

# ISPIRIAN INSIDER

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# Tough Enough

*Durability and reliability lead toughbooks into mainstream markets.*

**W**hen the going gets tough, the tough get Toughbooks. Panasonic's industrial notebook computers are designed and built to withstand abuse that no ordinary notebook could survive. They're spill-resistant for wet weather, and dust-resistant to keep components working under dusty or sandy conditions.

Just how tough is a Toughbook? Consider the well-publicized story of how a military-strength Toughbook stopped an AK-47 round during the war in Iraq.

A soldier riding in an unarmored Humvee was carrying a Toughbook on his hip. The bullet ripped through the vehicle's door, pierced the notebook's outer case, cracked through the LCD's glass screen and cratered the left side of the keyboard. But it didn't make it all the way through and it didn't harm the soldier.

While the Toughbook line includes so-called "rugged" notebooks designed for use by the military and in other markets where a high level of toughness and reliability are required, some slightly less sturdy models have broader

appeal. These "semi-rugged" notebooks fill the market where computing power is needed, but where standard consumer products can't cut it.

The market for these durable laptops is growing. According to a study by Venture Development, the market is expected to grow from \$581.5 million in 2002 to an estimated \$858 million in 2007. A big part of this growth will come from non-military markets that need tough, mobile computing platforms.

Usage is up among public safety agencies such as police and fire departments, as well as emergency medical systems and other healthcare entities. There is wide usage in the transportation industry, from aircraft maintenance and air cargo facilities, to short- and long-haul trucking firms. Public utility workers use the devices when they're out in the field reading meters or doing maintenance and repair. The insurance industry uses them for claims adjusters in the field.

As a result, IT solution providers are becoming more involved in the Panasonic Toughbook market. Ispirian Incorporated, a privately-held software developer, system builder, solution provider and managed hosting company is one of those organizations. The St. Louis-area based company is a Panasonic Toughbook Premier Partner, which means that customers can purchase the Toughbook directly from Ispirian.

"By now, it has become fairly obvious that notebooks take a beating in just about any kind of environment — whether they're being tossed into the trunk of a car, splashed with coffee or knocked off desks," said Tom Smith, president of Ispirian. "Many organizations are getting tired of the very high

failure rate of notebook computers and are looking for more reliable options.

"In truth, Toughbooks are ideal solutions for anyone who needs a mobile computing platform. And they are going to be more cost-effective than traditional notebooks in the long run."

While fully rugged are typically at least double the current average notebook price, semi-rugged models equipped with spill-resistant keyboards, hard casings and gel-encased disk drives cost only about 10 percent more than garden-variety models.

"A semi-rugged notebook simply offers a little more protection against everyday wear and tear than regular notebooks," said Smith. "It offers an extremely affordable and far more durable alternative to the typical plastic notebook."

One of the most visible characteristics of Toughbooks is their magnesium alloy case. Although lightweight, magnesium is also rigid, conducts well, shields electromagnetic waves, and has much higher tensile strength than plastic. All Toughbook hard disk drives are mounted in shock-absorbing polymer compounds insulating the hard drive from vibration and shock.

Many of the newer executive-styled Toughbooks come with a built-in Intel Pro/Wireless radio that supports 802.11b or 802.11g communications, a 15-inch LCD display, an onboard DVD-CD-RW drive and a high-performance battery offering up to seven hours of runtime.

"We're seeing strong demand for these products in a variety of vertical industries," said Smith. "It just proves that more and more business users are looking for a lightweight, go-anywhere, do-anything notebook that won't crash the first time it is shaken or stirred."

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# Wireless and Secure

*Effective WLAN security requires a layered approach.*

**T**here's no question that wireless LANs (WLANs) offer compelling benefits in terms of mobility and productivity.

Because of these benefits, organizations continue to deploy WLANs at a rapid pace, as indicated by the strong continued growth of the WLAN equipment market.

At the same time, however, WLAN security remains a major stumbling block that prevents organizations from fully reaping the rewards of wireless. According to a recent survey by In-Stat/MDR, security concerns were cited as the No. 1 reason respondents would not deploy wireless networks, narrowly edging out "no need for WLANs." Likewise, security was the top problem faced by respondents who had already deployed WLANs, and by far the top concern of respondents considering the deployment of WLANs in the future.

However, it is possible to balance mobility with robust infrastructure security. While many organizations have chosen to focus on the risks associated with WLANs — to the point of banning the

technology — many others have successfully deployed wireless networks that are as secure as the wired infrastructure.

## The Layered Approach

The key, according to experts, is to take a layered approach to WLAN security by identifying and protecting against wireless-specific vulnerabilities. All too often, organizations focus on one area of WLAN weakness — such as inadequate encryption standards — while failing to see the big picture.

Effective WLAN security depends

**According to a recent survey, security concerns were cited as the No. 1 reason respondents would not deploy wireless networks.**

upon a comprehensive framework covering all aspects of the wireless infrastruc-

ture, from the radio frequency (RF) layer all the way to the application layer. Organizations must put policies and tools in place that check for rogue devices entering the airspace, attacks on wireless links, and unauthorized users attempting to access the network.

This requires a mix of security solutions based upon industry standards along with continuous real-time monitoring and policy enforcement. Network administrators must learn what to look for and effective ways of addressing WLAN vulnerabilities.

## Know Your WLAN

The lure of wireless combined with the ease with which it can be deployed represents one of the biggest threats to WLAN security. For a small investment, an end-user can introduce a consumer-grade wireless access point into the network, exposing the entire infrastructure to easy attack. Wireless-equipped laptops can pose an even greater threat because few are properly secured. Even a nearby insecure WLAN can enable access to your wireless channels.

The first step in securing the WLAN is to find rogue access points and either eliminate them or ensure that they meet security standards. Many network administrators will use a handheld "sniffer" and walk through the WLAN coverage area looking for wireless data transmissions. However, experts say this is one of the least effective ways of eliminating rogue equipment — new rogue access points can be added after the scan.

A better solution is 24x7 monitoring of the WLAN for security risks. This enables the network administrator to know immediately when and where a rogue access point is deployed, and also identify new vulnerabilities.

Virtual private network (VPN) technology helps ensure that only authorized users access the WLAN and that data cannot be intercepted in transmission. The authentication and encryption capabilities of VPNs offer greater protection than the notoriously weak Wired Equivalency Policy (WEP) encryption that is standard in 802.11 WLANs.

## Intruder Alert!

The next step is to ensure that the WLAN is protected against attack. While many organizations have intrusion detection and prevention systems in place, experts say that organization should

install WLAN-specific intrusion detection systems (IDSs) to keep hackers from accessing the wired network via the WLAN.

WLAN IDSs continuously monitor 802.11 protocols for security policy violations, known attack signatures and statistical anomalies. They are able to detect and thwart man-in-the-middle attacks, MAC spoofing and unusual activity.

Security software should be installed on all wireless-equipped devices to alert the network administrator of any vulnerabilities. Only enterprise-class access points with robust security should be used, and they should be configured to limit which stations can connect to them.

