and Vonage is intended to make it easier for businesses to completely bypass traditional carriers for data and phone service.

The partnership represents an alliance of upstarts against the incumbent telecom carriers, which traditionally have brought in a lot of their revenue and profit from voice services and T-1 lines sold to businesses. VoIP services such as Vonage's are making steady inroads against traditional carriers through low prices and new features.

TowerStream has fixed wireless networks in parts of New York, Los Angeles, Chicago, San Francisco, Boston and the Providence, R.I., area. Its customers can get 500K bit/sec to hundreds of megabits per second of bandwidth, says CEO Jeff Thompson.

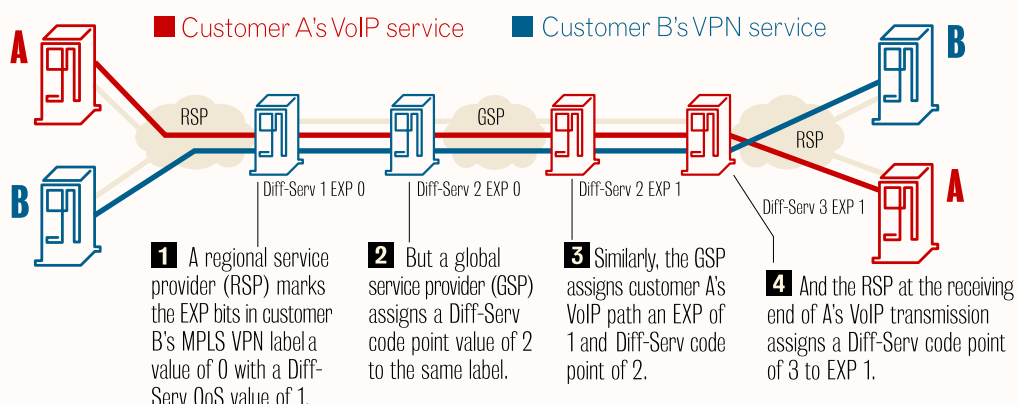
Equipment at the customer's location communicates with a base station 5 to 10 miles away, he says. Because it doesn't require wires, TowerStream doesn't have to lay fiber or lease capacity on a carrier's local "last-mile" network to reach subscribers.

TowerStream's service is priced starting at \$350 per month; the company offers a 1.5M bit/sec service for \$500 per month as an alternative to carrier T-1 lines. There also is a \$500 setup fee. TowerStream owns the customer premises equipment.

TowerStream customers have been able to use Vonage's service over their fixed-wireless data connections, but now they can buy the two services as a package. ■

Consistently inconsistent

If packet markings between different service providers do not match up, QoS could be disrupted.



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TECHNOLOGY UPDATE

■ AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

DKIM fights phishing and e-mail forgery

BY MILES LIBBEY

E-mail fraud is a global problem that plagues consumers and businesses, costing millions of dollars in direct losses, technology expenditures, lost productivity and network downtime. With phishing attacks on the rise, leading companies are working to develop e-mail authentication protocols that protect users from e-mail fraud.

DomainKeys Identified Mail (DKIM) is an e-mail authentication proposal that strengthens user protection from e-mail forgery, and increases accountability for spam and phishing scams. DKIM defines a domain-level authentication framework for e-mail using public key cryptography and key server technology to permit verification of the source and contents of messages by mail transport agents or mail user agents. The goal of this framework is to prove and protect message sender identity and the integrity of the messages they convey, while retaining the functionality of Internet e-mail as it's known today.

The specification merges Yahoo's DomainKeys and Cisco's Internet Identified

Mail e-mail verification technologies, which have similar attributes. Cisco and Yahoo submitted the combined technology to IETF last month for consideration as an e-mail industry standard and to help enable industry-wide adoption of the technology.

DKIM uses public key cryptography to let users verify and maintain message integrity, and identifies legitimate messages. The proposed standard uses DNS in the same manner as DomainKeys, Yahoo's anti-spam protocol, which is in use around the world. DKIM also leverages Cisco's Internet Identified Mail header-signing technology, ensuring signature consistency as messages are sent through networks.

Big benefits

The benefits of signing e-mail using DKIM can be substantial for banks, utilities, e-mail commerce services and other companies that send transactional e-mail to consumers. Providing customers with a means to detect fraudulent e-mail can translate directly into increased user satisfaction, reduced customer care costs and strengthened brand reputation.

To sign an e-mail with DKIM, an e-mail administrator first creates one or more public/private key pairs using free software. The public portions are put into the domain's DNS records, while the private portions are given to the domain's sending mail servers. When sending a message, the mail servers use a private key to create a digital signature covering the message's headers and body, which is inserted in the

headers.

When the recipient's e-mail system receives a DKIM message, it performs a DNS lookup to retrieve the domain's public key. With the public key and the message contents, the server can verify that the digital signature is valid, thus proving that the message was signed by an authorized party, meaning it is not a forgery. If the recipient's e-mail system receives a message that does not contain a DKIM signature, it performs a DNS lookup to determine if the domain indicates how much of its e-mail is signed. If it indicates that all messages are signed, the recipient can be certain that the message is not authentic.

Trust evaluation

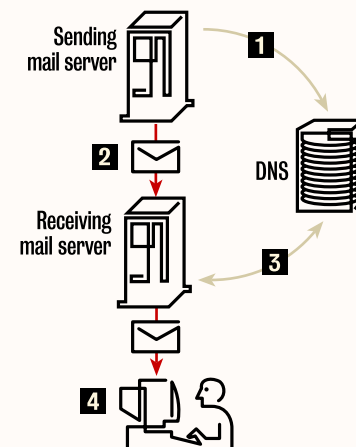
Once a message has been determined to be legitimate, the recipient system can use reputation and accreditation systems to evaluate how much trust should be given to the e-mail. For instance, anti-spam filters might not challenge messages from a bank as much as those from a gray-market pharmaceutical e-commerce vendor.

Giving recipient systems the tools to distinguish between fraudulent and legitimate e-mail will make it more difficult for spammers, phishers and other fraudulent e-mail senders to evade anti-spam filters. In addition, anti-spam systems can use the DKIM information to make more accurate decisions in creating safer and improved user experiences in e-mail.

Libbey is the anti-spam product manager for Yahoo Mail. He can be reached at mlibbey@yahoo-inc.com.

HOW IT WORKS: DomainKeys Identified Mail

A newly proposed IETF e-mail authentication technology, DKIM combines DomainKeys and Internet Identified Mail. The specification uses public key cryptography to let users verify and maintain message integrity.



- 1 The sending domain publishes a public key in its DNS record.
- 2 The sending mail server digitally signs and sends the message.
- 3 The receiving mail server retrieves the public key from the sending domain's DNS record. It verifies the digital signature using the message content and the key.
- 4 The receiving mail server delivers the e-mail to the end user's mailbox.

Got great ideas?

■ *Network World* is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Senior Managing Editor, Features **Amy Schurr** (aschurr@nww.com).

Ask Dr. Internet

By Steve Blass

Is it true that attack software for exploiting Cisco routers was publicly released at a recent hacker conference?

No exploit software was publicly released. A recent conference presentation described how Cisco IOS might be compromised by the same sort of buffer overflow problems that cause trouble in other operating systems, and a current IOS vulnerability was discussed. Cisco released an advisory addressing a denial-of-service vulnerability on July 29 affecting "all Cisco devices

running any unfixed version of Cisco IOS or Cisco IOS XR code that supports, and is configured for, IPv6." (The advisory is available at www.networkworld.com, DocFinder: 8337.)

Devices running Cisco IOS should be upgraded to a version in which this vulnerability has been fixed. If you aren't using IPv6 in your network, you can protect your routers by ensuring that IPv6 is not configured. On a router that is configured for IPv6, do this by issuing the command "no ipv6 enable" and "no ipv6 address" on each interface. Cisco is providing upgraded software

for all customers. Those with service contracts should obtain upgraded software through regular channels. Cisco customers without service contracts should contact the Cisco Technical Assistance Center and be ready to provide the serial number for the routers to be upgraded, along with the URL of the advisory, to receive a free upgrade.

Blass, a network architect at Change@Work in Houston, can be reached at dr.internet@changeatwork.com.



GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Stormy weather software

Weather can be nasty stuff. As most of you know (particularly if you live in Florida or Tornado Alley), and as some of us have experienced, a lightning storm can easily become a recipe for spending lots of money and enjoying sleepless nights.

So what can you do? Well, knowing when a serious storm enters your area can make a huge difference to how and when you handle shutting down and unplugging systems. You

could watch weather forecasts on TV (sketchy at best) or check an online weather service. The problem with the latter is you have to actually have someone monitoring the service for weather in your locality. Here's a great alternative: StormPredator from IntelliWeather.

StormPredator is a Windows 2000 or XP (Home or Pro) application (it also will run under Microsoft Virtual PC for Macs) that downloads radar data from the national Nexrad Radar network and tracks weather in near real time. The really cool thing is StormPredator can detect when bad weather enters your area and alert you.

Nexrad (which stands for "Next Generation Radar") measures precipitation and wind speed. The system transmits radar pulses that are reflected back by water in the atmosphere, trees, buildings and so on. By analyzing the received pulse strength along with the time it takes for the pulse to

travel to whatever reflects it (what we'll call the target) and back again, and the Doppler shift (the pulse's frequency shift due to the speed of movement of the target), then removing the "noise" created by the reflections from stationary targets, the Nexrad system can measure the reflectivity, direction of movement, and speed of precipitation.

There are a lot more technical issues, including the removal of signals returned by static objects, such as build-

StormPredator can detect when bad weather enters your area and alert you.

ings and trees, as well as the different types of reflectivity and conditions that weather radar can measure. For those of you who wish to wade through the details, the Weather Underground has a very good primer on weather radar.

After you install StormPredator (very easy), you select your location, and you will be presented with a novel display: a simulation of an old-fashioned radar scope complete with a sweeping beam (you can switch this off).

