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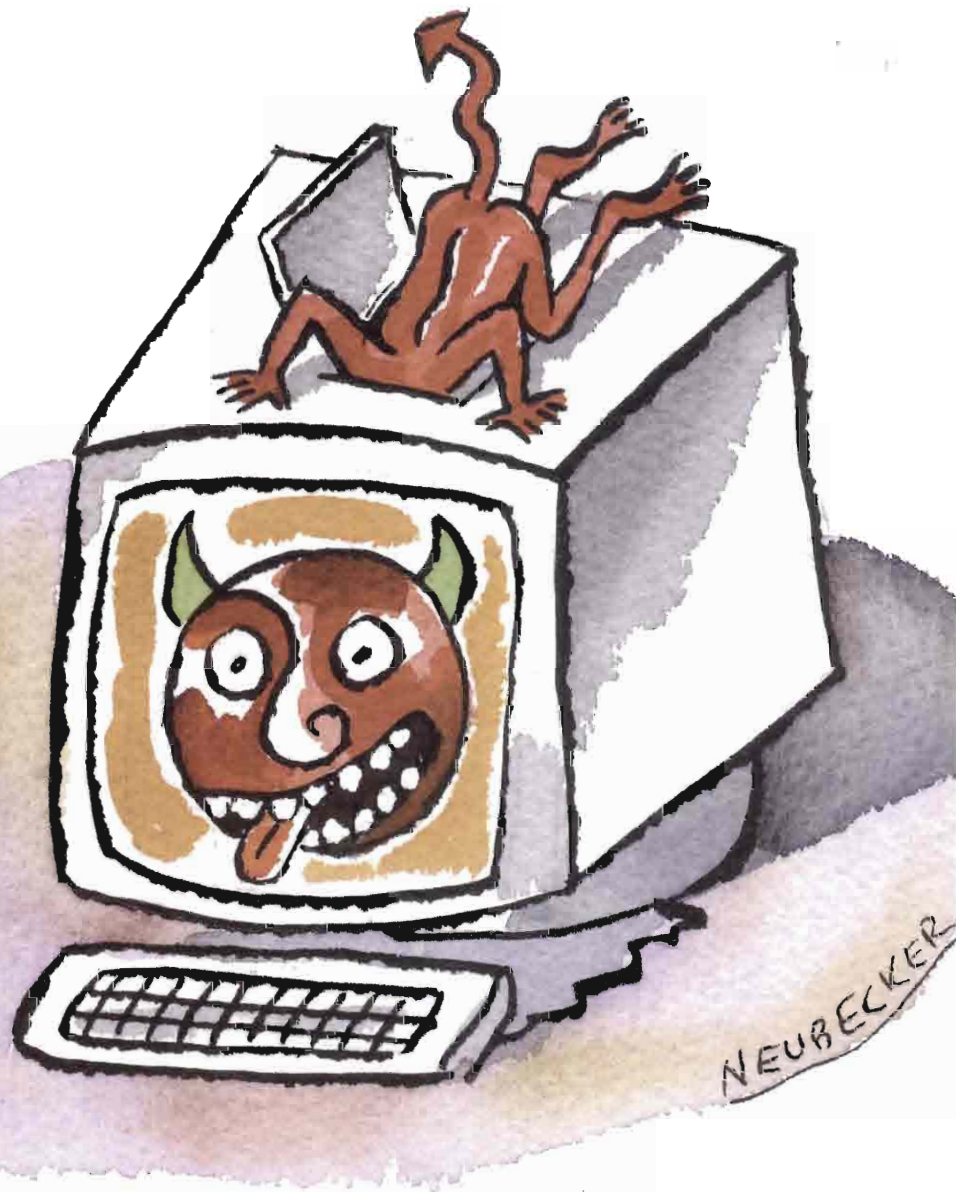# Harvesting Virtual Private Networks
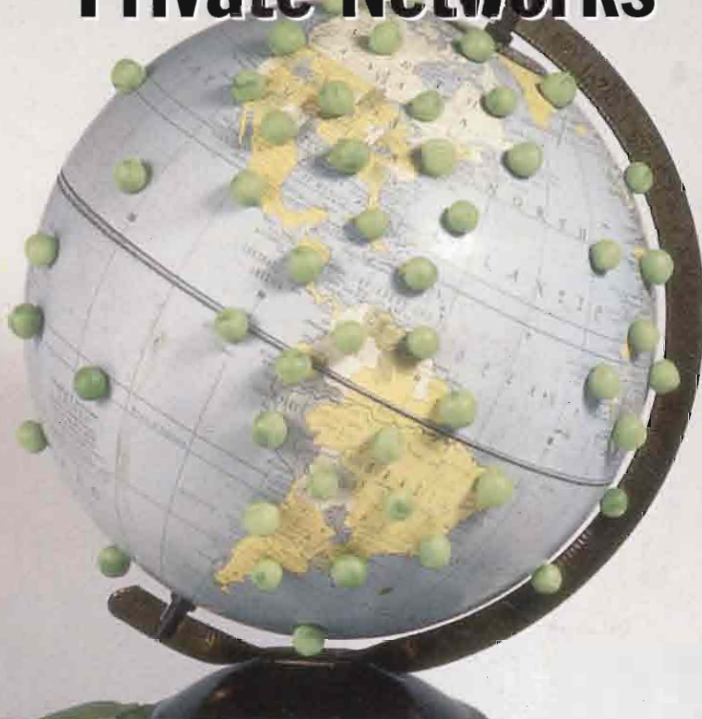
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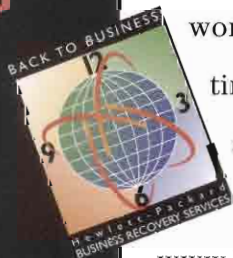
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Come See The Softer Side Of HP

For those too busy fretting over Y2K calamities and preparing for the inevitable millennium merry-making to have noticed, HP is showing its softer side these days. HP executives, this past fiscal year (which ends next month), have been creating a new HP: One that maintains the inspiration of the HP Way, but not the ritualized thinking that has restrained HP's leadership in the Internet Age.

When Lew Platt cleaved Hewlett-Packard into two separate but unequal entities back on March 2, 1999, it signified more than just another routine reorganization at the granddaddy of Silicon Valley companies. To cynics, it probably seemed like just another Chinese fire drill in the executive suite. It was no drill.

On April 1, Joe Beyers, head of the Internet Software Business Unit (ISBU) announced a bold new "E-Services" strategy. Otherwise referred to as "Chapter 2 of the Internet," by HP's management, the e-services thrust is more than a "vision thing." According to Tom Kucharvy, president of Summit Strategies (Boston, Mass.) and *HP Professional* Advisory Board member, "In essence, HP is making a dramatic bid to reinvent itself — and the rest of the Internet industry — with a new business model that relies less on hardware revenues." Kucharvy thinks the key lies in capitalizing on the revenues its service provider partners will generate, using new Internet technologies from HP. "If HP successfully executes this strategy, it will force competitors to make some very tough decisions."

Another new HP... Turn the page.

A NEW BELLEWETHER

Meanwhile, Mr. Platt and the Board have already made one of their toughest decisions by going outside the loop of the HP Way and naming an outsider by the name of Carleton (Carly) S. Fiorina as HP's new CEO and President on July 19. As the former president of Lucent Technologies' Global Service Provider Business, Fiorina (according to the HP press release) "dramatically increased its growth rate, rapidly expanded its international revenues and gained market share in every region across every product line."

Fiorina is also credited with "spearheading the planning and execution of Lucent's 1996 initial public offering and subsequent spin-off from AT&T, one of the largest and most successful IPOs ever." And in 1998, *Fortune* magazine identified her as the most powerful woman in American business. It just goes to show you what can be done with an eclectic academic background in medieval history, philosophy and business administration. However, it still remains to be seen if Ms. Fiorina will be able to turn HP's own top-notch, talent-rich, but otherwise leaden engineering-driven culture, into an organization that mines Internet gold.

MAKING COMMUNICATIONS WORK

Aiding and abetting Ms. Fiorina's quest will be long-term HP employees Ann Livermore, Duane Zitzner, Antonio Perez and Carolyn Ticknor, all CEOs and presidents of their respective divisions: Enterprise Computing Solutions, Computer Products, Inkjet Imaging Solutions and LaserJet Imaging Systems. "Each of us are set up to be the leader in the ecosystem that we participate in for HP," Ms. Livermore explained to me in an exclusive interview. "Clearly, for my business, the most important linkage inside the company is with the Personal Systems Business headed up by Duane Zitzner. Because, between the two of us, we create a [broad] coverage of the computer industry with our range of systems."

Now that she's been passed over for the top spot, Ms. Livermore's continued loyalty has been questioned in industry circles. Although clearly disappointed, she thoroughly understands what

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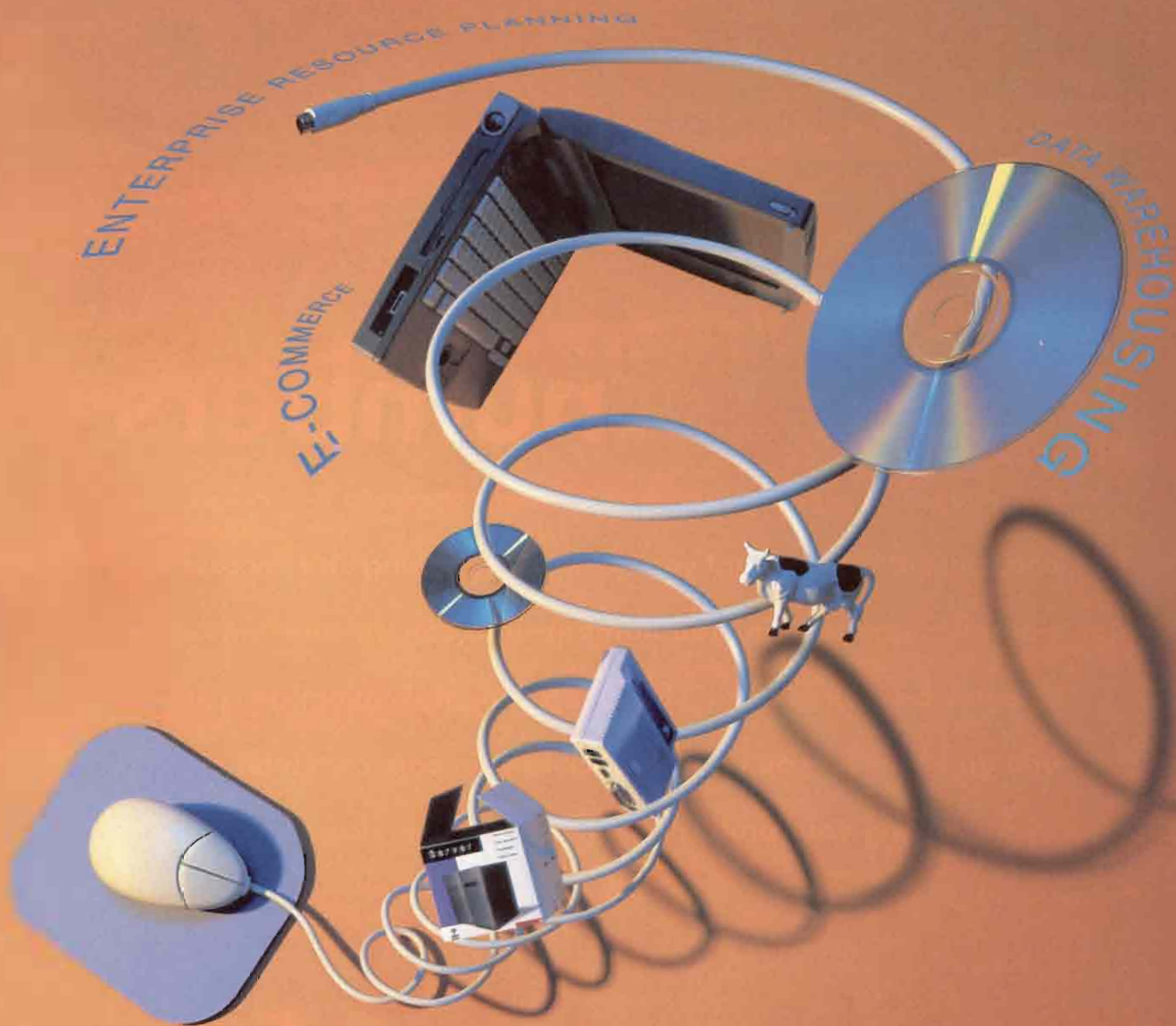
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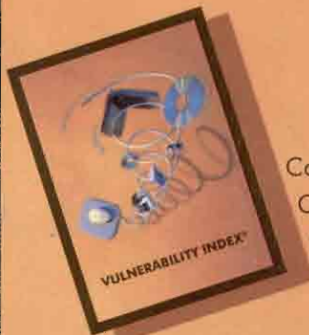
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her contribution is within the new HP. "The first thing that I'm after is [for] HP to be viewed as the company that is driving the future of computing. For enterprise computing, the buck stops with me." Good work if you can get it.

