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AUGUST 1999

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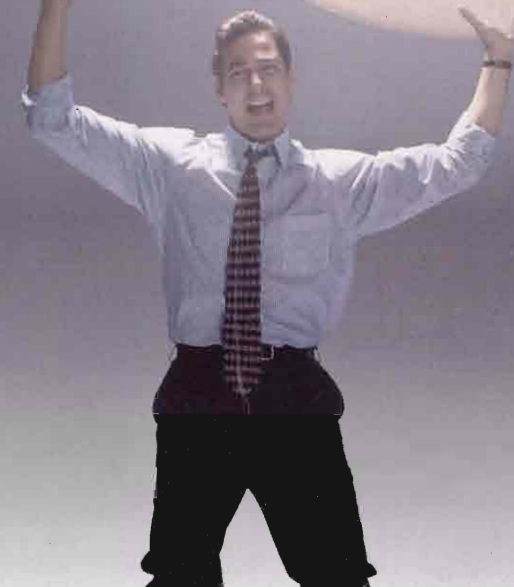
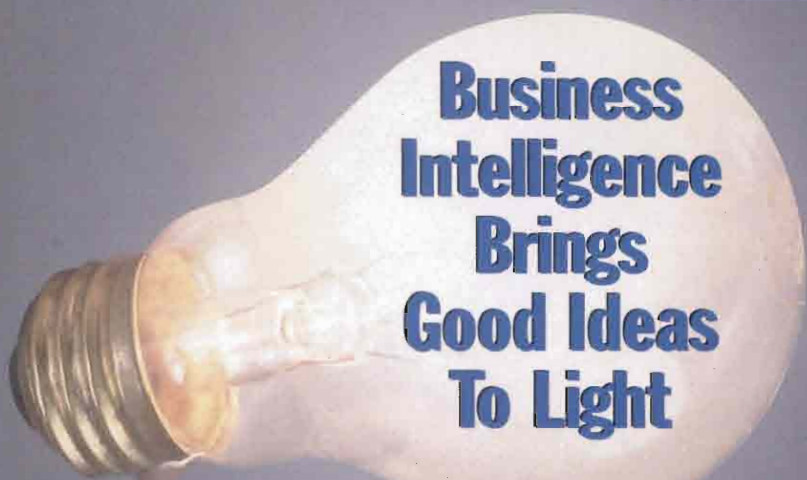
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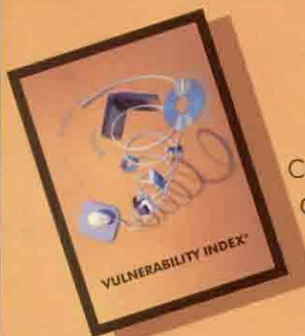


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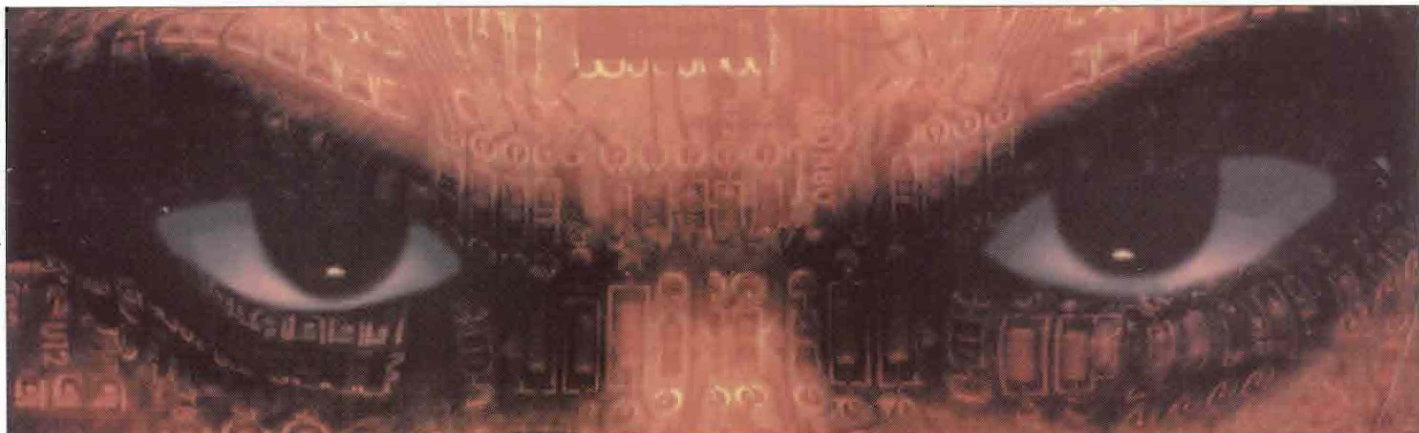
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Future Uncertain-Es

Marleen McDaniel, CEO of Women.com Networks, is reported to have said that the Internet is beginning to permeate every fiber of daily life. "We will soon do our grocery shopping by connecting to a wireless device attached to the refrigerator."

Well, before we connect with a cold one from the e-fridge and get virtually comfortable in our e-houses, let's pause to talk amongst ourselves for a moment. By last count, E-Bay, recently as notorious for service outages as online auctioning, has disappointed its customers big time — 11 times in the past several months. I had to chuckle back on June 11th as the E-Bay VP of Marketing was trying to explain to CNBC's Maria Bartiromo why E-Bay was down for several hours: "It's a problem with our Sun Solaris server. But we expect to be back in 30 minutes." About 30 days later, E-Bay's servers are still in sick bay.

So, aren't we past permeating? About 150 million people worldwide now use the Internet. Traffic on the Internet is doubling every 100 days — that's more than a sextupling by the end of this year. We're moving much more rapidly to "Been there. Done that."

But while my fridge is taking inventory, I've presumably got more time to think about the e-wonderful e-world of "pervasive computing" as IBM refers to it, or the e-volving vision of HP's E-Services. And that brings me to a fundamental question: Who is going to make this e-stuff work? E-gads!

The answer is worrisome, particularly in light of the Department of Commerce's Office of Technology Policy (OTP) report entitled, *The Digital Workforce: Building Infotech Skills At the Speed of Information*. Published this past June, the study provides an exhaustive and sobering examination of "the IT worker challenge." Or in other words, who is going to make this e-stuff work?

As the OTP report points out, IT contributed to more than a third of real U.S. economic growth between 1995 and 1997. Pat yourselves on the back. However, while we may have invested prodigious sums in IT architectures and Internet IPOs, we aren't investing nearly as much time, energy or money on raising the necessary intellectual capital that we're going to sorely need to keep the e-services utopia from turning dysfunctional, like E-Bay for instance. "Getting — and keeping — the right person, with the right skills at the right time requires extraordinary efforts and innovative practices," concludes the OTP report.

But while you can chalk that up to the realities of 21st century capitalism, what worries me at night is the student population yet to enter this soon-to-be well-connected utopia. "While industry needs the skills often produced in short-term intensive skills training programs, such programs may not provide enough emphasis on the underlying knowledge and problem-solving needed for a rapidly changing business and technological environment. If workers do not possess the underlying knowledge and skills, their special technical skills will become outdated."

That's why grades K through 12 are the key. But only 51% of public school classrooms have Internet access. As one teacher in my neighborhood confided to me, "While the classrooms may have access to the Internet, not all the computers in a classroom are connected or even functional." Then there's the problem of non-computer literate teachers. The report correctly states the need for not only computer literate (reasonably skilled with general-purpose business apps) teachers; but also the need for teachers and students to become IT-literate (at least familiar with hardware and software platforms and infrastructures).

The need for highly-skilled and trained IT workers should be self-evident to the readers of this magazine. What are we going to do about it, that is what I'd like to know.



In an e-world,
ignorance is
not bliss.

A handwritten signature in black ink that reads "George A. Thompson".

George A. Thompson
thompsonga@hippro.com

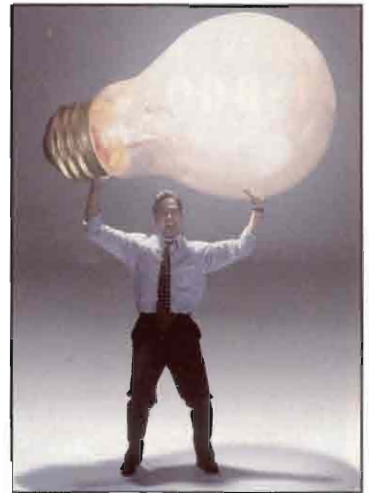
HP

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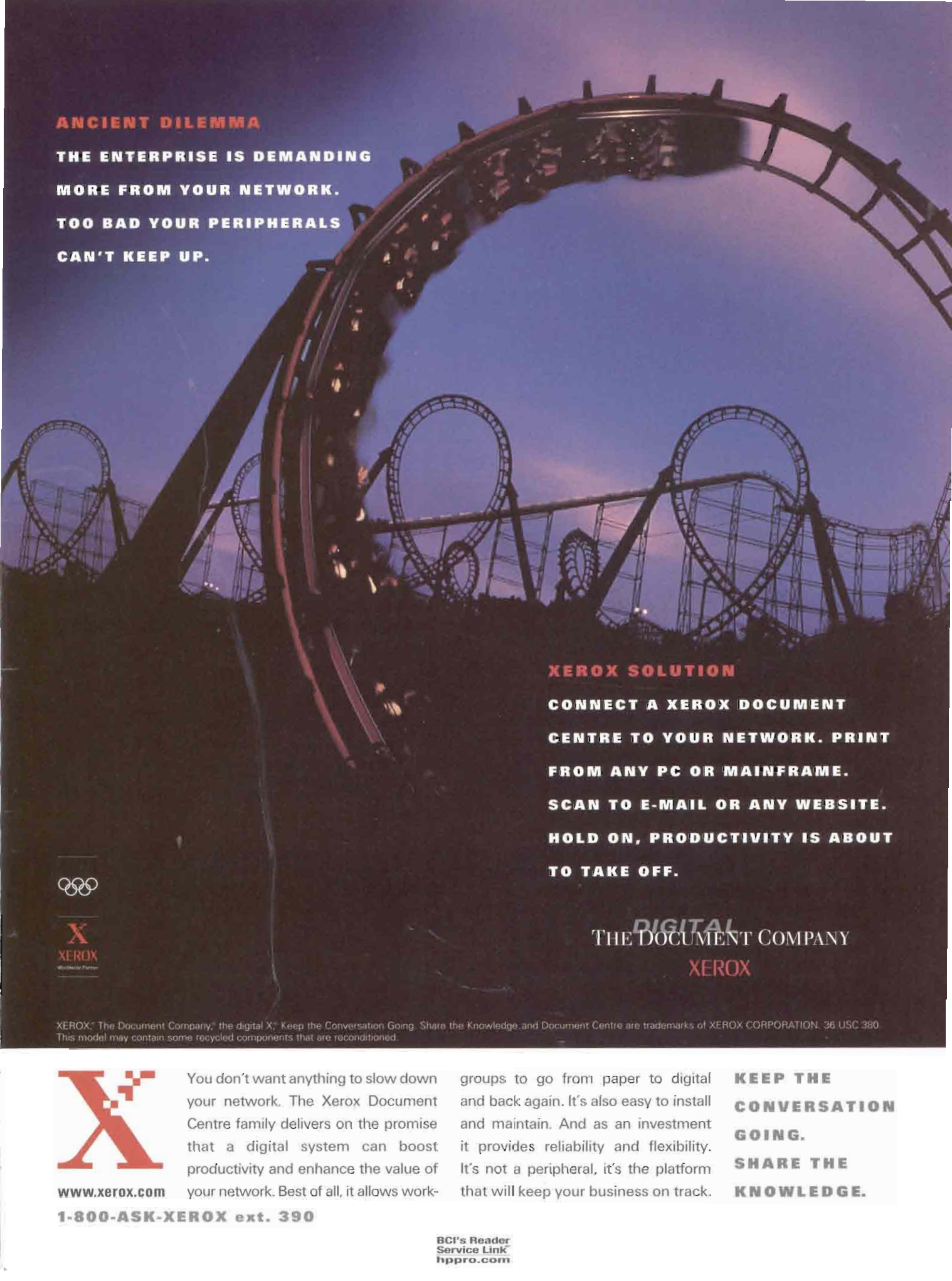
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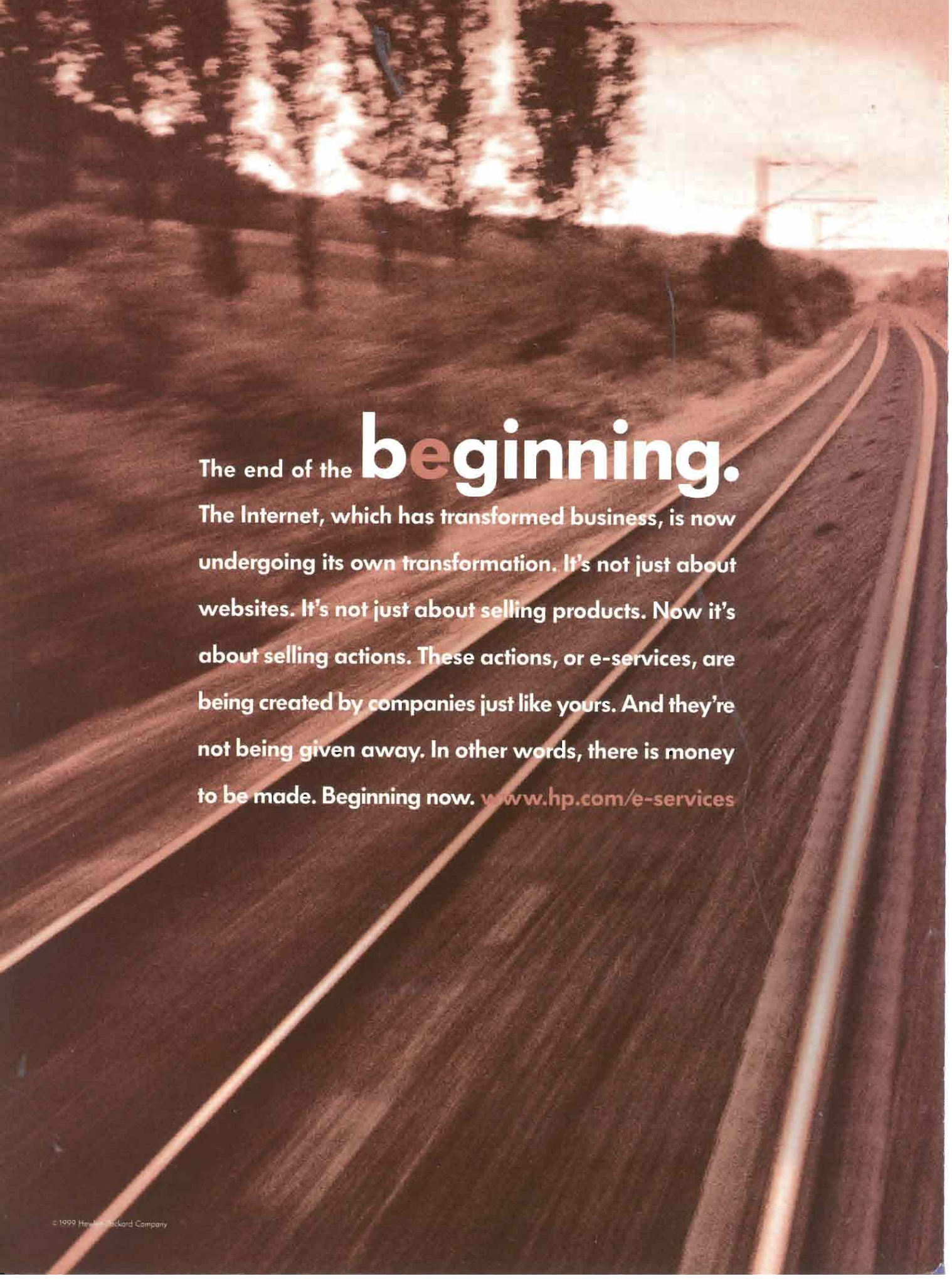
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A sepia-toned photograph of a road winding through a rural landscape. The road curves from the bottom left towards the center. A utility pole stands on the right side of the road. The background features a line of trees and a hilly horizon under a cloudy sky. The overall mood is quiet and remote.