There are a lot more configuration options, the most important of which is to specify a scan zone — a circular area of whatever size you please centered on your location. You then set the threshold for precipitation level and sensitivity at which you want alerts to be generated. Alerts can be displayed on the monitor with an optional warning sound or include e-mail and smartphone messages.

Once a storm is detected and you've been alerted, you can predict the path and arrival of a storm cell at a given location using the track function. You select the cell's approximate center at three previous times, and StormPredator will display the projected path as a trapezoid, where the center is the most likely path and the boundary of the trapezoid is the likely variance of the path. Clicking within the boundary displays the approximate arrival time of the cell at that position.

StormPredator also can display loops of recent radar data, and download forecasts and maps of weather warnings. It also automatically saves regular snapshots in PNG or JPEG format that can be uploaded to a Web server for integration with other content.

At just about \$40 this is an awesome tool for weather freaks and nervous IT groups.

Our other topic this week is Gearblog: As you have hopefully noticed (we wonder how you could not have; we have shamelessly pushed it everywhere we could), we have a blog (along with around 30 million other masochists). As it has been going for some time, we wonder what you think of it. Do you read it? Is it useful? Entertaining? Informative? Boring? Are the blog items with links for Gearhead and Backspin useful? What would make you really happy if we were to add, subtract or change? Please let us know.

Comments to gearhead@gibbs.com. Check Gearblog (www.networkworld.com/weblogs/gearblog) for links and notes for this column.



CoolTools

Quick takes on high-tech toys. Keith Shaw

The scoop: LifeBook P1500 series, by Fujitsu, starts at \$1,500.

What it is: A pen-enabled convertible notebook, the P1500 series is an upgrade of Fujitsu's P1000 line of ultra-portable notebooks, with improved features and Windows XP instead of the Tablet PC operating system. The notebook features an 8.9-inch touchscreen that lets you use your fingers or any regular pointing implement to input data. (No special pens are needed, which often get lost).

The 2.2-pound notebook is powered by an Intel Pentium M Ultra Low Voltage processor (up to 1.2 GHz), has up to 1G byte of system memory (minimum of 256M bytes), a 30G- or 60G-byte hard drive, integrated 802.11a/b/g wireless LAN connectivity, and a port replicator/docking station that provides additional ports and monitor connections.

The system's regular battery provides about three to four hours of life, and the extended battery (which also juts out to provide a comfortable way to handle the notebook in slate mode) offers between seven and eight hours of life, Fujitsu says. It is packed with additional ports and interfaces, including a Compact Flash card slot, a Secure Digital card slot, two USB 2.0 ports, an RJ-11 modem port and RJ-45 Ethernet port.

The P1500 is aimed at markets such as healthcare and field force automation, and workers who spend a lot of time using forms-based processing. It is designed to be carried, meaning most data input will be done through the touchscreen and pen.

Corporations will appreciate the security features on the notebook, which include an integrated fingerprint scanner for authenticating users onto the device, and an embedded Trusted Platform Module that lets users encrypt file data.

Why it's cool: Many of the downsides of a tablet (odd operating system issues, average handwriting recognition and the specialized pen that gets lost) are eliminated through the use of the P1500's touchscreen that can be used with your finger or reg-

ular pointing device. For handwriting recognition, the system comes bundled with EverNote Plus, a note-taking application that lets you store handwritten notes, Web clips and other notes or lists, similar to the Microsoft OneNote application found on Tablet PCs.

More impressive is the bundled RitePen application, which enables handwriting recognition on any other application. For example, users can open up an Internet Explorer browser and write the URL of a Web site in longhand, and the application will convert it to text in the URL window. In our tests, we opened an instant messaging application and sent IMs by converting our handwriting into the text window.

The style, design and extremely light weight of the notebook will create oohs and ahhs around the office.

Some caveats:

It is designed for workers who will use it mainly as a slate tablet, and use the touchscreen for text input, but we have to take points off for the system's tiny keyboard. Fujitsu has done an admirable job in squeezing as many keys as possible into its QWERTY keyboard, but users who do a lot of typing will feel uncomfortable with its size. This can be alleviated by connecting a USB keyboard to the system when it's docked, but that reduces mobility. Another trade-off is the lack of an optical drive on the system, which means installing applications with a CD-ROM and watching DVDs with the notebook are harder to do. Fujitsu has an optional external optical drive for the system that connects via USB port, but that becomes an extra thing to carry around if you want those features.

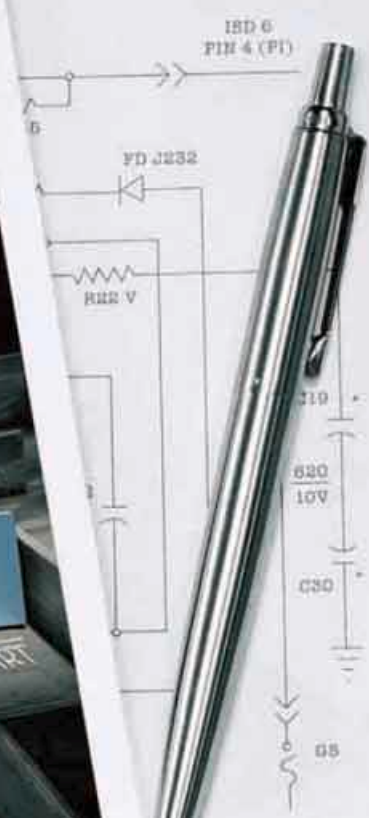
Grade: ★★★★★ (out of five)

Shaw can be reached at kshaw@nww.com.



The LifeBook 1500 gets high marks for its overall style, design and its light weight.

SDLT 600 MEMORY TEST



TEL: 7045



SDLT 600 Results :

- Cognitive Memory Skills :
- Speed :
- Manageability :
- High Capacity :
- WORM :
- Compatibility :



In repeated time trials, the SDLT 600 never reached the cheese, or even left the starting line for that matter. Perhaps tapes don't like cheese. However, as for data backup capacity, the **SDLT 600 is a clear winner. It has more capacity and more speed than LTO-2 and AIT-3.** It also includes DLTSage™ diagnostic management software and DLTice™ archival WORM functionality. How do we know? It's been tested. For more info and to see the whitepaper, visit DLTtape.com.



On Technology

John Dix

Jericho winner paints new security picture

The first-place entry in the Jericho Forum's competition for a new answer to security maps neatly to the forum's vision of networks that aren't dependent on Chinese walls. The competition, in association with the Black Hat conference group, challenged "any team of technology experts to design a secure architectural solution that is open, interoperable, viable and operates in a de-perimeterized environment."

Principally composed of large companies, the forum argues that perimeter defenses have been rendered useless by Web and e-mail-based attacks, and that hardened perimeters are "at odds with current and/or future business needs."

The companies, frustrated by what they see as continued industry focus on the broken perimeter model, have banded together to influence security thinking, as well as product direction and development, with this competition an important step.

The first-place entry was from Thomas Olovsson and Jamie Bodley-Scott from AppGate Security. Their vision: "The central firewall complex is replaced by a set of distributed firewalls that are placed on all clients and servers. These firewalls are centrally controlled and can dynamically be configured to allow or deny traffic in the network."

A typical use would be users connect to a gateway called a primary point of interface, and go through an identification/authentication dance (single sign-on); services are requested and the system checks on access authorization and service availability, and then passes on to application servers information about the users' identity and access rights (the servers and services remain invisible to unauthorized users); application servers grant access to bona fide users and block access for all others; traffic is encrypted if needed.

To address the challenge's viability requirement, Olovsson and Bodley-Scott propose use of, in part, commonly available technologies: Kerberos for authentication and authorization; LDAP for centrally storing credentials; and SSL, SSH and IPSec for traffic encryption. Other aspects of the architecture draw from AppGate's managed portal technology.

"Assuming each object can protect itself, the overall security level achieved in this system can be significantly higher than before," write Olovsson and Bodley-Scott. "A major reason for this is that all systems are now protected against hostile traffic regardless of its origin."

It is a compelling story that, as some of the judges in the competition wrote, seems practical. Current firewalls would be redeployed as central systems to collect data used for intrusion detection and prevention.

While the Jericho Forum's basic ideas are viewed by some as radical (see www.networkworld.com, DocFinder: 8259), if nothing else the group's push is generating some important soul-searching that should benefit us all.

— John Dix
Editor in chief
jdix@nww.com

Opinions

Firewalls tumbling down?

Regarding "Are firewalls expendable?" (www.networkworld.com, DocFinder: 8322): I suspect the debate is being marred by the assumption that de-perimeterization is equivalent to the death of the firewall. This is like saying that eliminating city walls meant eliminating locks, doors and borders.

The Jericho Forum wants to develop a world without corporate perimeters by requiring ISPs and network providers to deliver cleaner network services. One might call this macro-perimeterization. At the same time, individuals and corporations will be moving perimeters inward to protect their critical information assets. One might call this micro-perimeterization.

None of us on the Jericho Forum want to achieve anarchy. Try to imagine the discussions that went on in the council of London when the first "idiot" proposed tearing down the city wall. The noise from the naysayers was probably deafening and just as ill considered. Actually, we are envisioning a world where everyone has implemented security models that negate the need for an electronic city wall.

The challenge of de-perimeterization will require governments, vendors, users and corporations to work in a new, more empowering manner that relies on new models and means of electronic trust. We cannot continue to operate under the assumption that the Visigoths are at our city walls; we need to take control of the "countryside" and bring order inside our electronic borders.

Adrian Seccombe
Chair, Trust Model Working Group
Jericho Forum
Guildford, U.K.

Are firewalls expendable? No, not if you are at all rational. But one part of this recent publicity stunt is that it is finally recognized that internal networks are becoming increasingly hostile and PCs (especially

Windows), servers (all types), applications and appliances need firewalls in addition to perimeter defenses. It is no longer sufficient just to watch the perimeter.