The Service Set Identifier (SSID) — the name of the access point — should be changed from well-known factory presets to something meaningless. In addition, the default SSID broadcast mode should be turned off so that only user stations that know the SSID can connect to the access point.

## What's Your Policy?

It's critical that organizations develop — and enforce — a WLAN security policy. Robust WLAN security depends upon the installation and use of security software on individual clients, and the proper configuration of access points and stations. A WLAN security policy should establish these requirements and prohibit users from circumventing these measures.

A WLAN security policy must be flexible in terms of the technologies it can support. WLANs enable access by laptops, PDAs, tablet computers, smart phones and more, each with different features, capabilities and security requirements. This diverse set of clients cannot be secured with a "one size fits all" policy.

In addition, most WLANs are designed with end-user mobility and productivity in mind. The challenge for IT staff is to develop security options that support end-user requirements.

Finally, WLAN security policies must integrate with the organization's wired network security scheme to ensure seamless protection across the organization. While WLANs present unique security challenges, it still boils down to controlling who has access to specific information. Understanding WLAN-specific vulnerabilities and deploying a suite of tools to minimize them enables organizations to enjoy the mobility and productivity benefits of WLANs without putting business-critical applications at risk.

## How Organizations Are Using WLANs

**W**ireless LANs (WLANs) are moving beyond being a simple "overlay" to the wired LAN to becoming a more pervasive and integral part of the network infrastructure, according to a recent survey by In-Stat/MDR. The high-tech market research firm found that this is particularly evident when comparing organizations that have deployed WLANs with those that are planning to deploy WLANs in the near future.

Survey respondents indicated that planned WLANs will be accessible to a larger percentage of the organization's end-users and will consist of a larger number of access points than current WLANs. Respondents are also planning larger budgets for future WLAN deployments, compared to the budgets for current WLAN deployments.

Basic network access remains, by far, the most popular use for WLAN connectivity, according to the survey. Although WLAN deployment has, so far, been strongest in vertical industry segments, industry-specific applications — such as inventory tracking — are

not the primary reason that WLANs are deployed. WLANs are deployed to give more mobile employees the same access to the network as their stationary colleagues.

A majority of respondents who have currently deployed WLAN indicated that they either have already implemented Voice over WLAN (VoWLAN) or that they intend to do so at some point in the future. Integration of Wi-Fi and cellular technologies, in particular, will be a tremendous growth opportunity for VoWLAN in business.

In-Stat/MDR found several drivers for Wi-Fi/cellular integration. Customers benefit from cheaper and higher-quality calls while on the WLAN infrastructure while still being able to place regular cellular calls when away from Wi-Fi access. Customers benefit from being able to consolidate multiple devices down to one handset.

"We believe that the integration of Wi-Fi and cellular technology will prove especially attractive to both business customers and consumers," said Sam Lucero, an industry analyst with In-Stat/MDR.

## Tsunami Scammer Charged...

A Pittsburgh man who allegedly sent out more than 800,000 e-mails asking for money to be donated into a PayPal account for the relief of tsunami victims was arrested by the FBI in January and charged with fraud.

In the e-mails, 24-year-old Matthew Schmieder allegedly claimed to be raising funds on behalf of the humanitarian organization Mercy Corps, which contacted the FBI after receiving a number of complaints about the e-mail. Officials from PayPal said the account Schmieder was using only held about \$150 at the time of his arrest.

According to court documents, the unemployed painter claimed he intended to use the money to pay bills and repair a car, but also intended to pass some of the money on to charities aiding tsunami victims.

According to some reports there are more than 100 such scams taking advantage of the tsunami disaster. Messagelabs says that these range from direct appeals that claim to be on behalf of relief organizations to variants of the "Nigerian" scam, in which an e-mail is sent purporting to come from a survivor looking to move sums of money out of the region and seeking an account in which to place them.

## AOL Lists Top Spam Terms...

Old junk e-mail terms such as "Oprah," "Teens" and "Viagra" are out. The hottest spam terms for 2004 related to "phishing" scams, dubious mortgage deals, online pharmacy items such as Vioxx, and stock offers.

This is according to America Online's recently released list of most widely sent junk e-mail subject lines for 2004, as based on the assessments and analysis of AOL's Antispam and Postmaster teams. This is the second year AOL has released such a list.

The list is based on spam reports forwarded to these teams by AOL members during the 2004 calendar year.

"AOL members and all online consumers should make one of their New Year's resolutions a cleaner, less cluttered e-mail inbox," said Charles Stiles, manager of the Postmaster team within AOL's Antispam Operations group.

## Gaining on Google...

Google provides the best overall consumer experience among major Web search engines, but Yahoo and Microsoft's MSN have made significant gains in popularity since May 2004, according to a study by Keynote Systems. Participants in the survey also chose Google as the search engine they would most likely use in the future.

"Google is the king of customer experience in the search engine industry, but Yahoo, MSN and Ask Jeeves are improving," said Dr. Bonny Brown, director of research and public services for Keynote. "Given the open nature of the Web, as these sites continue to improve the user experience they will undoubtedly begin to attract more users and improve user loyalty. Obviously this will impact the advertising side of the business."

## MapQuest Available by Phone...

MapQuest recently announced that it has introduced a new feature enabling Web users to send color maps and driving directions to their phones. Through partnerships with most major service providers, MapQuest already provides users with maps and directions through a phone application called MapQuest Mobile, a \$4-a-month premium service.

Until now, users had to type in addresses on cell phone keypads. This new version enables users to obtain directions by entering three-letter airport codes. They can visit MapQuest.com from a regular PC, using a full-sized keyboard to plan trips and send the results to the phone. While on the road, friends and assistants can also send maps and directions to them.

MapQuest general manager Tommy McGloin says an updated version set for release in June will add even more features, including location awareness when using GPS-enabled phones, allowing users to enter only the destination for driving directions. MapQuest offers the service through most major providers, except T-Mobile. McGloin says that users will be able to download and run the mobile software using most current phone models.