And completing the last circuit (so to speak) in its 21st century transformation, the almost forgotten other half of HP has now been given an identity. Agilent Technologies Inc. was born on July 28. Developed by Landor Associates (San Francisco, Calif.), who, by the way, helped to name Lucent Technologies, Agilent is derived from the word "agile." And the new tag line for the 43,000 employees headquartered in Palo Alto: "Innovating the HP Way." Someone got paid for this? At least Wall Street is eating it up. HP is getting good buzz and "buy" ratings as of this writing.

If all goes according to plan, HP (and Agilent) will continue to weigh in as heavyweights on the high-tech scale. But, they will imminently be companies with a softer, if not quicker touch, as well.

George A. Thompson

George A. Thompson
thompsonga@hppro.com

Finally, a publication I can understand and enjoy reading!

I am a 25 year IT professional, mainly within the "mainframe" world.   Trying to work through the maze of "server/PC" lingo, has been daunting to say the least!   It seems every day there is a new set of buzzwords to comprehend.

Thanks to your magazine (which I acquired because a colleague has "moved on") I was able to finally read about what NT and UNIX were, without all the hype, and how they play a roll in IT. The article "Planning for a Peaceful Coexistence" by Chris Wood was insightful as well as educational.

I was especially thankful that those "blasted acronym" were expanded [which seem to be] lacking in other publications.

Maybe with your information I can try and work better and more effectively with my IT counterparts.

— Robert L. Murray
Company name withheld upon
request .

HP Professional Magazine Wins APEX '99 Awards For Editorial Excellence

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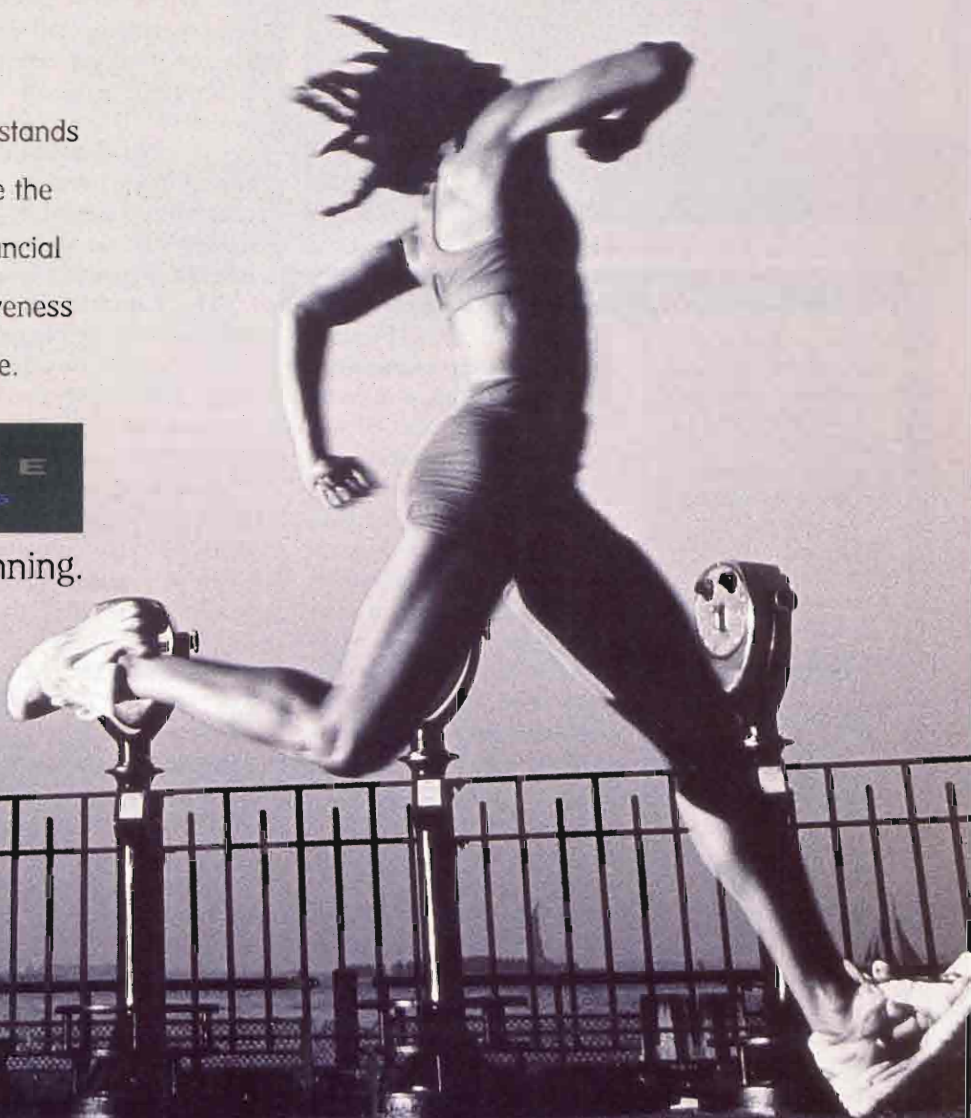
F O R S Y T H E
SOLUTIONS

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Product Watch

Control-M For Control Freaks

If an enterprise production management tool is worth its salt, it must be able to make nice with a number of heterogeneous systems and platforms. According to Cindy Sterling, product manager for enterprise management solutions with BMC, her company developed the Control-M Smart Plug-in for HP OpenView as part of an initiative conceived in response to precisely such a challenge.

The Control-M Smart Plug-ins — the Enterprise Controlstation and the Control-M production control and job scheduling products — are part of BMC's Enterprise Production Management solution, which along with two Enterprise Output Management and Enterprise Security Management software — comprise the company's solutions for IT process automation.

The Control-M Smart Plug-in's integration with HP OpenView helps to enhance the overall performance of the Control-M software, Sterling says, because it manages the setup, scheduling and execution of both business applications and legacy systems. And it can do so across a number of platforms.

The Control-M Smart Plug-in for HP OpenView runs on versions HP-UX 10.x and higher; pricing starts at $9,000, depending on configuration.

According to Mike Schiff, director of applications analysis with consultancy Current Analysis, Control-M's job-scheduling functionality could be a boon to IT managers frustrated by the problem of executing and monitoring jobs in disparate application frameworks. "IT managers want to go home at night. Anything that can monitor and execute jobs to automate the process of running the datacenter would be welcome."

"The Control-M Smart Plug-in allows an OpenView administrator to monitor the processes that make up the Enterprise Controlstation, Control-M server and agent," explains Sterling.

"Through OpenView, the user can manage the Control-M process status, start and stop the Control-M databases, administer all processes and all GUIs — and there's also the ability to do monitoring via threshold limitations."

The Control-M Smart Plug-in can also be used to provide interoperability services between both BMC's Patrol systems monitoring and event management product and the OpenView framework, facilitating communication between both platforms. Administrators can receive information concerning application events originating from either the Patrol or OpenView environments. The Control-M Smart Plug-in has been certified through the HP Premier Partner Program.

"BMC Patrol is one of the best database monitoring tools out there," says Schiff. "If you're running Oracle on an HP-UX platform with OpenView, this could be of some value to you."

— *Stephen Swoyer,*
Contributing Author

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An Rx For Curing Acquisition Ailments

A Standardized Environment Helps The Medicine Go Down.

In just a few years Integrated Health Services, Inc. grew from a $500 million company to $3 billion, with 1,700 service locations spread across 47 states. The question for the IT management team was how to prevent becoming a bottleneck for the company's daily business processes and how to expand IHS's repertoire of health services.
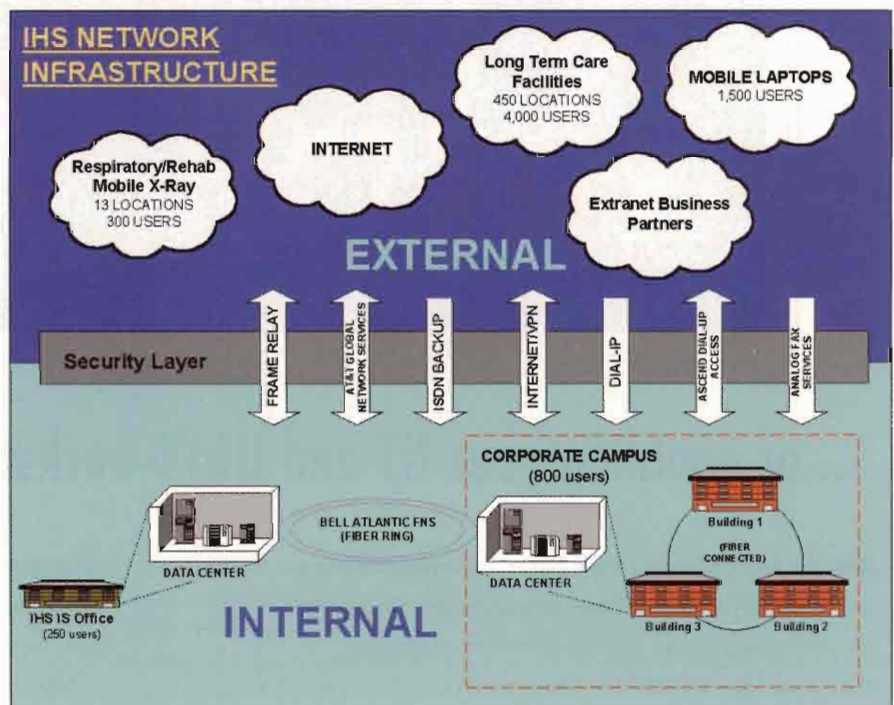
Drew Krushinski

In many regards, post-acute healthcare companies such as Integrated Health Services, Inc. (Owings Mills, Md.; IHS) have a similar business model to that of other fast-paced, consumer-oriented industries. Retail products, hotel chains and even financial services enterprises frequently follow a 'growth by acquisition' strategy that often results in a company providing specialized new products and services almost overnight.