David Anderson
Calgary, Alberta

While the Jericho Forum is absolutely correct that new security solutions need to be developed to protect resources within the network, promoting the notion that companies should retire their firewalls is irresponsible and negligent. A thorough inspection of the data security records of some of the forum's members (for example, Eli Lilly) might lead some to believe that they've already retired their firewalls — I would not recommend taking security advice from someone with their track record. The notion that companies should not secure their network perimeters is entirely brain-dead and dangerous to the security and privacy of everyone's information — shocking in a year that has seen so many high-profile cases of data security breaches, including from the very entities that are promoting this idea.

Troy Casey
Atlanta

More security needed

Your story, "Open source vs. Windows: Security debate rages" (DocFinder: 8323) leaves out many areas of security. What about on-the-fly document encryption and e-mail encryption? For Linux to be a truly viable solution, it needs to match Windows in every area of security, including that which is available in end-user applications. What I have seen so far is mostly manual, geek-oriented security that would be very hard to convince regular users to use.

Glenn Gettinger
Terre Haute, Ind.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

nww.com

Readers respond

Find out what readers are saying about these and other topics. **DocFinder: 1030**





ON COMMUNICATIONS
Nick Lippis

Can Juniper play part in trusted networks?

Trusted networking is changing the IT security and network industries as it embeds access control, threat defense and containment, and risk mitigation deeply into the network fabric. Cisco, HP, Nortel, Extreme Networks, Foundry Networks, 3Com and Enterasys have made security programs top priorities. Symantec, Trend Micro, McAfee and Computer Associates have focused on their niche in the trusted networks market and partnered with large enterprise players. All of the major service providers now offer managed firewall, VPN and IDS/IPS services. But it is hard to tell whether one company in particular — Juniper Networks — will be a factor in trusted enterprise networks.

Scott Kriens, Juniper chairman and CEO, has focused on the enterprise market in his speeches and acquisitions. Juniper recently acquired Peribit and Redline, and inked a new partnership with Avaya in the fast-growing IP telephony space. Redline is nicely positioned in the red-hot Web application acceleration market, and its 2004 \$4 billion acquisition of NetScreen gives it a foothold in the enterprise market, as well. Juniper's net revenues for the second quarter of 2005 were \$493 million, compared to \$306.9 million for the same

period last year.

With all this going for it, why would I question whether Juniper could be a factor in the trusted networks market? Because there are a few issues that give me pause when I consider Juniper's potential corporate network success:

- **Lack of direct corporate relationships.** Netscreen's products were distributed to the enterprise market mostly through service

Juniper's strategy relegates it to an appliance-based security approach.

providers. In acquiring Netscreen, Juniper gets another set of products to sell to service providers, rather than build and enhance corporate relationships.

- **Product strategy.** Juniper's Redline acquisition is Layer 4 through 7 appliances. Juniper does not own any Layer 2 products. Layer 2 is becoming a platform on which trusted network services are hosted. Look at Cisco's Catalyst switches and Network Admission Control, Nortel's Ethernet Routing Switch Portfolio with Threat Protection

System, ProCurve Networking by HP's Interconnect switches with Virus Throttle, Extreme's switches with ClearFlow security technology, and Foundry's switches with IronShield security technology. All deliver some form of network access control to stop the propagation of exploits before they enter the network. This hole in Juniper's product strategy relegates it to an appliance-based security approach.

- **Making the jump.** No company in the post-1984 divestiture world has been able to successfully leap from service provider equipment manufacturer into the enterprise market. Lucent sold Avaya to focus on the service provider market because it couldn't serve both. The door just does not seem to swing both ways.

For sure, Juniper is on a roll and has market attention. But the question remains: Is Juniper a niche trusted networks player or a major influence and force?

Lippis consults to CIOs of Global 2000 companies and their directors reports on network architecture development and funding. He publishes the Lippis Report (www.lippis.com) and can be reached at nick@lippis.com.



ABOVE THE CLOUD
James Kobiulus

Identity theft threatens federation

Identity theft is fast becoming the new bête noire of the cyberworld, crowding out spyware, spam and viruses for that dubious honor. During the past several months, the media have splashed increasingly frightening cover stories, consumer alerts and other breaking news about people who've had their identities spoofed, credit cards hijacked and assets looted by unseen strangers lurking on the Internet.

Amid the growing hysteria, the identity-management industry sees a big black eye in the making, and it's beginning to formulate strategies for identity theft prevention, detection and remediation. For example, in June Liberty Alliance formed a group to develop best practices to help businesses and consumers prevent online identity fraud. In a similar vein, Microsoft recently announced a retooled identity-management federation strategy — the Identity Metasystem — that underscores the need for identity-theft and privacy protection.

The unspoken subtext behind these initiatives is that trust — the foundation of identity-management federation — is in jeopardy if the industry doesn't proactively address identity theft on many levels. The stakes couldn't be higher. What's most worrisome is the growing prevalence of phishing, pharming and other social-engineering ploys to steal user information. These frauds strike at the very heart of the federation: users' trust in the authenticity of identity providers. If you can't trust that the party to whom you're presenting credentials is in fact

what it claims to be, then nothing's truly secure.

Likewise, well-publicized break-ins to corporate databases have further shaken people's trust in the safeguarding of critical personal identity data. And massive theft of personal data creates another trust loss: Identity providers who've been victimized can no longer trust that the individual presenting credentials is who he or she claims to be.

In the face of never-ending identity thefts, the only way out of this downward spiral is to continue reissuing new credentials to affected users, but only after reputable agents have proofed

The industry realizes standards alone aren't the answer to ID theft.

those users to strong assurance, and only if the new credentials rely on biometrics for strong authentication. Clearly, this theft-unfriendly identity-management environment is a long way from being implemented in the real world and would be quite expensive, complex and cumbersome to universally deploy.

Some have argued that federated identity-management is a fundamentally flawed approach that encourages identity theft. Nothing could be further from the truth. There's nothing inherently unsecure about federation protocols, such as Security Assertion Markup Language and Liberty Alliance Identity Federation Framework, or the way vendors and users have implemented them.

Rather, most identity theft originates in the massive online market for bulk user personal data that many consumer-facing businesses collect in normal operations. In addition, companies, carriers and other identity providers frequently implement lax controls on external access to identity information in their databases and directories, encouraging hack attacks.

The federated identity-management industry isn't the only sector of our economy that's looking for solutions to the multifaceted problem of identity theft. But the federated identity-management market realizes this is a bread-and-butter issue that threatens to overshadow all efforts to create a universal trust environment for interoperable e-business.

To its credit, the industry realizes that technical standards alone aren't the answer to identity theft and fraud. The threat is so multifaceted, pervasive and stubborn that it must be addressed with federated identity-management best practices that also take into account business, legal, consumer education and other considerations. A cross-disciplinary approach to identity theft protection — not purely technical approaches — should be the ongoing focus of Liberty Alliance and other industry groups.

Kobiulus is a senior technical systems analyst at Exostar LLC, a B2B trading exchange serving the aerospace and defense industry. He can be reached at (703) 924-6225 or james_kobiulus@hotmail.com.

FEATURE

IT STAFF SHORTAGE LOOMING

Outsourcing. Automation. Downsizing. The industry has been awash in unemployed IT pros. But experts are now predicting an IT staffing crunch is just around the corner, and the implications for U.S. technology innovation are sobering.

BY LAUREN GIBBONS PAUL

LAST YEAR, PHIL ZWEIG NEEDED

to fill two critical roles in his IT organization at Northwestern Mutual — one in identity management and one in mainframe system support. Zweig, vice president of IT for the Milwaukee firm, began to get antsy when those slots had not been filled in the usual timeframe of two to three months. “It was taking us about five to six-plus months, double what I would like to see,” he says.

In itself, that might not seem like a big deal, but Zweig has his eye on the bigger picture. As vice president of advocacy and communities of interest for the Society for Information Management (SIM), he heads up a research project that is examining the combined effects of radically dropping enrollment in IT programs at the undergraduate level and the first wave of baby boomer retirements. “Between the retirements that are coming and the reduction in computer science students, we’re in a very difficult position,” he says.

Zweig is part of a growing number of IT leaders who are concerned it will be increasingly difficult to find people with hot skills such as project management. Without enough future IT professionals in the pipeline — and with thousands of older employees leaving the workforce — the U.S. could be left high and dry when it comes to technology innovation. And that could sap economic growth.

Gartner estimates six out of 10 corporate IT professionals will assume business-facing roles by 2010. By that same year, IT organizations at midsize and large companies will be at least one-third smaller than they were in 2000, according to Gartner. In five years, 10% to 15% of IT professionals will drop out of the field altogether, the firm forecasts. These predictions portend a clouded future for an important sector of the U.S. economy.

“Where will the next wave of technology creation come from? Will the U.S. be able to sustain its leadership? What will happen if there’s no one left to hire here?” says Nancy Markle, past president of SIM and a current board member. Markle was previously a CIO at Arthur Anderson.

BRAIN DRAIN As the first wave of baby boomers begins to retire in 2008, 20% of human resources managers who participated in a January Deloitte survey said they anticipate “critical shortages” in IT talent.

Declining enrollment

With the pain of the recession's widespread layoffs barely in the past, it is hard to believe an IT worker shortage could again be just around the corner. Five years ago, the business and technical press were full of stories about the lack of skilled IT professionals. The topic was a perennial favorite, right up until the economy tanked.

But the signposts to a coming IT worker shortage are rooted in fact. The fact, for example, that undergraduate enrollment in computer science programs has dropped 7% for each of the last two years, according to the Taulbee Survey of the Computing Research Association (CRA). Further up the pipeline, the number of students who declared their major in computer science has declined for the past four years and is now 39% lower than in the fall of 2000.

Kate Kaiser, associate professor at Milwaukee's Marquette University, teaches a basic computer science course, among others. "In 2001, this class had two sections and 48 students. This fall I had one section and 12 students," says Kaiser, who is con-

ducting interviews with IT managers as part of the SIM research project. "It's too bad — I think everyone should love this field," she says.