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NightWatch for NT

Current Status from DELL at 2/2/99 4:20:56 PM

Current State	Waiting	Current Alarms	2	Total Alarms	2
Monitoring Started	2/2/99 4:03:16 PM	Last Scan	2/2/99 4:19:15 PM	Errors	4
Last Alarm Start	2/2/99 4:03:58 PM	Last Page Sent	2/2/99 4:19:43 PM	Page Queue	1
Interval	900	Paging Enabled	True	In Quiet Period	False

Start Monitoring Stop Monitoring Disable Paging Enable Paging Show Activity Log

Object Type	Object ID	Last Alarm Start/End	Status
Event Log	Security on DELL	N/A	OK
Event Log	System on DELL	N/A	OK
NT Service	awhost32 on DELL	2/2/99 4:03:58 PM	Please start
NT System	151.198.66.34	N/A	OK
NT System	TECHSERVER	N/A	OK
Ping	1.1.1.1	2/2/99 4:03:58 PM	Fake Server
Ping	DEC.hillary.com	N/A	OK
Ping	hp3000.hillary.com	N/A	OK
Ping	rs6000.hillary.com	N/A	OK
Syslog	N/A	N/A	OK
Web Page	http://www.hillary.com	N/A	OK
Web Page	https://www.remotesite.com	N/A	OK

NightWatch for NT Version 1.1.7 Released 12-08-98
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NightWatch for NT Activity Log - Microsoft Internet Explorer

Address: http://yournightwatchserver/log.html

NightWatch for NT

Current Activity Log from DELL at 2/2/99 4:32:16 PM

Clear Log Show Status

INFO	2/2/99 4:21:48 PM	Processing of Notification Requests completed...
INFO	2/2/99 4:21:43 PM	Executing page for awhost32 on DELL with C:\Program Files\NightWatch for NT\Alerts\TA
INFO	2/2/99 4:21:43 PM	Processing Notification Requests...
INFO	2/2/99 4:21:06 PM	Status request serviced for 151.198.66.26
INFO	2/2/99 4:20:55 PM	Status request serviced for 151.198.66.35
INFO	2/2/99 4:20:06 PM	Scan complete
INFO	2/2/99 4:20:06 PM	Scanning event log Security on DELL
INFO	2/2/99 4:19:43 PM	Processing of Notification Requests completed...
INFO	2/2/99 4:19:42 PM	Checking https://www.remotesite.com
WARN	2/2/99 4:19:42 PM	NetServerGetInfo failed: (5) Access is denied.
INFO	2/2/99 4:19:39 PM	Checking 151.198.66.34
INFO	2/2/99 4:19:39 PM	Checking TECHSERVER
INFO	2/2/99 4:19:39 PM	Scanning event log System on DELL
ALARM	2/2/99 4:19:30 PM	Please start pcAnywhere
INFO	2/2/99 4:19:38 PM	Checking awhost32 on DELL
INFO	2/2/99 4:19:38 PM	Processing Notification Requests...
ALARM	2/2/99 4:19:38 PM	1.1.1.1 Fake Server is Down
INFO	2/2/99 4:19:36 PM	Pinging 1.1.1.1
INFO	2/2/99 4:19:34 PM	Checking http://www.hillary.com
INFO	2/2/99 4:19:34 PM	Get file (FTP) 151.198.66.2/home/cpl/tempfile
WARN	2/2/99 4:19:33 PM	(25/22) Operation timed out waiting for response from server
INFO	2/2/99 4:19:16 PM	Get file (FTP) 151.198.66.4:/NIGHTWAT/PUB/difzoff
INFO	2/2/99 4:19:16 PM	Pinging hillary.hillary.com
INFO	2/2/99 4:19:15 PM	Pinging hp3000.hillary.com
INFO	2/2/99 4:19:12 PM	Polling Message Server
INFO	2/2/99 4:19:12 PM	Begin a Scan
INFO	2/2/99 4:06:06 PM	Status request serviced for 151.198.66.26

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- Are our WEB pages available to our customers? **YES** NO
- Get and review a process LOGFILE on the HP9000.
- No ERRORS reported? **YES** NO
- A process LOGFILE on the HP3000 is searched for error strings. No ERRORS found? **YES** NO

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Bringing A Business Focus To IT

Business executives are now demanding maximum results from IT investments. What are you going to do about it? Used effectively, Service Level Management (SLM) is a means to that end. And, while most IT managers are familiar with SLM as a concept, few IT departments are taking SLM to the highest level, which means:

- Going the distance to define the specific Service Level Objectives necessary to support mission-critical business operations
- Implementing specific Service Level Agreements (SLA) to support defined objectives achieving and maintaining required levels of IT service
- Monitoring performance levels and reporting performance vs. expectations on a regular basis.

BOTTOM LINE PAYBACK

The payback is clear: IT is elevated beyond its traditional function as an overhead-laden cost-center into the strategic role of a critical business unit relied upon to implement technology to support business objectives. This links IT as a contributor to bottom line productivity.

Regardless of the business, each year executives must create a formal business plan. Throughout the year, reports are generated to measure performance related to goals. SLM follows the same premise.

Based on the business plan, SLM is used to identify and define business goals and translate that information into specific ways in which IT can support those goals (service level objectives). Specific service level agreements push the objectives a step further by identifying the performance needed from individual IT devices (servers, routers, etc.) and personnel required to support the objectives. For example, if e-mail is critical to making a business objective happen, a company's service level objective may be to have that e-mail available 98% of the time. Other objectives might be to ensure that the e-mail system is capable of downloading or sending 1MB files at any given time, within a specific timeframe — five seconds, for example.

THE ABCS OF SLAS

Next, specific SLAs are designed to facilitate these objectives. For example, a company's server may need to function at "X" capacity, while the network router must function at "Y" capacity. In addition, the Ethernet links, or more specifically its serial wide area links, must not run at more than 40% utilization. All these agreements are lined up in support of a specific business objective. Then, reports are created regularly to monitor progress vs. expectations.

Whether a business selects HP tools such as the OpenView ITSM suite of products for internal IT management — or elects to use the services of an outside solutions provider for remote systems management (which can also effectively be built upon ITSM) — implementing the SLM component is key. Without it, businesses may be reactive troubleshooters, but they will not move to the higher level: the proactive, business-oriented approach to managing all elements of IT.

While most IT managers understand the concept of SLM, few are moving forward to define the specific service level objectives and agreements. By implementing a formalized approach to SLM, IT will be elevated from the traditional role of "overhead" into a business center that contributes to the bottom line.



Dan J. Gallagher,
Forsythe Solutions
Group

— *Daniel J. Gallagher spearheaded the development of ITWatch, Forsythe's remote systems management service offering. He earned the title of Cisco Certified Internetwork Expert (CCIE) in May 1998.*

Outside

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Inside IT

Making The Most Of Enterprise Intelligence

Re-Building Your Business Intelligence Quotient.

It's taken five years, but the corporate "powers that be" have begun to realize the value of all the data stored in miscellaneous databases on various computer systems throughout their enterprises. In the past, data warehousing vendors have marketed their value with such New Age slogans as "empowering the end user to make better decisions." Or perhaps you heard the one about *the 90-day data warehouse implementation*.

Yeah, right. *Ninety months* and \$5 million later, corporate IT managers are still scratching

their disk drives over what was a triumph of hype over hope.

But a recent study by the META Group (Stamford, Conn.) indicates that "businesses of all sizes are proceeding at full speed to fund and deploy data warehouse applications." And participants in META's study reported a doubling in the size of data warehouses and an increase of 150% in budgets.

What? Is this mere folly? Have CIOs and IT managers become deranged from cleansing and transforming all that data?

Well, there's a new trend in IT town. And it's

called Business Intelligence or BI. An oxymoron, you say? Don't laugh. In fact, you had better think again. One could argue that business intelligence defines what it means to not only think, but climb outside of both the hardware/software box and the hide-bound box of corporate IT.

MINING YOUR OWN BUSINESS

HP, IBM, Oracle, NCR and Sun as well as many consulting companies are switching from talking and selling data warehousing technologies to selling and providing Business Intelligence solutions. "Business intelligence really covers the whole set from data warehouse to

the OLAP tools, data mining tools and the analytical applications," says John Santaferraro, HP's Business Intelligence Marketing Manager.

Santaferraro points out that the nature of the questions IT managers are asking has changed from, "How do I get my data out of the data jailhouse into a single subject-oriented database?" to, "What do I do with the data?" According to Santaferraro, there are three primary "answers": financial analysis, Supply Chain Management (SCM) and Customer Relationship Management (CRM).

All three provide a way to add value to your com-

pany. "The real value comes when you pull out all of your customer information from all of the operational systems."

Consequently, it's not surprising that online market researchers at World Research, Inc. (San Jose, Calif.) reported that business intelligence is the fastest growing segment of the enterprise IT sector. While IBM seems to be a leading contender in the overall data warehousing and business intelligence markets, HP's strategy (SantaFerraro claims 1,000 HP data warehousing installations) has concentrated on BI solutions for several vertical market segments: financial services, manufacturing, retail and telecommunications.

For example, in the telecommunications industry (HP's strongest vertical market), SantaFerraro points to two solutions: a call behavior analysis solution and something called ACCESS7 Business Intelligence. "The call behavior analysis solution includes our own Extract, Transform and Load (ETL) technology.

Because telcos generally have a hard time handling call detail records, we built our own ETL code into meaningful knowledge data models for wireline and wireless with a bunch of report templates." SantaFerraro notes that it began as a project for British Telecom several years ago.

"On the other hand,

ACCESS7 is the most complete business intelligence solution we have," says SantaFerraro. ACCESS7 is a component developed by HP's Test and Measurement division to pull information off a telco network before it reaches a switch. "It's a richer set of information. We have a data management component that takes it from the ACCESS7 device and loads it into an Oracle database."

HP customers GTE and Bell Atlantic, notes SantaFerraro, can therefore use that richer data set as a competitive advantage. For example, he notes those two companies can do "automated regulatory reporting and more detailed network analysis because they have start and stop times and more accurate wholesale billing. They can also deliver on their service level agreements."

ERP INTELLIGENCE

SantaFerraro sees another BI opportunity within the ERP market. Although it's a horizontal segment, he notes that there's plenty of data now being captured in organizations via SAP, Baan, PeopleSoft and other ERP applications. Built as traditional Online Transaction Processing (OLTP) systems, users now want to get access to all that transactional data. That's why HP, in July, began offering a SAP BW Impact Analysis service. HP also claims 5,000 SAP

installations.

"Many SAP customers don't understand how SAP BW [SAP's own Business Intelligence tool] works," says SantaFerraro. "So, we can come in and help them understand what it does [from a business standpoint] with BW out of the gate. We are also providing the architecture that helps them figure out the next area of growth. And we are doing that with ESI (Oakland, Calif.), a consulting company specializing in SAP implementations."

Partnerships with vendors such as ESI are part of a new HP initiative called "Expert Alliances." These alliances, according to SantaFerraro will help HP provide very targeted service offerings. But he notes that HP still plans to partner with system integrators such as Andersen Consulting. "We're transferring our knowledge [the impact analysis methodologies] to them and going out to our customers."

The first such "expert alliance" is with Tanning Technology Corp. (Denver, Colo.) providing what may be the industry's first data warehouse rescue service. Because many data warehouse projects are over budget, not on time, not meeting service level requirements or providing any business intelligence, HP and Tanning have joined forces to "do an assessment; and to put together a fast track project plan and implementa-

tion within three to six months."

But data warehousing and business intelligence is more than just about applications and partnerships for HP. The two are instrumental to the success of HP's new E-services strategy.

In short, it's about "using information to provide services," explains SantaFerraro. That leads to HP's "apps on tap" concept where an ERP application, for example, would be delivered over the Internet. "And the queries will be on tap," predicts SantaFerraro. "It's not hard to see that almost every application has a reporting element."

PORTAL POWER

The first step toward this kind of "e-intelligence" will be "creating a single point of access and information delivery throughout an organization using portal technology," reveals SantaFerraro.

"And portals are something that our installed base can begin implementing." HP is already forming partnerships with companies like Plumtree Software (San Francisco, Calif.), Viador, Inc. (San Mateo, Calif.) and VIT (Palo Alto, Calif.) to name a few. "We're looking at additional value added opportunities that we'll be announcing in the Fall to build our E-intelligence vision."

— George A. Thompson,
Editor-In-Chief

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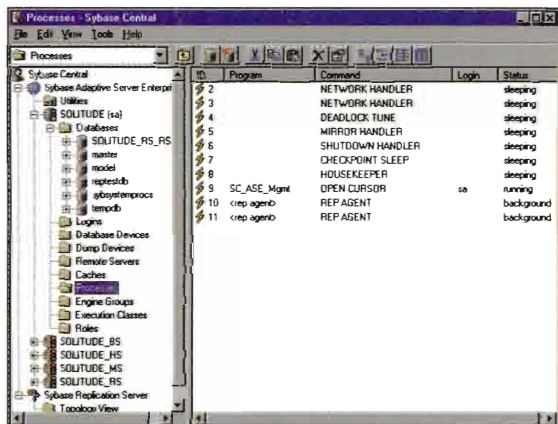
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Sybase RDBMS Turns 64-Bit



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For high-end data processing environments, 32-bit Relational Database Management Systems (RDBMS) can't support the Very Large Memory (VLM) and the number of concurrent users that mission-critical transaction and data processing tasks typically require. HP-UX administrators limited by traditional 32-bit RDBMSs can now look to Sybase Inc.'s new 64-bit version of its flagship Adaptive Server Enterprise RDBMS.

Adaptive Server Enterprise supports migration from 32-bit to 64-bit platforms without requiring re-architecting underlying database or business applications. It also includes standard database amenities, such as row-level locking capabilities that improve performance and make it

suitable for packaged ERP and business applications and enhanced query optimization features that improve performance for distributed access.

"Fundamentally you use a 64-bit system because you want to put more users on it," says Haridas Mair, a Sybase marketing manager. "With a 64-bit database you get substantially more [memory] address space, which means that you can run more applications and put more end users on your servers."

Mair says the 64-bit edition of Adaptive Server Enterprise is ideal for high-end, high volume transaction processing environments, as well as for efficient workload environments. Moreover, Adaptive Server Enterprise's VLM support allows an enterprise to cache up to a 4TB database in physical memory.

"Let's say that you have a standard 100GB database, but you can't get it in memory. The fact that you have to go to disk introduces latency and slow response times for the end user," Mair observes. "But with Adaptive Server being a 64-bit database, it allows you to access the large amounts of memory that HP-UX ... will give us."

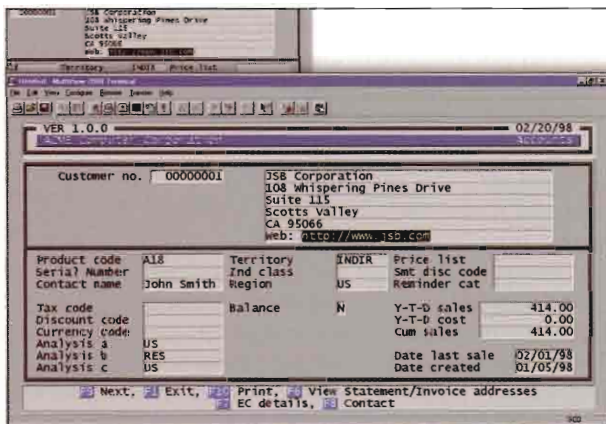
According to Mike Schiff,

director of data warehousing strategies with consultancy Current Analysis (Sterling, Va.), the data processing advantage incurred from going to 32 to 64 bits is not a linear one that constitutes an effective doubling, but is rather a logarithmic expansion. "It's a significant advantage," he says. "It gives you this incredible ability to store a lot of data in memory, and therefore do things a lot faster because you don't have to go to disk very often, so it's going to give you an incredible performance enhancement."

Schiff notes that 64-bit RDBMSs have been compelling options for deployment only on Digital's Alpha CPU. Sybase's introduction of a 64-bit Adaptive Server Enterprise RDBMS ups the ante for HP-UX users. "It gives them incredible headroom. It's nice to know that [the headroom] is there," Schiff maintains. "Clearly from HP's perspective, it certainly helps them get parity in environments where Digital was pushing its 64-bit solutions and gives HP-UX users who need this kind of technology another reason to stay with their platform."

— Stephen Swoyer,
Contributing Author

More Than One Perspective



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As more corporations find themselves dealing with legacy-laden networks, the importance of terminal emulation software becomes evident.

Thin-client terminal emulation software makes it possible for corporations not only to avoid the cost and inconvenience of an entire system upgrade but also to derive continued use from existing IT systems. It accomplishes this by transferring processing power to the system's high-end servers and away from the low-powered client terminals.

Multiview 2000 Server Edition from JSB Corp. (Scotts Valley, Calif.), is a server-based, 32-bit PC-to-UNIX connectivity product designed to work with the thin-client architecture of Windows NT Terminal

Server Edition and Citrix Systems' (Fort Lauderdale, Fla.) MetaFrame. It supports the major UNIX terminal emulators, including: SCO ANSI Color; AT386/UnixWare; Digital VT100, VT220, VT320 and VT420 and WYSE 60.

Because it is server-based and uses concurrent user licensing, Multiview 2000 Server Edition is a cost-effective thin-client solution from both a hardware and software perspective. And that all adds up to a thin-client solution that makes good sense, says Stephen Drake, a research analyst at International Data Corp. (Framingham, Mass.).

"Solutions such as Multiview 2000 Server Edition are well suited for Citrix's WinFrame and MetaFrame and Windows NT Terminal Server Edition," says Drake. "The combination of these solutions offers managed access to UNIX hosts and provides a centralized approach to delivering applications through load balancing, user access and application control."