IHS faces the additional challenge of continuing to provide high-quality healthcare in an environment of changing reimbursement regulations. Cost-efficiency would be the determining factor in who survives and who fails in the industry. Add to this the growing demand by payors to contract with a single provider of all patient services to streamline billing and reimbursement processes.

These challenges create a growing need for healthcare providers to leverage existing operating efficiencies while still expanding services by supplying a broad umbrella of health services that cover all patient needs following hospital discharge. Successful healthcare firms have created just such an umbrella through the acquisition of other providers.

IHS had grown through acquisition of firms specializing in skilled nursing, rehabilitation, hospice, home respiratory, infusion, lithotripsy, diagnostic, geriatric care and home healthcare services. But its goal of offering cost-effective patient care as a single provider for all post-acute care needs hinged on the ability to update and access information quickly from any IHS branch.

Growth through acquisition places strenuous demands on any IT infrastructure. IHS is a very distributed and decentralized firm, with 500 long-term care facilities and thousands of therapy and mobile x-ray contracts across the country. Because the "product" of healthcare providers is knowledge-based service with very special expertise, staff at IHS branches has a critical need to access yesterday's data to make informed decisions for the next day. Its goal of offering cost-effective patient care as a single provider for all post-acute care needs hinges on the ability to update, access, and communicate information seamlessly across all IHS locations.

CRITICALITY OF IT CARE

The company's aggressive growth through acquisition brought with it a hodgepodge of proprietary IT environments and legacy applications that made information sharing difficult. In addition, payroll and billing were performed locally by a variety of applications and payroll services. The IHS IT department was faced with the daunting task of unifying these diverse systems and bringing more than 80,000 employees into a single corporate human resource, financial and payroll system. This system also needed to provide consistent reliability and true 24x7 accessibility.

The solution proved to be an open systems approach to rebuilding the company's IT infrastructure. Open systems let the firm move away from proprietary networks and build a framework of standardized hardware components (HP servers and PCs and EMC disk arrays) and a corporate intranet to support data communication between IHS branches and corporate HQ. Diverse legacy financial applications were replaced with PeopleSoft to provide uniform and centralized payroll, HR, revenue management and control, procurement, corporate accounting and tax reporting.

ANOTHER KIND OF TAX CUT

PeopleSoft gave IHS staff at remote sites access to applications and reporting using the corporate intranet as the source. IHS staff members immediately realized the benefit in having the reports they wanted and the flexibility to manipulate screens. At year-end, streamlined payroll processing and the ability to update and analyze data, cut tax-processing time dramatically.

These applications are supported on HP 9000 Enterprise Servers. HP servers were chosen based on the recommendation of PeopleSoft and other

> **Network performance and response times have been improved by installing several hundred of HP's NetServers at remote locations to support local bill processing.**

software vendors as a proven platform to support their applications.

The IHS IT department uses an HP T600/10-way server for testing and development. Another T600 is used for payroll processing at both corporate HQ and branch offices. The financial applications for reporting, tax and corporate-level accounting are supported by an HP 9000 K560. K420 and K460 servers support various other healthcare and clinical applications. Network management services and HP OpenMail run on a K460 server. Network performance and response times have been improved by installing several hundred HP NetServers at remote locations to support local bill processing.

HP PCs, also chosen for their reliability, were deployed to create a remote access, wide area network.

This network gives IHS staff direct access to PeopleSoft, e-mail, the corporate intranet, data and applications that generate reports across systems.

The IHS IT department asked EMC to do some comparisons with their old legacy systems. The results were that EMC was chosen as the firm's standard storage because it could be used with NT servers. Using EMC disk arrays for archiving and backup also helped reduce or eliminate any downtime that might otherwise be associated with those tasks.

Because the IHS corporate intranet, called "The Gateway," was installed last summer, usership has rocketed from about 500 hits a month to 20,000 and is still growing. The intranet hosts all common IHS applications and shared data, permitting reports to be generated from a PC at any IHS location. Before the intranet

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—*L.C. Thurow*

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> **Because all branches have the same standard-ized components, open systems make it easier to sell pieces of the business as needed, as evidenced when IHS recently got out of the home healthcare business.**

IHS was essentially a paper-based company. The intranet has given the firm the ability to do away with most of the paper and move toward becoming totally electronic.

Standardization is the key to the manageability and supportability of the new IT environment. Using the same platforms, PCs, printers, laptops, environment and software throughout IHS helps IT staff manage those platforms. The open systems approach allows IHS the free use of applications, enabling the IT department to solve potential bottlenecks by adding components as needed.

Open systems also helps the company expand and contract as needed. By standardizing on well-known products and protocols, IHS has opened up the architecture so that when in acquisition mode, the firm can acquire companies seamlessly because no proprietary boundaries exist.

Just by putting a PC on a desk at an acquisition site, IHS can provide new users with access to e-mail, the corporate intranet and shared systems — sometimes in a matter of hours. Because all branches have the same standardized components, open systems also make it easier to sell pieces of the business as needed, as evidenced when the firm recently got out of the home healthcare business.

While it's true that IHS is successful by managing its solution vendors, it's the resulting synergy of the relationship that assured successful deployment here. These days, solutions must be quickly structured and tailored to industry- or company-specific aspects. The job requires the expertise and dedication of the ven-

dors involved. Process requirements planning, specifying and configuring software and servers, benchmarking, optimizing, deployment and training all can proceed more smoothly and on-schedule when IT groups have pre-built effective relationships.

UNDER PRESSURE

With the pressure on our IT group to provide more at a lower cost, agility and capability with data and network management tools and leveraging vendor relationships grow in importance. At IHS, for example, the Technical Services Group staff has grown, but in terms of operations and Help Desk costs they've gained significantly larger economies of scale.

They've built up enough CPU, networking and router capacity to be able to handle new acquisitions while involving much lower overhead than anticipated. This keeps the Technical Services Group off the critical path, keeps them from disappointing company executives about the speed with which a new acquisition can be brought in line and become a corporate asset. More importantly, acquisitions quickly become new healthcare resources and options for IHS customers.

For these reasons, IHS sought enhanced management capabilities for the new IT infrastructure. It was also important to centralize management capabilities and enable a relatively small management team to operate this extremely distributed environment of over 500 servers across the country. In order to allow remote support comparable to the quality of on-site service, IHS is currently imple-

menting several HP OpenView products, including IT/Operations and Network Node Manager. Other specialized applications such as CiscoWorks, Visual Network's manageability platform and Computer Associates' tools are also being integrated with HP OpenView.

Because of the openness and standardization of the platform, the Technical Services Group can now react very quickly to problems and take themselves out of the critical path of major projects. They've provided the infrastructure, hardware and support structure for the next round of business growth and healthcare service improvements

— Drew Krushinski is vice president of IHS Technical Services and has 14 years of IS experience.

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Keeping Customers Online

Service And Support Remain Key To E-commerce Success.

AS VENDORS take their business to the Internet, they're either using the same customer service practices that worked well in traditional retail spaces, but are insufficient for e-commerce, or they are neglecting to provide customer service at all. The bottom line: E-commerce vendors that don't have quality customer support services won't succeed.

Carlton van Putten

The growing popularity of online shopping, combined with price wars among technology manufacturers, has pushed traditional retailers to get online. However, unlike selling products in retail stores or through catalogs, vendors face stiffer competition online because an unsatisfied customer can easily click to the competition's Web site and make a purchase.

Online vendors also face a new breed of consumers sold on the idea that the Internet will improve their daily lives. This raises their expectations for high quality customer support. "Customer service is the next major thrust over the Internet," says Steve Robins, senior analyst for the Yankee Group's Internet Computing Strategies. For many online hardware and software vendors, post-sale customer support is the missing component needed to attract new customers and maintain customer loyalty.

Research firm Frost and Sullivan predicts that Web-enabled customer support will grow by more than 110% by 2004. Recent International Data Corporation (IDC) research reveals that online vendors that don't offer good customer support run the risk of losing customers to online competitors. The bottom line is e-commerce vendors that don't have quality customer support services won't succeed.

ONLINE AND OFF THE HOOK

Of the online vendors that do provide customer support services, many offer support via 800 telephone numbers posted on their Web site or printed on their packaging. Phone-based service has its place in the world of customer support, but is less effective and efficient for products sold online. Vendors selling their products over the Internet require services that meet their customers' demands for instantaneous customer support and technical resolution from their Web site.

For the average wired consumer, calling an 800-number with a question means disconnecting from their Internet service first. This not only frustrates customers, it also diminishes customer satisfaction and hurts the vendor's chance of building customer loyalty. Worst of all, up to 40% of customers put in this position end up not even completing the sale, choosing instead to find another vendor site that can answer their question.

Offering a good deal on hardware or software is only the beginning of building a customer relationship. It's critical for online vendors to implement a quality Internet-based customer support solution because their customers expect immediate support and technical help from their Web site. By effectively servicing customers after the sale – when problems are most likely to arise – online vendors can more efficiently build customer relationships and establish customer loyalty.

Instincts often drive people to do very rational things. For example, online shoppers who need help using a product naturally go back to the Web site where they bought it expecting to find solutions to their problems. If they can't get technical assistance, customers become dissatisfied and disloyal to the vendor.

This means vendors need to incorporate Web-based customer support services into their online sales channels and business processes to enable customers to quickly and easily resolve their technical questions. Services such as self-help, for example, first enable users to try to resolve

their technical problem themselves then contact a support agent for more complex issues.

Effective online support should include a combination of services such as:

Self-help: Enables customers to type key descriptive technical and support terms into a submission template at a vendor's Web site and tap into the provider's knowledge base. This provides customers with fast, accurate and easy technical resolution.

E-mail: Enables users to contact a support agent from the vendor's Web site by inserting technical terms that best describe their problem into an online submission template. The provider's knowledge base uses auto-suggest functionality to analyze incoming queries and associate them with likely resolutions to give responding technicians a head start and ensure a speedy resolution.

Online chat: Enables users to participate in one-to-one or one-to-many chat sessions with support representatives via the Web. With access to a vast database of resolutions, support agents can provide users with answers in seconds, while resolving multiple queries at the same time. This dramatically reduces resolution rates. With a chat click-through, customers looking for instant support or service can get it.