The steep decline in IT students is at least partly attributable to a largely unseen but persuasive factor: parents. Just a few years ago, technology was a glamorous destination, but thanks to its role in the dot-com boom, many now see it as a dead letter. The perception is that all the good IT jobs are in India and China, and they're not coming back any time soon. "Parents influence the field their kids go into. Right now, they view IT as too unstable," says Diane Berry, managing vice president for Gartner's human capital management practice.

"The adults in these kids' lives are perpetrating the wrong information. That is only making things worse," says Joey George, professor in the MIS department at the College of Business, Florida State University, in Tallahassee. "These jobs are starting to come back."

No cause for concern?

In fairness, some people believe the alarms about a loom-

ing IT worker shortage are akin to Chicken Little's warnings about the sky falling. John Glaser, vice president and CIO for Partners HealthCare System in Boston, is not currently experiencing a crunch, and he's not overly concerned about the dropping rates of computer science students, either.

"It is not clear to me how much of an impact [the declining IT student enrollment] will have. Many of our technical people received their education at community colleges, vocational schools or through on-the-job training as they shift careers. I don't know how many of our recent hires have followed a computer science path through college," Glaser says. Recently, however, he has seen IT staff turnover rates increase from 3% to 7% to 8%.

Though CRA research indicates a sharply reduced supply of computer science students in the U.S., Jay Vegso, manager of membership and information services, stops short of declaring an IT worker crunch. "Predicting demand [for IT workers] is very difficult and has been botched before," Vegso says.

There are other countervailing factors. The U.S. government might soon elect to increase again the number of H-1B visas, allowing additional foreign workers to take IT jobs here. Companies might do a better job of developing non-technical professionals to join the IT ranks. Outsourcing and automation will almost certainly consume an increasing number of IT jobs going forward.

No one knows for sure what effect these forces will have in a year or two. Large companies are not reporting huge gaps in their available IT skills today, but tomorrow could be another matter.

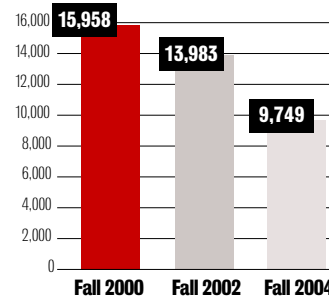
Where the gaps are

It is impossible to precisely know in advance whether the coming shortage will be severe, but there are some best practices IT managers should implement now if they haven't already, experts advise.

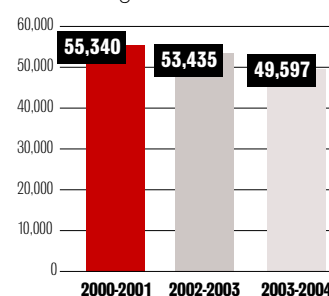
Topping the list is an IT skills inventory. This is exactly what it sounds like — evaluating what skills are currently in-house, what skills might be needed in the next five years and putting together a plan to bridge that gap. "Companies need to come up with a workforce plan that details how they can continue to meet their own changing needs," says Andy Walker, research director for Gartner.

Dwindling IT pipeline

Newly declared Computer Science (CS) majors:



CS undergrad total enrollment



SOURCE: COMPUTING RESEARCH ASSOCIATION'S 2004 TAULBEE SURVEY OF THE 172 Ph.D.-GRANTING INSTITUTIONS THAT GRANT CS DEGREES.

Fastest growing industries

The top five for the period 2002 - 2012:

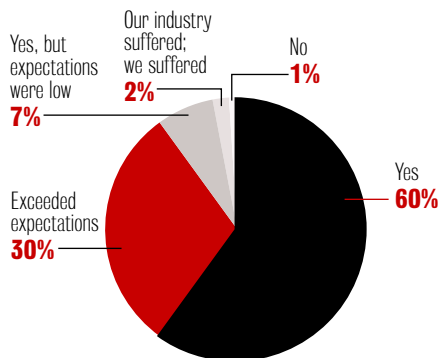
1. Software publishers
2. Management, scientific and technical consulting services
3. Community care for the elderly
4. Computer systems design and related services
5. Employment services

SOURCE: U.S. DEPARTMENT OF LABOR BUREAU OF LABOR STATISTICS, FEB. 2004

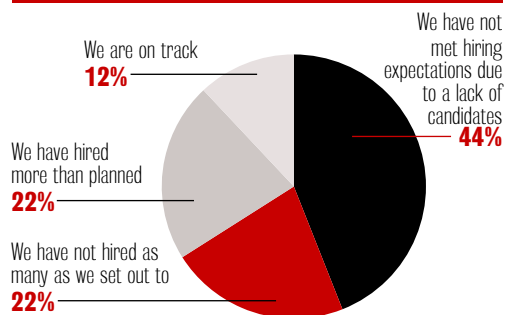
Not enough jobs? Or not enough talent?

A recent Challenger, Gray & Christmas survey of 150 human resources executives pointed to the lack of qualified candidates, particularly in the fields of IT, healthcare and specialty manufacturing, as a hindrance to job creation.

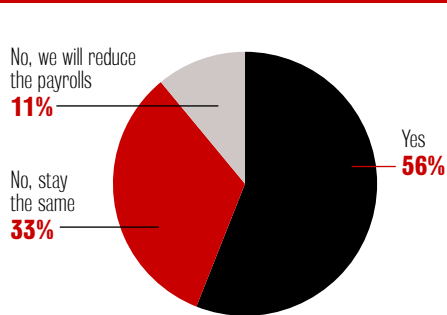
Did your company's performance in the first half of this year meet expectations?



So far, have you hired more or fewer workers than you had planned for this year?



Do you plan to add more workers in the second half of 2005?



SOURCE: CHALLENGER, GRAY & CHRISTMAS Inc., JUNE 2005

Growth occupations

Fastest growing IT job titles in the U.S. economy, 2002-2012

Computer-related job titles*	Employment 2002	Employment 2012	% growth
Network systems and data communications analyst	186,000	292,000	57%
Computer software engineers, applications	394,000	573,000	46%
Computer software engineers, systems software	281,000	409,000	45%
Database administrators	110,000	159,000	44%
Computer systems analysts	468,000	653,000	39%
Network and computer systems administrators	251,000	345,000	37%
Computer and information systems managers	284,000	387,000	36%

* In descending order from highest to lowest growth SOURCE: U.S. DEPARTMENT OF LABOR BUREAU OF LABOR STATISTICS, FEB. 2004

The skills inventory will immediately spotlight the most pressing skills now and for the near term. Networks are still a hot area, and for most organizations finding someone who combines technical savvy with soft skills is an ongoing challenge. People with project manage-

ment experience and the ability to thrive working in virtual global teams are in desperately short supply. "Companies need both business and technical skills but the business skills are harder to find," Berry says.

Many companies have instinctively dealt with a potential

worker shortage by extending the working life of people who found they couldn't retire when they wanted because of the economy. "We got an extra few years out of them," Walker says. That is a good way to keep legacy systems going until they need to be replaced, he adds, but is a

temporary fix.

Creative solutions needed

On a macro level, Zweig believes the long-term solution to an IT worker shortage is to reach out not just to university students but also high school and middle schools. "We have to get students

enthused about entering IT. This is not a dying profession," Zweig says. SIM is working on school outreach efforts with its more than 30 nationwide chapters.

As for CIOs who are concerned about how to fill their spots in the coming years, it might take a mixed, creative approach. "You might outsource some folks and bring some up through the in-house ranks, use contractors for other roles," Walker says. He admits this makes managing the IT organization more complex.

But these efforts will be worth it in the long run if they help preserve IT jobs in the U.S. economy. "Other countries are pushing for technical education in their countries. If we don't do that here, companies will have no choice but to send the jobs offshore. That's not good for the U.S.," Markle says.

Harris Miller, president of the Information Technology Association of America (ITAA), heartily concurs. The combination of fewer students and the coming wave of baby boomer retirements threatens American competitiveness, he says. "It's a myth that the smart people only live in the U.S. The advantages that we had in the field of technology were never going to last forever," Miller says.

Miller believes turning the situation around requires a "major wake-up call" on the part of government and private industry. Everyone needs to support the next generation in seeing IT as a vibrant, growing occupation, or else the tradition of technology innovation will perish. "We're like the frog sitting in the slowly boiling pot. It is happening so slowly no one notices but pretty soon we're going to be dinner," he says.

Paul is a freelance writer in Waban, Mass. She can be reached at lauren.paul@comcast.net.

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CLEAR CHOICE TEST

Novell's OES provides ties between NetWare and Linux

BY TOM HENDERSON, NETWORK WORLD LAB ALLIANCE

Depending on how you look at it, Novell's Open Enterprise Server is either more of the same old stuff, or a major breakthrough in how advanced services can be built to run on a variety of base operating system kernels.

Based on our Clear Choice Test of OES, we think it's a major breakthrough in Novell's long-stated intention to marry its directory and administrative applications to Linux. OES layers a highly competitive directory service onto Linux, provides decidedly evolved administrative and management components and offers very good, egalitarian client support.

With OES you get a choice: traditional NetWare (Version 6.5 with Service Pack 3), or traditional Linux (SuSE Linux Enterprise Server 9 [SLES] with Service Pack 1). NetWare shops can now peer Linux applications and services with NetWare-hosted eDirectory and Novell-based identity-management services. On the flip side, Linux-based IT organizations can now plug into a cohesive, mature, encrypted authentication infrastructure that's commercially supported worldwide.

A single OES license entitles the user to build two servers of either foundational type and cluster them together. The OES glue that binds the two base operating systems together is eDirectory, which is easier to implement, manage and administer than the open source OpenLDAP directory service. Novell has made the eDirectory services largely congruent across both kernels.

The downside that still remains for both NetWare and Linux users — even with OES — is that connectivity to Windows Active Directory and NT domains creates a duplicate layer of directory services because that integration requires the installation of Samba proxy services to make the necessary connections.