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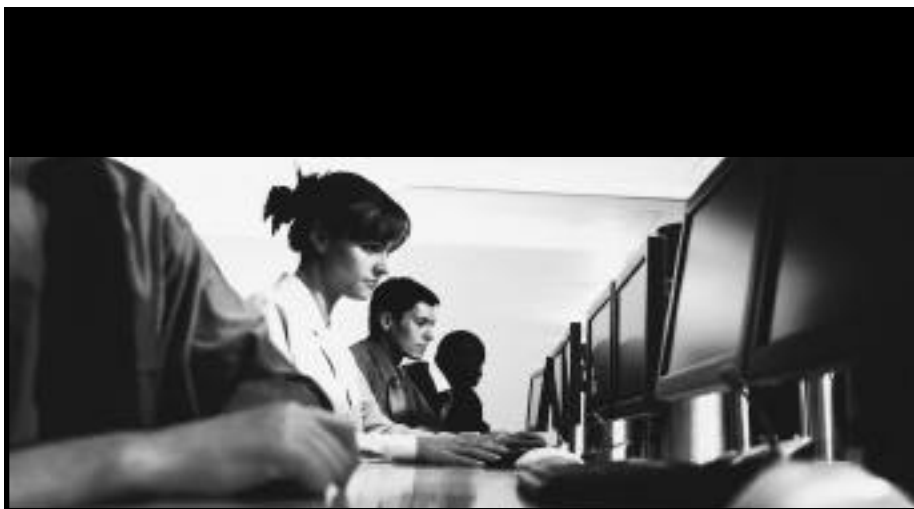


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# 2004 Security Update: Good News, Bad News

*Widespread worm outbreaks give way to more targeted attacks.*

**F**irst the good news: While the beginning of 2004 saw a record-breaking number of major new virus outbreaks, things calmed down after June with only a few minor outbreaks.

Now the bad news: Some security experts say that's because attackers have been focused on targeted exploits that can wreak more havoc on an organization than a widely circulating worm.

E-business firms have been the primary victims of targeted attacks but any firm can fall victim — in fact, small businesses were the second most targeted group. Many targeted attacks are financially motivated, with the attackers making extortion threats before launching the attack.

Web applications are appealing targets because of their widespread deployment and the relative ease with which they can be exploited. Web applications allow attackers to gain access to the target system simply by penetrating one end-user's computer, bypassing traditional perimeter security measures. Nearly 82

to increase the speed and breadth of their attacks.

During the first six months of 2004, the average number of monitored bots rose from under 2,000 to more than 30,000 per day — peaking at 75,000 in one day, according to Symantec. Bot networks create unique problems for organizations because they can be remotely upgraded with new exploits very quickly, which could potentially allow attackers to outpace an organization's security efforts to patch vulnerable systems.

Meanwhile, security vulnerabilities continued to increase. Symantec documented more than 1,237 new vulnerabilities between January 1 and June 30, 2004, an average of 48 new vulnerabilities per week. Seventy percent of these vulnerabilities were considered easy to exploit, and 96 percent were considered moderately or highly severe. Of these vulnerabilities, 479 — or 39 percent of the total volume — were associated with Web application technologies.

Virus and worm activity also continued, with the number of known viruses

**“Exploits are being created more easily and faster than ever, while attackers are launching more sophisticated attacks for financial gain. Software vulnerabilities and targeted attacks remain a primary area of concern for organizations and individuals.”**

percent of documented Web application vulnerabilities were classified as easy to exploit, representing a significant threat to an organization's infrastructure and critical information assets.

Another area of concern is the shrinking window of time between the announcement of a vulnerability and the release of associated exploit code. Symantec data indicates that the average vulnerability-to-exploit window had shrunk to just 5.8 days by the first half of 2004. Once an exploit has been released, the vulnerability is often widely scanned for and quickly exploited. This short window gives organizations less than a week to patch vulnerable systems.

Adding to concern about the short vulnerability-to-exploit window is the growth in bots (short for “robot”). Bots are programs that are covertly installed on a targeted system, allowing an unauthorized user to remotely control the computer for a wide variety of purposes. Attackers often coordinate large groups of bot-controlled systems, or bot networks, to scan for vulnerable systems and use them

passing the 100,000 mark in 2004. Symantec documented more than 4,496 new Windows viruses and worms (particularly Win32) between January 1 and June 30, 2004, more than 4.5 times the number in the same period in 2003.

In the near future, client-side attacks are expected to increase, as are targeted attacks on firewalls, routers and other security devices. Symantec expects bot networks to employ increasingly sophisticated methods of control and attack synchronization that are difficult to detect and locate. Symantec also expects to see instances of port knocking, a method attackers may use to create direct connections to potential target systems.

“Exploits are being created more easily and faster than ever, while attackers are launching more sophisticated attacks for financial gain,” said Arthur Wong, vice president, Symantec Security Response and Managed Security Services. “Software vulnerabilities and targeted attacks remain a primary area of concern for organizations and individuals.”

# Going the Distance

*iSCSI expands storage access by eliminating SAN distance limitations.*

**T**he word “tantalize” comes from the plight of the mythological Tantalus, a king who offended the gods and was condemned to eternal hunger and thirst, with water and fruit always just beyond his grasp.

Storage area networks (SANs) have proved to be similarly tantalizing for some organizations. Many find that while SANs consolidate storage devices into a centralized pool that is easier to utilize, backup and manage, many other benefits remain out of their reach — literally.

The problem is the distance limitations of the Fibre Channel fabric usually associated with SAN implementations. It was not designed to be a wide area network protocol and limits the physical distance between storage and the systems where applications reside to just 50 miles. That’s more than adequate for organizations that wish to restrict SAN access to the data center, but problematic for those that need remote access.

The solution may be a SAN based on Internet Protocol networks. IP SANs unite storage and IP networking, enabling the Internet and Ethernet infrastructure to be used for expanding access to SAN storage and extending SAN connectivity across any distance.

## iSCSI Advantages

Among IP storage protocols, iSCSI is currently the most popular one for creating storage networks. It can be used to facilitate data transfers over intranets and manage storage over long distances, including LANs, WANs or even the Internet, and it can enable location-independent data storage and retrieval.

In addition to eliminating the distance-related limitations in storage environments by making it easier to transfer storage data over existing IP networks, iSCSI also eliminates much of the cost and complexity of Fibre Channel implementations.

“Bringing the next wave of users to networked storage will require industry-standard infrastructure, high availability, low price points and operational simplicity through solid solutions,” said Robert Gray, Research VP, Worldwide Storage Systems, IDC. “iSCSI — using existing Ethernet and IP technologies for reducing storage total cost of ownership, overcoming distance limitations and improving interoperability — is well-positioned technology.”

iSCSI uses two widely adopted protocols for storage and networking — SCSI and TCP/IP. iSCSI employs Ethernet as the transport for data from servers to stor-

age devices or SANs. The protocol takes standard SCSI commands into TCP and sends them over standard Ethernet. To create an iSCSI-based SAN, network designers bring together servers equipped with an iSCSI host bus adapter (HBA) or network interface card (NIC), disk arrays and tape libraries.

The development of the iSCSI SAN is significant for organizations that want to network more of their data currently in direct-attached configurations while leveraging existing networking infrastructure and expertise.

Large organizations see iSCSI deployment as an opportunity to extend the benefits of their data center Fibre Channel SANs to distributed application

**“Because of high costs and distance limitations, many companies’ current SAN architecture prevents implementation of a solid disaster recovery plan. iSCSI-based business continuation solutions are more affordable and allow IT managers to mirror and back up to distant branch offices without distance limitations over wide area networks.”**

servers, while small to midsize businesses (SMBs) see an opportunity to get on the SAN bandwagon with a smaller investment.