All of these services help e-commerce vendors cut staffing and phone-based resolution costs, while maintaining customer loyalty in a retail space where competition is seconds away. Unlike phone-based support, customers can resolve their own technical issues before contacting a support agent, eliminating the need to disconnect from the Web in search of an answer.

IN-HOUSE OR OUT-HOUSE

Most online customer support options enable vendors to choose from several support offerings or implement an entire suite of integrated services. However, before selecting which online support services to use, vendors must first decide whether to develop customer support services in-house or outsource them.

> **No matter which services a vendor decides to offer, each should be backed by an enterprise-wide knowledge base that captures critical customer and product information.**

In-house Web-based customer support can cost millions of dollars to build and maintain and can take as long as a year to get off the ground.

Vendors developing their own customer support programs must also consider critical factors such as:

- Ensuring they have the latest technology to build query tracking, knowledge-capture and Web access support systems;
- Hiring knowledgeable customer support agents;
- Offering ongoing training and educational programs;
- Creating value-added services to enhance customer satisfaction and increase their bottom line.

Customer support outsourcers, on the other hand, provide the same high-quality online customer care at a lower price and for far less effort than it takes to build and maintain an internal support program. Customer support outsourcers can handle systems maintenance and upgrades, for example, including Web-specific applications and enterprise-wide knowledge bases. This eliminates the costs associated with allocating highly paid information technology staff to develop, operate and maintain multiple systems.

Customer support outsourcers can also offer vendors high-quality knowledge management systems. Because they support an array of products, and service millions of queries on a variety of topics, outsource providers have the knowledge, experience and equipment to develop enterprise-wide knowledge bases and implement an effective knowledge management program. Providers use knowledge management systems to transform the know-how of support agents, customer and product information captured by powerful databases into highly refined data to help vendors better understand their customers and meet their individual needs.

Outsourcing customer support also ensures that vendors always have highly skilled support staff — a critical element of a successful customer support program. Typically, vendors are experienced at hiring high-tech sales and management personnel but know little about establishing an online customer support staff. Outsource providers that specialize in providing high tech customer support understand how to hire support professionals with the right technical skills. These providers also develop ongoing educational programs to maintain highly skilled personnel and meet the needs of a changing market.

No matter which services a vendor decides to offer, each should be backed by an enterprise-wide knowledge base that captures critical customer and product information as well as the knowledge that support agents gain from resolving millions of queries.

Online services that are fully integrated with a sophisticated knowledge management system also enable users to first try and resolve their technical problems themselves, then contact a support technician through a Web submission template using e-mail or via telephone. By providing high quality online support services, vendors can quickly, easily and cost effectively meet the support demands of their customers to ensure customer satisfaction and loyalty without breaking the bank.

— *Carlton van Putten is vice president of marketing at Stream International, a customer support outsourcing firm.*

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CSC	IMRglobal Corp.			

What You Can't See Can Hurt You

Ken Deats

In a recent report entitled *VPN Hardware Market Share Service* done by Infonetics Research, Inc. (San Jose, Calif.) it states that, "Dedicated VPN hardware revenues totaled $37 million in 1Q99 — more than double 4Q98 revenue — and are forecasted to grow to $156 million by 4Q99." The study also predicts that the worldwide market for VPN products and services will reach $32 billion by 2003, up from $2.4 billion this year.

Another Infonetics study found that while 37% of respondent ISPs offer VPNs now, 73% plan to by 2000, and they expect a fifth of all their business accounts to use VPNs by that time. With a growth rate that steep, it seems that the question is not "Do I need a VPN?" but "When will I install one?"

Even though an IT manager may view their VPN as one component in their overall enterprise, that manager can't use the same management tools and techniques to control that VPN as they might any other device on their WAN. That's because SNMP and its related capabilities such as discovery, "thresholding" and remote configuration do not yet exist in the lexicon of VPN management.

Those managers who once were able to see a new network device automatically appear on a management console graphic or configure that device from the same console have been forced to turn those tasks over to the ISP providing the link. The VPN appears to them as an ill-defined, amorphous shape in their enterprise diagram similar to the cloud used to signify the carrier in a voice network. In that scenario, the network manager only sees as much of their VPN as the ISP lets them see.

In fact, unlike an enterprise network where security, network and device management concerns are similar, but separate titles, in the enterprise mosaic, management aspects of a VPN from a client perspective are almost entirely thought of as authentication and access control.

"There have really been three generations of VPN security solutions," says Andreas Schreyer, vice president of marketing and product management for Internet Dynamics, Inc. (Westlake Village, Calif.) a provider and integrator of VPN technology and manufacturer of the *Conclave VPN* product line. "VPN vendors are primarily focused on data privacy with encryption. Access control has not been a big component of VPN solutions."

The first generation, he says, were point products such as firewalls and authentication devices. The second evolved into integrated network security that combined functions and offered a single management capacity.

"The third generation, where Conclave is now, is policy-based information management, which is a high level way to administer network management," he explains. "Instead of managing network devices and IP addresses which are more low level,

[policy-based management] lets you know who has access to what, when they have access and how they have access."

Building a VPN is as much about building a trusted relationship with an ISP as building a link between end points, says Bill Sudlow, senior director of marketing and R&D for HP's Internet Security Division. "It's just like buying anything online," he says. "You've got to make sure you trust the ISP you're connecting to"

A client's first concern should be to authenticate who a user is on the other end and what resource they should have access to. "That authentication could range from minimal user ID and password to being able to see where the connection is coming from," says Sudlow.

In the traditional enterprise management scenario that concept may seem simple enough, but in the reality of connecting a VPN through an ISP

it becomes much more complex. Typically, that ISP may be hosting VPNs for any number of clients across a single T3 connection to a POP. In that case, says Sudlow, a client needs to be concerned with how that ISP maintains a separation of applications and data for multiple businesses that may share the same links.

Even though security and access control have been the defining force behind VPN management to date, SNMP concepts are beginning to infiltrate the technology.

HP has chosen to work with ISPs to develop their network-management needs and provide a customer-centric point-of-view of the VPN. *HP OpenView Customer Views for Network Node Manager* (NNM), an add-on product to NNM 6.0, allows those service providers to manage and view network resources and events as they relate to the resources offered to individual customers.

"An ISP may have various customers with various service level agreements [SLAs] that guarantee to give a particular level of service required [to each customer]," says Rick Whitner, an architect on HP's NNM team. "[Customer Views] helps ISPs partition their network to make an association with resources on the network and the customers who access them."

Whitner explains that the ISP sees the details of the network: routers, switches and links. Customer Views lets the ISP associate a resource to a physical device such that a customer may be associated with a particular router and the router on the other end. The ISP can then track what resources across the network a customer most depends on.

A Customer Views utility reads customer information from the ISP's database and exports that data to the NNM database. This combination of data sharing and device monitoring lets the ISP establish a relationship between a physical device on its network and the associated customer resources that may be affected should that device fail.

Customer Views notwithstanding, Whitner still sees a need to open up

AVOIDING THE VIRTUAL POTHOLES

In an article entitled *The Road to Safe and Effective VPN Solutions* that appeared in Telecommunications Magazine, May 1999, Internet Dynamics' Schreyer points to several pitfalls to avoid in establishing a VPN.

- Do not apply fixed encryption strength to a connection. Wasteful encryption techniques result in performance bottlenecks or the need for expensive hardware accelerators.
- Eradicate the network-centric administration paradigm. It forces every communication circuit you want to allow at every point to your private network to be described in "IP language."
- Avoid VPNs that force you to define a different set of rules and configuration parameters for each network entry point. All entry points should automatically share a database representing a complete view of the network.
- Automate route and key management instead of configuring every point-to-point connection between routers at all VPN entry points. Implementation scalability makes adding the 100th site to your VPN as easy as the first, not 10,000 times more work to achieve full-mesh routing as is currently the norm.
- Move from centralized to distributed administration. Instead of one person managing everything at any one time, many people can manage assigned parts of a security policy at the same time.

—K.D.

the VPN to a customer's view. "We still need more SNMP type recognition," he says. "There's a level of discovery that needs to be added. We want to give the ISPs the capacity to let their customers see the network and what's going on. That means more audits, more reports and physical layouts."

The intent, Whitner says, is to help the ISPs streamline the process to let them deal with their network on a per customer basis. That will help them provide information to each customer as to exactly what resources and services the ISP is providing, define SLAs more tightly and track those SLAs back to the ISPs physical network.

While Internet Dynamics' *Conclave VPN* already offers some SNMP-like functions such as thresholds and alerts as they pertain to security violations, Schreyer sees the need to extend that functionality to application control. "We now control all the enforcement points in the enterprise. Instead of an access control list for each application and network device, we should have a unified policy environment for the enterprise." Support for LDAP directories is crucial to that endeavor, he says.
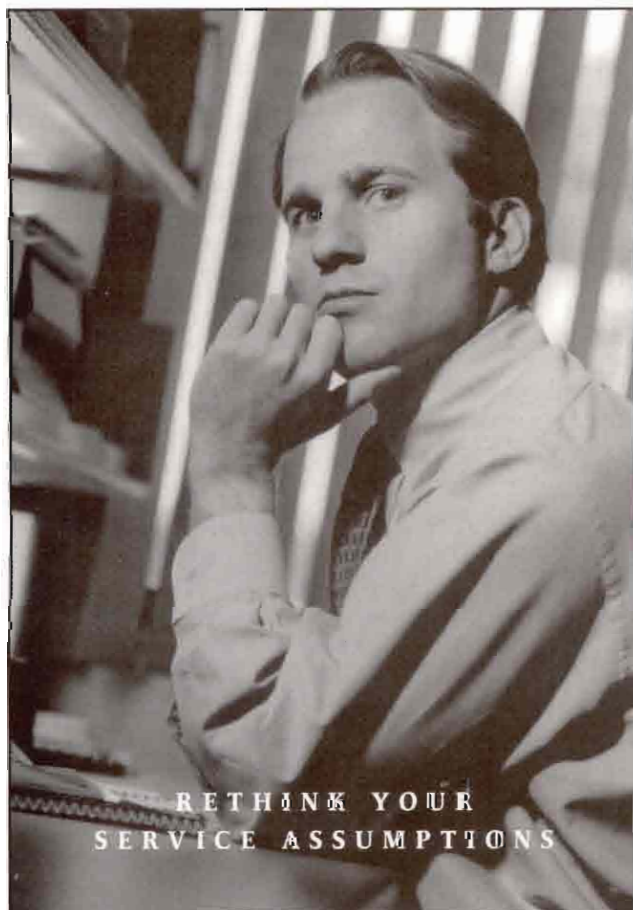
Schreyer points to a large insurance company, a client of Internet Dynamics, that he is working with to extend the number and types of applications that will be policy-enabled. The technique, he says, is similar to an ODBC call that allows the application to query the policy server as long as the user information resides in an LDAP directory. That will provide a true single sign-on capacity and a high-level security policy that spans all resources in the enterprise.

Whitner says that in order to do a better job of traffic management, there is a need to better define metrics for reading encrypted data to determine the effect it's having on the link. "We can do a much better job interpreting unencrypted data."