Both versions of OES can be managed by iManager 2.5, a browser plug-in that gets to the heart of virtually all OES services worth mentioning — especially Novell's evolved eDirectory. This application uses browser real estate efficiently but begs for a high-resolution screen. On the Linux side of OES, where iManager leaves off, SLES 9's Yet Another Setup Tool (YaST) takes over for driving operating system-specific configuration and administration detail such as hardware management, low-level settings and DNS/DHCP tasks. In our tests, we hardly used YaST.

Unlike with the Windows 2003 server editions we've tested, Linux and MacOS clients aren't second-class clients. OES provides maximum security measures available for these clients, including easy logon script support and encrypted server communication. The odd client out is Novell's Desktop System client, based on

Linux, which doesn't have a peer client-side connectivity method that generic Linux, MacOS and Windows clients do.

While both foundation kernels will run on 64-bit CPUs (which we tested and found no anomalies), both OES application sets are limited to 32-bit use and are only supported by Novell at that level. We found that performance of Web-based transaction tasks was only slightly faster (ranging from no appreciable increase to a 7% rise in throughput on SLES 9 OES) than the versions of NetWare 6.5 (DocFinder: 8326) and SLES 9 (DocFinder: 8327) we've tested in the past. Novell says that a cross-platform, full 64-bit version set of OES services is scheduled to arrive early next year.

Our tests showed excellent installation compatibility for both kernel foundations across an array of server platforms (see "How we did it," DocFinder: 8325).

We found the network installation process to be much quicker than installing the OES software from the distribution CDs. Initial configuration of eDirectory on either platform, while unattended, takes time (about 45 minutes for a baseline eDirectory configuration on SLES 9). Subsequent importation of LDAP schema and data from our 3,000-user database was very fast (less than 5 minutes on NetWare; 7 minutes on SuSE Linux).

It also is possible to migrate Windows NT domain information into eDirectory with a little effort. Connecting to a Windows Active Directory tree requires more work, and synchronization services between eDirectory and Active Directory uses Samba, which requires extensive initial manual installation when used with eDirectory.

Clustering Netware and Linux

Once configured, either OES foundation can be clustered with any other, with surprising ease. Connecting shared resources — such as file systems — was a breeze. One exception was that NetWare OES was unable to handle Common Internet File System (CIFS) with concurrent large file copies. Novell says that CIFS support will be improved in an update to arrive later this month.

We found server application support to be cohesive across both operating system foundations. For organizations that use Apache, Java 2 Platform Enterprise Edition, JBoss, Tomcat, MySQL and other open source application platform sets, the OES platform levels the playing field between NetWare kernel-based servers and those

OPERATING SYSTEMS

OES 1.0

Novell www.novell.com

NetResults 4.25

\$184 per user

Pros: Very mature directory service now lives on Linux; clustering is simple; very good administrative tools.

Cons: Doesn't fully support 64-bit hardware platforms; no source code is provided on this otherwise open source platform.

The Breakdown

Installation/integration	25%	4.0	Scoring Key: 5: Exceptional. 4: Very good. 3: Average. 2: Below average. 1: Subpar or not available.
Performance	25%	4.0	
Management	25%	4.5	
Security	25%	4.5	
Total score		4.25	

Note: Reflects overall scores between both OES versions.

running OES SuSE Linux. Very few minor differences exist with these applications between the two server platforms. Additionally, a new certificate authority accessible from either foundation worked well and has flexible, RSA-licensed certificate generation and management.

Novell's NetWare Storage System also allowed us to mount and use a larger number of filing systems, such as the Linux Reiser journaled file system found in SLES 9. By using iFolder — Novell's Web interface to various, supported OES-based filing systems — we could move folders/files on both platforms quickly no matter the client type. This rcp-type (Unix remote copy) method also prevents dragging files and folders through network wires.

We built NetWare OES to NetWare OES, SLES OES to SLES OES, and NetWare OES to SLES OES clusters. Clustering applications can be in mirrored form (active to passive) or synchronized (active to active) using CIFS, Network File System, File Transfer Protocol, Apple Filing Protocol and LDAP. We tested all types. The applications that mirrored across the OES servers include MySQL, Apache, Novell iFolder, DHCP and DNS — all of which successfully passed our testing. We did not test NetStorage (because of CIFS issues raised earlier), iPrint and Virtual Office in the clustered configuration.

Both cluster synchronizing or mirroring was fast (for example, when we imported a 300M-byte file into MySQL, the data was mirrored effectively within 30 seconds), even under heavy, sustained loads between all OES foundation combinations. But it was fastest when we clustered NetWare OES to NetWare OES.

With OES, Novell has finally delivered on its basic promise of migrating eDirectory and previously NetWare-based components onto Linux as a fraternal partner. Yet to come are ports to a full 64-bit CPU platform infrastructure. Additional cohesiveness in storage support (back-up snapshots aren't supported in SLES OES, as well as certain types of file attributes, and encryption) will be welcome when they arrive.

Henderson is principal researcher for ExtremeLabs in Indianapolis. He can be reached at thenderson@extremelabs.com.



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CLEAR CHOICE TEST

App performance from an end user's perspective

BY BARRY NANCE, NETWORK WORLD TEST ALLIANCE

While most network monitoring tools have spent years inexorably working their way up the protocol stack, a newcomer — PremiTech's Performance Guard — starts at the top and stays there. PremiTech says Performance Guard monitors client machines at the application layer to collect useful statistics regarding user experiences.

We recently tested Performance Guard Version 4.0 (see "How we did it" at www.networkworld.com, DocFinder: 8332) and it proved to be less a tool you occasionally reach for to solve a specific problem and more a measuring stick that continuously gathers and tracks client performance data, including application response times. We even found a use for Performance Guard that its designers perhaps didn't foresee.

View from the top

Performance Guard consists of a server component, agents you deploy on each client and a customer-supplied copy of either Microsoft SQL Server 2000 or the Oracle relational database. The server component, which includes its own Web server, gathers performance data from the agents and stores the result in the relational database. The server component runs on Windows Server 2000 or 2003, while the agents run only on Windows XP, 98, ME and client versions of Windows NT, 2000 and 2003. Performance Guard scales quite well, with a single-server component easily able to manage up to a few hundred clients.

Like any good asset inventory tool, Performance Guard reveals such client details as computer name, processor type and speed, type of network interface, installed RAM and hard disk size. It goes much further, however, to measure overall CPU and memory utilization, I/O statistics, the names and owners of running processes, CPU and memory utilization by process, as well as I/O reads and writes by process.

Performance Guard's client-based agents noted each client's server response time, along with the traffic densities and any network errors it experienced. Performance Guard also measured and categorized Web transaction activity (that is, HTTP-based application services) in our tests, based on transaction characteristics we specified at the Performance Guard Server.

Performance Guard comes with a handy Internet Explorer helper object that computes precise Web access response times and tracks the URLs that a client accesses. We could even configure each Performance Guard agent to use Internet Control Messaging Protocol echo requests/replies to ping specific servers and devices on

the network. These pings provided client-oriented data that revealed client-to-device or client-to-server network access times. Impressively, Performance Guard collects performance statistics for Citrix Metaframe Server-based applications, including per-session data and server responsiveness.

For any Performance Guard-measured metric, we could specify a threshold, above which the server component would notify us, via e-mail or pager alert, that a problem had occurred. We also instructed Performance Guard to send alerts to IBM's Tivoli, Computer Associate's TNG network management systems and the help desk tool Remedy.

Performance Guard cannot automatically fix problems. For example, it cannot restart a Windows service or stop a runaway process. An administrator has to visit the client computer to manually correct problems.

The Performance Guard agents are small and resource-frugal. Each one, typically consumed less than 1% of the client's CPU, and often less than 0.5% of the CPU. Each agent sampled performance at predefined intervals. The default interval is 1 second for local performance metrics, such as CPU and memory utilization. At the Performance Guard server, we could specify each agent's sampling rate, from 1 second up to 60 seconds.

Each agent collects data for a reporting interval, which we could set from 10 seconds up to 2 minutes. The reporting interval governs how much bandwidth the agents use to send data back to the Performance Guard server. While a short interval implies high-resolution statistics, it also results in higher bandwidth utilization. Similarly, a long interval implies low-resolution statistics and low bandwidth utilization. PremiTech suggests setting the reporting interval to between 30 and 120 seconds, but we found an interval of 20 seconds did not adversely affect our network traffic. Setting the interval to 20 seconds (that is, three transmissions to the Performance Guard server every minute from every agent) sends 18,000 reports per hour over the network for 100 clients. Depending on whether we'd told the agents to collect optional statistics, such as ping timings, the 20-second interval setting caused Performance Guard agents to send a total of 6M to 14M bytes to the server each hour. The resulting bandwidth and server storage utilizations were not burdensome.

APPLICATION PERFORMANCE MONITORING

PERFORMANCE GUARD 4.0

PremiTech www.premitech.com

NetResults 3.1

\$100 per seat, plus the cost of SQL Server 2000 or Oracle license.

Pros: Useful statistics; painless installation of client agents; easy to use.

Cons: No corrective actions; runs on Windows only; no indexes in documentation.

The Breakdown

Monitoring	20%	4	Scoring Key: 5: Exceptional. 4: Very good. 3: Average. 2: Below average. 1: Subpar or not available.
Corrective actions	20%	1	
Platform support/scalability	20%	3	
Reporting	20%	4	
Ease of use	10%	4	
Documentation/installation	10%	3	
Total score		3.1	

Ease of use

Performance Guard has a browser-based interface consisting of a Java 2 Platform Enterprise Edition application server environment that uses Java Database Connectivity to access the relational database and that emits dynamic Web pages an administrator interacts with. The interface, with its self-explanatory menus and thoughtfully designed configuration windows, was easy to navigate. Setting up named groups of users (client devices) and then configuring each group was also simple.

Reports are particularly useful to detect response time problems by individual users or for groups of users. They were also useful for spotting trends.