## Easing Disaster Recovery

Since there are no distance limitations with an IP infrastructure, it is also easier to implement disaster-tolerant solutions. That means iSCSI can enable remote backup and restore operations and allowing data centers to be linked to each other and to mirror data across geographically disperse locations.

“Because of high costs and distance limitations, many companies’ current SAN architecture prevents implementation of a solid disaster recovery plan,” said Ram Jayam, vice president and general manager of Adaptec’s Storage Networking Group. He added that “iSCSI-based business continuation solutions are more affordable and allow IT managers to mirror and back up to distant branch offices

without distance limitations over wide area networks.”

Probably the key factor that makes IP SANs an attractive proposition is the cost savings. Using common technologies reduces training and personnel acquisition costs, and the large installed base of Ethernet drives down the total cost of ownership (TCO). For example, iSCSI can be run over existing Ethernet cabling rather than requiring a specialized Fibre Channel network. It is estimated that an iSCSI SAN can be deployed for around 20 percent of the cost of a Fibre Channel solution.

## Other Options

Those organizations that already have a Fibre Channel SAN up and running can still enjoy the benefits of IP networking with either Fibre Channel over TCP/IP (FCIP) or Internet Fibre Channel Protocol (iFCP). Both interconnect and extend SANs, but with different approaches.

FCIP is a tunneling protocol that provides IP connections between Fibre Channel SAN islands. The performance of the

FCIP link is directly dependent on the bandwidth and packet-loss characteristics of IP network. iFCP is a gateway-to-gateway protocol for providing Fibre Channel fabric services to Fibre Channel end devices over a TCP/IP network. In iFCP, congestion may only affect a single communicating pair of devices due to availability of multiple routes.

In addition, some vendors are introducing IP-enabled SANs, which are full-blown Fibre Channel SANs with IP connectivity. Other vendors are rolling out Fibre Channel SAN switches with IP functionality, which allow storage devices outside the data center to be connected with an existing SAN.

Storage networks have caught on because they deliver on the promise of improved availability and management of data. However, proprietary Fibre Channel SAN implementations lack the range to allow many other potential benefits such as remote access and geographically dispersed disaster recovery. With long-distance networking standardizing over IP, particularly with the iSCSI protocol, organizations of all sizes now find that these benefits are well within their reach.

## Nanotechnology Could Alter Storage Landscape

**D**ata storage has always been about finding ways to store more information in smaller spaces with faster retrieval time. As such, most industry experts expect nanotechnology to eventually play a huge role.

A nanometer is one-billionth of a meter. For perspective, consider that the diameter of a human hair is about 100,000 nanometers. Nanotechnology research is aimed at building minuscule machines and electronics and constructing materials molecule-by-molecule. Analysts say this technology promises to open the way to data storage densities in the realm of several terabits per square centimeter.

In a recent report, the research firm NanoMarkets predicted that “nanostorage will bring about innovation that will lead to nano-enabled databases that will move data warehousing and data mining to new realms, the end of disk drives as we know them and new opportunities for Web content businesses.”

IBM already has begun work on new technologies designed to boost the capacity of tape storage devices by 250 times. Using “nanopatterning” techniques derived from the company’s

microprocessor division, researchers recently said they expect to one day build tape cartridges that can store as much as 100TB of data. While researchers were reluctant to predict when IBM might bring its first 100TB tape devices to market, they said cartridges that can store a terabyte of data could hit the market within 18 months.

The global market for such nanostorage is expected to increase dramatically. With powerful backers such as AMD, Cypress Semiconductor, Freescale, Fujitsu, Hewlett-Packard, Honeywell, Hitachi, IBM, Infineon, Intel, Matsushita, STMicroelectronics and Texas Instruments, nanostorage seems certain to take a big bite out of the conventional memory and disk business.

NanoMarkets predicts a growth from \$97 million in 2004 to \$17.9 billion by 2008 and \$65.7 billion by 2011, large enough to suggest future disruptions in existing markets and potentially the rise of new industry giants. The firm predicts that by 2011 nanostorage technology will have penetrated close to 40 percent of the disk drive and memory chip businesses.

## E-mail Archiving Grows Sixfold...

E-mail archiving application revenue is expected to top \$180 million worldwide in 2004, up from just \$33 million two years ago, and to continue to grow at a compound annual growth rate of more than 50 percent through 2008, a new IDC study reveals. Demand will continue to be driven by the explosive growth in e-mail and other electronic records, the increased regulatory environment and focus on corporate governance, and the need to respond to urgent litigation and discovery requests.

"Organizations now more than ever have a much greater obligation than before to ensure that their e-mail is retained in its original state without being altered, viewed or deleted by unauthorized people," said Julie Rahal Marobella, senior research analyst, Information Management for Compliance at IDC.

Mergers and acquisitions involving e-mail archiving, storage software and content management vendors are transforming the landscape of this emerging market. Vendors must find the most appealing and efficient way to address the increasingly important business process of archiving content in internal and external e-mail communications.

## Carriers to Develop Video Standard...

More than two dozen wireless carriers and telecom equipment makers have agreed to develop an advanced mobile phone standard to enable subscribers to send and receive high-resolution video instantly.

Companies taking part include Cingular Wireless, Britain-based mobile giant Vodafone Group PLC, China Mobile, Japanese electronics manufacturer NEC Corp. and NTT DoCoMo Inc., Japan's top mobile phone carrier.

The idea is to improve upon third-generation, or 3G, phone technology. Such phones can relay information at up to about 40 times the speed of current handset models and are starting to take off among the tech-savvy in Japan, South Korea, the United Kingdom and other European nations.

The companies hope to increase 3G speed more than 250-fold by optical fiber, or 100 megabits per second, NTT DoCoMo Inc. spokesman Riichi Tsutsui said.

## USB Flash Standard in Works...

U3, a startup company founded by Flash memory and Flash-based device firms SanDisk and M-Systems, is developing a standard for USB Flash memory devices. The idea for U3 is to provide a common framework for applications to be delivered on USB Flash drives, enabling their use on multiple machines while ensuring the data they work on and create remain on the Flash drive.

Developers will be able to develop applications to run on any U3-compliant drive. The drive will contain a "Launch Pad" desktop interface for viewing, launching, loading and managing U3-compliant software on drives.

Flash drives can carry e-mail client software but each application is restricted to a particular drive type. U3 will, if it succeeds, provide a multi-vendor Flash drive platform.

## Nokia Fights Counterfeit Batteries...

Nokia, the world's leading manufacturer of mobile phones, has begun marking its original batteries with hologram labels in order to combat the spread of counterfeit batteries — some of which have exploded in users' hands.

"Consumer safety is our most important concern, and we are taking even more aggressive measures to raise consumer awareness about the dangers of counterfeit batteries and poor quality third-party batteries," said Razvan Olosu of Nokia's multimedia division.

The hologram label on Nokia batteries consists of a holographic image as well as an authentication code hidden under a scratch-off area on the label. Consumers can visually inspect the holographic image and identify detailed information on it to check whether their battery is a Nokia original.