In a related area, Schreyer sees a trend towards interoperability of the IPSEC standard across VPN vendors. "That will make VPN interoperability real," he says. "The best example was at Networld+Interop '99 where they demonstrated interoperability between 13 different VPN vendors' products. That's critical for business-to-business e-commerce."

And Schreyer sees the standard moving from the server-to-server level where it is now down to the client level with Internet Key Encryption (IKE) clients, which is the protocol that allows usage of shared secret keys and certificate-based authentication and key exchange. "In the next 12 months we'll see the emergence of IKE clients so desktops can play into IPSEC-compliant VPNs," he says. ◆

Commanding Standards

A FEW BITS TRICKLED through the Ethernet forming bytes, which coalesced into words, then sentences in a recent e-mail addressed to me. That in itself would not be unusual,

except that this particular e-mail ruined a fishing trip for me. It wasn't the sender's fault that it arrived after my last daily e-mail check, or that I happened to check e-mail at four a.m. before leaving for a day's fishing. It could be my fault for writing a recent column about the history of shells and command line editing mechanisms, but since I don't take blame well, I think not.

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Let's suppose then, that the fault lies within the basic principles of UNIX. To see how, we will start with the email:

My only question about ksh *and* csh *and even* tcsh *is: Why can't the command line actually work in the simplistic way everything else does? Such as: left arrow goes left, delete (or backspace) works anywhere I place the cursor using the lt/rt arrow and I can choose insert or overstrike at that location via a switch key (like Insert), if necessary. In addition, up-arrow should always return previous command lines (as it does in* tcsh *and DEC's VMS and IBM's OS/400).*

When I first used ksh *in 1993, I could not believe that these OBVI-OUS standards were not used, and I'm still amazed. Can you please quickly explain: (a) What do I get out of using editor commands instead of*

the obvious overstrike/insert method above on the command line (b) Why are we the only ones complaining about this kind of stuff?

— Robert from upstate New York

Robert, you must first remember that UNIX spent much of its youth hanging around college campuses. Campuses are those places where you can get a degree for spending a couple years of your life writing a paper that answers a rhetorical question.

Come to think of it, I bet someone could write a thesis based on your e-mail. So, in the spirit of things collegiate, I'll throw out some thoughts based on your rhetorical question, instead of going fishing. I hate it when something peaks my interest.

NO WHY. ONLY DO.
To start with, UNIX has seemingly always tried to be everything for everyone. Keep that in mind, and lots of 'why' type questions disappear. For example, in the early days, you'd often find many different types of teletypes attached to a single box (whatever was lying around). When terminals came out, they basically emulated teletypes (often called glass teletypes) which means that they were acting like a printer with an infinite paper supply.

Later still, smart terminals came out, from many different companies, which actually had the ability to move

the cursor around the screen, and replace characters being displayed without completely redrawing the screen. What an improvement! But — there is always a but — and in this case it is that different manufacturers used different control sequences for the same screen functionality.

In steps Bill Joy, one of the early UNIX wizards (yes, at Berkeley). For those not aware of his list of accomplishments, it includes writing the *vi* editor circa 1970 (for which you might throw money, or eggs, depending on your fondness for *vi*). Since *vi* was a screen editor, it made heavy use of screen controls (being able to see changes to text as you made them was leading edge stuff back then).

A VI-ABLE SOLUTION?
It was first written for a Lear Siegler terminal, which I suppose most people reading this column have never heard of, much less seen. In order to get *vi* working on other terminals, it had to be smart about understanding control sequences. Joy had some choices. He could have started making *vi* understand various terminals, but that required periodic updates as new terminals were developed. And, we know that it's against UNIX culture to update programs, so that was deemed a bad idea.

The idea Joy came up with was a great solution. He wrote *vi* to use generic screen control commands, which were then looked up in a database and translated to control codes and settings for the terminal type being used. *Termcap* or *terminfo*

> **Bill Joy could have started making vi understand various terminals, but that required periodic updates as new terminals were developed. And we know that it's against UNIX culture to update programs, so that was deemed a bad idea.**

databases store this information to this day.

Which terminal type you're using is still important to most programs that perform any terminal screen operations. As we all know, the terminal type is passed to programs via the contents of the *TERM* variable. The amazing thing is that with our current tremendous computing power and graphics capabilities, such as bit-mapped displays, we're still using it to emulate ancient teletypes.

Getting back to your questions (finally), why didn't those that wrote the UNIX shells follow the common conventions of VMS, MS-DOS and other command parsers?

I don't know.

As far as the up arrow returning previous commands, most shells do, if configured correctly. For example, the *korn* shell will indeed return the previous command, and allow the left/right arrow keys to be used for simple editing if you use *emacs* command editing mode. Most *tcsh* programs use *emacs* mode by default, but if yours is set to *vi* mode, use the **bindkey** command to change to *emacs*.

TURN ON, TUNE UP

Turn on emacs command editing style in the korn shell with the set -o emacs command. Using set -o vi in a korn shell turns on vi mode, where you have to use the vi command for moving up a line to get the previous command. The bash shell (Developed by the Free Software Foundation) also has both emacs, and vi mode command line editing.

You should spot a trend here. The UNIX shells that offer command line editing capabilities (*ksh, tcsh, bash*) all do so using editors, rather than programmed in functionality. There are several advantages. First, those editors already have the terminal capabilities built into them. This means you can telnet, rlogin, remote dial-in and remote display to your heart's content, from almost any terminal type, and things will still work reasonably well, so long as your TERM variable is set correctly. A rather elegant solution.

Another important benefit is that you get more complex capabilities without learning another set of commands. If you already know how to delete a previous word in your favorite editor, you can use that capability on the command line by pressing <esc>db in *vi* mode editing, or <esc>b in

emacs mode. You can copy and paste, or even use abbreviations or macros. Then again, most of us do not use command line editing to this level, but we could.

Now, why are we the only ones that care? Actually, it's only you. I'm going fishing.

— Fred has had great success hauling in the really big ones lately by using korn shells as bait.

Windows 2000 Recovery Features

THE CURRENT RUMORED release date for Windows 2000 is October 1999. With that in mind, it may be useful to take a look at Win 2000 and discuss some of its newer features.

Microsoft released the Beta 3 version, its first release candidate, which includes some brand new features. We've looked at the most vaunted feature of Win 2000, Active Directory, last year (October 1998). In this column we'll take a look at some of the new system recovery features.

Starting in Win 2000, we'll be able to boot into Safe Mode. Safe Mode is a great feature that Microsoft first implemented in Windows 95. It allows the operating system to be started with minimum software drivers and programs.

This allows you to get into features such as the Control Panel or the Registry Editor and fix whatever configuration problem is preventing your system from booting. In past versions of NT (and still available in Win 2000), there was the option to boot using the "Last Known Good Configuration".

This method had some shortcomings. Because the "good configuration" came from registry saved during the last shutdown, it was quite possible that the supposedly good configuration was really the cause of the problem. With Safe Mode, the nonessential parts of the registry are ignored and problems can be bypassed.

There are several versions of Safe Mode. The most basic loads minimum video, mouse, keyboard and disk system drivers. Also available is

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Safe Mode with Networking which adds network interface drivers and network protocols. A final version is Safe Mode with Command Prompt that merely displays a command line interface. This is useful for dealing with GUI problems associated with mouse or video drivers, but will force many system administrators to familiarize themselves with typing all over again. The Safe Mode options can be used by simply hitting the F8 key when presented with operating system selection menu at boot time.

Two other new boot modes allow for greater flexibility in dealing with startup and configuration problems. The Enable Boot Logging option creates a log of devices and services as they are loaded. The log is saved to the system root directory in a file called ntblog.txt. This is useful for discovering exactly what software is interrupting your boot process.

In a similar vein, Debugging Mode allows debugging information to be sent to another machine via serial cable during startup. This is helpful if your machine is locking up during the boot process and you can't even get to a boot log.

A new, and very useful feature in Beta 3 is the Repair Command Console. This utility allows a machine to be booted using floppy disks, and still grant read and write access to NTFS volumes. The Console allows for formatting of drives, repairs of Master Boot Records and boot sectors and copying of files. Many simple problems can be fixed using the Console.

Currently many people format their system partitions using FAT rather than NTFS (a practice I abhor) merely to allow them to boot with DOS or Windows 9x disks and per-

> To someone who is very concerned about the ability to recover systems quickly, Win 2000 features hold a great deal of appeal.

form these basic repair functions. While this works, it obviously leaves critical system files without the security and protection afforded by NTFS. Two other time honored NT repair procedures, installing a second separate NT version on the system or performing the very lengthy setup recov-

WINDOWS 2000: THE BIG STORY

Windows 2000 is big. The server version took nearly an hour to install on a 266MHz Pentium II with 64MB of RAM and an IDE hard drive. In the past, Microsoft had said that NT 5 (as it was previously known) would have between 25 and 30 million lines of code. These numbers were apparently meant to impress everyone about the value of the product. However, recent press releases and other material never mention the size after the public began discussing the potential number of bugs in 30 million lines of code.

Installing a default set of features required 718MB on a new partition. Microsoft's minimum requirements for Beta 3 are 166MHz Pentium CPU, 2GB drive with 850MB free, 64MB RAM although 128MB are recommended.

Active Directory (AD) will be a fundamental shift in system administration for most companies. Plan to spend a lot of time learning about AD. Think about your current domain scheme and how AD can best be implemented. Windows 2000 is different than NT. Aside from the fact that it adds a lot of features and changes one of the most fundamental NT paradigms, the domain, the interface is different. Just getting to the familiar Services icon in the Control Panel is frustrating since it's moved. It's now under Programs, Administrative Tools, Computer Management. There are lots of little things like this. While the structure of the menus and programs is a bit more logical, it's different. It will take a while to break the old habits and get up to speed on Win 2000.

Don't Plan A Quick Rollout

Spend some time getting to know Win 2000 and really thinking about the rollout. Aside from the above mentioned issues about the interface and AD, you'll have to insure your servers can handle the strain of the new requirements. Don't forget the Year 2000. While Win 2000 is compliant, your other systems may cause you headaches at the turn of the decade. Don't try to deal with a major Windows upgrade if you think you may be dealing with other major problems.

It seems to be a truism that Microsoft new releases cause everyone to jump. Unlike the world of UNIX and legacy systems, where operating systems upgrades are often several versions behind the current release, lots of people tend to upgrade their Windows relatively quickly. While I don't recommend that you necessarily wait for the first Service Pack as many analysts and pundits do, I do recommend that you carefully consider the actions that you take with your production machines.

If you want to try your hand at Win 2000 now, you can get the Beta 3 version for a small charge at http://www.microsoft.com/windows/preview/order.asp.

ery procedure, are now no longer necessary.

The Repair Command Console can be run from either the Win 2000 boot floppies or it can be installed on the system. If installed on the system, the Repair Command Console appears as a separate option on the operating system selection menu at boot time. Access to the Console is restricted using Win 2000 security and only local administrators can access the console.