We were able to use Performance Guard as a workflow measurement tool. Imagine a department of 30 head-down data-entry employees using a custom-written application. By defining that application's transactions at the Performance Guard server, we could view reports that quantified each data entry station's workflow and productivity. When correlated with the overall business workload, these Performance Guard client activity reports helped us better assess, for instance, when to hire people or which transactions were more difficult for people to handle.

Installing the agents across our Windows-based network was almost painless. Using Microsoft's MSI installer, the Performance Guard server component quickly and silently distributed agents onto our clients. Only when MSI fails (these failures can be rare or frequent depending on Windows versions, patches and configurations), or when a client isn't powered on during installation, will you have to visit specific clients to manually install the agent. Unfortunately, the documentation is a set of online PDF files.

Performance Guard does for clients what traditional monitoring tools do for servers. If you have a specific application crying out for client-side response-time monitoring, or if you want to track office workflow from the application's perspective, Performance Guard might be what you need.

Nance runs Network Testing Labs and is the author of Introduction to Networking, 4th Edition and Client/Server LAN Programming. He can be reached at barryn@erols.com.

MANAGEMENT STRATEGIES

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Unexpected carrier choices

A few companies have found that lesser-known service providers offer cost savings, quicker deployment.

BY DENISE PAPPALARDO

When it comes to selecting a carrier for your network needs, the road less traveled might not be attractive to everyone. But some large companies are finding that going with a service provider that might not be a household name is the right answer for them.

Change is on the agenda for the big interexchange carriers with the upcoming mergers of AT&T and SBC and MCI and Verizon. And that customer uncertainty leaves the door open for service providers that might not be as well known in the U.S. to win big contracts.

In July 2004, Jacobs Engineering Group, a \$5 billion global provider of technical, professional and construction services, started looking for a new service provider to handle the company's global telecom needs.

Michael Miller, senior vice president of IS and CIO at the Pasadena, Calif., company, says many companies responded to his RFP, but he whittled the list down to about 10 and then moved to four. In May, Jacobs selected British Telecom to handle the company's global telecom needs, which include services throughout the U.S. and overseas. In the past year, BT has been aggressively building out its MPLS network in the U.S. and its customer base in North America.

"We consolidated all of our telecom budget around the world. We had hundreds of contracts from different providers. We are still in the process of getting all of the contracts covered, but BT is consolidating those for us," Miller says. In addition to providing voice and data services, BT is managing the engineering firm's contracts with other service providers around the world.

In the RFP, Jacobs stated about eight criteria that all service providers had to meet, and six of those were critical, he says. "BT came the closest to meeting all of those," he says.

One of the key criteria was to expedite the deployment of circuits, especially in Europe, he says. "They have come through in several instances already," Miller says. For example, after Jacobs acquired a company in Scotland, it didn't want to get stuck waiting up to two months for a circuit, which was generally the norm for the firm. BT was able to get circuits to the Scotland site much faster.

"We're looking for a less-than-two-week turnaround and we're even willing to pay extra costs that are incurred to do that, assuming the costs aren't unreasonable," he says.

Miller also stipulated strict metrics regarding network performance, availability and restoration in case of a network failure, which BT met.

But Miller had some concerns specific to selecting BT,

such as BT's lesser-known presence in the U.S., the carrier's past debt problems and its reputation as a legacy European telco.

After a closer look, Miller says BT cleared up its \$30 billion debt nicely in the past few years. The carrier satisfied his other concerns with strong service-level agreements and agreeing to terms that were important to him, such as expedited circuit delivery requirements.

Miller says Jacobs' primary goal in issuing its RFP last year was to reduce the company's telecom costs. Not only is the firm happy with BT's service and management of its telecom contracts, he's happy with reduction in telecom costs overall. He wouldn't say how much he spends, but did say the savings are expected to be substantial. "It's a valuable deal to us," he says.

Despite Jacobs' success, some analysts do not recommend users go with lesser-known providers, or larger providers that might be reselling services in the U.S. as their primary carrier.

"As a rule, I wouldn't recommend [a lesser-known service provider] simply because in most instances you'll be able to do better from a pricing and contractual perspective by going directly to a U.S. provider vs. the carrier who is reselling their services," says Amin Ghossein, senior vice president at Telwares Communications, a telecom contract negotiation firm. "Telwares' advice is that you can use some of these providers, but would discourage it for your primary needs and use them in a secondary role."

Another analyst agrees. "If an enterprise is looking at attractive pricing from, say, a Global Crossing, WilTel or Broadwing, one way to bring the carrier through the door is if the enterprise has both carrier and route-diversity requirements," says Brian Washburn, an analyst at Current Analysis. "If a carrier without a household brand name does an exemplary job maintaining the enterprise's redundant services, the enterprise can then build up trust and rapport, and hand that carrier more business over time."

But for Bacardi Limited, a lesser-known company issued an RFP impressive enough to win the deal. The Bermuda

company started looking for a new service provider in 2003, says Ron Stan, director of IT at the spirits producer and distributor.

In late January, Bacardi selected Vanco, a U.K. virtual network provider, to deploy its global 37-site MPLS VPN. The deployment is just underway with about five sites up and the rest expected to be online by mid-September.

"We went through a fairly extensive RFP process," Stan says. The company trimmed down the list based on the responses and completeness of information it received, and brought together a global evaluation team to assist in the process.

Stan says he asked for pricing on a standard set of services for a specific number of sites, so he could get the best apples-to-apples comparison for the bids. "You really need to tell [the service providers] specifically what you want if you want pricing that's meaningful," he says. He also requested best pricing in the first round. "I meant best price, and if they didn't provide that, then they were cut," Stan says. "We were trying to avoid too many rounds of bids."

"Talking with references was critical," Stan says. While customer reference checks didn't remove any carrier from the running, he says the customer information provided valuable insight that helped in the decision process.



"We look at financial stability and ownership structure of each company. It wasn't just contract negotiations."

Ron Stan, director of IT, Bacardi Limited

Stan says he was keenly aware of the changing landscape in the telecom market and considered that when making his decision. "We looked at financial stability and ownership structure of each company. It wasn't just contract negotiations," he says.

Bacardi didn't want to go into a situation where there was a merger in progress and ownership was changing hands. Stan says he also paid close attention to ownership clauses that would provide an out if ownership changed hands during the life of the contract.

The fact that Vanco is not very well known initially gave Bacardi reason to pause. "You have to give some thought to a company that's not a household name. But then you look at their story, numbers, clients and business model, and you come to the conclusion that at one time Microsoft wasn't a household name either." ■

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The UltraConsole represents the latest in KVM switching technology at affordable prices. The UltraConsole allows for a central user station to connect to four, eight, or sixteen computers per chassis, expandable to as many as 1,000 computers, servers, or serial devices.

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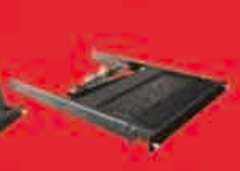
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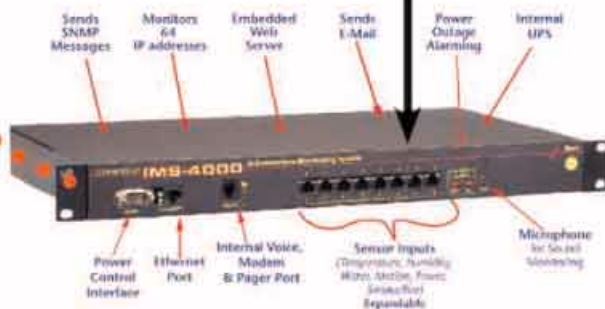
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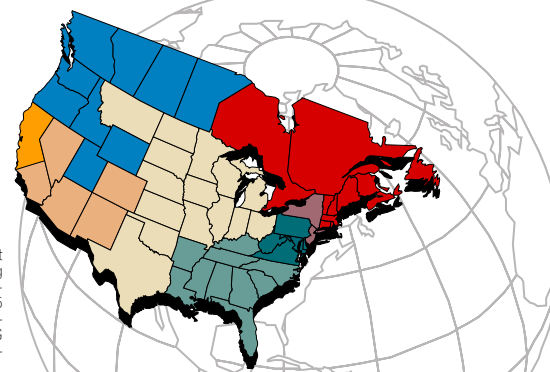
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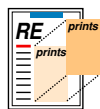
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Courts

continued from page 1

system, assembled using Linux scripts and commodity IP cameras, installed on a shoestring budget, got the attention of court system security officials, says CTO Sheng Guo.

"The solution proved to be a good experience, but it did not provide video-recording functionality and other advanced features," he says.

The pace of Guo's IP surveillance rollout accelerated this spring, sparked in part by a widely publicized courthouse shooting in Atlanta in March. New York courts have had closed-circuit video for years, but only on the outside of a few key buildings and main traffic areas. Security officials wanted continuous surveillance in all courthouses and the ability to review video weeks or months after an incident.

Super surveillance

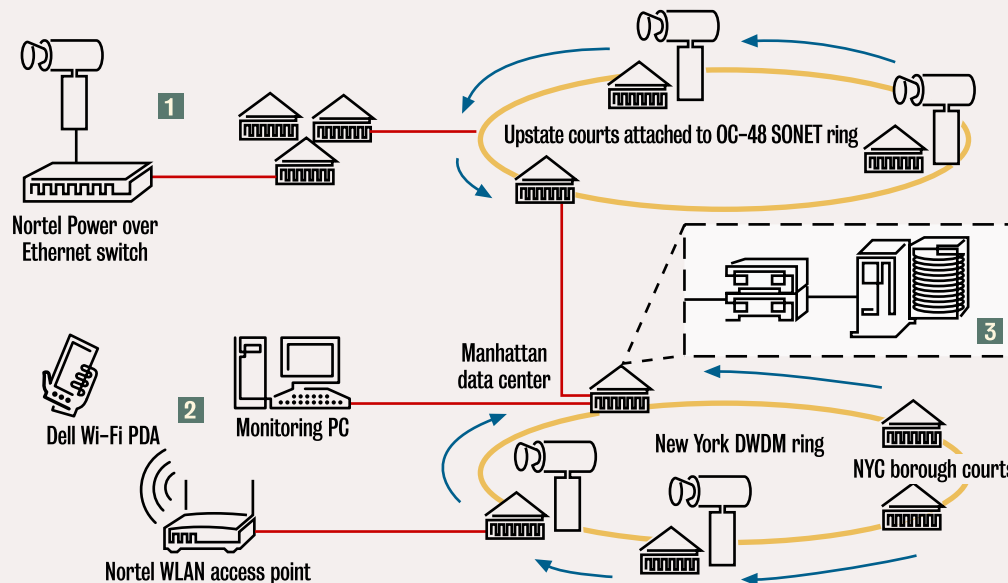
A hundred cameras were added earlier this year — new IP cameras from Axis Communications, as well as older analog cameras fitted with IP encoders and attached to the LAN. The court system also installed a software suite called NetGuard from On-Net Surveillance Systems that controls all of the court system's cameras, plus video archival from Axis.