# Psst! Wanna buy Some Software?

*Counterfeiting costs software publishers billions of dollars and puts users at risk.*

It sounds too good to be true: A software package that retails for \$700 for just \$70! Most of us would immediately pass on such an obviously shady deal. However, enough people fall for such scams to make the sale of counterfeit software a booming business.

The Business Software Alliance (BSA) estimates that more than one-third of all software is pirated. That includes unlicensed copies of software installed on personal and business computers, but it also points to the growing problem of counterfeiting.

The cost of counterfeiting to software publishers is immense. Recent headlines reported the seizure of more than \$70 million worth of software from just one counterfeiting ring. According to the BSA, piracy resulted in nearly \$6.5 billion of retail losses in the U.S. in 2003 alone.

Counterfeit software is often sold by spam e-mail messages. Headlines tout "Windows software at super low prices!" and use a variety of techniques to convince victims that the offer is legitimate.

Many counterfeiters operate overseas, and consumers who know what to look for will see clues that the offer is for pirated software. Because these counterfeiters are non-English speakers, the spam e-mail will contain simple grammar and spelling errors. Sometimes the counterfeiters will request wire transfers of funds to overseas banks, and the software will ship from an overseas address.

However, counterfeiters have gotten more and more sophisticated, to the point of replicating the certificate of authenticity labels and holograms found on legitimate software packages. Until recently, such activity was not in itself illegal. However, the Anti-Counterfeiting Act of 2004, signed into law in December, prohibits "trafficking in counterfeit labels, illicit labels or counterfeit documentation or packaging" that is attached to computer programs and other digital intellectual property.

"In recent years, we have seen a dramatic increase in the amount of 'look-alike' counterfeit software imported into the U.S., especially from Asia," said BSA President and CEO Robert Holleyman. "Unlike the obvious fakes sold on street corners, counterfeit software is marketed as a genuine product to unsuspecting consumers. In fact, using security features such as genuine holograms on pirated copies of software was, unfortunately, legal. This legislation now makes it illegal to use legitimate security features on

pirated and counterfeit software products, an important amendment to existing law which will go a long way to protecting consumers."

"The new law will be a critical part of the overall effort to address software counterfeiting in this country," said Jack Krumholtz, associate general counsel and managing director for Microsoft. "Under the law, industry and law enforcement will have the ability to pursue those who knowingly misuse genuine authentication documents to make counterfeit products appear to be legitimate. The law also will be a tool in the broader fight to protect intellectual property, which fuels innovation and stimulates economic growth."

"In recent years, we have seen a dramatic increase in the amount of 'look-alike' counterfeit software imported into the U.S. Unlike the obvious fakes sold on street corners, counterfeit software is marketed as a genuine product to consumers."

Why should consumers care about counterfeit software? Beyond the obvious cost to the U.S. technology market, counterfeit software poses risks to end-users who install it. Counterfeit software may contain hidden viruses, worms and Trojans that a hacker could use to take control of the computer or steal personal information. In addition, counterfeit software is not eligible for support or upgrades from the manufacturer.

Businesses should be especially wary of counterfeit software. In addition to security risks, businesses could face fines if a software audit reveals unlicensed software on company machines. Organizations should establish policies prohibiting end-users from installing software not sanctioned by the IT department.

Businesses and consumers can protect themselves by buying software only from known and trusted sources. And offers for ridiculously cheap software should be viewed with a hefty dose of skepticism. Remember: If the deal sounds too good to be true, it probably is.

# Growing Pains

*RFID technology expected to eventually revolutionize the supply chain.*

**R**adio frequency identification (RFID) tagging is a transformational technology that will ultimately change the way businesses plan, price, distribute and advertise products. But even the staunchest proponents say those organizations deploying RFID systems should expect a few bumps along the way.

"This is going to take a long time," Wal-Mart CIO Linda Dillman said in January during her keynote address at the National Retail Federation's annual conference in New York. "It is hard."

Dillman should know. After all, Wal-Mart has been the driving force behind a rapid uptake in the use of RFID technology for inventory control in the retail industry. In mid-2003, Wal-Mart issued an edict requiring its top suppliers to begin using RFID tags on all shipping cases and pallets by January 2005.

As of mid-January, Wal-Mart reported that 137 suppliers were using the technology in 104 stores, 36 Sam's Club warehouse stores and three distribution centers in Texas. While there have been snags, company officials say they consider the pilot program a success and plan to expand it into 600 stores and a dozen distribution centers by fall.

## Big Upside

RFID clearly has huge potential — not only for Wal-Mart, but also for all retailers. Analysts say RFID tags will cut down on inventory losses, which total about \$53 billion a year. The tags are expected to replace bar codes in the next decade.

RFID tags, also known as "smart labels," are tiny memory chips with antennas that can transmit electronic product codes (ePC) containing data about the items to which they are attached. Because they can track products from the early stages of manufacturing to store shelves — and all points in between — RFID tags promise to give suppliers, manufacturers, distributors and retailers unprecedented control over inventory.

The high-tech market research firm In-Stat says RFID tags are poised to become the most far-reaching wireless technology since the cell phone, with worldwide revenues jumping from \$300 million in 2004 to \$2.8 billion in 2009. During this period, In-Stat says, the technology will appear in many industries with significant impact on the efficiency of business processes.

"By far the biggest RFID segment in coming years will be cartons/supply chain," said In-Stat analyst Allen Noguee. "This segment alone is forecasted to

account for the largest number of tags/labels from 2005 through 2009."

In-Stat also expects Wal-Mart to continue to drive this market segment. RFID's potential for taking significant costs out of the supply chain is seen as an essential element of Wal-Mart's low-cost business model, which hinges on highly efficient supply chain operations.

Analysts say Wal-Mart was able to use its muscle as a \$250 billion retail monolith to force RFID into the forefront. By using its industry strength, the company was able to push out infrastructure costs to suppliers, limit its own exposure to costs and reap the benefits through its own supply chain.

## Costs Dropping

While there was much initial grumbling about the Wal-Mart mandate when it was issued some 18 months ago, a recent study by the technology research and investment firm Incucomm found that there was actually very little resistance as the deadline drew near. In December 2004, Incucomm reported that only four vendors had not prepared for Wal-Mart's compliance deadline. Incucomm also reported that suppliers were able to implement RFID at lower costs than initially projected, with the median spending for Wal-Mart suppliers pegged at about \$200,000.

RFID costs will continue to drop with the development of smaller and cheaper tags. A few years ago, RFID tags were too expensive for much more than specialty applications. Low-end tags at \$1 or more apiece were used for tracking shipping pallets, but were too pricey for monitoring individual items.

Now, however, the potential cost has dropped to about a nickel, as researchers have figured out ways to produce cheap chips in quantity based on developing standards. The chips are also getting smaller — down to about the size of a grain of pepper.