Multiview 2000's page-based Active Rules Agent lets the user put a Windows face on UNIX applications. JSB refers to this as "face-lifting," a function that also brings mouse navigation,

three-dimensional fonts, pop-up menus, customizable toolbars and full support for multimedia data capabilities to UNIX applications.

With support for ActiveX and OLE embedding, a face-lifted UNIX application can be incorporated into a company's intranet or Web site. Similarly, this Web-to-host connectivity function automatically converts any URLs that appear in the terminal emulation window into active links. And Multiview 2000 supports speech capabilities on clients equipped with a text-to-speech engine.

The zero admin feature set is compatible with Microsoft's Zero Administration Kit and Novell's Zero Effort Networks.

Multiview 2000 Server Edition also provides a built-in ping utility, supports Dynamic Data Exchange (DDE) links and optional connectivity to Macintosh, Windows 3.0 and Java clients via a Citrix MetaFrame network. It supports server-to-server file transfers as well as TCP/IP, Winsock 1.1, direct cable, modem and NVT2 connectivity options but not browser-based terminal emulation.

Jeff Dodd,
Contributing Author

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As more organizations come to terms with the challenge of effectively managing their enterprise applications, Computer Associates International (Islandia, N.Y.) has embraced a modular strategy that it says will help IT managers, one piece at a time.

Formerly PLATINUM's ProVision, ManageIT is a modular enterprise management solution, which addresses applications, databases, desktops, networks and servers. "ManageIT is ... trying to manage as many components as possible in a unified manner," says Chip McAvoy, vice president for ManageIT marketing. "In the not so olden days, we would say 'I do systems management,' or 'I do database management.' Everyone had their own

technology silo.

"Enterprise management is the goal of having a consistent management approach across all pieces of technology. ManageIT was designed so that the user can examine the problems and priorities within the enterprise, deploy specific components in a modular fashion and address specific needs incrementally."

Duke University's Fuqua School of Business last fall began using the ServerVision and DBVision modules, which are currently running on two HP servers. "On HP-UX we have the clustering software with two nodes and we've got our application server and a couple of Web applications," explains Jill Meninger, database administrator at Fuqua. "We were seeing a problem where the application server was just dying.

"All of a sudden it would crash and people couldn't connect to the application. Then we installed the ServerVision component and we were able to see that the processes running the application server were just continually grabbing more and more memory."

The CA products showed the administrators that they had potential memory leaks, something the department suspected, but had not been

able to prove until that point. "Since then, we've gotten back with the vendor of our application server and they have verified for us that there was a problem and are in the process of upgrading their software," she says. "We suspected this was happening, but it's hard to call up a vendor and say your product's leaking memory. They always want to point the blame somewhere else."

The decision in early February to ship the ProVision Adapter for HP OpenView provides OpenView customers with single-point integration to the company's suite of products. "Lots of people use HP OpenView IT Operations Center and CA's tools for basic event management," says McAvoy.

"In the past, you would have to buy or build an interface to every single tool and that OpenView HP ITO product. We said, 'We'll give you one point of interface for our entire suite of tools and we will use the HP ITO message API and we'll have HP certify this integration.' The advantage is you have one piece of code, one point of integration between our entire suite and HP ITO."

— Susan Aluise
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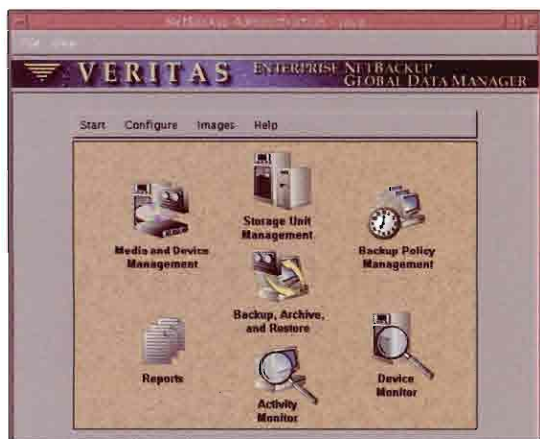
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Unlike a corporation's network hardware and software which are obvious expenses, enterprise data has no replacement value simply because it cannot be replaced. That's why most organizations backup their data. Local backups are relatively easy to accomplish. But how do you handle backup management and administration if the organization is an international enterprise?

VERITAS Software Corp's (Mountain View Calif.) Global Data Manager (GDM) is an addition to its VERITAS NetBackup product family. It enables an international organization to manage several groups, called storage domains, of globally distributed NetBackup servers from a single desktop. Backup administrators can

set backup policies, manage the NetBackup servers, create and enforce backup schedules, monitor backup and recovery operations and devise backup reports and analysis for an entire storage domain from a centralized location.

"Global Data Manager for NetBackup basically allows you to consolidate your data management capabilities within your storage management infrastructure," says Anders Lofgren, a senior industry analyst with the Giga Information Group (Cambridge, Mass.). "It becomes a focal point for your backup storage system so you don't have to have so many people managing it."

This form of centralized backup management creates a failover in the event that a NetBackup server crashes. Backup administrators direct the backup policies of the failed server to the alternate NetBackup server within the storage domain. The GDM system of creating collective storage domains makes follow-the-sun backup management possible, as well. Using a follow-the-sun strategy, organizations with 24-hour worldwide operations can designate backup administrators to centrally manage the NetBackup servers for each continent or region.

GDM's strength is in its scalability and flexibility. Using storage domains, an organization can add, remove, or restructure backup systems efficiently. The storage domain operates independently from the rest of the organization's network, so the organization has backup protection even when part of the network malfunctions. And because GDM supports Windows NT, UNIX, and PC platforms and can be implemented across WANs, dial-up networks and the Internet, it can adapt to a large organization's ever-changing infrastructure.

The only limitation of GDM is that it must be implemented on networks running the NetBackup storage management system. This is not an unusual requirement for global data management systems, says Lofgren. "Currently, you have to have the same company do both your global data management and your backup storage management.

"In the future," according to Lofgren, "you and I could have a mix of backup management systems and GDM could address those needs."

— Jeff Dodd,
Contributing Author



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Forsythe Technology Revamps Accounting System With Mitchell Humphrey & Co. And FMS II



As one of Hewlett-Packard's top resellers, Forsythe Solutions Group, Inc., knows the benefits of running business applications on the HP 3000. Therefore, when its parent company, Forsythe Technology, Inc., needed to revamp its accounting system technology this past year, they chose Mitchell Humphrey & Co. and FMS II.

The Problem to be Solved

As Forsythe's business continued to grow, so did concerns about the long-term capabilities of its accounting system. Forsythe's old system hindered efficiency because it required a large amount of maintenance and couldn't keep up with their growth pattern. They also had a year 2000 issue.

When the search for a new accounting system began, Forsythe identified several key elements that the new system would need to provide. First and foremost, they wanted a system that was not only client/server and year 2000 compliant, but was also compatible with their HP 3000 hardware. Equally important was the system's ease of use and ability to be customized by the user. "The hardware angle was a matter of convenience," notes Mitch Germaine, Vice President of Information Systems at Forsythe. "The real issue was that we wanted software that would allow us to handle our volume."

Making the Move to FMS II

Forsythe knew that this would be a difficult combination to find on the HP 3000. After looking at several accounting packages on the market, they selected FMS II, from Mitchell Humphrey & Co.

Forsythe selected FMS II for a variety of reasons. FMS II was compatible with their current HP 3000, which meant that they didn't have to absorb additional hardware costs. But most importantly, FMS II had sophisticated features, extensive report writer capabilities and low maintenance.

Smooth Implementation and Quality Support

In the second quarter of 1997, Forsythe implemented FMS II on an HP 3000 series 987 running MPE/iX and TurboImage. FMS II systems installed at Forsythe include General Ledger, Accounts Payable, Budgeting & Financial Planning, Report Writer, Custom Table Manager, and FMS-ONRAMP and FMS-EXEC (FMS II's PC-based tools for multidimensional analysis and reporting).

According to Germaine, the FMS II implementation was one of the smoothest he had ever experienced. "MH&Co.'s implementation team provided our users and MIS staff with excellent knowledge about the system," said Germaine. "And after the implementation, the MH&Co. support team really helped us fine tune the software to fit our needs."

Improved Capabilities Result in Numerous Benefits

FMS II has had a powerful impact on Forsythe's accounting processes, especially reporting. Germaine commented, "FMS II's reporting capabilities have virtually erased the burden on users because it is more intuitive and user-friendly. Our users now have capabilities they didn't have before."

Germaine is also confident that FMS II will meet Forsythe's future needs as its remarkable growth and success continues. "We need a customizable system that can adapt as we grow and change, and FMS II's design provides that and more," concludes Germaine.

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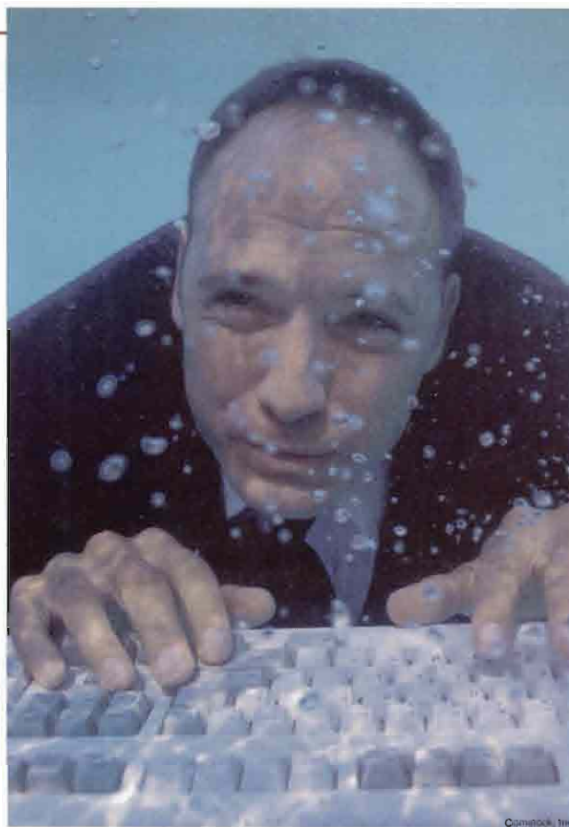
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YOU NEED TO MOVE DATA securely all over the enterprise, crossing languages, operating systems, databases and applications, while still providing "friendly data" that people can *and will* use. Many pieces of data warehousing, previously jury-rigged are now being "packaged" by collaborating vendors.



HP Professional Staff

Immediately after itemizing requirements of their industry/business environment, IT managers generally hit one technological hurdle. "There are hundreds of different sources of information a company may have to feed reporting applications," explains Bill Seagrave, President, Data 2 Knowledge, Inc. (D2K; San Jose, Calif.), which specializes in data transforms between mainframe and other platforms for data mart and data warehouse provisioning. "IT managers are faced with multiple operating systems, database technologies and languages, not to mention

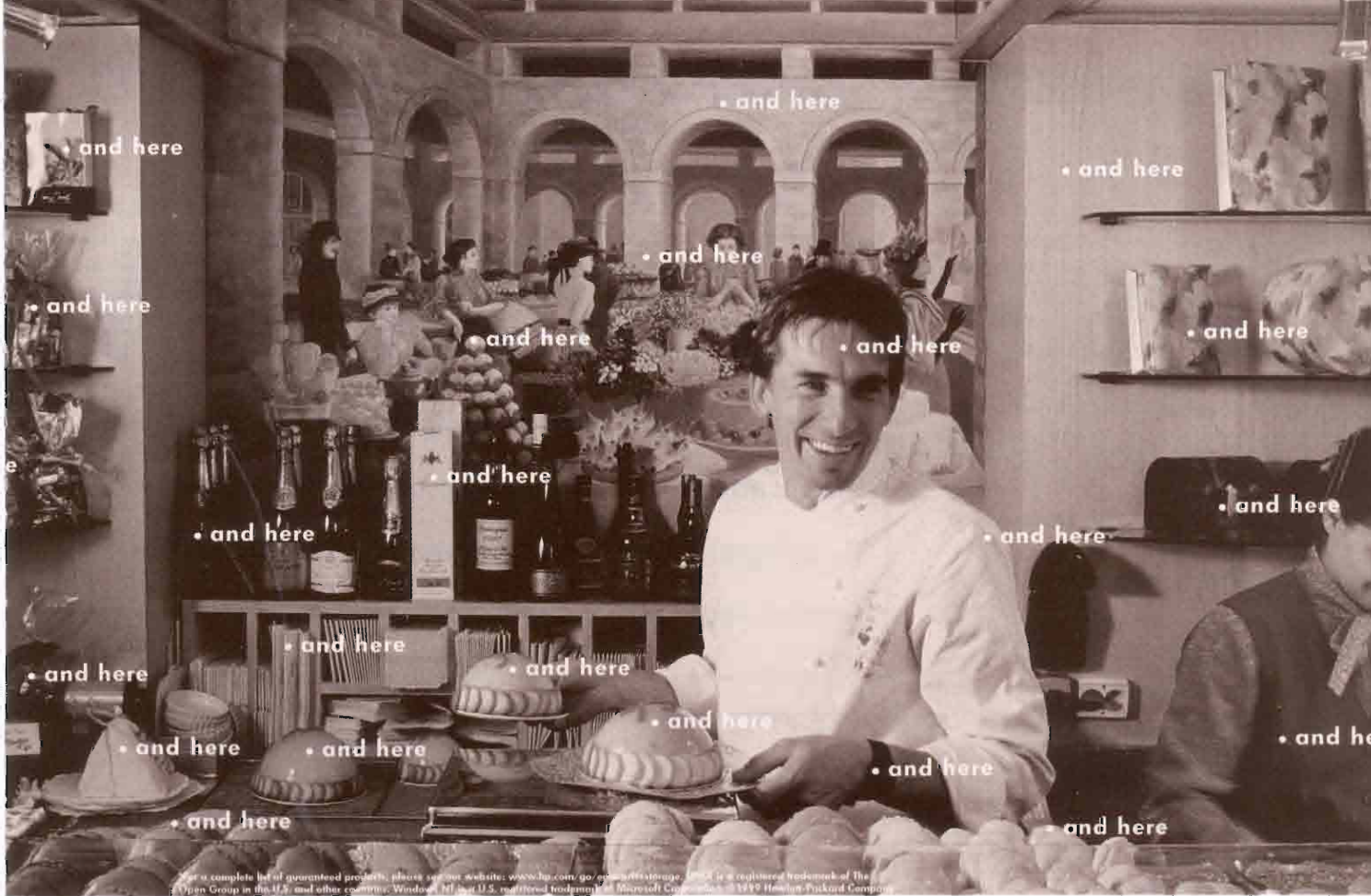
how complex the reporting applications are themselves."

With so many potential data sources that an enterprise network can encompass, coordination and data access is a very complex and ripe marketplace. Libraries long ago understood that finding the information you need is more than rifling through thousands of books. That's why they created card catalogs and now online catalogs. That kind of information about data stored in databases across a company network is called metadata. Metadata is required to help the many front-end user applications find the necessary

information from the back end, whether it's in a client-server or legacy system.

DATA COMPASS

Metadata also provides navigation information for applications and coordinates database updates and general data flow. Some vendors such as Hyperion (Sunnyvale, Calif.) and Oracle (Redwood Shores, Calif.) provide their metadata layer, along with tools and utilities for data extraction, scrubbing, transformation and movement in the software. But start-ups, such as D2K, recognize that in a given client site there will be few if any,



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people who understand *all* the variables that will ultimately impact or contribute to the success (or failure) of a data warehouse.

Hence, companies are compelled to call on the services of vendors and consultants who've developed and practiced this special expertise. These new providers package standalone metadata software for use in many environments.

Brightening the picture and making greater legacy integration feasible are vendor-initiated data transfer standards that are gaining momentum. The Meta Data Coalition (Austin, Texas; www.mdcinfo.com) is an alliance of software vendors and users who've defined the *Open Information Model* specifications that facilitate sharing and re-use in data resource domains based on its *Unified Modeling Language*. These standards streamline translation, staging, cleansing and QA of the data.

METADATA MATTERS

Metadata is a must for high performance data warehouses in large environments. It's closing one critical gap in data warehouse implementations: enabling databases and distributed client-server applications to cooperate and make use of metadata generated by each. But again, using homegrown or packaged apps is dependent on your particular needs.

There is a great balance to providing amounts of corporate information to everyone across the network. But at the same time, companies need to be sure they're sending data to the people who really need it and who are who they say they are. Consequently, security has become an important topic in the data warehousing community and is generating eminently workable solutions.

Many data warehouses require that all usernames, passwords and returned information be encrypted. Users receive a public key issued by a certificate authority and stored on the Web browser. A private key at the data warehouse matches the public key at the time of any query. Once

the keys match, the user is in and can search for needed information.