At the court's downtown Manhattan security command center, officers watch video on an array of flat panel displays, showing the court's most heavily trafficked sites. Through an interface that mimics Internet Explorer, an officer can expand a directory of icons, representing all courthouses and facilities. Clicking on each icon reveals locations at each site under IP video surveillance. One click deeper, and a window is launched with a live IP video feed: a trial in session in Queens, pedestrian traffic outside the Superior Court building downtown, an empty stairwell in Buffalo.

Officers can control the zoom and pan of the cameras via mouse clicks. The windows can be tiled or arranged in a grid, giving a view into dozens of sites at once. Officers can pull up a similar interface on Wi-Fi-enabled PDAs. A few taps of a stylus, and the officer has the same live IP video feed as the flat panels in the command center — at a lower bit

Justice is not blind

The state of New York Unified Court System is leveraging its huge network capacity to run an advanced IP video surveillance and recording system.



- 1 IP video streams from 350 Axis IP cameras, and analog cameras with IP converters, are sent over the court system's backbone.
- 2 Court security officers can view any camera in any room through the state's courthouses, whether in a command center or patrolling with a Wi-Fi-enabled PDA.
- 3 Up to 350G bytes of video is recorded per day on six Dell servers with a total of 50T bytes of storage capacity. Security footage is archived for three months.

rate, because of the PDA's tiny screen and limited wireless LAN bandwidth.

The court system has more than 500 Nortel WLAN access points deployed statewide for supporting data and video, as well as a test deployment of VoIP-over-WLAN phones for court officers. (Nortel Wi-Fi IP phones are being considered as a back-up communications device to the court's two-way radio system, Guo says.)

The NetGuard system can be configured for motion detection and alerting, for monitoring closed buildings during overnight hours. When a person enters an empty room under surveillance, for example, a shake-up of recorded pixels occurs inside an IP camera. The software that controls the camera senses this and sends an e-mail, page or phone call to officers.

The IP-based system allows court staff to open cameras from any PC — even from a home computer via the court's VPN. All cameras are password-protected, and traffic runs on a separated virtual LAN, to protect the surveillance system from unauthorized access, Guo says.

Even with camera feed accessible at the desktop, "you can't have

staff watching every camera in every building all the time," Guo says. So the court system records everything digitally — 2.5T bytes of video streams per month — on six video archive servers from Axis, in the court system's Manhattan data center.

"If there is an incident, we have months and months of video," which law enforcement can view from anywhere, with the proper software and access rights, Guo adds.

To save on storage, the system does not record dead space; video that does not break the threshold for pixel movement detection is not stored.

Closed-circuit video systems have been used across the state in the past, but these analog systems were functionally limited and expensive, Guo says. They required an outside contractor, who installed dedicated video cabling and monitoring systems, and tape storage was costly and physically inconvenient.

The IP surveillance traffic is just another drop in the court system's huge bandwidth bucket. "All systems we put in place are based on IP," Guo says. "But you can't do any of this if you don't have the bandwidth."

Between 2001 and 2003, the court system upgraded its WAN from OC-3 (155M bit/sec) SONET rings upstate, and a Gigabit Ethernet MAN in Manhattan. Now the system runs OC-48 (2.5G bit/sec) in the northern part of the state and connects facilities in the five boroughs with 10G bit/sec Dense Wave Division Multiplexing gear. The court system uses Nortel SONET optical routers and Cisco DWDM switches in its WAN. More than 200 Nortel Gigabit Ethernet switches make up the backbone, distribution and access layers across the LAN.

A busy backbone

Riding on the same pipes as the IP surveillance traffic is the court system's wide-reaching IP telephony and videoconferencing network. Eight Nortel Communication Server IP PBXs operate statewide, supporting 5,000 Nortel IP phones, installed last year. Guo says more than 10,000 IP phones (two of every three handsets) will be IP by year-end. The VoIP system replaces a mix of aging Nortel PBXs and Verizon Centrex lines — saving what Guo estimates will be about \$50 per seat, or \$750,000 per year.

In addition to VoIP, the court sys-

tem widely uses IP videoconferencing as a way for lawyers, judges and defendants to meet without traveling all over the city.

In the Bronx Superior Courthouse, for example, six soundproof booths house IP videoconferencing stations, with a Sony IP camera and microphone and room for three people — usually a lawyer, a client and a friend or relative.

At Rikers Island prison 10 miles away (or three hours away, depending on traffic) similar booths are set up in six specially outfitted cells, with IP cameras behind bulletproof glass. Inmates can talk to their lawyers in private, or appear at court proceedings in front of a judge inside one of the hundreds of IP-video-enabled courtrooms statewide. The law says defendants must appear in person before a judge only for arraignments.

"Lawyers do not have to go all the way to Rikers to see clients," says Frank Cupak, systems coordinator for New York's 12th Judicial District in the Bronx. "Attorneys can see more clients in a day with the video system. They also no longer have an excuse to delay a hearing because they couldn't make it out to Rikers."

The court does 8,000 conferences per year from the prison island, which houses eight jails used by the city. This conferencing cut the number of prisoner transports by a third last year.

"In the past a probation officer had to take a full day to move prisoners from Rikers," Cupak says. "Now that's done in half a day."

This saves money since fewer transports means less expense, though the court system has not measured the savings. It's also a safety improvement.

"There is always risk when moving a prisoner," Cupak says. "This reduces risk: Guards never have to even touch a prisoner to get them to a hearing — there's no one to hit." ■

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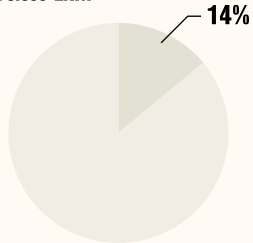
continued from page 1

is indicative of the variety of passionately held opinions and legal murk on this question, which gained renewed attention last month.

That was when news reports surfaced about the April arrest of Benjamin Smith, who St. Petersburg, Fla., police allege “wilfully, knowingly and without authorization” accessed a home

Whose Wi-Fi is it?

Percentage of consumers who say they have accessed the Internet by connecting to a neighbor's wireless LAN.



SOURCE: JUPITER RESEARCH SURVEY OF 264 PEOPLE

Wi-Fi network from a parked car in front of someone's house.

Depending on your viewpoint, Smith was stealing, mooching, hijacking, sharing, borrowing or just using the homeowner's Internet connection. As we learned in interviews with Wi-Fi users and others, thinking on this subject is continually changing.

New worries or no worries

Homes and small businesses

have been the fastest-growing market for wireless LAN (WLAN) equipment over the past couple of years, and users are now starting to know enough about wireless either to worry about having an open access point or to not worry.

A Jupiter Research survey last year of consumers with wireless home networks found the top concerns (see graphic, right) were identity theft, eavesdropping and virus attacks. Yet some users actually encourage shared use, even though nearly all service providers forbid it in their broadband contracts. One example is Newbury Open Net, which is a free, open WLAN spanning the length of Boston's tony Newbury Street.

Using an unprotected wireless link is very easy and seems to cause no harm, some say. Elizabeth Weinberg, who now works in a New York custom photo lab, was living off-campus in Boston during her senior year in college. She and two roommates didn't want to pay an extra \$20 each per month for broadband service. Then came the siren song of a solid Wi-Fi signal from somewhere in the apartment building.

“My roommate had an [Apple] iBook and it was picking up a high signal,” she says. “We said, ‘We'll just go with it.’”

Neither she nor her two roommates had any qualms. “I never encountered anyone with moral objections to this,” Weinberg says. “The Internet is so ingrained in my generation it's like ‘oh yeah, grab it.’ We're not harming any-

one.”

For Hilary Meserve, a teacher in Philadelphia, and her two roommates it was, in a sense, Comcast's fault. The trio shared the cost and ordered broadband service through Comcast. It never worked. “We'd call them,” she says. “They said we were programming the wrong number, or doing something else. There was always something that was wrong. Finally, we said ‘forget it.’”

All three roommates had wireless cards and found a “pretty good signal” from a nearby WLAN. “All three of us used it for the entire year,” Meserve says. When she relocated to another part of the city, she did the same thing.

The ethical presumption

Using someone's open wireless network should not be a crime, according to Jennifer Granick, executive director for the center for Internet and Society at Stanford Law School.

“First, as a user, you don't know if you're invited to use that [open] wireless network or not,” Granick says. “Such use might be allowed, even encouraged.”