At that price and size, RFID tags can be embedded in just about any manufactured product. They can be applied to pallets, cases or even individual items to provide real-time data about products as they move through the supply chain. The ultimate goal is to get the price of a tag down to around a penny, which would make RFID tagging no more expensive than stamping a barcode on a product.

## Better Than Barcodes

RFID tags have several advantages over barcoding systems. The chief difference is that barcodes are "line-of-sight"

technology — that is, a scanner has to "see" the barcode to read it. This means they must be scanned manually, and there is a labor cost associated with every read. RFID tags can be read as long as they are within range of a reader.

Durability is another issue. Radio waves travel through most non-metallic

materials, which means RFID tags can be embedded in packaging or encased in plastic for weatherproofing and protection. By contrast, barcode labels are useless if they become soiled, smeared or ripped.

And RFID tags have microchips that can store a unique serial number for every product manufactured around the world. Standard barcodes identify only the man-

ufacturer and product, not the unique item. The barcode on one milk carton is the same as every other, making it impossible to identify which one might pass its expiration date first.

As with other transformational technologies such as wireless computers and networks, the initial move to RFID systems

"By far the biggest RFID segment in coming years will be cartons/supply chain. This segment alone is forecasted to account for the largest number of tags/labels from 2005 through 2009."

will be difficult. In addition to the cost of the RFID tags and readers, organizations will incur integration costs and the pain of reengineering business processes. But the potential benefits — including increased productivity, improved data accuracy, reduced losses, better security, improved decision making and enhanced customer satisfaction — make it a difficult technology to ignore.

Standard barcodes identify only the man-

## RFID: Cattle Branding for the 21st Century

**L**ivestock identification in the U.S. dates back to the 1800s, when cowboys and ranchers used hot branding irons to indicate ownership of cattle. Today, electronic identification methods including radio frequency identification (RFID) tags are becoming increasingly useful tools in herd management programs.

Concerns about mad cow and other diseases are driving the use of RFID technology to identify and track livestock. Information gleaned from RFID systems is being used to address issues such as disease control and eradication, disease surveillance and monitoring, emergency response to foreign animal diseases, global trade, livestock production efficiency, consumer concerns over food safety and emergency management programs.

The National Cattlemen's Beef Association is spearheading a project to place RFID ear tags on livestock at hundreds of thousands of ranches around the country. The project is an offshoot of efforts by the U.S. Department of Agriculture (USDA) to implement a nationwide RFID-tracking program for livestock. The USDA program was slated to start last June

after a Washington state cow from Canada was identified in December 2003 as having mad cow disease. That nationwide plan has yet to fully materialize, although some individual states have had some success in tracking infectious diseases using RFID.

In addition, the USDA recently began a program using RFID technology to tag and track captive deer and elk as part of an ongoing effort to eradicate chronic wasting disease (CWD), a fatal neurological disorder. CWD belongs to a family of diseases known as transmissible spongiform encephalopathies, which includes mad cow disease. At this point, scientists do not know how the disease is spread.

The International Organization for Standardization (ISO) has approved standards for animal RFID tags, and the technology has improved in recent years. Adoption is picking up in Europe, Australia and Canada. Sales of animal RFID tags worldwide this year are expected to reach \$37 million. Analysts say the market is expected to grow at a compound annual rate of nearly 30 percent over the next four years.



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# POS Possibilities

## *Innovative point-of-sale systems requiring more integration.*

**P**oint-of-sales (POS) systems once were considered little more than glorified cash registers. But with consumers worldwide warming up to the idea of electronic payments for all kinds of purchases, POS systems are starting to look like cash cows.

Consumers who were once shy about using credit for purchases of only a few dollars are increasingly using plastic in place of cash. The speed, convenience and payment flexibility that cards afford has become a way of life for consumers.

This shift in consumer behavior is causing merchants to upgrade their ability to accept and process card-based payments.

According to the IHL Consulting Group, a market analyst firm that specializes in the retail industry, the overall mar-

ket value for POS hardware, software, peripherals and maintenance for North America is approximately \$7.1 billion. The firm expects the market to grow by 12 percent in 2005.

With this growth comes new business opportunities for traditional technology integrators. With technologies such as IP enablement, "contactless" cards that don't require swiping and radio frequency identification (RFID) tags driving the evolution of the checkout terminal, merchants need help integrating these devices with everything from databases to wireless networks.

"Vendors of POS hardware and software are preparing for the innovations that lie just around the corner," said Nick Holland, director of the Emerging Technologies Advisory Service at Mercator Advisory Group. "The definition of what a POS terminal is and does is being stretched. POS vendors are offering far more holistic solutions than ever before and are clearly thinking outside the restrictive box of pure consumer payment applications for their products."

Other top vendors, such as Hewlett-Packard, IBM and Microsoft, have put more attention on the POS market and positioned new products for resellers, such as HP's rp5000 and Microsoft's Retail Management System software.

Merchants are interested in gaining

including real-time product tracking, payment and profiling. These efficiencies can make or break retail companies, which often have razor thin margins.

new capabilities with POS terminals, including electronic commerce, data warehousing and data mining. Data mining — statistically analyzing information collected from point-of-sale transactions — is being used by some merchants for marketing and customer retention programs. Grocery stores, for example, can determine their customers' buying habits through data mining.

They can respond to this information by re-arranging store aisles and merchandise to reflect customer preferences. Mailing their customers special offers and coupons is another way stores use data mining.

Store security is another potential application for POS terminals. Some vendors are integrating POS systems with closed-circuit TV, two-way paging systems and security software that analyzes cashiers' transactions.

"The world of consumer payments is clearly evolving fast," said Holland. "We are seeing the beginning of the end of cash and checks and it could be the dawn of a golden age for the vendors of POS systems, with one proviso — keeping abreast of developments in the industry will be ever more crucial to survival. Vendors with vision beyond current solutions will be the ones that ultimately win out — the revolution is far from over."

POS systems are becoming critical to the retail business infrastructure. POS terminals, which serve as the interface between the consumer and the banking networks, can be used to facilitate business processes and retail efficiencies,

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# Paper Chase

*Regulatory compliance should also include document imaging solutions.*

The Sarbanes-Oxley Act is designed to ensure the integrity and accuracy of the financial data being reported by publicly traded companies. Provisions of the act compel companies to pay special attention to how information is stored and tracked.

That includes paper documents.

While many companies have focused their compliance efforts on the storage and retrieval of digital information, they can't neglect the huge numbers of paper documents that comprise financial evidence that must be collected and managed. This can include invoices, purchase orders, contracts, checks, receipts or internal forms such as budget approvals, expense statements, pay stubs and purchase requisition forms.

To comply with Sarbanes-Oxley, as well as other recent federal regulations, more and more companies are finding it necessary to capture, archive and manage paper documents. In vertical industries ranging from medicine and law to manufacturing and trucking, companies

are implementing imaging solutions to create digital archives that can be accessed simultaneously from different locations.

Analysts say regulatory compliance issues have created an upswing in document imaging solutions, with sales up 18.3 percent to \$413 million in 2004, according to the NPD Group.