Certificates are another valuable way to protect a data warehouse. They're much more difficult to sniff

performance that leverages the data warehouse for reporting, analysis, modeling and planning requirements. These processes mandate that the organization looks not only at past

Metadata also provides navigation information for applications and coordinates database updates and general data flow. Metadata is a must for high performance data warehouses in large environments.

out than passwords, making it harder for someone to pretend to be someone else. Encrypting the returned information ensures that no one other than the user can view a query's results. When companies are dealing with sensitive information about customer profitability, product plans, or rollover, for example, these security solutions are very important.

Integration of the data warehouse into Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) systems is made considerably tighter. HP application engineers continue to work closely with vendors who are developing end-to-end solutions, such as SAP's Business Warehouse and i2's RHYTHM suite, to optimize data warehouse methodologies, technologies and services for HP equipment. These developments have already improved the track records for companies in terms of quick-start implementation, high-availability and incorporating highly automated backup/recovery features.

It's the open nature of OLAP applications that links them to data warehouse applications. OLAP provides for the essential sharing of sets of user and functional requirements that cannot be met by traditional query or personal-productivity tools working directly against historical data maintained in the data warehouse relational database. An OLAP server provides functionality and per-

formance, but more importantly at the expected future performance of the business.

BREAK THE LAW AND FALL UP

There is a bumper sticker that reads: "Gravity, it's not just the law, it's a good idea." You can have fun with the same logic applied to the data warehouse. It's not just essential, but plainly a good idea to create operational scenarios shaped by the past *and* that include planned and potential changes that could impact tomorrow's corporate performance.

Many companies who've watched data warehousing projects from a distance have learned important lessons from the first decade of implementations. Because proper project scope is so important and providing a speedy return on investment so critical, many organizations now are opting for smaller phased rollouts of their data warehouse strategy.

Putting together bite-sized pieces (300-800GB), often called a data mart, gives IT more opportunity to test and debug technology and strategy (and gain management approval) before installing other segments. Because data marts are generally department-specific and run on homogeneous hardware and software, they're much less complex to implement.

In addition, IT can choose the neediest departments and address

those needs quickly. If Finance needs to keep track of general ledger, accounts, or budgeting, for instance, IT can build a data mart with relevant data so that financial planners won't have to wait for the entire project to be complete before they get the analytical tools they need.

IT can also prove the value of a data warehouse in microcosm with a data mart, if you have to justify budget dollars to upper management. A data mart is significantly less expensive, provides faster ROI and can serve as the prototype for a larger data warehouse project. IT can string together multiple data marts into a cohesive data warehouse later.

ISLAND HOPPING

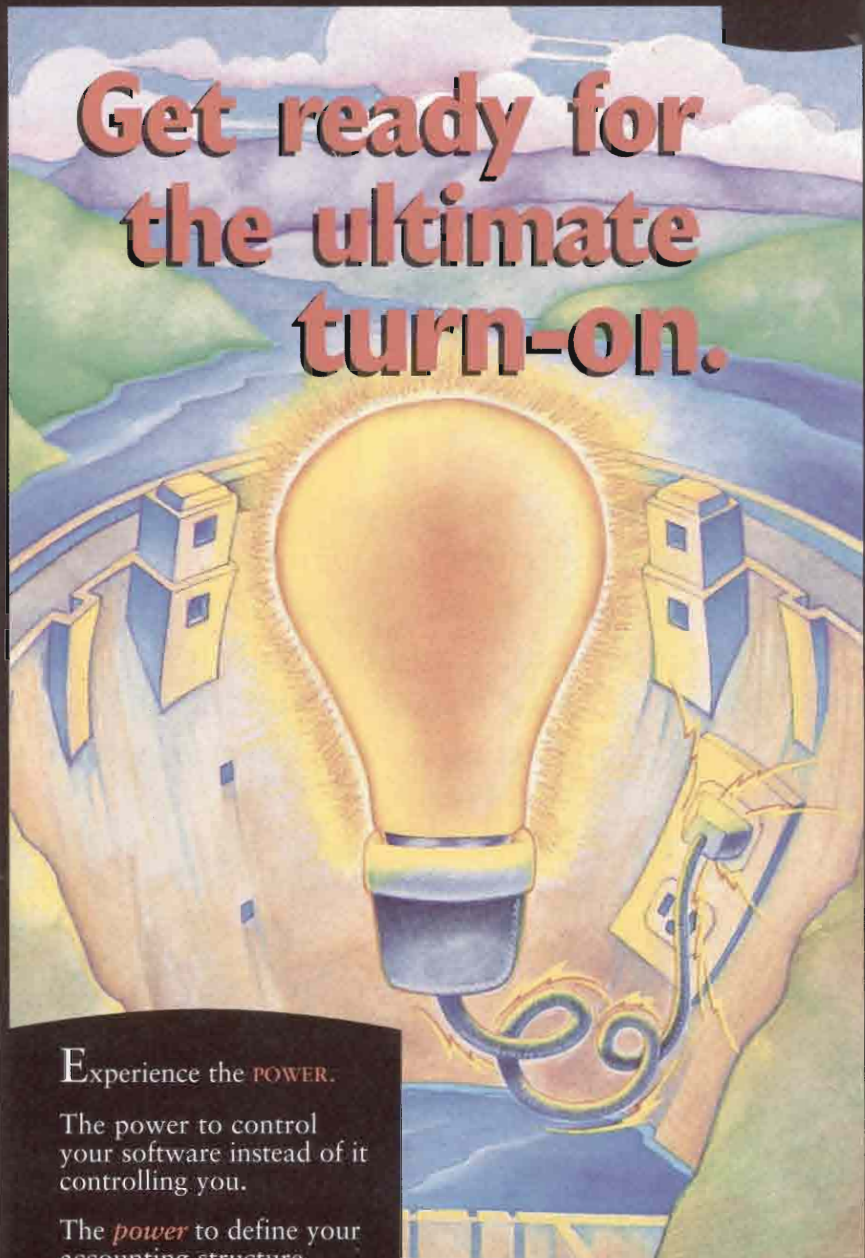
Successful data mart implementations have always been part of a larger data warehousing plan. The very things that make data marts successful in departmental solutions are the things that must be carefully considered in a data warehouse. To prevent data marts from becoming islands of information, however, the hardware they run on should be compatible with everything else in the enterprise, either through hardware standards or software integration across multiple platforms.

The data stored in the data marts should be compatible with a larger scheme for data in the warehouse as well. Because data marts are often designed for applications that are more department-specific than the entire enterprise will need, the data can be stored in a way that is immediately convenient for the application.

This does not necessarily guarantee that the information is stored in a way that makes sense for a data warehouse-to-be. Successful architects roll out data marts as part of a total data schema plan, even if the data warehouse will not be complete for several years. This ensures that the data marts will integrate into the larger whole without a major reworking. ♦

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Decisions On The HP 3000

Third-Party Partners Build A New Image For Image/SQL.

IF YOU WERE TO CLASSIFY the tools necessary to maintain a data warehouse in a non-native implementation, the categories might be: data extraction tools, middle-ware/data access tools, reporting/OLAP tools and the actual data warehouse database. The list of vendors that offer these products is made up of names familiar to long-time HP 3000 managers.

Ken Deats

A non-native data warehouse must interoperate with multiple databases on multiple platforms. Even though a company may maintain operational databases stored on the HP 3000, it may opt to place the target data warehouse on a HP-UX-based HP 9000 or Windows NT-based NetServer. Once the initial data load is accomplished to the target warehouse, maintenance and incremental loads become a function of data extraction tools or database gateways that can work with those specific data sources.

ONE TRACK MINDS

That's where HP's Channel Partners come in. The first step in populating a non-native database is getting the data from a HP 3000 database such as Image/SQL to the target platform. This process can be accomplished with data extraction tools such as *BridgeWare* from Taurus, *ReTarGet*

from Rankin, *Extract* from ETI or *Suprtool* from Robelle Consulting. Platinum Technology, Oracle, Client Systems and Integration Alliance also have products that can mine the data from the HP 3000 and target it towards the data warehouse.

Of course, getting the data from the HP 3000 to the target data warehouse is only half the job. Making sense of it once it's there is the other half. HP says that over 90% of data warehouse queries are multidimensional, using multiple criteria against multiple columns.

Data aggregation is usually done with a SUM, COUNT, AVERAGE, MINIMUM or MAXIMUM operator, then graphically presented to the requestor in a drill-down format. The list of OLAP/reporting vendors that can do this seems to grow every day. It includes, Arbor Software, Brio Technology, Cognos, Oracle, Taurus Software, Quest Software, Integration Alliance, Mitchell Humphrey, Red


Brick Systems, SAS, Speedware and Platinum Technology.

Of course, most IT managers want to simplify their lives by eliminating a layer of complexity anywhere they can, and the same is true of HP 3000 managers. A native data warehouse adopts the model of working with databases that are on the HP 3000 from which there are three to choose: Image/SQL, Allbase and Oracle. Historically it's been common to use Image/SQL as the operational database and Oracle or Allbase as the target data warehouse.

VAULTY TOWERS

Image/SQL is well known for its strong OLTP performance. It's long been thought that a true data warehouse must be relational for ad hoc query capabilities, which is the conventional wisdom that has made the implementation of Image/SQL data warehouses difficult at best. A recent partnership between HP, DISC, Taurus Software, Quest Software and Brio Technology, code named "Decision Vault," is changing that conventional wisdom by combining to make Image/SQL the target data warehouse database and presenting the data through graphical end-user tools.

"The traditional ISVs have been the driving force for putting data marts geared to their customer base on the HP 3000," says Alvina Nishimoto, CSY R & D program manager at HP. "Mail order catalog customers of Smith-Gardner (Delray Beach, Fla.), for example, have long



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MEDITATING ON METADATA

Cognos, Inc. (Ottawa, Ontario) is a well-known provider of Business Intelligence software that allows users to cross platforms and databases to gain access to diverse data from diverse sources, including the HP 3000. "Most users want a summarized view of their data with detail provided as necessary," says Colin McAlpin, director of marketing research and strategies at Cognos. "We call that 'Behavioral Decision Flow,' where users can explore their data without thinking about it much. Our job is to serve data up the way people understand it in a business context."

Asked to identify some future trends, McAlpin starts with helping administrators better understand the data they control. "As we've had more success with [presenting data] on the Web, customers are asking for a common metadata layer. Administrators need help with metadata related to the decision stream." That, he explains, includes the data about the data and its associated business rules. Cognos is planning to introduce a metadata product that will integrate with "all the major database players" such that as data elements change in different databases across the enterprise, those changes are automatically reflected in the metadata.

Another area of interest for Cognos is visualization of data once queried. "We want to make the consumption of that data digestible over the Web with business intelligence portals that will also act as a jumping off point to third-party content." Those portals will extend to Cognos

McAlpin sees a growing interest in building data marts that focus on a specific topic or function within an enterprise.

Visualizer, a product that McAlpin says will be akin to "a virtual reality idea" for data. It will provide multiple views of a user's business

with such things as animations, 3D-column bar charts with watermarks and will allow for the setting of translucent thresholds for presenting that data.

McAlpin also sees a growing interest in building data marts that focus on a specific topic or function within an enterprise. "Our customers want some help building marts and transformation [of data] is the first step." He adds that while most enterprise customers have a fairly good understanding of the value of data warehouses and data staging in an OLAP structure, he sees a trend towards building smaller marts to get started more quickly, "then sharing those dimensions among multiple data marts." He adds that providing sample reports and simple Business Intelligence applications moves the process along quicker.

— K.D.

known the advantages of Image databases. Now they want to be able to predict buying patterns or design marketing plans directly from that data." She adds that it's not just customers that fall into HP's traditional vertical market segments such as banking, mail order and airlines that are taking advantage of Decision Vault products, but, "Home grown customers are building data marts as well."

Decision Vault is a data warehousing technology bundle specifically designed for HP 3000 users that want to build a data warehouse in an environment they're familiar with — Image/SQL. Each of the partners provide products and expertise in areas similar to those necessary in a non-native implementation.

BridgeWare From Taurus Software & Quest Software

- Moving data from operational store to data warehouse
- Data type conversion
- Data placement
- Standardization, filtering and cleansing of data
- Real time data synchronization

Nishimoto explains that data extraction needs to be done in a different format from the operational database to populate the warehouse. BridgeWare can accomplish not only the transformation and extraction but it can do it in real-time. She adds that this has proved to be a solid remedy for customers who maintain their main data source on a HP 3000 and their supplemental data on another platform, Oracle for instance.

Omnidex from DISC

- High speed data retrieval
- ODBC/Web middleware for query optimization
- Dynamic data aggregation without numerous summary tables
- Multidimensional analysis
- Fast index build rate and compressed disk space

The advantage of DISC's Omnidex, according to Nishimoto, is its ability to perform that high-speed

retrieval without the need for a summary table. She explains that most competing products require first defining an interim summary table to achieve acceptable retrieval performance. "Most data warehouse users are not that sophisticated. They primarily want to do ad hoc queries and pre-defining those summary tables is very confining for them."

BrioQuery from Brio Technology

- GUI client for Business Intelligence for desktops and Web browsers
- Support for Windows, Macintosh and UNIX desktops
- Pre-defined data models and reports to build data marts
- Designed for all levels of users from occasional viewer to IT staff

BrioQuery is one of the more popular GUI front end tools on the market, says Nishimoto. And, because

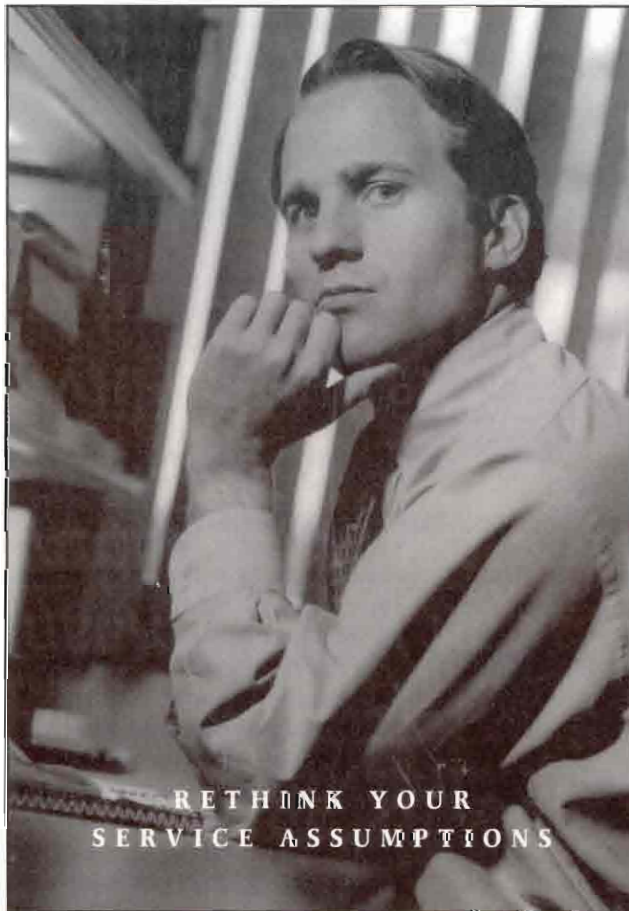
Decision Vault is a data warehousing technology bundle specifically designed for HP 3000 users that want to build a data warehouse in an environment they're familiar with — Image/SQL.

Brio Technology has long maintained a close relationship with Taurus, its ease of use and support for multiple client platforms, it seemed a strong choice for Decision Vault.

Nishimoto says that most ISVs are still very happy with the performance of their products on the HP 3000 platform and with HP's ability to maintain an acceptable technological

pace with it. Drumming up interest among those ISVs and resellers in Decision Vault has been done primarily through a series of worldwide educational seminars first implemented in the fall of 1998.

While no exact date is forthcoming, she says those seminars should be available to the HP 3000 user community soon. ♦



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Your sales team has promised 25,000 widgets, but an inventory report that manufacturing needs to produce those widgets can't be run right away. Does that sound like the kind of dilemma that has catalyzed business process re-engineering and brought major changes to information systems resulting in, at last, a data warehouse project?

If it does to you, you're not alone. In fact, you're in the majority. The Data Warehousing Institute (DWI; Washington, D.C.) reports that already more than 3,000 companies

HP Professional Staff

have built data warehouses, guided by more than 1,000 consulting firms. Most industry analysts expect the data warehouse market to continue growing from more than \$2 billion in 1998 to nearly \$7 billion in 1999, with 15,000 data warehouse projects launching in 1999, each with \$3 million budgets, according to The Gartner Group (Stamford, Conn.).

Data warehousing originally allowed companies to unlock the data accumulated in a few operational sys-

tems and begin leveraging it, using select tools, with data from external sources primarily for improved decision making by a few executives and other specialists. More recently, the call has been for finding additional ways to cut costs, identify new market opportunities, measure the effectiveness of campaigns and monitor a business's progress. In addition, the pace of business (as it goes about globalization, acquisitions, downsizing, business process re-engineering and so on) calls for accessing enterprise data by more people, faster and

with greater flexibility.

With such big market numbers at stake, industry players have given data warehouse technology a lot of attention. And while data warehouses planned today are capable of supporting global enterprises, they had humbler beginnings. The data warehouse began as a historical, read-only, isolated and function-based database. But with advancing technologies, next-generations of data warehouses support a read/write basis and afford sophisticated new views of an operational, enterprise-based database.