The command prompt is no frills. Just the commands necessary to (hopefully) get your system started are available. Commands *enable* and *disable* are provided to start and stop services. An *extract* command is provided to get missing software from installation CAB files. *Format* and *diskpart* allow you to perform basic disk management functions.

To someone who is very concerned about the ability to recover systems quickly, these features hold a great deal of appeal. These along with the many other seemingly small but very important features like eliminating reboots after many system management operations; eliminating the need to reinstall Service Packs after installing new components and disk quotas (finally!) will be welcome additions and should make many system administrators jobs easier. ◆
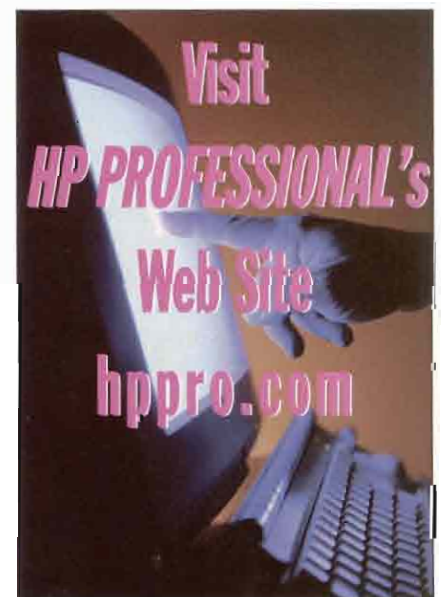
Secrets Of The Rich And Strategic

CUSTOMERS SEEK VENDORS who can provide a "total solution" as they implement enterprise systems and other IT initiatives to support business objectives and boost competitive advantage. Entering into a business alliance is an effective way for a vendor to provide customers with the right blend of technology, implementation services and management expertise needed for IT systems that deliver on objectives and meet expectations.

While striking up a business alliance sounds basic, ensuring these relationships are positioned to provide customers a quick return on their IT investments can be tricky. The ultimate goal is to provide customers with a single source and point of accountability for the hardware, infrastructure implementation and even systems management and financing designed to support a range of enterprise applications that includes SAP, QAD, PeopleSoft, Oracle and others.

Building an effective alliance requires much more than a promise to leverage resources. Alliances must have three key features:
• Be a strategic fit for the parties involved.
• Offer customers complementary products and services.
• Be promoted through internal and external communication.

Without these components alliance agreements may be signed, however they may go no further and customers won't realize the benefits of the total IT solution they're seeking.

The enterprise "ecosystem" surrounding customers in enterprise implementations includes not only the software application vendors, but also systems integrators, systems manufacturers, distributors and infrastructure providers. And, just because a company has a well established name does not guarantee that it will be a good partner. Conversely, a start-up company may have a unique vision, yet may not have the proven skills and resources to bring value to a business alliance.

Taking a formal, strategic approach to the identification of potential alliance partners — always with an eye on providing the best possible suite of solutions to the end customer — is the best method.

A second key component in a successful alliance is providing complementary products. Because the main objective of entering into an alliance is to bring added value to the customer, the partnership should capitalize on the strengths of each player and minimize or cover gaps in offerings. The alliance should be entered into with the goal of delivering an enhanced suite of products or services that the customer cannot obtain from either partner individually. Providing a single point of contact for the enhanced offerings is an added benefit that has proven to be an important consideration from the customer's perspective.

The third strong component involves communication — both internal and external. First, it is imperative to implement a strategy to communicate the benefits of the alliance internally in order to gain buy-in and build understanding throughout the organization. Communicating the customer value that will be generated from the alliance is particularly important to the sales organization. Plans must be developed and executed to give the sales force maximum awareness so they can bring the message to existing and potential customers.

An external campaign can be designed to complement the internal communications plan. Generating market interest through media relations initiatives, sales collateral and targeted lead generation programs will ensure top exposure for the business alliance and should produce measurable results.

With the worldwide market for enterprise systems expected to climb to an estimated $55 billion by the year 2000, IT providers who distinguish themselves by offering customers a single point of contact for the full suite of products and services will be positioned ahead of the curve. Entering into strategic business alliances designed to enhance customer value, then building awareness and understanding of the benefits both internally and externally, will produce the greatest benefits for all.

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— Mike Coffield is Director of Business Development for Forsythe Solutions Group (Skokie, Ill.).
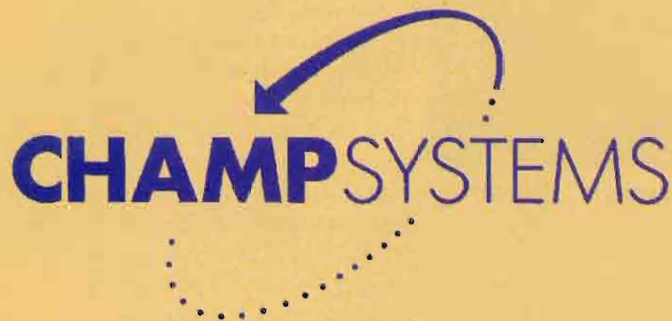
Fear And Loathing On The Y2K Trail

WE ARE NOW WELL past the half-way mark for Y2K. The first critical dates have already passed. Now that the U.S. government and many state governments as well,

have started their fiscal Year 2000, shouldn't we be seeing trouble? I haven't seen any tax refund checks yet for negative numbers. I also haven't seen or heard of any network forecasting reports with negative growth numbers — yet.

In spite of this, I still sense a lot of fear among network professionals. Especially when it comes to Y2K network management. For instance, I had a call just last week from a director at a large telecommunication company here in the southeast. He heard a story about possible Y2K problems involving a Sybase database, CiscoWorks and Remedy ARS. He wanted me to assure him that there were no known problems. "Let me get back to you on that," I told him.

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NOT A HAPPY CAMPER

As you can imagine I wasn't happy about this call. Here's why: During the past 12 months, we spent over three-man years worth of effort testing every combination of network management hardware and software they had for Y2K compliance. After testing we upgraded and re-architected their entire management infrastructure. This particular combination (the one being asked about) passed with flying colors.

After having the engineer re-investigate the combination, I found: Unfortunately, (as well all know) it's

not that cut and dry.

Remedy and Cisco claim compliance with version 11 and Sybase claims compliance with version 11.5. We tested Ciscoworks and Remedy with Sybase version 11.0.3.2. Of course everything passed.

So what do we do?

I explained the impasse to their management to let them decide knowing good and well what they will decide. Being part of a public utility this company has an immense fear of Y2K problems. Some might say overly fearful. I haven't heard the outcome yet but I imagine we will be upgrading Sybase again next month.

NOW THAT'S ENTERTAINMENT

One last Y2K story. We finished another Y2K management system test for a major entertainment company a few months ago. They had waited until the last minute but had some pretty detailed corporate testing requirements to follow. These

requirements included building test machines and loading the exact hardware and software configurations from their production machines. Their software included HP OpenView, Seagate NerveCenter and Cisco Ciscoworks. Their test requirements, like others, also included a number of very specific dates to test.

The Y2K experts that built this document put every conceivable and rumored problem date imagined. The problem was that some of these dates had already passed by the time we started our testing. What would you do? Or should I say, what would your company do?

a. Skip the past dates because they're irrelevant?
b. Ignore the entire test and head for the hills?
c. Run the computer dates backwards and do the test?

As silly as it sounds, the tests must go on. As it turns out everything passed with flying colors.

— Charles Hebert is President of Southernview Technologies, Inc. He can be reached at charles.hebert@southernview.com

Software	Customer Compliant Version
HP OpenView	5.01
Sybase	11.0.3.2
Ciscoworks	4.0
Remedy ARS	3.0

It's OSCAR Night

A Middleware Solution Lets The HP 3000 Shine In A Client-Server Environment

Jon van den Berg

When you are writing the check for your phone each month, the question of "how did they do that?" probably doesn't come to mind. Suffice it to say, however, the myriad connections and switches through which any given long distance telephone call can be routed is mind-boggling. But handling that kind of complexity is what some companies, like Billing Concepts (San Antonio, Tex.), do best.

Billing Concepts' Local Exchange Carrier (LEC) division, maintains the phone history records, and more importantly the lifecycle of actions taken to address questions or discrepancies with one or more calls on behalf of the customer. The industry-leading, core business is a comprehensive billing system that collects long distance charges from telephone users on behalf of more than 1,300 local telephone companies, including long distance companies, operator service and information providers.

Core to this leadership is the 100 percent handling of billing inquiries from telephone customers. This frees telecom providers from maintaining this facet of customer support.

The more than 300 call center support representatives work from PC's running WRQ's Reflection to login to a HP 3000 and run the primary HP 3000 main support application (primarily written in COBOL and VPLUS). Data was replicated from the core system to other applications which required it. Needless to say, the startup time CPU requirements, number of sessions and the series of database opens consumed by this architecture were immense.

Startup times, particularly around peaks (shift startup) were unacceptable. The interface, all in HP VPLUS, began to show it's weaknesses. In addition to call center support personnel, there were other business users who required access to the data: Managers and administrators had periodic needs to view customer accounts or handle "escalated" sites.

Premier Software Technologies's (Cupertino, CA), Open Services Catalog and Application Repository (OSCAR), however, introduced a middleware solution, which allowed Billing Concepts analysts and engineers to reorganize the COBOL logic into atomic subroutines. Middleware enters as the underlying technology

for which different client-server implementations manifest themselves. At some point, a collection of application layers comprise a client-server application, but the very nature of client-server programs makes it difficult to draw only a "dotted" line around the software we used to know as the application.

For organizations evolving their applications into a collection of *Application Servers* providing "business services", and a collection of *Application Solutions* providing human and machine business process interfaces, where does the scope of an "application" begin and end? Well, it doesn't. The application becomes the collection of services and interfaces in support of an organization's logical business process. And middleware is the communication between these layers.

OSCAR's middleware solutions encapsulates these subroutines, effectively publishing to the network the subroutines interface signature. With these new "headless" and individual (or atomic) functions (OSCAR calls them *Services*), accessible via the OSCAR middleware, engineering was

Everything was great. Then you got promoted.

As if your IT workload wasn't heavy enough, suddenly you're also expected to handle revenue issues. Locate new business opportunities. And find new revenue streams. If it hasn't happened already, it will. When e-services transform the Internet, opportunities will explode exponentially. Businesses will scramble for a piece of the action. And servers will make all the difference. Fortunately, you've got **the HP 3000 Business Server.** It has the proven reliability to handle the coming onslaught of information, 24 hours a day. It's compatible with the applications you'll need. And it's easily integrated into an e-services environment with UNIX® and Windows NT.® What more could you ask for? Oh yeah, a vacation. **www.hp.com/go/3000**

Propelling the next E. **E-services.**

hp HEWLETT® PACKARD

Client-server is both a relationship and a communication pattern. But clients are not just Win32 desktop applications. A client is a generic application layer interested in subscribing to a service provided by another application layer (e.g., a server). So, what is client-server? Let's try this: client-server is an n-tier application. Tiers communicate using a courteous "request/reply" messaging model. The benefit is a separation of application functionality into organic, easier-to-change, application layers.