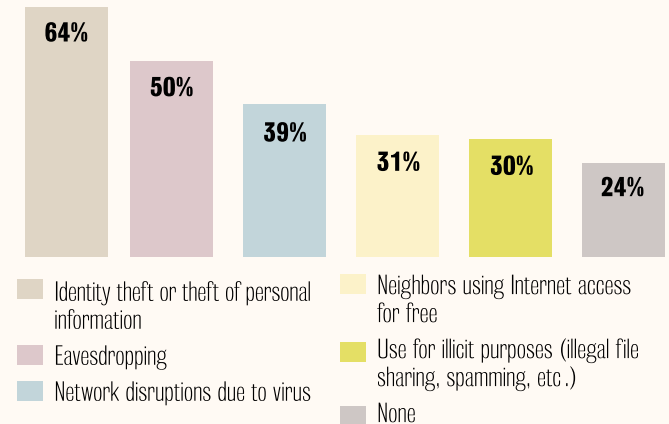
“It's not easy to say that the ethical presumption should be against access” of an unprotected wireless network, says Lee Tien, senior staff attorney with the Electronic Frontier Foundation. The group's San Francisco headquarters has a WLAN and lets anyone use it. “Right now, we [as a society] don't have a way of saying ‘Even though my wireless signal is open, I'm saying you can't use it.’”

Nearly all broadband providers forbid subscribers from voluntarily sharing a DSL or cable modem connection outside the home. “It's obviously not good for Verizon to have its services given away for free, just as a cable company wouldn't want someone funneling their cable connection next door,” says a Verizon spokeswoman. Verizon's DSL Terms of Service and its Acceptable Use Policy prohibit such sharing. Speakeasy is one of the providers that explicitly allows the practice.

A second reason to tread carefully in outlawing such use is that the laws against computer and network access, as applied to wireless, often are too vague and leave too much discretion to

Wi-Fi worries

Top security concerns for consumers with home wireless networks (more than one response allowed).



SOURCE: JUPITER RESEARCH SURVEY OF 264 PEOPLE

police and prosecutors, according to Granick. “We don't want to create a broad class of people who are ‘criminals’ and then let prosecutors pick and choose which ones they want to go after,” she says.

No moral agreement

Finally, it's still an open question about the morality of such access. “There's not a moral agreement in society that this is wrong,” Granick says. “It's more like a regulatory decision, such as [requiring] driving a car with a driver's license. We treat those kinds of offenses differently” from robbery or assault.

But shouldn't the law protect the many users who are ignorant of technical details, and of the risks they face with an unprotected wireless access point?

“You can't really protect people that way,” says Paul Holman, a principal in The Shmoo Group, a Seattle group of security professionals who collaborate in their spare time on educating users about computer and network security. “If I access your wireless net and hack into your home computer and read files, we already have laws that make all of that wrong and illegal and bad. And I agree with all that. But we don't need government to regulate Wi-Fi.”

Holman says society can apply those current laws, educate consumers, and go after WLAN vendors that continue to ship products with security settings switched off. “They've consistently chosen not to do this,” he says. “We should make them turn this

on or at least have a better [security] setup feature.”

The Florida arrest of Smith could have a highly educative effect, says Patrick McCormick, former CIO for the city of Somerville, Mass., and a co-founder of Boston Wireless Advocacy Group, which promotes and helps create open public wireless networks. People are becoming smarter about networking, he says, and the public discussion will make people aware of the risks and remedies they have with wireless networks.

It's this kind of awareness that will “inform people about how these new technologies should be used,” McCormick says.

And that's just what happened with Wi-Fi users Weinberg and Meserve. Weinberg now lives in Brooklyn, N.Y., and has a broadband service and a wireless router, which she has locked up with a password. Why? “Because I know there are people out there like myself, who would use it, given the opportunity,” she says. “And I feared it would make my connection slower.”

Meserve's practice changed when she found that her Amazon.com account had been hacked. “I was looking at this [issue] then as, ‘If you're dumb enough to leave it open, then the heck with it,’” she says. “But since my experience of being hacked, I've changed my mind. And also because this [issue] is a bigger deal now. Like downloading songs: Everyone was doing it, until people started getting caught. So I wouldn't do it again.” ■

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Face-Off: How tough would it be to crash the 'Net . . . and why hasn't anyone done it?



BACKSPIN Mark Gibbs

Many could . . . but they lack the motivation

Last week's column on Cisco's fracas with one Michael Lynn and its implications for shutting down the 'Net generated interesting feed-

back. Thanks to all who wrote in.

Reader Dane Dawson disapproved: "Cisco was able to work with the other people and stay the issue, but that didn't stop a media-driven periodical such as yours . . . from publishing whatever you want."

I should point out that I am not an employee of *Network World* and my editor doesn't control what I write (except to correct the grammar and take out the dirty words).

So, why do I think the Cisco fracas matters so much? My concern was that Cisco chose security through obscurity to paper over the cracks in the Internet infrastructure, which is effectively a Cisco monoculture.

Dawson continued, "So instead of working quietly to hush this, you publish it so that every anti-Cisco, anti-American, terrorist [in the name of journalism], hacker and anyone else who was close to destroying a company, has access and the tools to exploit routers . . . Congratulations, you have become a terrorist yourself."

Even though I didn't write about any details of the exploit or even point out where you could find out how it worked, I am apparently a terrorist for having the temerity to discuss a public issue! What this complaint demonstrates is a profound misunderstanding of how the Internet is vulnerable and who is the threat.

As you will see from the 'NetBuzz column due south of here, Paul McNamara and I disagree on how vulnerable the 'Net really is. He contends that if it was that vulnerable, someone would have had a whack at it by now. As we can see no signs of such an attempt, we should conclude it isn't vulnerable.

<digression>This is essentially the anti-UFO "alien wrench" argument: If aliens are visiting us all the time then why haven't we found an alien wrench lying around? I don't believe in UFOs but let's see: If you're several million miles from the garage wouldn't you plan to keep track of your wrench? Wouldn't completely cleaning up after you've scared the bejesus out of some hick farmer and disemboweled one of his cattle be logical?</digression>

Anyway, I contend that the Internet is vulnerable and it hasn't been taken down because the bad guys with the wherewithal don't have the motivation to do so. Consider the terrorists. There are lots of them all over the world

and many of them have the wherewithal, but they need the 'Net.

For example, it is well-known that Al Qaeda uses the Internet extensively for communication and publishing propaganda. Take out the 'Net and they'd have to go back to traditional communications. It would also screw up their banking arrangements.

Is your average hacker a risk to the Internet? It would only be by accident. A really knowledgeable hacker probably wouldn't attack the 'Net because if you are that savvy you can foresee the consequences and they would be serious to say the least.

The wild card is someone as crazy as the Unabomber. Luckily he didn't have the wherewithal when it came to the 'Net but he's not the only looney out there.

The most likely source of doom as far as the 'Net is concerned will be a skilled teenage hacker with a total lack of perspective and empathy, as shown by the boys who committed the Columbine massacre. There's your alien wrench. Just because you haven't seen it yet doesn't mean the aliens don't exist. Lack of evidence doesn't disprove the theory or remove the possibility.

Found a wrench? Tell backspin@gibbs.com. And check Gearblog www.networkworld.com/weblogs/gearblog.



NETBUZZ News, insights, opinions and oddities

Very tough . . . which is why no one's done it

You'll hear the proposition phrased any number of ways: Lots of people — some bad actors — possess the know-how and wherewithal to crash the Internet, and it

is only through their collective goodwill, overriding self-interests, and/or dislike of prison food that the 'Net has yet to meet that unthinkable fate.

Last week, my colleague to the north, Mark Gibbs, quoted security expert and author Stephen Cobb thusly: "There are, and always have been, people who know how to crash the Internet but have so far chosen not to do so."

This week, Gibbs is defending the sentiment expressed by Cobb.

Me? I'm going to defend logic and common sense, which to my mind are on the side of a different proposition, namely that the ability to crash the Internet — as in kaput for an extended period — remains theoretical, largely because it is exceedingly more difficult than the Chicken Littles would have us fear. Moreover, the fact that it hasn't happened speaks not to a dearth of qualified bad guys with the requisite motivation — but simply a dearth of qualified bad guys.

The best news for me is that the facts — to the extent that there are any in this angels-on-the-head-of-a-pin debate — align on my side. (The unsettling news for me is that there will be three days between when I stop writing and you start reading, leaving far too much time for me to be proven wrong in a most embarrassing way.)

Let's start with an unassailable fact: Not a single bad guy has managed to slip a bullet behind the Internet's ear in the decade or so that the commercialized 'Net has presented a tempting target for every hacker and terrorist on the planet. And it's not that the idea hasn't crossed anyone's mind. Witness this story (www.networkworld.com, DocFinder: 8345) from *Wired Magazine* that carries the headline: "50 Ways to Crash the 'Net."

Note the publication date: Aug. 19, 1997.

Either the bad guys didn't read *Wired* back then or the 50 ways left a bit to be desired

in terms of accomplishing what the headline promises.

Let's frame the matter more positively, though: I say that those toiling to stop the bad guys from killing the Internet have done a butt-kicking good job. Give them a round of applause instead of chalking it up to blind luck and the whims of criminals.

But my biggest beef with the wolf criers is not over the idea that someone might make the 'Net take a dirt nap. There's no way to argue that it's literally impossible, after all, and lots of smart people say that they or other smart people can do it. However, just as cloning a human baby or landing a man on Mars is possible, they are only possibilities until someone actually succeeds. And I'm betting we'll see a cloned baby before a croaked Internet.

No, my biggest beef is with the notion that a universal lack of motivation has somehow draped a force field over what would otherwise be a hopelessly doomed Internet. This thinking holds that the bad guys who might bring down the 'Net are just like the rest of us: hopelessly hooked on e-mail and e-commerce — in particular, electronic banking — and as such they simply could not abide the thought of depriving themselves of those channels.

All of them? This theory ascribes a level of reason and responsibility to a crowd that otherwise displays precious little of either.

Which brings us back to the numbers. If you tell me that only a handful of people could kill the Internet, I might buy that all five have simply decided not to do it.

But I heard an IT executive from a major company say that five guys in his shop alone could accomplish the feat before lunchtime. If he's right, that means thousands — or tens of thousands — can do it worldwide.

And if thousands can do it, those of you reading this online right now . . . wouldn't be. Still there? . . . I thought so.

As long as the 'Net survives, the address will be buzz@nww.com.



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