Further, the process of re-implementing data warehouses involves developing a business model that overlies the warehouse. It also requires decisions on more pragmatic, but essential, details. These details include specifications of methods for assimilating operational data, enacting user policies governing the access and usage of a data warehouse and providing methods and tools to access and administer the data warehouse: all of which must be done more cost-effectively than was previously possible.

HOUSE FULL OF TROUBLES

What has proved so troublesome for data warehouse architects and proponents is that planning, configuration and deployment of data warehouses encompass volatile and rapidly evolving sets of company-specific processes, product technologies and lifecycles, customer needs and other variables such as government regulation and deregulation. Furthermore, for better or for worse, no data warehouse will ever be complete. New markets will be discovered, advances in technology create products and services and IT managers attuned to corporate user groups will always be adding to their to-do lists.

These needs are reflected in a growing emphasis on data warehouses for Online Analytical Processing (OLAP) as opposed to Online Transaction Processing (OLTP). The key difference and advantage is that OLAP prescribes an approach of live, ad hoc data access and analysis. In contrast, OLTP deals with the currency and integrity of day-to-day

processes.

Unfortunately, transactional databases are not suitable for analytic purposes because:

- Transactional databases contain only raw data, and thus, the processing speed will be considerably slower
- Transactional databases do not store the historic data necessary for data analyses
- Transactional databases are not designed for querying, reporting and analysis and limit performance on those tasks
- Transactional databases are inconsistent in the way they represent information. For example, different databases may use different units of measurement for the same attributes.

SKELETONS IN THE WAREHOUSE

Just as the backbone of OLTP is the operational database, the backbone of OLAP is the data warehouse database. Hence, the successful data ware-

house is the linchpin to fulfilling the next generation of needs across the whole of the business, the enterprise. Even better news for companies is that data warehouse solutions are being vertically oriented, tuned to the specific requirements of, for example, financial services, telecommunications and manufacturing industries.

Companies build data warehouses for a variety of reasons. Most data warehouses attempt to solve fundamentally similar issues: analysis, trending, "What-if?" scenario creation, reporting and multidimensional analysis. Some companies are gaining control over ERP and extended supply chains while others want more effective marketing and sales research and analysis and still others may need to integrate back office processes to extend them to the enterprise.

"Companies across a wide spectrum of industries are making themselves prominent for their business

THE HOUSE THAT BILL BUILT

Honors for coining the term "data warehouse" in 1990 go to William Inmon, CEO of Pine Cone Systems (Englewood, Colo.) and author of several books on building, using and managing data warehouses. Defining it as a managed database, he described the data itself by four characteristics. These are important to keep in mind as you remedy the shortcomings of existing data warehouses and for guiding upgrade plans.

Subject-oriented: There is a shift from application-oriented data (i.e., data designed to support application processing) to decision-support data. If designed well, subject-oriented data provides a stable image of business processes, independent of legacy systems. In other words, it captures the basic nature of the business environment.

Integrated: The database consolidates application data from different legacy systems (usually old-style mainframe databases) that use different encoding, measurement units and so on and it eliminates inconsistencies in the data.

Time-variant: Informational data has a time dimension. Each data point is associated with a point in time and data points can be compared along a time axis unlike operational data which is valid only at the moment of access.

Nonvolatile: New data is always appended rather than replaced. The database continually absorbs new data, integrating it with the previous data.

efficiencies that even customers notice in terms of quality of service. Among these industries and companies are Bell Atlantic, GE, Capital One and First USA, UPS and HP's own groups such as the InkJet Products Group," says Rick Millem, Data Warehouse Marketing at HP. These organizations base their prominence and success to a large degree on having integrated, migrated and upgraded data warehouses.

While the table below shows that industries have many requirements in common, data warehouse design is anything but cookie-cutter in its packaging and configuration. Nearly a decade of data warehouse deployment

has taught that each one is specific to that company. HP has helped customers implement more than 400 warehouses worldwide, according to E-business consultants at the Patricia Seybold Group (Boston, Mass.). Many of them are larger than 100GB meaning that real-world experience can be a tangible factor in successful deployments from this time forward.

Data warehouses and their smaller cousins, the data marts, are the foundation of "the agile enterprise." These are the basis for knowledge-based organizations and wider circles of company users who are made ever more nimble with their use. And able to respond quickly and gracefully

with decisions regarding the design and introduction of new products and services tuned to market opportunities, manufacturing management, inventory, distribution, resource allocation, financials, HR, sales automation and competitive strategies.

Just as data warehouse design becomes more sophisticated about how it serves up data to end users, front-end applications, too, are savvier in the way they access the data from the desktop. For example, smart plug-ins and add-ins provide links between common applications, making them powerful data analysis tools. A good example of how this contributes to users' acceptance of data

INDUSTRY	APPLICATION AREAS WITHIN THE INDUSTRY				
	ANALYSIS	TRENDING	WHAT-IF?	REPORTING	MULTI-DIMENSIONAL ANALYSIS
Manufacturing	Inventory management	Sales order analysis	Product and customer profitability	Promotional effectiveness	Yield management
Telecommunications	Product profitability	Call Rated Detail (CRD) tracking	Performance forecasting	Help Desk reporting	Accounting and financial systems
Banking	Customer retention management	Risk management	Customer acquisition	Channel management	Product profitability analysis
Health Care	Provider profiling	Customer segment trending	Risk management	Human Resources	Performance measurement
Insurance	Product affinity	Accounting and financial systems	Human Resource management	Performance measurement	Customer relationship management
Retail Distribution	Market basket analysis	Inventory management	Seasonal sales forecasting	Vendor tracking	E-tailing and online catalog analysis

Many industries use data warehouses to provide information that helps them drive business performance. Listed above are several industry segments and specific uses they have for their data warehouses.

warehouses is *Crystal Reports*, a popular report generation tool integrated with most databases that lets end users create consistent reports, regardless of what data source they're accessing on the back end.

Progress along this line goes back to vendor collaboration. The resulting "pacts," as the Baan Company calls them, can dramatically reduce the complexity of purchasing, implementing and maintaining business software. Baan's pacts with HP and Microsoft have led to the optimization of the Baan IV BackOffice enterprise business application software for Microsoft SQL Server and HP's NetServer LX. Users have also benefited from related developments such as porting MC/Service Guard to NT, which meets data warehousing requirements for maximum uptime.

Vendor applications are much smarter now in the way they streamline the integration of legacy database information systems rather than replacing them, e.g., data warehouses being used to supplement ERP systems. The benefit is that it accommodates or facilitates the rapidly changing nature of business that results from acquisitions, product innovation/lifecycle, government regulation, etc.

WAREHOUSING WHILE YOU WAIT

Design and construction, implementation and debugging were processes that once had to take place at the customer's site. But with years of experience behind them, many vendors are working together to solve basic problems ahead of time, before they arrive at the client site, often before they start working on the client's nickel.

It's become easier for IT managers to look good. New, proactive management tools such as HP *OpenView MeasureWare*, in combination with HP *OpenView PerfView*, provide triggers and alarms that sound when preset performance thresholds are crossed. The *MeasureWare Agent* constantly monitors measurement data to detect exception conditions, based upon individual or a combination of metrics that can be defined using both thresholds and time duration.

For example, an exception condition might be defined as occurring when a data warehouse's response time exceeds a pre-defined threshold. Whenever the agent detects an exception condition, it produces an alarm message. The PerfView management console receives and maintains a list

many specific data warehouse solutions.

Pre-sales planning and testing processes have gotten considerably better, as measured by the speed of many deployments. Several recent large data warehouse implementations for telecommunication compa-

What has proved so troublesome for data warehouse architects and proponents is that planning, configuration and deployment of data warehouses encompass volatile and rapidly evolving sets of company-specific processes, product technologies and lifecycles.

of MeasureWare alarms that occur anywhere on the network. These products greatly simplify management and monitoring, leaving IT personnel more time to focus on how to use the knowledge contained in the database.

Application performance management, a prominent subset of data warehouse and network management tools, affords a view into mission critical applications at a level closest to users answering the question of how well an individual application is performing. Used in conjunction with network performance monitoring tools, IT groups can optimize overall performance and allocation of server resources and meet service level agreements. Furthermore, based on tracking and analysis of performance as transactions traverse the networks, administrators will get a far better picture of where they should spend more of their time.

The addition of application performance management, as a discipline now supported with software tools, fills in one of the remaining gaps in end-to-end solutions. Some IT managers have taken this one step further with HP's *OpenView SMART Plug-In* products that provides them with centralized, pre-packaged management of the distributed environments for

panies, manufacturers and universities illustrate how to successfully roll out data warehouses within four to nine months.

MASTER OF THE HOUSE

With the experience vendors have gained at developing proposals for data warehouses and by following well-practiced business process studies, the design recommendations and configurations show far fewer configuration errors and order resubmissions. Moreover, today's Requests For Proposals (RFPs) encompass people issues and user needs while still integrating business goals, management support and training activities, so that little development occurs now on the customer site.

Because applications of data warehouses are as varied as the industry types they serve, next-generation data warehousing success stories don't require a paradigm change. Evolution, integration, and extension may be more in order and, though the improvements to technology may be subtle or even transparent to a corporation's end-users, measures of improved user proficiency/agility, ROI and cost-of-ownership will be clearly significant to all. ♦

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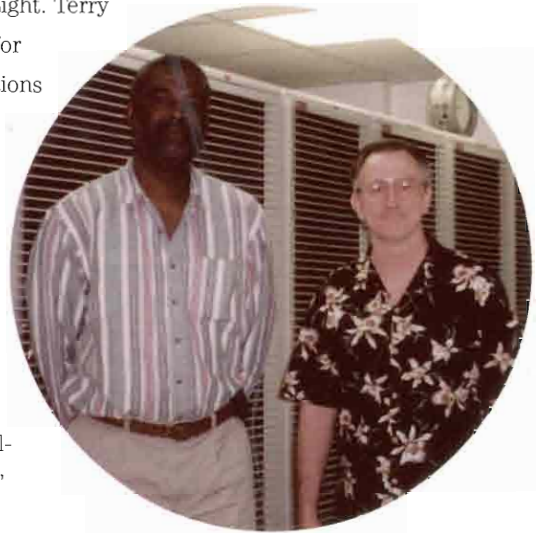
Since 1900, Baylor College of Medicine has been promoting the health of people through public service, education, and research. The College pursues this mission by sustaining excellence in educating medical students, physicians, biomedical scientists, and health professionals. This is achieved by pioneering biomedical research; by aiding public awareness of health and the prevention of disease; and by encouraging patient care of the utmost standard. Maintaining the highest standing in their industry, Baylor College of Medicine was recently awarded one of three grants from the National Institute of Health for completing the map of the human genome, the blue print of human life.

The Challenge

The handling of highly important information that supports the goals of Baylor College of Medicine is no easy task. Computer Operations, an integral division of the IT department, is constantly challenged in maintaining the various applications and platforms of the College's dynamic environment. There is seldom time for rest when you are tasked with managing these important applications 24 x 7 x 365. Six years ago computer operations ran into many of the inherent problems associated with an intense, manual-intervened environment. Processes were kept on large paper 'tick' lists and manual calendars, which made the operator's position risky, stressful, and slow. If jobs were miss-run or run out of sequence, the daily control totals would show data files to be inconsistent. Baylor needed an automated solution they could consistently depend on to reduce stress, eliminate errors, and leverage the intelligence of their employees.

THE SCHEDULER™

In 1993, Baylor chose SMA's THE SCHEDULER to manage the scheduling of over 2,000 processes per month on their Unisys 2200 mainframe. "The effect of not having an automatic scheduling device was perilous, due to the complexity of our environment; it is a Godsend for us to have one now," says Tom Light, Director of Computer Operations for Baylor College of Medicine. Once installed, THE SCHEDULER was an immediate success. "Automation has been a very big deal for us. It has allowed us to leverage our operators' intellect and time," adds Light. Terry Gant, Scheduler for Computer Operations also comments, "The product is very robust with a tremendous amount of flexibility. We are able to manage our most difficult daily challenges with ease."



Needed: Open Systems Solutions

In the early 90's, Baylor College of Medicine's computing environment consisted primarily of mainframe applications. In 1997, Baylor began to look at migrating to an open systems solution using Unix, NT, and other advanced technologies. After in-depth research, SAP R/3 became Baylor's client/server enterprise application software of choice.

Terry Gant, Scheduler of Computer Operations for Baylor College of Medicine, and Tom Light, Director of Computer Operations, are constantly challenged in maintaining the various applications and platforms of the College's dynamic environment.

It was known in advance that SAP would be a huge investment of time, materials and money, not to mention the difficulty of restructuring the way Baylor conducted business. Baylor needed a scheduling product that could interface with SAP and many other applications. With global expertise in open systems solutions, SMA clearly understood Baylor's challenges in integrating SAP within their environment and recommended OpCon/xps as the best long-term scheduling solution to support their evolving needs.

Migrating to OpCon/xps

A major concern of Baylor's was converting all of the legacy scheduling information into the OpCon/xps environment. SMA's experience in consulting and its partnership approach to business aided in the development of a conversion program, which allowed Baylor to migrate from The SCHEDULER with a minimal amount of human intervention. Further supporting the migration to OpCon/xps, SMA created an integrated agent (LSAM) for the Unisys 2200, so operations could continue to manage the legacy environment. This process was accomplished without breaking Computer Operations' commitment to support their production environment 24 x 7 x 365. "We are very proud of the fact that we were the first company to use SMA's conversion utility," says Light.

The final phase of the automation project concluded with SMA's development of R3D3. R3D3 is a product that interfaces OpCon/xps with SAP R/3. R3D3 translates job requests from OpCon/xps to the SAP R/3 environment enabling SAP jobs to run directly from OpCon/xps. Commenting on the overall success of the project Light adds, "SMA provided us with a complete enterprise scheduling solution, which enabled us to

operate across our mixed platforms with ease. We were able to run all legacy operations under OpCon/xps without losing a single job."

Looking Ahead

What does the future hold for Baylor College of Medicine's Computer Operations department? Computer Operations is currently running 4000 jobs a month. As SAP ramps up in the latter part of 1999, many legacy operations will no longer be necessary. Baylor plans to gradually move away from the use of their Unisys mainframe. OpCon/xps will be integrated with the SAP platform through R3D3, and it will eventually schedule all jobs across Baylor's complex enterprise. "The long road from no automation to comprehensive automation has been both a challenging and rewarding experience for us. SMA has continued to work very hard for us over the years enabling us to fully maximize our investments in technology and our employees," adds Light. As Baylor's needs evolve along with technology, OpCon/xps will strategically help Baylor manage new software applications and support new platforms as they are brought into their environment. Light concludes, "We are very happy with SMA and plan on working closely together in the years to come."

"SMA provided us with a complete enterprise scheduling solution, which enabled us to operate across our mixed platforms with ease."

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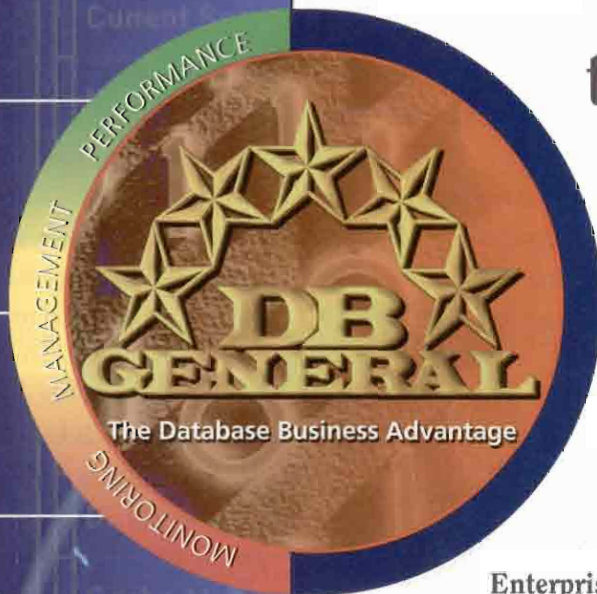
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Networks are a potential Achilles' heel in organizations' otherwise Herculean Y2K remediation efforts.

THIS SPRING, UNDER THE AUSPICES of the Securities Industry Association (New York, N.Y.), 400 Wall Street firms, simultaneously turned their clocks ahead to January 3, 2000, to see what would happen as they conducted simulated trades. Y2K-related problems affected only two one-hundredths of one percent of 260,000 transactions.

Unfortunately, many networking equipment vendors have handed their customers another sack of Y2K troubles, even in equipment sold as recently as a year and a half ago. As a result, the tentacles of Y2K are deeply entangled in just about everyone's networks, particularly in network routers, bridges, hubs and controllers. Related configurations that may feel the Y2K bite include network operating systems (such as earlier versions of Windows NT and Novell NetWare), host access software and groupware/messaging systems. Experts warn that most network products manufactured before 1997 may need replacement.