Interestingly, there's a very simple parallel introduced by the Internet. The http protocol of "get/put" is a very clean match with the "request/reply", thus making "request/reply" middleware very suitable for Web clients. It does help to weave this Provider/Subscriber model back to the original. Because we cannot definitely state what client-server applications are — or are not — we must think of client-server in terms of a "Logical Model", and a set of "Design Values".

The layers within the Logical Model communicate using the "request/reply" protocol:

User Interface <-> User Task Logic <-> Business Logic <-> Data Resources

Value 1: Decouple in order to Recouple
Value 2: Expressive Systems
Value 3: Reduction in the cost of change

able to build new C++ and Web clients. These new front ends were built for different classes of users: each leveraging the back end set of services were engineered and connected to the new MPE Services.

Because the deployment of the first 33 of these services, new "requesting" applications have been adopted. Billing Concepts' Interactive Voice (IVR) application is now able to take voice information, format the data, and re-use the same services. However, this unanticipated integration is a common phenomenon.

Encapsulating MPE IMAGE and COBOL business logic, with true procedural middleware, provides for a transparency to other developers and the platforms/technologies they either choose or maintain. The goal, therefore, of client-server is not new graphical interfaces, but rather a de-coupling of the platform and technology.

OSCAR engineers servers rebuild the application logic into a collection of services on the HP 3000 box object-oriented paradigm. Clients (GUI, kiosk, batch) issue "requests" for services to a Connection Manager process. The Connection Manager resides on the HP 3000 box. The Connection Manager is responsible for recognizing incoming requests, and launching the appropriate server which can handle the request. The Server, in turn, provides the response to the requesting application. Servers are MPE processes, they do not consume a session.

The Connection Manager can pre-allocate Servers, such that they are "hot" and ready for incoming requests. This feature allows the MPE machine to be prepared for say the call center's morning shift. The Servers, which support the same 300-plus call center clients, consume one-

third the CPU cycles as did the direct login using the old VPLUS clients.

Premier Software Technologies provides unique CGI Trader programs which can be used, rather quickly, to arrange service result data and dynamically format it into HTML. This serves as a starting point for future Web redesigns, using Web Application Servers.

The benefits are:
- Reuse of C++ clients, Web clients, batch programs, IVR.
- Leveraging MPE for business transactions, not database read/insert (the ODBC model).
- New interface paradigm and technology decoupling.
- Reduction in CPU usage and user licenses.
- Call Center productivity —
- Improved desktop integration — true Windows client enables integration with all other Win32 applications.

Future projects include:
- Integration with IVR and CTO.
- Distribution of the Web interface to the end customer, self help customer support.

So, you may be asking, "How is this different from database middleware such as ODBC, ADBC, JDBC?"

Unique to OSCAR, is that it does not use ODBC or distributed database access technology. OSCAR deploys a complete Application Server layer — sitting above Image, sitting above the existing business logic. The customer organizes business logic and image calls into atomic services.

These services are invocable from any other TCP/IP connected platform and language. Clients, or "requesters" make connections to servers, call API's to invoke services through "request" messages and receive services results from "response" messages. The OSCAR middleware does not dictate what the requestors technology must be: 3GL, 4GL, WEB servers, servlets, and many others.

— *Jon van den Berg, is CEO, Business Development for Premier Software Technologies.*

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APPLICATION DEVELOPMENT

TraceBack

TraceBack enables users to "trace back" statement sequences in production to identify the root cause of an MVS application failure. It pinpoints the root cause of an application abend and through binary instrumentation, monitors application execution and traces the exact sequence of statements leading up to application failure. By reviewing the trail, statement by statement, from the point of failure, users can analyze how and why the failure occurred and minimize downtime. It eliminates the need to replicate application failures in test environments for standard debuggers to provide such sequencing information. Pricing for TraceBack starts at $95,000 per mainframe.

Contact InCert Software Corp., Cambridge, MA at (877)-3INCERT.

Memory Database

The Angara Data Server is a full-featured relational database management system that uses main memory as the primary data store. It delivers performance increases up to 1,000 times faster than data access from disk, and more than 20 times faster than the cache of disk-based RDBMSs. It includes an industry-standard SQL programming interface, and persistent storage for log files and checkpoint images is addressed with local disk drives or a network file server. It is available on HP-UX, IBM/AIX, Sun Solaris, Linux and Windows NT.

Contact Angara Database Systems, Palo Alto, CA at (888) 952-5200.

Business Rule Studio

Business Rule Studio enables a business manager to directly create, manage and change business policy in the form of business rules, without relying on programmers. It ships with a copy of Microsoft Repository, allowing corporate policy changes to be controlled centrally and published remotely to production transaction systems without recompilation or redistribution of software modules. Business Rule Studio incorporates Microsoft Repository to manage the business rules and business objects at the metadata level, provide secure group development, version control, and publish policy changes throughout a distributed LAN or Intranet-connected organization.

Contact Rule Machines Corporation, Indialantic, FL at (407) 984-4402.

DATA WAREHOUSING

Brio Enterprise 6.0

Brio Enterprise 6.0 delivers business intelligence functionality such as next-generation analytic reporting, interactive OLAP query and analysis tools and a new visual application designer. It includes enhanced support for multi-dimensional databases with native support for leading APIs such as SAP's Business Information Warehouse, Hyperion's Essbase GridAPI, and Informix's MetaCube. The release also supports connectivity to Applix's TM1, NCR TeraCubes, SAS and WhiteLight and Microsoft's OLE DB for OLAP allows customers to deploy a cluster of Brio servers to deliver an enterprise-scaleable BI infrastructure. Brio added Load balancing and fail over, full SSL support, as well as firewall and proxy server support.

Contact Brio Technology, Palo Alto, CA at (650) 856-8000.

REBIS

Retail Enterprise Business Intelligence Suite (REBIS) is a five-module set of business solutions for analyzing and understanding all major areas of the modern retail enterprise. It provides both high-level and detailed analysis capabilities for retailers. Modules include Pilot Balanced ScoreCard for Executive Information, Pilot Retail Performance Monitor for Merchandising, Pilot StoreCard for Operations Analysis, Budget 2000 for Finance and Pilot Sales and Marketing Analysis Library. REBIS runs on a variety of NT and UNIX platforms. The system can be licensed as a package or by the module at prices starting at under $100,000, depending on configuration.

Contact Pilot Software, Cambridge, MA at (617) 374-9400.

DESKTOPS AND SERVERS

BuyPogo Linux PCs

BuyPogo's Linux-based PCs are pre-configured to function as Web servers, Internet connection sharing servers and file servers. The Pogo Pro consists of 400 MHz Intel Celeron PPGA CPU, 8.4 GB Hard Drive, 96 MB SDRAM, 40X CD-ROM Drive, 8MB ATI Xpert AGP Video Card with TV Out, Sound Blaster 16 PNP, 90W Amplified Speakers (Midiland), Tyan Socket 370 ATX Motherboard, NE2000 Compatible Ethernet Adapter, 1.44MB 3-1/2" Floppy Drive, Easy Access 250 W ATX Case, Keyboard with Ergonomic Wrist Rest and a Logitech 3 Button PS/2 Mouse for $599. The Pogo with a 300Mhz Cyrix M2 CPU start at $299.

Contact BuyPogo, Palo Alto, CA at (888) 828-POGO.

PC Remote 1.0

PC Remote 1.0 is for accessing remote computers across a LAN, over a modem, using the computer serial ports and across the Internet. End-users can determine who can access their computer and whether or not they can transfer files. Profiles can be created so frequently used connections can be established with mouse clicks. The host portion can be automatically loaded when Windows starts, making it easy to access a work computer from home, or a home computer while away. One can see everything on the other screen and have full control of the keyboard and mouse. The price is $49.95.

Contact American Systems, Fort Worth, TX at (888) 892-4310.

Magic Link

Magic Link is a USB (Universal Serial Bus) to USB file transfer solution that allows connection between two computers or laptops via their USB ports for high-speed file transfer or sharing resources. It creates an instant network with one cable. The connected devices will function exactly as Ethernet-based networks via standard Windows interfaces such as Network Neighborhood and Windows Explorer. It provides data transfer rates of up to 12 Mbps and delivers full wire-speed performance. It's compatible with Windows 95/98/2000 and it also features remote wake-up function. The price is $49.95 and a USB upgrade kit is available for PCs or laptops without USB ports.

Contact Aries Marketing, Inc., Walnut, CA at (909) 468-5535.

DISASTER RECOVERY AND SECURITY

Air Gap Network Security

Air Gap secures the transaction path between an organization's external e-commerce servers and internal corporate data-

bases. Air Gap shuttles isolated transactions between the external and internal networks, while keeping them physically disconnected. It's analogous to the process of switching a diskette between computers, using an autonomous, non-programmable "robot" that rapidly switches a memory storage device between the trusted and untrusted networks.

Air Gap uses no TCP/IP, no operating system and no physical connection between networks. It allows only a safe, narrow path for specific data or transaction exchange, thus preventing any protocol or operating system attack on the company's back office network.

Contact Whale Communications Ltd., Plymouth, MI at (877) 65-WHALE.

MESSAGING AND E-MAIL

Mail Essentials

Mail Essentials adds features to existing mail servers. They include content checking and blocking of offensive or confidential inbound or outbound information, quarantining to disallow sending or receiving of certain content, disclaimers to add a company-wide message and e-mail management to track usage and communications. Personalized auto-replies with tracking numbers enable companies to confirm their e-mail was received. It performs virus checking of all mail and automatic compression of all outbound mail. Advanced anti-spam picks up on common spam practices and prevents spammers from using a company's mail server to relay their mail. Price starts at $149.

Contact GFI FAX & VOICE USA, Cary, NC (888) 2-GFIFAX.

NETWORK INTEGRATION

HostExplorer And Exceed Web 2.0

HostExplorer Web 2.0 Web-to-host and Exceed Web 2.0 Thin X solution include secure firewall traversal, SSL 3.0 and RSA-based security, compatibility with TN3270(E) or TN5250(E) gateways, HP-UX and Solaris support for JuMP, green screen transformation to GUI with HACL, Host addressable printing, and the ability to develop and test GUI applets, automation applets and any Java 2 compatible applets.

HostExplorer Web starts at $149 per user, Exceed Web at $357 per user for a 10-pack. Both are included in Enterprise Now!, which offers a single Enterprise Client License so organizations can deploy

any combination of Hummingbird products.

Contact Hummingbird Communications Ltd, Toronto, Ontario at (877) FLY HUMM.

PRINTING

BARZ_OUT 3.0

BARZ_OUT 3.0 offers new symbologies and enhanced features which include vertical printing on Laser printers with height options in hundreds of an inch, .05 inch to 12 inches. It installs as a print driver with no hardware to install or upgrade and now has Code 128, UPC-A, UPC-E, and POSTNET. In addition, Codabar, MSI Plessey, EAN-13, and EAN-8 have been added due to international requests. BARZ_OUT provides barcoding capability and support for Windows 95/98 and NT.