Scanning documents is the easiest way to bring paper-based documents into an imaging system for electronic storage. Typically, as documents are scanned they are also assigned one or more index keys for easy retrieval. Quality document and image management software systems allow for easy upload of documents from individual PCs or network servers. Often, remote access is accomplished through the use of a Web browser.

If there are large volumes of backlogged paper documents in storage that need to be imported into a document and image management system, businesses may want to consider outsourcing the document scanning process. A quality document and image management system will allow outsourced documents to be auto-

matically imported from CD or DVD.

The success of a document imaging system ultimately will be determined by how it is managed after the images are created. Once documents are scanned or imported from PC files, the most important element to locating the document is the index. A document index can be thought of as an electronic label used for locating a document once it has been stored. With such large amounts of documents being stored, document and image management software must have an efficient means to recall documents for display.

There are various methods available to create or enter the actual keys for each document. The easiest way to enter document index information is to manually enter the index keys — however, this method is also the most error-prone as each user can potentially miskey or mislabel a document.

Often imaging systems will include the ability to enter index keys automatically by integrating applications through the use of application programming interfaces, or screen scraping technology that

reads index keys directly from a computer screen. Complete indexing accuracy can be achieved when the user launches the scanning process from their application and the application automatically passes index key information to the document index fields. OCR technology provides full text search for selected documents.

While there are obviously costs involved with achieving regulatory compliance, organizations also have the opportunity to create long-term benefits. For example, organizations can streamline their accounts payable processes by capturing images of inbound packing slips and invoices, routing those images through the approval process and capturing copies of outbound checks. In addition, a human resources department can more efficiently manage employee relations and information requests by electronically storing employee documents, tax information, insurance information and corporate policy manuals. By implementing a document imaging system, organizations can improve business processes and ultimately the bottom line.



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# Telephony Boosts Productivity

*Location independence, data integration and ease of use all add up to improved efficiency.*

**“W**ait a minute! Wait a minute! You ain't heard nothing yet!”

Al Jolson's famous ad-lib in "The Jazz Singer," Hollywood's first feature-length "talkie," could also apply to the business telephone. That staple of business communications is being revolutionized by new technology that links voice and data much as the Vitaphone system synchronized video footage and spoken dialogue in that historic film.

By enabling voice calls to be transmitted over data lines, IP telephony transforms the telephone into a true productivity tool. How? First, IP telephony enables voice calls to go anywhere data can go, enabling you to stay connected no matter where you are. Second, IP telephony connects voice calls with associated data, so that you have the information you need to

maximize the efficiency of the call. And, finally, IP telephony makes all the features and many others easier to use.

## Location Independence

The deskbound telephone has become almost a hindrance to effective communication in many businesses. The traditional PBX simply wasn't designed to support multiple locations, staff mobility and complex business relationships. Organizations need a new tool that can carry voice communication beyond company walls.

IP telephony is that tool. IP telephony systems take advantage of the distributed nature of the data network to route calls virtually anywhere. Teleworkers and traveling employees can take calls via IP soft-phones. Outside sales staff who spend most of their time visiting customers and

prospects don't have to have an office or desk; they simply go to any available space, log in and start receiving calls.

Specialists can "float" from branch location to branch location while keeping the same extension number. Consultants can remain at a customer's site for months and still keep in touch. If a physical presence is needed, such as at a new branch location or semi-permanent site, the voice network can be easily extended if a broadband connection is available.

## Voice and Data Integration

When voice calls are delivered over data lines they can be coupled more easily with information related to the call. This is possible with a traditional PBX but requires the addition of computer telephony integration hardware and software — an expensive and complex proposition.

Voice and data integration is built into IP telephony. Applications such as e-mail, contact management, customer relationship management (CRM) and more can be extended to the IP telephony system using open standards such as Microsoft's Telephony Application Programming Interface (TAPI). A number of applications, including Microsoft Outlook and Symantec ACT!, are already TAPI-compliant, enabling one-click dialing from the contact database.

If a call does end up in voice mail, unified messaging makes it easier to retrieve and handle the message. Traditional voice mail is a separate system that must be learned and managed; unified messaging, on the other hand, provides a single view of e-mail and voice mail. Best of all, voice mail is no longer linear — messages can be sorted and individual messages retrieved as desired.

Integration with CRM applications enables sales people, customer service reps, help desk staff and others to view full account history whenever a call arrives. IP telephony can also integrate with calendar applications so that calls can be handled based upon the user's schedule.

## Ease of Use

The good news is that all these features come in an easy-to-use package. While traditional PBX functions remain a mystery to most users, IP telephony sys-

tems provide a point-and-click interface that simplifies call handling and other features.

"Find Me/Follow Me" features can automatically route an individual's calls to a cell phone or other location, while real-time knowledge of "presence" can ensure that customer calls go to someone who is immediately available. IP telephony also makes it easier to set up conference calls and simultaneously share and review documents.

Even simple things like corporate directories are enhanced by IP telephony. In a large organization, maintaining and distributing the corporate directory can be time-consuming, and often the directory is out-of-date by the time it's published. With IP telephony, a system-wide directory can be made inherent to the system, and users can easily search by names or fragments of names, departments and other criteria.

## The Final Tally

IP telephony has made great strides among U.S. businesses during the past year, according to In-Stat/MDR. The percentage of companies using the technology grew from 3 percent in 2003 to 12 percent in 2004, with substantially higher rates of penetration within the larger business segments. The high-tech research firm estimates IP telephony penetration to be at 34 percent in the middle market and at 43 percent in the large business segment.

A newly published report from Dell'Oro Group provides further evidence that IP telephony continues to gain ground in the enterprise PBX market. According to the report, the number of IP telephony lines shipped grew to more than 2.1 million in the third quarter of 2004, a 14 percent increase quarter-over-quarter and a 39 percent increase over the same quarter last year. Traditional lines gained only 4 percent to 9.6 million.

The reasons for IP telephony adoption are as different as the organizations themselves. Some implement IP phone systems to save money, others to simplify administration, still others to replace aging PBXs that can't scale to support growing numbers of users.

Ultimately, however, the productivity benefits of IP telephony are most likely to bring the technology into the mainstream. Once end-users hear what IP telephony can do, the traditional business telephone will become as quaint as a silent film.

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## Shushing Cell Phones...

**A**nnoyed with impolite mobile phone users who don't follow basic etiquette or talk too loudly, designers Jim Coudal of Chicago's Coudal Partners and Aaron Draplin of Portland, Ore.-based Draplindustries Design drafted a solution that's been gaining buzz across cyberspace.

Coudal and Draplin established the Society for HandHeld Hushing — SHHH — and put together a series of free, downloadable cards, with messages like: "Just so you know: Everyone around you is being forced to listen to yer conversation" and "The world is a noisy place. You aren't helping things." Cards are available for downloading in PDF format at <http://www.coudal.com/Shhh.pdf>.