In most cases, the problems aren't serious enough to bring down an entire network on New Year's Day. More likely, problems will arise with log data from time/date stamps running in the operating systems of network devices. After the century rollover, network managers could be blinded to what's going on in their networks, unable to monitor network devices. Logs may be corrupted with data that appears to be 100 years old, if network management systems can even collect the data at all. Firewalls could expire all passwords and deny access to legitimate users. Only in a worst-case scenario will the network backbone fail altogether, says Ellen Carney, Director and Principal Analyst at Dataquest (San Jose, Calif.).

The good news is that compliance is relatively cheaper for networks than for application systems. Forrester Research (Cambridge, Mass.) estimates that most major companies can achieve compliance for about \$575,000. However, finding out exactly what needs upgrading can be a daunting task. Forrester estimates a typical network in a Fortune 1000 company includes 1,000 switches, 400 routers, 250 hubs, 1,000 servers, 20 firewalls, 10 remote access servers, three management systems and 10 network service providers. "It's not good enough to know you've got IBM routers. You need to know the model number and operating system level for those devices," explains Paul DeBeasi, Director of Marketing with NetSuite Development Corp. (Concord, Mass.).

Of the 107 routers and switches listed on IBM's Web site, 44 (or 41% of them) "require discovery of the operating system revision level in order to determine Y2K compliance," DeBeasi points out. For Cisco Systems' (San Jose, Calif.) high-end routers, the ratio climbs higher — 55% may have non-compliant operating systems. In addition, 75% of Cisco's LAN switches require operating system knowledge. This number climbs to 88% of 3Com Corp.'s (Santa Clara, Calif.) routers and 100% of Nortel Networks (Saint John, News Brunswick) routers.

Another area that bears close watching is messaging systems. Some earlier versions of Lotus Notes/Domino and Microsoft Outlook are not Y2K-compliant, while Novell (Provo, Utah) has announced it will not even test early versions of GroupWise for compliance. Earlier releases of Lotus Notes/Domino are affected by a date display problem: The Notes server console is unable to display the date/time stamp when a four-digit year is displayed. However, Lotus claims that this glitch "will not result in loss of any functionality," such as replication or mail routing.

**YEAR
2000**

SPECIAL REPORT

Joseph McKendrick

The Warehouse Gang Gets World Serious

Making The Most From Joint Development.

IMPROVED RESPONSE TIME is one benefit of alliances between hardware and software vendors. Fewer configuration complications, solution validation, faster availability of new releases, shortened planning/deployment cycles, improved availability and backup processes and greater manageability of resources can be equally consequential for IT managers.

HP Professional Staff

One of today's most powerful influences impacting favorably on data warehouses is the fact that they are building on much greater collaborations between hardware and software vendors. These collaborations have gone beyond the tentative first step of eight to ten years ago. Aside from opening doors to engineering departments at companies, these collaborations have prompted engineers and designers from hardware, database and software developers to codevelop the next generation of hardware and software.

Don't be fooled. It's not just about simple product tweaks. These ongoing developments amount to substantial re-architecting of both hardware and data processing methodology in the software. For example, major data warehousing solution providers leverage HP's Global Channel Partners program because a platform and operating system that are scalable

and regularly enhanced continue to be a leading selection criteria of IT managers.

FAMILIARITY BREEDS IMPROVEMENTS

In many cases, development work at a solution provider is based on the latest server hardware. By breeding a developer's familiarity with the platform, the methods used to handle a user's queries and transactions by multiple CPUs in parallel can be greatly enhanced. Benchmark testing, by its nature, is unreliable without a high degree of organization between hardware and software vendors. For this reason, all hardware vendors set up performance labs, but the similarities end there.

A data warehouse manager needs to assess how an individual lab constructs the benchmarks and uses live data before relying on results and making comparisons. The pitfalls are numerous, but conducting accurate benchmarks can answer questions about data throughput, the peak

loading or how the use of multiple CPUs will affect performance for users and enable better comparisons of competing software and hardware.

The most visible of these collaborations is that of HP and Oracle. As leading software suppliers of enterprise information management, the two regularly make news with benchmark performance results, database size and user assistance programs.

"This is on-going work for over 200 employees the companies have dedicated and who work side-by-side," says Sanjay Sinha, Oracle's senior director of marketing. "This helps us make features in Oracle8i such as composite partitioning, hash joins and materialized views, specifically geared to data warehousing and mirrored and tuned for [HP's] V2500 server. At the same time, HP was developing the V2500 server and much of the time our work revolved around ways to tightly couple the V2500 and Oracle8i."

Oracle's collaboration with HP focused initially on providing 24x7 availability. Over the past few years, this working arrangement has deepened considerably, according to Sinha. "The two companies have become the leading vendors. This comes in part from results such as tightly coupling the Oracle database and warehousing applications with HP's high-end hardware, the V- and N-class servers, in addition to other performance tuning initiatives."

The SAS Institute (Cary, N.C.) was one of the first to team with HP. In this fashion, the Institute rapidly

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extended its data warehousing and data mining solutions, as well as more pointed solutions such as Customer Relationship Management (CRM) or warehousing solutions for ERP applications.

Informix, Baan and others illustrate how the partnerships catalyze certified data warehouses by providing them with the resources to develop and offer packages that pre-test and pre-certify the solution and database for the enterprise. The effect for IT managers is to minimize complexity and therefore, risk.

Multiply these kinds of activities by 22, the number of new partners that HP announced in January 1999 with its expansion of the OpenWarehouse Alliance Program. This brings the roster of HP's OpenWarehouse partners to 42. HP's OpenWarehouse program goes back to 1992 when the company's own internal experience in data warehousing

highlighted the need for tools and databases beyond those that HP could accomplish itself.

The program appeals to its partners because it affords technical resources to the solution providers' engineers for testing and development. In addition to staying in direct communication with the HP OpenWarehouse development team, many alliance partners have, or are in the process of, integrating their products with HP's own Intelligent Warehouse middleware product.

GETTING CENTERED

Competency Centers provide support for sales activities and basic configuration/sizing determinations. Generally colocated and costaffed by hardware and software vendors, they have become familiar landmarks for IT staffs. For customers working with application vendors, availability of the centers comes at a crucial time

because they enable testing of the overall mix and integration of proposed solution elements using their own live data.

Much of a Competency Center's work is arranged case-by-case. Typically, however, the staff prepares and conducts benchmark testing, provides business research and technical briefings and recommends configurations of server, middleware and application. Over time, this is increasingly valuable application experience being injected into each new solution configuration.

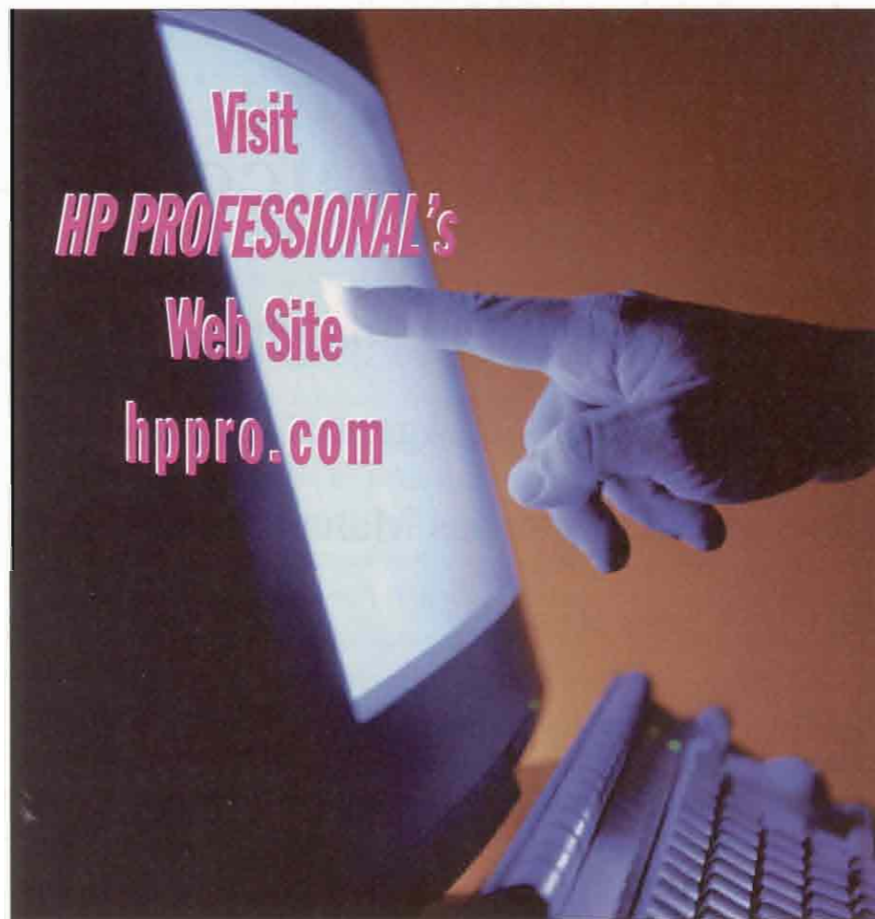
When a data warehouse buyer is satisfied with trial results and is ready to invest in a full-scale solution, the centers enable them to conduct extensive performance tuning, optimization of hardware configuration, pinpoint management applications and may even be used to support user training before being deployed at the customer site.

MULTI-VENDOR VENUES

HP, Compaq/Digital and IBM have all established dozens of such centers for discovery and development. They are instrumental for faster, more assured leveraging of multi-vendor capabilities which, in turn, is essential for successfully connecting the data warehouse and data marts from all departments and entities of increasingly distributed corporations.

What's truly remarkable about the overall transformation taking place in the data warehousing market, is that so many improvements are the result of standardization and collaboration among hardware and software vendors, consultants and customers. It means that IT managers no longer have to operate in uncharted territory.

Whether planning multi-terabyte data warehouses, integrating the data warehouse and data marts with earlier ERP or supply chain systems, or pushing uptime to more than 99% even while bringing up a new data mart or opening up an e-commerce Web site, the fun for IT managers is really just beginning. ♦



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A Better Warehouse For Better Business

Vendor Efforts Are Paying Off In Expanding Data Warehouse Capabilities.

THE WAY SOME DATA WAREHOUSES behave, it's no wonder we keep re-inventing them. With advancements from vendors adding up, however, reliable end-to-end systems may now be within reach. Take a look at developments that are unlocking true, enterprise-level capabilities from data warehousing solutions.

HP Professional Staff

“Data warehouses wire us up for something like e-intelligence,” says Rick Millem, HP Data Warehouse Marketing. “As we currently see it, e-intelligence is an evolution of business intelligence and leverages the Internet while drawing upon the data warehouses/marts and the advanced search algorithms of new data mining tools.” It also relies upon universal access to the Internet, intranets and extranets through what Millem refers to as “enterprise information and discovery portals.”

An example of this is TopTier Software's (San Jose, Calif.) *Enterprise Information Portal*. With user interfaces made to display all information as though it's from the same data source — combined with back-end functionality that allows the data to be compared and analyzed — vast amounts of previously underutilized data can be refined into infor-

mation for newer, more personalized sales, marketing and distribution activities.

A THINKING MAN'S FORTUNE TELLER

To gauge how important another aspect, data mining, is becoming consider Oracle's acquisition in June of Thinking Machines Corporation (Bedford, Mass.). As PC Week Online reported, that was Oracle's way of fast filling a gap in its data warehousing strategy with *Darwin*, Thinking Machine's server-based data mining product.

Darwin, like other data mining products in general, uses algorithms for exploratory data discovery. Sales and marketing executives have previously sought these third-party applications in order to identify product sales affinity and cross-selling opportunities, for example; or to monitor repeat customer sales or fraud activities. These applications, which are luring a critical mass of interest among business executives, are

becoming a breed of functionality that data warehouse solution providers are providing integration to or acquiring individually for their warehouse suites.

To date, data warehouses have provided ways for analysts and researchers who've been trained in these tools to see and report on historical trends. With the advent of Online Analytical Processing (OLAP) technology, managers as more casual users have at last, efficient ways to model a wider variety of “What-if?” scenarios and play out marketing strategies to plot their next moves.

What if inventory levels drop, but aren't noticed and reported for a week or more? What if critical shipments don't arrive as expected? These kinds of questions have prompted yet another new class of tools — business alert systems — for addition to the data warehouse strategy.

STAYING ALERT TO NEW TRENDS

Business alert systems monitor pre-set thresholds on a wide variety of data sources and are ever ready to send a signal to the appropriate person once a threshold is crossed. Rather than waiting for reports to point out trends and opportunities, alerts keep business managers abreast of the vital operations and allow them to act more responsively than was previously possible.

The original dilemma of data warehouse developments — that they're never finished — isn't something that a pessimist should describe as a warehouse half-empty. The open

New Outlook



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systems environment has made optimists of many and proven its worth by affording room to build further and providing streamlined, highly-enhanced business operations.

Data mining digs deeper and faster for information that's been developed and tucked away. Improvements in this area will prevent companies from failing to turn transaction data into business intelligence. New data mining applications put powerful, new algorithms underneath user-friendly interfaces. In conjunction with familiar tools like Hyperion's (Sunnyvale, Calif.) *Essbase* or *PowerPlay* from Cognos (Ottawa, Ontario), the data mining tools dig deeper without overly relying on the analytical skills of users.

Quick return initiatives will be rewarded quickly with tactical time/opportunity-driven business

intelligence capabilities for ERP users for multiple-source data warehouses. Joint work being done by Platinum Technology (Oakbrook Terrace, Ill.) and Ernst and Young Consulting that claims to provide customers with rapid deployment of strategic data warehousing for ERP decision support is a good example of how data warehouse managers are able to introduce high-return systems as needed.

CALLS TO ACTION

Highly active industries such as telecommunications will get industry-specific extract technology, data models, methodology and architecture. This solution turns call detail records into business intelligence for campaign management, churn and fraud reduction, marketing and sales.

With some warehouses bursting at the seams, multi-terabyte warehous-

ing is refined. HP and Oracle recently announced a terabyte-plus initiative for customers requiring data warehouses in the mega-terabyte range.

With vendors working in partnership with customers and consultants, IT managers will almost certainly find the waters of data warehouse design and development significantly less murky than they used to be.

There's still every reason to move carefully. Nevertheless, the good news is that data warehouse programs can now build from proven best practices and tightly integrated technologies.

The resulting solution, and you can call it an *enterprise-capable* solution, will incorporate significantly better generations of front-end tools that solution vendors have developed for a level of synergy that was the potential and promise of earlier systems. ♦