BARZ_OUT works with accounting, word processing, database, report writers, and others such as Excel, Fox, Access, and Word. Major platforms and printers are supported.

Contact UniBar, Inc., Rochester Hills, MI at (800) 731-6044.

SERVICES AND SUPPORT

Exposure Zone Analysis

ATL Products' Exposure Zone Analysis provides a complete appraisal of a network's secondary storage system's status and areas of risk. Performed by ATL Professional Services consultants, it is a three-day, on-site analysis, concluding with a detailed assessment report that includes six key areas of secondary storage system evaluation. Areas of evaluation include: Secondary Storage Performance Review vs. Specification, Capacity Analysis/Scalability Analysis; Policy and Procedure Review; Disaster Recovery Analysis; Backup Coverage; and Backup Integrity Analysis. Consultants also analyze the customer's backup of extraneous or harmful data, such as viruses, that can impact performance and data integrity during restore operations.

Contact ATL Products, Irvine, CA at (800) 284-5101.

STORAGE

AMASS For Windows NT

AMASS for Windows NT allows automated libraries to be used as shared storage devices from anywhere in the network and serves as a low-administration data access tool for active archive applications. Clients that have access to the server have automatic access to storage in the library through drag and drop file movement. AMASS provides control of data independent of applications and requires no software installation on the client hardware. Release 1.0 supports a wide range of optical libraries; a version for use with tape libraries will ship later in the year. Prices start at $3,000 for optical library support.

Contact ADIC, Redmond, WA at (800) 336-1233.

NovaXchange 2.0

NovaXchange 2.0 allows migration of data between different operating systems and architectures and from legacy systems to Windows-based systems. NovaXchange v2.0 adds the TAR/CPIO Plug-in that reads/writes TAR/CPIO tapes and the TapeCopy Plug-in that can make many tape copies in one pass.

NovaXchange reads and writes various formats including fixed length, IBM or ANSII variable length and undefined tape record formats. It also reads and writes IBM or ANSI labeled or unlabeled tapes and translates EBCDIC to ASCII and ASCII to EBCDIC. The base package is $795, and the TAR/CPIO and Tape Copy Plug-ins are $595 and $395 respectively.

Contact NovaStor, Simi Valley, CA at (805) 579-6700.

SYSTEM AND NETWORK MANAGEMENT

SarCheck For 64-bit Solaris

Aurora Software Inc. is shipping the 64-bit version of SarCheck for Solaris SPARC. SarCheck is a performance management tool that helps system administrators analyze system performance by translating output of several monitoring utilities into English or HTML-formatted reports. It identifies bottlenecks, finds runaway processes and memory leaks, recommends changes to tunable parameters and hardware configuration and quantifies remaining system capacity.

Reports consist of three sections and a summary: recommendations, analysis of all system resources, and Capacity Planning. Pricing for a single license for Solaris SPARC starts at $625.

Contact Aurora Software Inc., Plaistow NH at (603) 382-4200. ◆

E-COMMERCE

HP And i2 eBusiness Portal

HP and i2 Technologies, Inc. have introduced an intelligent eBusiness portal solution for electronics distributors that facilitates timely sharing of information within an entire trading community. HP and i2's trading-community solution provides a framework and enabling tools for real-time collaboration and exchange of information between distributors and their customers, manufacturers and logistics providers. The solution enhances decision-making capabilities, including: support for strategic trading processes, such as forecast collaboration and product phase-out planing; access to real-time advanced planning applications that enable supply-chain partners to work in concert to meet end-consumer demand; and intelligent comparative-shopping engines that can find best price and best availability while incorporating transport costs and total delivered costs.

PRINTING

JetDirect Connectivity Card

The HP JetDirect Connectivity Card for USB/Serial/LocalTalk enables users who were unable to share printer resources due to port incompatibility to have an integrated printer-connectivity solution that supports a wide variety of environments, from iMacs to UNIX workstations. Users can "plug in and connect" any HP LaserJet printer with an EIO (Enhanced Input/Output) slot to PCs in mixed, non-networked environments. It sells for $129.

url: www.shopping.hp.com

SECURITY

Praesidium SpeedCard

The HP Praesidium SpeedCard is a specialized processor card that handles secure socket layer (SSL) authenticated connections much more efficiently than general-purpose Web servers. The HP Praesidium SpeedCard removes the CPU-intensive security authentication bottleneck by offloading cryptographic computations, allowing the server to establish up to 12,000 SSL connections per minute without server-performance degradation. It works transparently with HP Praesidium VirtualVault and Netscape Enterprise Server, one of the world's most popular Web servers. It is powered by Rainbow Technologies' FastMAP and is available for a range of HP 9000 Enterprise Servers.

url: www.hp.com/security

SERVERS

Remote Management Card

The HP Remote Management Card (RMC) adds advanced Web-ready remote-management capabilities to PC-based servers. It is designed specifically for manufacturers of PC-based servers and provides network administrators secure access to their servers for trouble-shooting and remote administration, regardless of the condition of the system — even when power is down. HP RMC is compatible with any Intelligent Platform Management Interface (IPMI) server and is integrated into an Intelligent Chassis Management Bus (ICMB), the next generation of industry specifications. HP RMC also can function with most enterprise system- and network-management solutions, such as the HP OpenView suite of management solutions. The card is optimized for use with Intel's high-end server motherboard AP45OGX. Pricing depends on quantity ordered.

SERVICES

Digital Workplace Services Education

HP has announced education services as part of its new portfolio of HP Digital Workplace Services. The services are designed to help organizations prepare to implement, manage and use new printing and imaging technologies and processes. Three courses are available now: **Copy/Scan Fundamentals** demonstrates how hardware and software components of a scanner operate. Topics include identification of basic types of scanners; understanding the function of the basic parts of a scanner; and commonly used scanner technologies, terms and concepts; **Networking Fundamentals** provides a foundation in networking concepts and terminology. Topics include network infrastructure, the Open Systems Interconnection (OSI) model, network operating systems, network devices, network printing, network types and functions, and a focus on IP addressing; and HP **JetDirect** explains how to install, configure and trouble-shoot HP JetDirect products, including internal and external HP JetDirect print servers and HP Web JetAdmin.

url: www.printservices.hp.com/education

STORAGE

Tachyon Tested SANs

HP's High-speed I/O Business Unit has launched a program to help system OEMs and system integrators create interoperable solutions for the storage area network (SAN) market. Backed by a dedicated test lab, the Tachyon Tested SAN Solutions interoperability program will test HP's Tachyon PCI Fibre Channel host adapters with a wide range of hubs, switches, storage routers, storage arrays, tape libraries and other host adapters to insure successful interoperability. The resulting group of compatible SAN products can be leveraged by system OEMs and system integrators to build SAN solutions. The initial phase of the program will focus on interoperability at the SAN-component level. Subsequent phases will focus on interoperability within specific applications, such as LAN-free backup, remote data mirroring and storage consolidation.
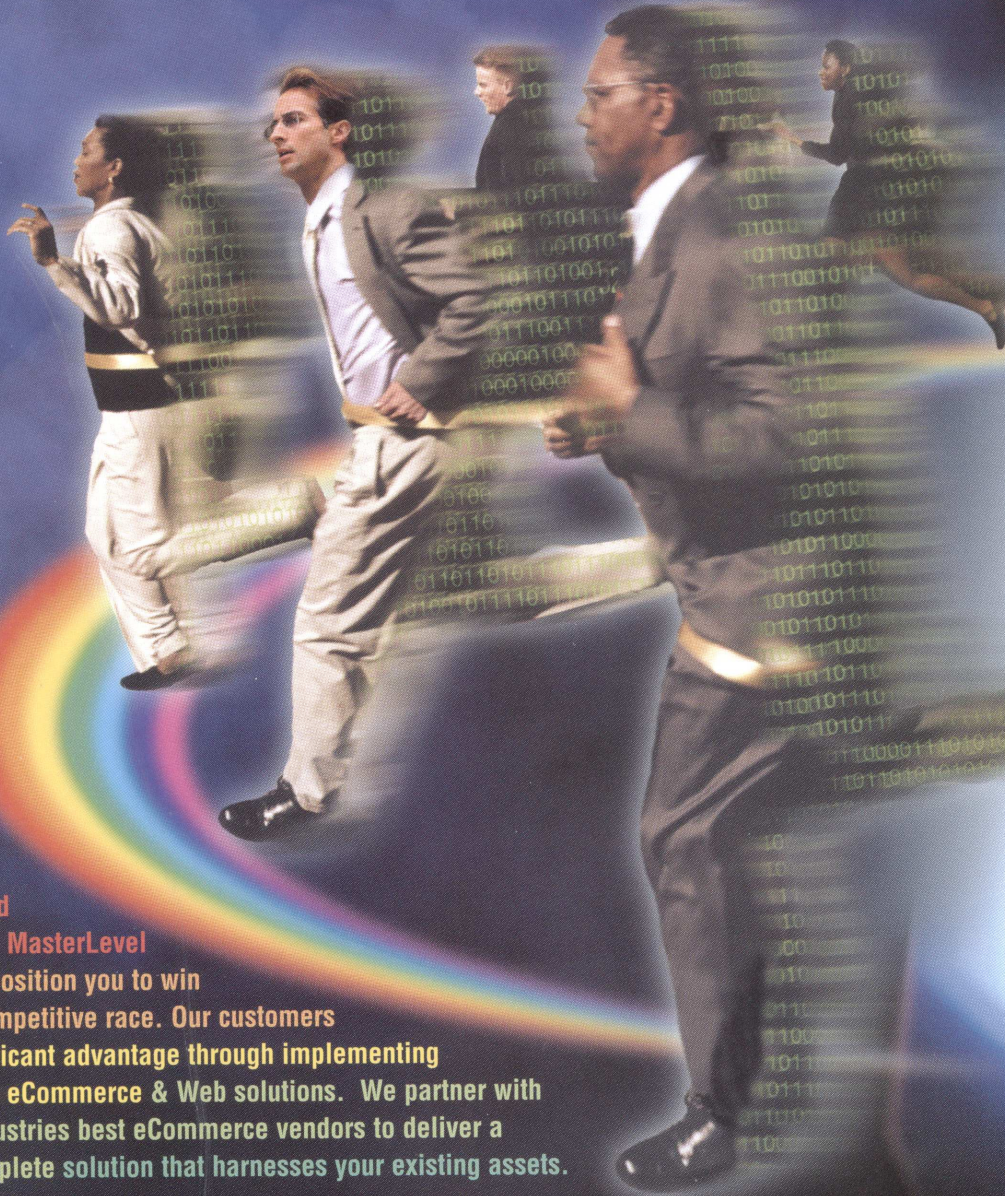
url: www.hp.com/go/fibrechannel

SureStore DLT 80

The HP SureStore DLT 80 tape-backup drive can store 80GB on a single tape and transfer more than 40GB of data per hour (assuming 2:1 data compression). It is compatible with a broad range of servers, including Acer, Compaq, Dell, IBM and NEC, and supports the latest versions of Windows NT, Novell NetWare, Linux, SCO UNIX, and Sun Solaris operating systems.

url: www.hp.com/tape