Many restaurants and libraries across the country are taking a different approach to curbing public cell-phone use by bringing back the once-ubiquitous phone booth, without the phone this time. Users bring their own mobile phone and can talk as loud as they want without bothering anybody else or being asked to step outside.

## Finding Photos Faster...

**G**oogle recently released free software for organizing and finding the hundreds or thousands of digital photos often stored on a computer's hard drive. Using technology developed by Picasa, which Google bought last year, the new software will try to make keeping a photo collection and editing pictures simple even for beginners.

Rather than requiring users to import individual photos from their drives, the Picasa software automatically detects them as they are added. Picasa tries to do away with complexities such as file names and folders. Photos are dumped into one bucket and sorted by date, but the software can quickly pull photos from date ranges or events as requested. Users also can mark the best pictures with a gold star and search only for those.

New editing features include the ability to make the sky bluer; to blur the background and focus on a subject; or to rotate photographs slightly to compensate for any camera tilt. All changes can be reversed, and the software stores different versions without requiring users to perform a "save as" command and rename the file.

## Ready for Multimedia Mobile Phones...

**A** new report from The Diffusion Group finds that consumers are increasingly comfortable with the idea of listening to music or viewing video on their mobile phones. The Dallas-based consumer technology think-tank reports that 42 percent of those surveyed would be comfortable listening to music and 30 percent would be comfortable watching TV or movies on their cell phone.

"More than 70 percent of US households in general, and 93 percent of Internet households in particular, now own at least one cell phone," said Dale Gilliam III, analyst with The Diffusion Group. "Among Internet households, enjoying digital mobile multimedia is becoming increasingly attractive. Consumers are looking for convenient ways to access their digital media and the mobile phone offers an intuitive, familiar, and comfortable form factor through which to enjoy this content."

## Making a Fashion Statement...

**M**otorola has announced plans for a line of skiwear that uses interactive cell phone and portable music technology in snowboarding jackets. Motorola and clothing manufacturer Burton will jointly develop jackets, helmets and caps aimed at the snowboarding set, to be released in the latter half of 2005.

The jackets will have a padded casing for a Motorola cell phone and an MP3 music player. They will feature a device on the sleeve that lets the wearer control incoming and outgoing calls, and toggle back and forth to music, sending audio signals to removable speakers in the hood.

The new clothes will use Bluetooth technology, which allows devices such as headsets and computers to communicate with each other over a short range without wired connections. Neither Motorola nor Burton would discuss the amount of their investment nor the expected pricing.

## Secure Acceleration



Microsoft Internet Security and Acceleration (ISA) Server 2000 is an extensible enterprise firewall and Web cache server that integrates with the Microsoft Windows® 2000 operating system for policy-based security, as well as accelerating and managing internetworking. ISA Server provides two tightly integrated modes — a multilayer firewall and a high-performance Web cache server. The firewall provides filtering at the packet, circuit and application layer, stateful inspection to examine data crossing the firewall, control of access policy and routing of traffic. The cache improves network performance and enhances the end-user experience by storing frequently requested Web content. The firewall and cache can be deployed separately on dedicated servers or integrated on the same computer.

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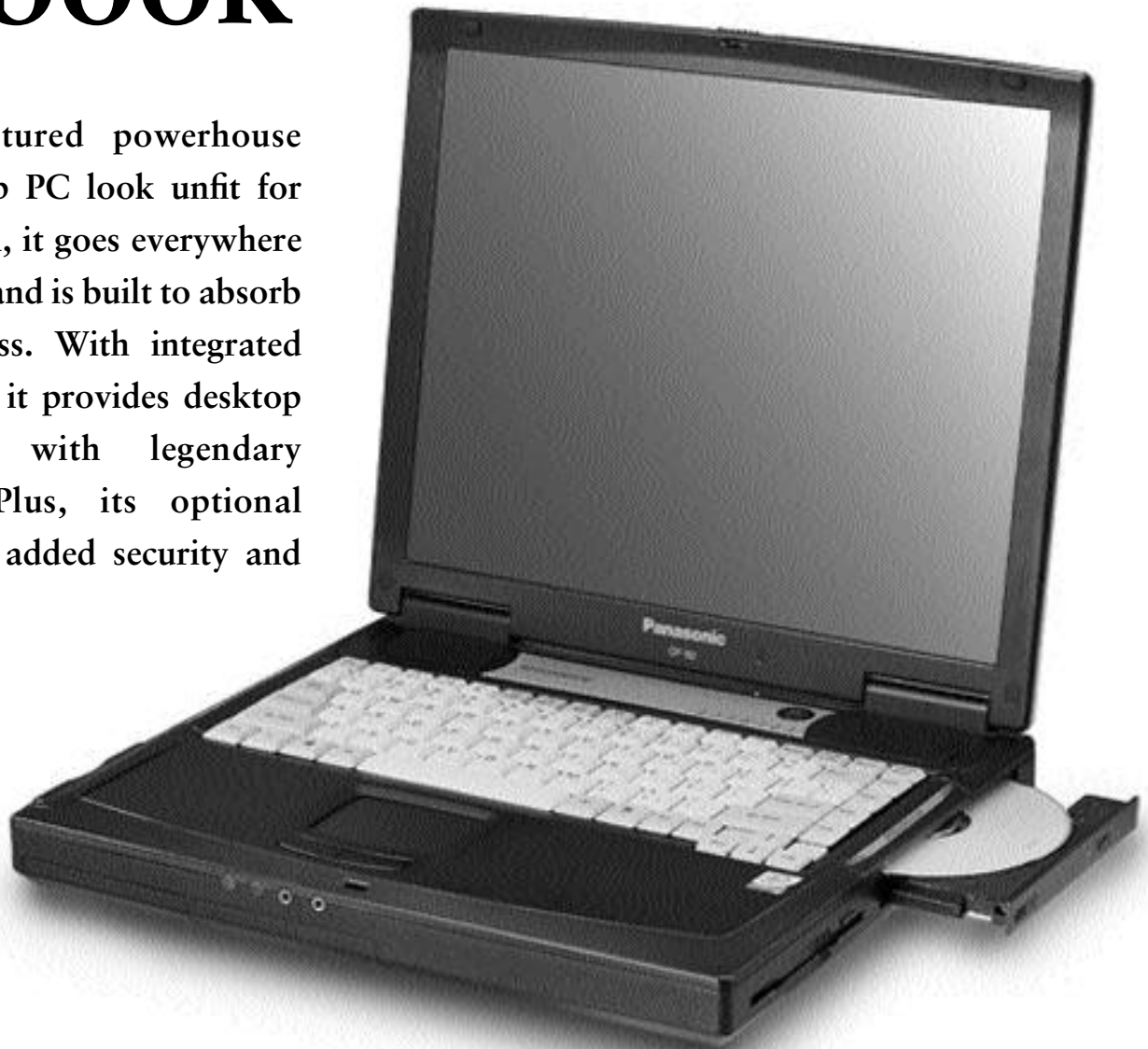
  
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