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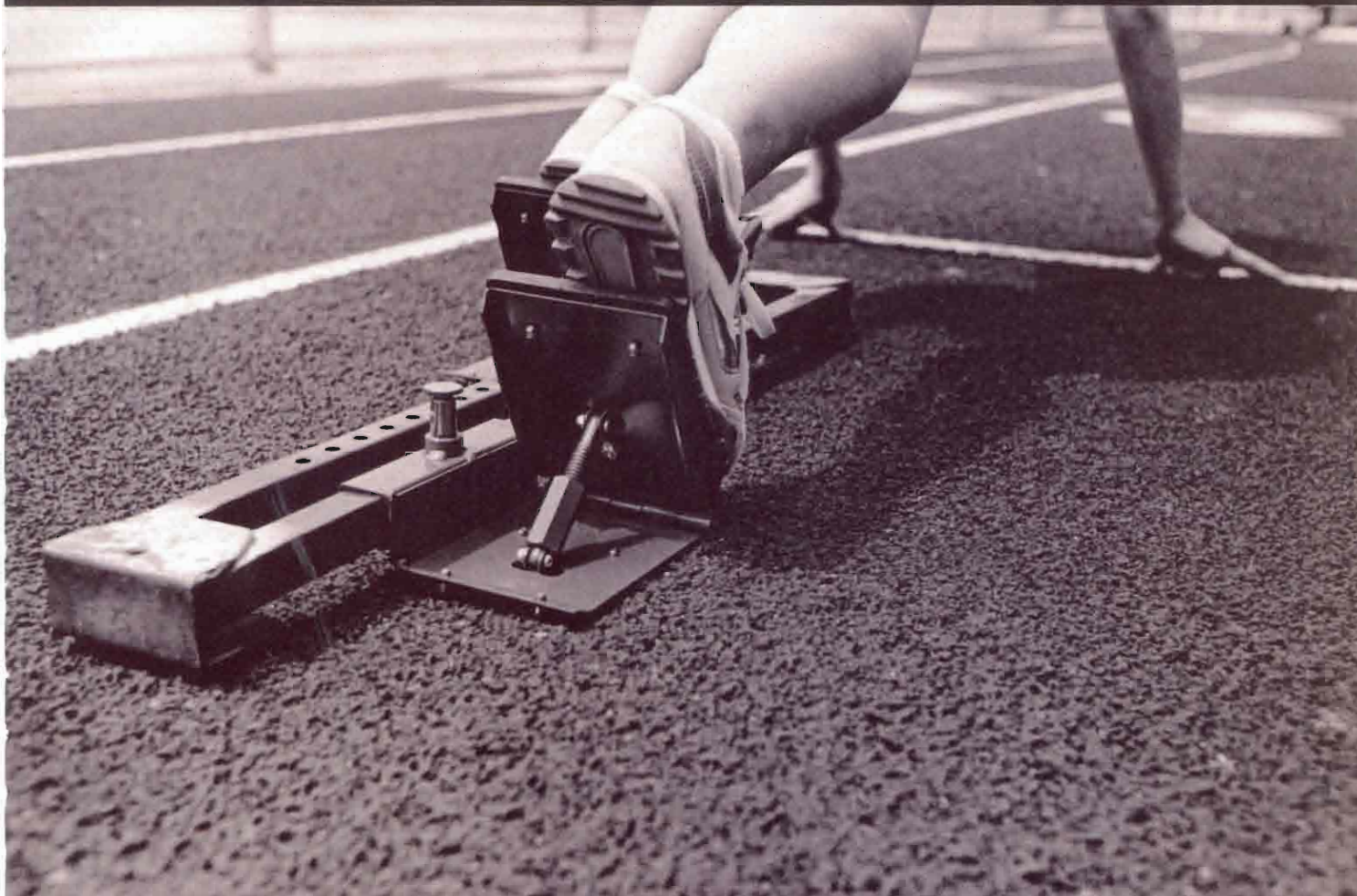
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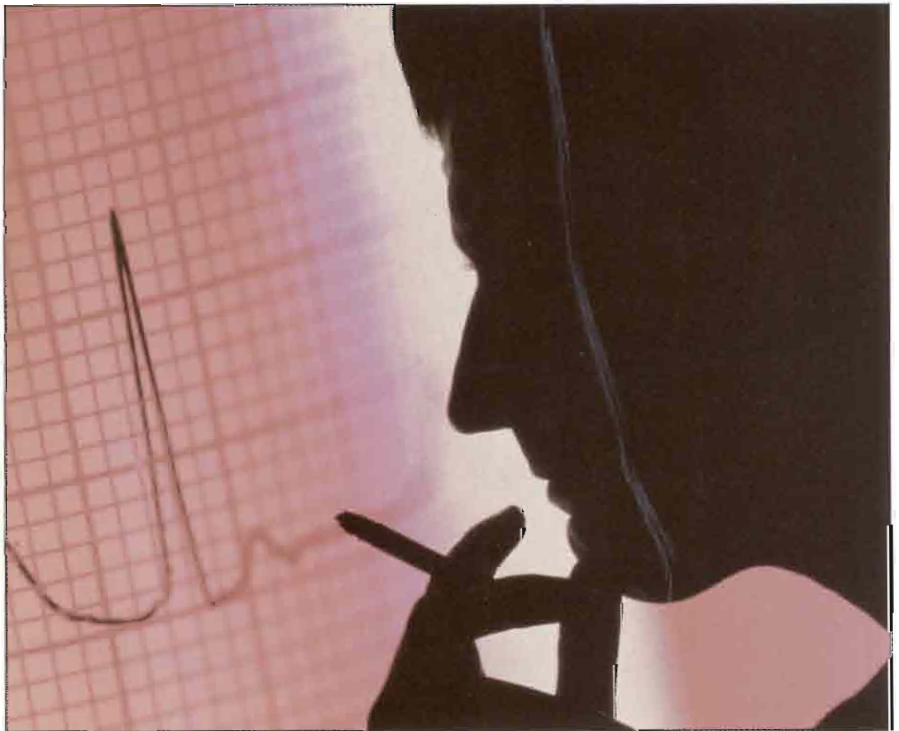
Are Data Warehouses The Cure For More Efficient Healthcare?

EVEN AS MODERN health-care becomes more complex, we want our health-care providers to be more accurate in predicting who's at risk of harboring and spreading disease while still lowering costs. Physicians, hospitals and insurance companies are turning to data warehouses for help.

Jane Griffin

The consolidation of hospitals, physician practices, clinics, pharmacies, home care and long term health facilities is making the business of healthcare difficult. The complex nature of healthcare warrants the necessity of conducting retrospective, prospective and real time analysis on integrated, accurate and reliable clinical and financial data.

There are many applications that enable such healthcare measurements, however, the effectiveness of these decision support and business intelligence applications is wholly dependent on the information that feeds



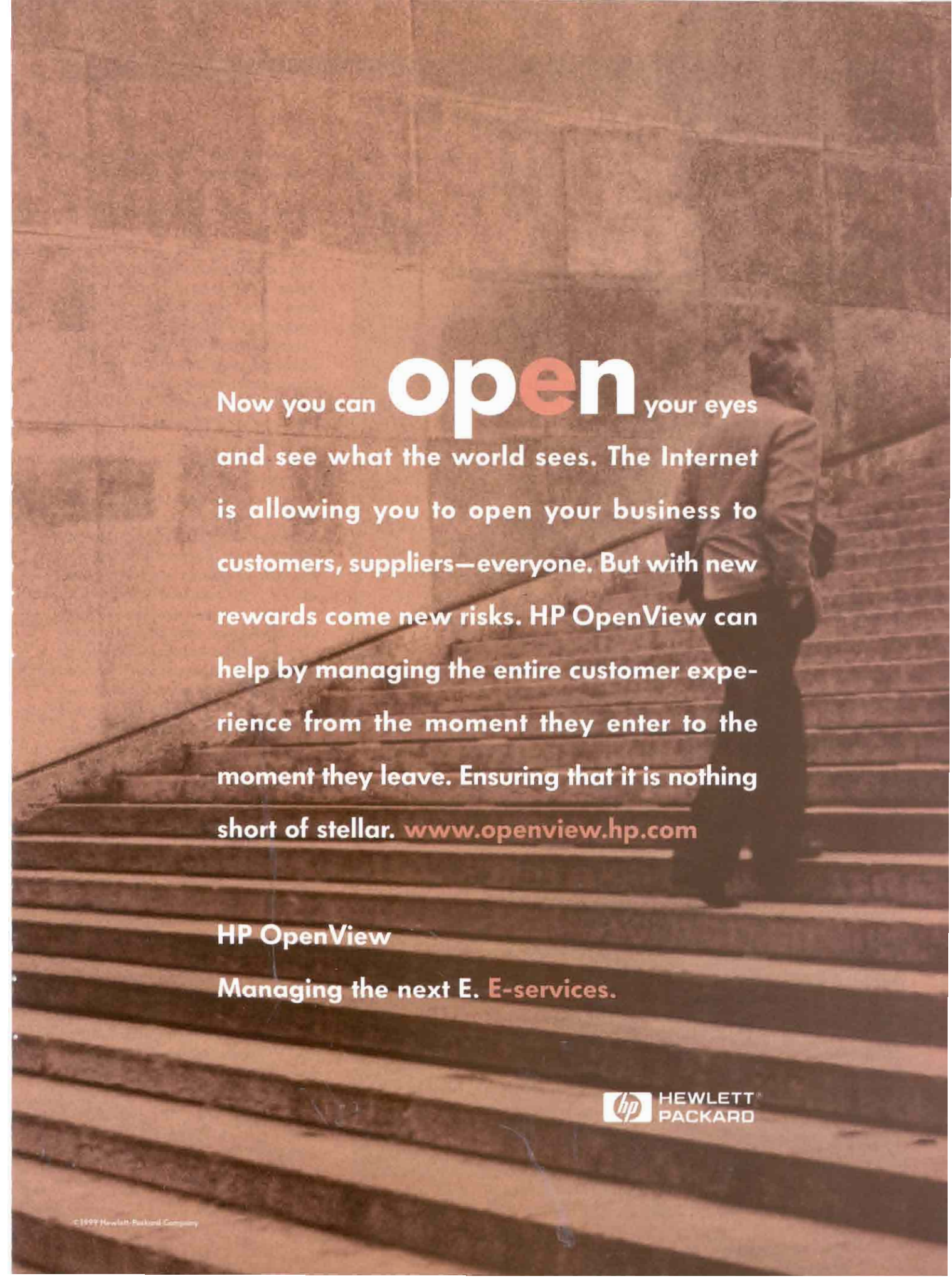
them. Therefore, the data warehouse is critical to the successful implementation and use of most healthcare applications.

These applications must enable physicians and other healthcare executives to conduct important healthcare measurements, such as the following: Outcomes/Quality of Care Management; Benefits Management; Physician Profiling; Managed Care Contracting; Case Management and Referral Management; and Wellness Management.

The healthcare industry, like many others, is reliant upon many different kinds of data — enrollment, clinical

outcomes, medical records, pharmaceutical, claims, digitability, geographic, demographic, contracts, etc — that reside in numerous disparate systems. These disparate systems, while sufficient for their intended use, must be integrated in order to enable healthcare organizations to conduct retrospective and prospective analysis.

For example, a clinical system most often will not facilitate detailed financial analysis on a case-by-case, episode of care, or per physician basis; conversely, a financial system does not enable the comparison of clinical outcomes to cost. The nature of this stovepipe architecture limits



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the capabilities of all decision support and business intelligence applications. For example, decision support tools currently use claims, enrollment, financial and pharmaceutical data for retrospective analysis, but again, all of this data resides in different systems.

A HEALTHCARE RETROSPECTIVE

Utilization management, physician profiling and outcomes/quality of care management are all types of retrospective analysis. Prospective analysis requires some retrospective comparisons, as well. This type of analysis simply means that you are viewing and comparing episodes of care that have already occurred for the purpose of determining the best quality of care with the lowest cost, most economical and effective physician practices, greatest outcomes of specific treatments, etc.

Retrospective analysis tools rely on the following data: decision support data (including claims, drug and eligibility data), clinical outcomes and medical records results, pharmacy claims process system output, etc. Retrospective systems allow clinicians and other healthcare executives to take historical data and analyze past trends based on the cost and use of healthcare services.

While the retrospective tools on the market are adequate for their intended use, almost all vendors in this market utilize a subset of fields populated from operational systems stored in a data mart. Programmers supporting National Committee for Quality Assurance (NCQA) and Health Plan Employer Data and Information Set (HEDIS) requirements find it necessary to use information locked in multiple disparate systems. Therefore, without accurate, integrated information, these analysis tools cannot be fully effective.

Retrospective analysis most likely will remain a part of the healthcare landscape, but the trend is towards disease management with long term goals of managing demand and predicting potential cost based on popu-

lations of people. Systems and applications will follow this trend, as well.

Demand management allows a health plan to apply predictive modeling algorithms to identify patient populations with medical characteristics that indicate potential future health issues. Insurance organizations are able to identify members with potential health risks and begin managing their care with preventive programs.

This paradigm shift will eventually lead to improved quality of care and lower healthcare costs, heading off potential diseases with less expensive, preventative treatments.

GOOD PROSPECTS

Disease and, especially, demand management rely on prospective analysis. Prospective systems allow health plans to predict future health problems of its population, allowing for early intervention strategies that will affect the future demand of health care. Health executives are able to predict which members are predisposed to developing certain conditions.

However, organizations must develop the infrastructure to properly manage the information necessary for prospective analysis and most organizations are not far enough along the healthcare continuum to properly utilize the models.

For example, when specific members are determined to be at risk of acquiring or developing certain medical conditions, how is that list of members handled? Who within the organization will manage those cases and what course of action should they take?

Similar to retrospective systems, prospective applications rely on many different types of data — demographic, geographic, member satisfaction surveys, SF36 based on the Standardized medical outcome questionnaire, market analysis, outcomes, historical trends, etc. Again, the enterprise data warehouse is the most effective system for integrating the necessary data to feed the business intelligence and decision support

applications used for the many kinds of analysis.

HOW CAN A DATA WAREHOUSE HELP?

Often times, decision support and business intelligence application vendors create data marts populated with predefined types of information to feed their specific applications. Instead of eliminating the issue of disparate systems and inaccessibility to data, this perpetuates the problem, only creating more systems that cannot talk to one another.

Therefore, the data in one data mart may or may not be useful to a different decision support or business intelligence application.

An enterprise-wide data warehouse helps eliminate the recreation of the stovepipe, disparate system architecture in which numerous data marts are built to support individual applications. The warehouse combines all of these systems, enabling the business intelligence and decision support applications to pull from one source, not from a limited subset of data that populates a data mart. Therefore, a retrospective application and a prospective application could be fed from the same source — the enterprise data warehouse.

It is also possible to create an enterprise infrastructure in which smaller data marts reside, so that each mart pulls the same set of integrated financial, clinical and operational data. The meta data in the enterprise warehouse ensures that business rules are applied to data and that the data feeding the warehouse is updated as often as necessary.

— *Jane Griffin is the vice president of Business Intelligence Solutions and director of the Business Solution Center of Excellence at Prism Solutions, Inc. in Atlanta, GA.*

Are You Open To A New Point Of View?

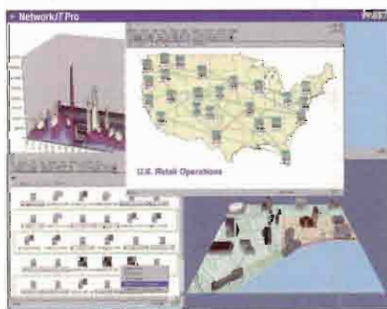
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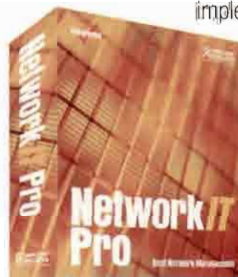
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Shelling Out An NT Toolkit

JUST RECENTLY I was building some shelves at the boat storage unit. While unloading the wood, a saw and some nails, I noticed the only other tool I had was a screwdriver.

After several hours of trying to drive nails with a screwdriver, I realized it would've been faster and easier to go get a hammer.

Quite often the choice of the right tool is not clear-cut and can be subject to opinion. A good example is performing system administration tasks. I like the *Korn* shell, while many people prefer the *C* or *TC* shell.

I'm sure that if you look hard enough, you'll find someone who prefers the Microsoft command tools (command.com, cmd32.com and cmd.com).

Yech! I hate using those tools for system administration tasks on Windows NT. Mostly it's because I don't know their secrets.

A WINDOW ON THE PAST

I find NT's basic DOS command set to be very primitive. Add in the fact that my fingers want to type slashes to separate directory names instead of backslashes and you can see why I strongly prefer UNIX commands issued from the *Korn* shell for administering NT.

A *Korn* shell on NT? Absolutely! I expect that some of you are puzzled, while others are knowingly nodding their heads. In our *NT Administration for UNIX Admins* class, people are often amused when I

demonstrate NT commands from a *Korn* shell. What surprises me, is that so many people have never heard of the product I use.

This column will introduce the *MKS Toolkit* to those unfamiliar with it. I was first introduced to this tool several years ago by one of our instructors using it on Windows 3.1. The purpose of the *MKS Toolkit* is to provide the majority of UNIX commands, and the *C* and *Korn* shells, on Win32 Operating Systems (Windows 95/98/NT). It also runs on OS/2 and DOS, but because I don't know much about them, you're on your own there.

Mortice Kern Systems Inc. (Waterloo, Ontario) develops and markets it as a development and productivity tool for PCs. While that may be true, for me it's survival software for PCs. When I need to perform complicated tasks, the only effective way for a UNIX geek like me is by issuing commands. For example, if I want to rename a complete directory of files, I'm much more comfortable with a *for* loop, *mv* and *sed* commands than with a batch file. *MKS toolkit* lets me perform that task exactly as I would on a UNIX workstation.

A SHIELDED ENVIRONMENT

Installing the toolkit is done using either the *autorun* process on the CD-ROM, or by invoking the *install.bat* command file. Once that's done, you'll see the usual setup shield program. Behind the scenes, installation

has set some environment variables, such as *PATH*, *HOME*, *SHELL* and *ROOTDIR* in your *autoexec.bat*, as well as made some registry settings for filetypes.

The software gets loaded into a specified target directory, which is assigned as the value to the *ROOTDIR* variable. It will have two subdirectories. The *etc* directory contains configuration files and commands, libraries and some documentation pages (in the *cat7* subdirectory). The *mksnt* directory contains all the UNIX commands, which of course are in the form of *.exe* files.

GETTING TO THE ROOT

For example, *\$ROOTDIR/mksnt/lis.exe* is the toolkit version of *ls*, which works almost exactly like the UNIX *ls* command. Remember that the *PATH* variable should be set correctly so you don't need the entire pathname, but like most UNIX geeks, I think it's nice to know where things are installed. Some other utilities are also in the *mksnt* directory, for example *Perl 5.004*. This means you have to be careful to execute the correct *perl.exe* if you have another Perl installed elsewhere on the machine.

If you let the installation do so there will be an application group created somewhere in the startup menu for the *MKS Toolkit*. Many tools can be started from there, such as the *Korn* and *C* shells. Once you start one of these, most of the normal UNIX things happen.

For example, there are *shrc* and *login* files, both in the *etc* directory



Fred Mallett
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HP's Contributions to EPIC and IA-64 <i>Special Session</i>Michael Mahon 10:30am -11:20am
Introduction to IA-64 Architecture <i>HP-UX Track</i>Jerry Huck 11:30 am-12:20pm
IA-64 Technology Overview <i>Management Track</i>Eric Clow 11:30am-12:20pm

Wednesday, August 18

Preparing for an EPIC Adventure: HP's IA-64 Systems <i>Management Track</i>Jim Carlson 8:00am-9:50am
HP-UX Technical Roundtable <i>HP-UX Track</i>Eric Clow 8:00am-9:50am
Linux on IA-64: Preparing Linux the Next Millennium <i>Linux Track</i>David Mosberger 2:00pm-2:50pm

Thursday, August 19

Running PA-RISC Applications on IA-64 <i>HP-UX Track</i>Manuel Benitez 9:00am-9:50am
IA-64: What's It All AboutKen Kroeker 4:00pm-5:50pm
Preparing HP-UX Software for IA-64 <i>HP-UX Tutorial</i>Debbie Lienhart 8:00am-9:50am

Stop by and see HP's IA-64 Demo
at the HP Booth # 1100



Presentations available at www.hp.com/go/IA-64

and possibly in your home directory. If they exist, they are run. The windows come up rather small, but can be changed with font settings from menus in the window. Once this window is up, you're essentially running a UNIX shell on a Win32 operating system!

Prove it by trying the `ls` command, or maybe `ls -l`. Life is good! If you're in the `C` shell, set the `history` variable and you can start using all the usual history invoke commands. Same for the `Korn` shell: Almost all its functionality is there, such as filename completion, command recall and echo mode.

I started this column with an example of renaming a bunch of files. If the MKS Toolkit `Korn` shell is running, the following will rename all files in the current directory that end in `.htm` to end with `.html`:

```
for file in *.htm
do mv $file ${file}.html
done
```

You'll find that most of the usual UNIX processes work, for example, `sed`, `awk`, `vi`, and `find`. Release 6.2 is the first in which the `find` command works properly and, if you're a UNIX developer having to develop code on PCs, `make` is also part of the toolkit. If you load MKS Toolkit on an NT server, then load a `telnet` daemon, you can login over the network, get a UNIX shell and actually get some remote work done.

PEEVED, NOT PERFECT

All is not perfect, however, and there are some negative issues and I have some pet peeves. First the peeves. It seems to me that each release moves slightly farther away from true UNIX customs. Maybe the developers are spending more time on PCs and forgetting UNIX.

For example, the default prompt for the `C` shell is `#`. As any UNIX user knows, it should be `%`. The `#` prompt is reserved for the root user. They also made the default prompt for the `Korn` shell to be the current directory, with-

out the `$` symbol, which signifies that you are in a `Bourne` shell derivative (which the `Korn` shell is).

They also have an example in the shipped profile file that you can uncomment which will make the prompt a `%` in the `Korn` shell! Gack! If the prompt is `%`, I'll start using `C`

would error on syntax, but `net use e: \\reneespc\cd` would work.

As long as we're using the MKS utilities, we don't have to worry about this. It's only when you start mixing up Windows commands and UNIX shells.

A couple of tips to remember to

Maybe the biggest issue to be wary of is the use of pathnames. The toolkit allows you to use `cd /fred/planes` instead of `cd \fred\planes` which is typical on a PC.

shell history invoke, since that's what `%` means.

Don't get me wrong, I still love the tools, it's the culture that's getting confused. You can use the startup files to perform any customizations you want, thus setting things straight.

Maybe the biggest issue to be wary of is the use of pathnames. The toolkit allows you to use `cd /fred/planes` instead of `cd \fred\planes` which is typical on a PC. This is really nice. I like using UNIX pathnames. The problem arises if you're executing administrative Windows commands from the toolkit shells.

For example, if I issue the `net use` command, it works fine, displaying all the shares I'm using. But if I want to issue the command to mount a remote drive, I have a problem. Here's the NT syntax: `net use <drive>: \\UNC\share`. For example `net use e: \\reneespc\cd` will redirect drive `e:` to the share named `cd` located on `reneespc`.

SLASHING THE NET

The problem is that the Windows command `net` expects pathnames with backslashes, but the `Korn` shell uses slashes in pathnames and has other meanings for backslashes, so we must escape them. The command above

get started: You must `exit` the shells. Don't try to close the shells with the close window symbol. The key sequence `<alt><enter>` toggles from windowed mode to full screen. You can hit the full screen symbol by mistake and have a hard time getting back into a window if you forget this.

Having the `vi` editor on a PC makes it worth the price of the toolkit. In fact, the last few releases of the toolkit have both `vi` (in a shell) and `viw` (in a separate window). `Viw` has several useful menu tools and looks like a cross between `xemacs` and `vi`.

VI FOR ATTENTION

All `vi` commands work, but you can also save, close and `open` with menu buttons, as well as `cut`, `copy` and `paste`. Several other tools have been enhanced to run both in command line and Windows mode, such as `du`, `ps`, `crontab`, `grep`, `diff` and `tar` (visual `pax`).

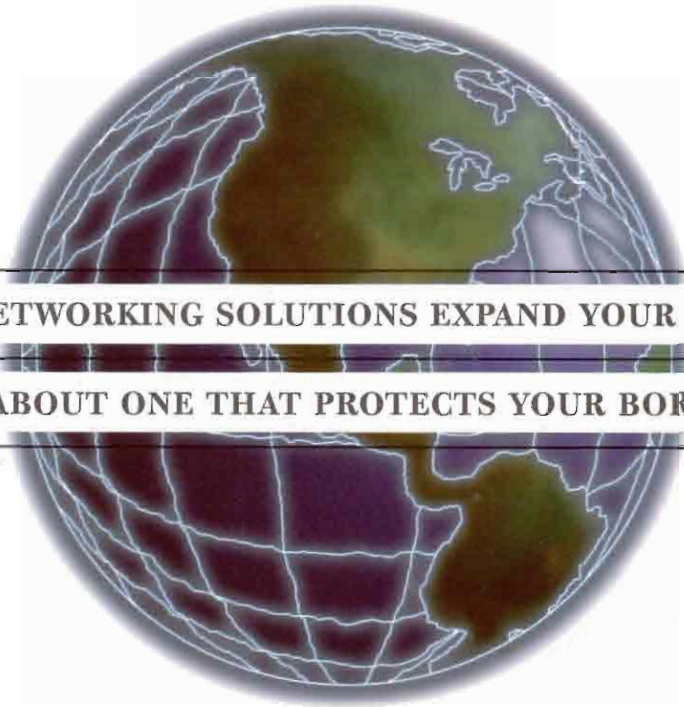
If you must work on a Windows machine, but hate struggling with the mouse, try the MKS Toolkit. It's like moving to Windows without really being there.

— Fred was last seen paddling his boat with a tablespoon.

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A Picturesque Network

DEPLOYING NEW SOFTWARE or upgrading existing software across all the clients on a network can make the most dedicated network managers contemplate changing careers.

As more clients appear on the network and more software is installed at each machine, keeping every machine up to date sometimes seems an impossible task. What's worse, the cost of performing these upgrades and installs consumes still more of the IT budget.



Ryan Maley
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One way to help keep these costs in line is automated software installation. Some software, such as Windows 98, comes with built-in features to allow you to automate and customize the installation process. Most do not. For those packages, *PictureTaker Express* by LANovation (Minneapolis, Minn.) is a good solution.

SMILE FOR THE CAMERA

PictureTaker automates the software installation process by creating a file containing all the installation details for a particular software package. This allows you to determine how the software will be installed. The way you install it on the first machine is the way it's installed on all subsequent machines. The directory you install it in, the features you select and every other installation detail are fixed during the initial installation. This method prevents individual users from selecting how the software is installed and lets the Help Desk be

assured that each machine is identical. This seems like a relatively simple idea, but as always, execution is the tricky part.

PictureTaker works by taking snapshots (hence the name) of a system before and after software is installed. Those snapshots are compared and any differences are placed in a file that is used to install the software on another machine. It looks for any files that have been added, changed or deleted and it tracks changes in the Windows registry and in other configuration files such as *system.ini*, *win.ini*, *autoexec.bat* and *config.sys*.

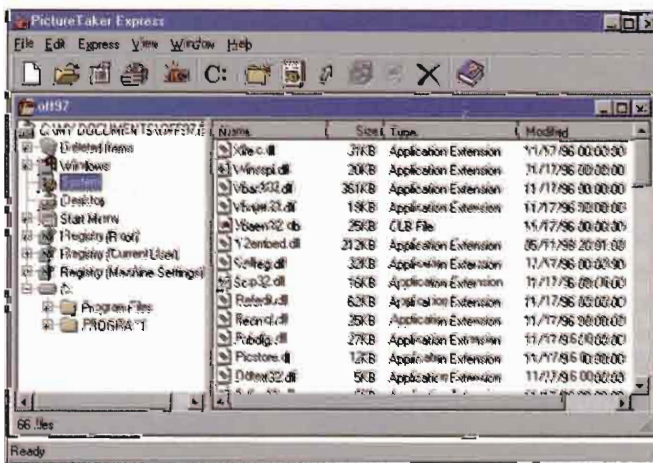
These changes are compiled into a self-installing executable file that's run on the other machines. The self-installing file contains not only a record of the changes, but the actual files required to run the new software. The original distribution media (CD-ROM, diskette, etc.) is not need-

ed to install the software. In fact, the self-installing file can be invoked across the network or from a url in a Web page or an e-mail message. When it's executed, the appropriate changes are made and the software is copied to the appropriate directories.

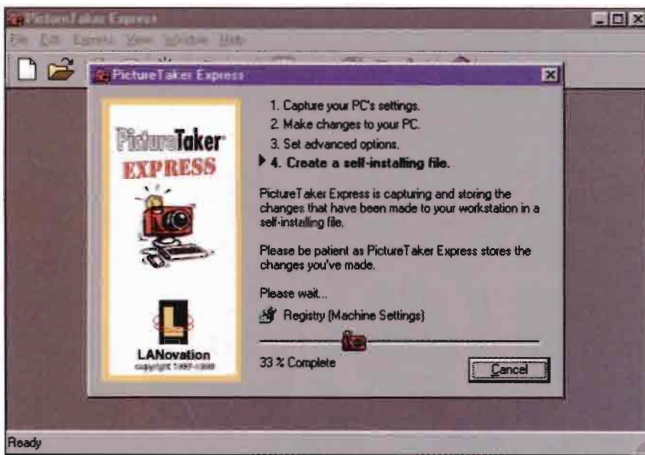
I tried *PictureTaker Express 2.0* with several software packages. The most complex was Microsoft Office 97. I invoked *PictureTaker* and by default, was taken into the process to create a self-installing file. It took less than 20 seconds to make the initial snapshot of my Windows 98 configuration on a 256 MHz Pentium II with 128MB of RAM.

CUSTOM SHUTTERBUG

After taking the snapshot, *PictureTaker* paused to allow me to make my changes. I installed Office with various custom installation options. Once Office was installed, I returned to *PictureTaker* and was given an opportunity to select



PictureTaker allows you to see the stored changes in the self-installing files. This screen shot shows the files which will be copied to the Windows\System directory.



PictureTaker Express creates self-installing files containing all programs and settings necessary for the distribution of software.

“Advanced Options.” Here you can choose to create an *Uninstall* entry in the *Add/Remove Programs* portion of the Control Panel. You can also configure the self-installing file to include file deletions or to automatically replace newer files on the target system. Of course, PictureTaker’s defaults, which are *Include deletions* and *Do not automatically replace files*, are the safest bet.

Once any options are adjusted, PictureTaker creates the self-installing file. In the case of Office 97, the file was 51MB. The self-installing file must be compressed, because my preferred installation of Office 97 usually takes about 90MB. As a final step, I was offered the opportunity to edit the self-installing file manually.

A CURIOUS FEATURE

Having the ability to edit this file is a useful feature. It lets you see every change the software installation has made to your system. For instance, Office setup adds registry entries for Netscape Navigator browser to use the various Office programs as file viewers. One other interesting thing is that it registers 39 different file types. All those templates, macros and file interchange formats add up quickly. Aside from appealing to your curiosity, the editing feature allows you to change how you set things up.

If after installing, you want the software to reside in another directory, you don’t need to install again and create a new self-installing file. Just edit the name of the new directory. Nearly every aspect of the installation can be changed at this point. You can perform disk free space checks, create

installation prompts, control reboots (if necessary) and create variables and prompts to be used during installation.

Using the self-installing files on other machines worked as advertised. The software installed smoothly and worked correctly. Uninstall entries were created as promised and when invoked, removed the software cleanly and completely.

PictureTaker Express is a very

good product. It works well, is easy to use and provides a tremendous amount of control. While advanced product suites such as Microsoft’s *Systems Management Server*, Norton *Administrative Suite* by Symantec and Intel’s *LANdesk* offer software installation features, they are expensive.

PictureTaker Express 2.0 works with Windows 9x and Intel-based Windows NT 4.0. It’s licensed to one person for use on up to five computers. No licenses or special software is required to deploy the self-installing files. Pricing ranges from \$865 to \$1,119 depending on distribution media and support options. An evaluation copy is available from LANovation at www.lanovation.com.

— Ryan Maley is a Microsoft Certified Systems Engineer and the information systems manager for a Midwestern manufacturing company.

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OSI With A Twist

I GET QUESTIONS all the time about systems management requirements documents. Should we write them? How do I write them? What do I put in them? And ultimately,

can you write one for me? In general terms, they are pretty easy to write if you know what's important. My model for requirements is called "OSI With A Twist." A twist of what you might say? Well it's a twist of common sense.

Open Systems Interconnect (OSI) defines five functional areas regarding systems management. The five areas of the OSI systems management model are: fault management; configuration management; security management; performance management; and accounting management. A good start yes, but just the beginning. Before you can decide how to manage you need to classify what you are going to manage. This hierarchy forms what we call *Managed Objects*.

Four classes of managed objects are defined. Those classes are: Node objects; System objects; Application objects; and Service objects.

Node objects generally equate to a physical entity such as a router, an Ethernet hub, a personal computer, or a UNIX server. Management of a node object is generally limited to pinging it to determine if it's present on the network.

System objects usually refer to software, like an operating system, or physical entities that aren't manageable unless the relevant node or operating software is functional. Examples of system objects are operating sys-

tems — HP-UX, Solaris or NT for example — and related parameters such as file systems and disk drives on servers. Similarly, interfaces on routers, hubs, or switches are considered system objects because, on increasingly frequent occasions, their existence depends on system configuration.

Application objects are entities such as electronic mail, databases, database applications, Netscape or Microsoft Web server software and Lotus Notes.

Service objects are a combination of node, system and application objects. For instance, to manage an electronic mail service it's necessary to consider not only the application itself, but the systems on which the applications run and the network infrastructure on which access to the application is provided.

Thus, the managed object hierarchy is roughly analogous to a proto-

col stack. That is, each successive class of managed objects more or less "sits on top of" the underlying object class.

The table illustrates the relationship between the managed object hierarchy and management functional areas and some examples of possible products as they fit into the model.

The hierarchy defines categories of managed objects while the OSI systems management specification defines management functions that can be implemented for any type of managed object. Any or all of the management functions are available for all classes of managed objects.

Seems simple? If it's broken down properly — it is. The key is to break it into as many small pieces as possible. Then assign products to fill the pieces. Before long you will build an entire enterprise management system.

This is just a small sample of possible products. In reality many of these products and others can fill many different functional areas. I have by no means covered them all. ♦



Charles T. Hebert
charles@southernview.com

Node - Fault

HP OpenView Network Node Manager

Node - Performance

HP NetMatrix, Concord Network Health

System - Fault

HP OpenView IT Operations, Tivoli

System - Performance

Concord Network Health w/Empire Systems Agents

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SNMP Research C1Agent w/SNMP Version 3

Application - Fault

HP OpenView ManageX, Micromuse Netcool

Service - Fault

Micromuse Netcool Internet Service Monitors

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Perceptions Of Purchasing Patterns

OFTEN OVERLOOKED in the maturation of Web technology is the maturation of the Web visitor. E-shoppers now expect to be shown quickly what a site offers. A number of commerce

sites are providing featured items on home pages that can be purchased with a click. Web users are also willing to trade identification and profile information for timesaving recommendations. Both characteristics are perfectly suited for *collaborative filtering*.

IN THEIR RIGHT MINDS

In collaborative filtering, a visitor is identified as part of a group of like-minded people and provided with a selection of highly rated items they haven't yet evaluated. The result is a word of mouth, serendipitous sales opportunity. The results of a collaborative filtering question can at times produce almost laughable results: Do I really seem like I'd like Christopher Lambert's movie *Mean Guns*? But the very simplicity of its design ensures that it remains reasonably close to the mark.

As MIT researchers Rob Guttman and Daniel Dreilinger stated at a seminar on agent software, traditional feature-based comparison software "often finds *useless* things not sought for" whereas collaborative filtering "often finds *useful* things not sought for." Collaborative filtering can play a role in the sophisticated world of marketing Consumer Buying Behavior models.

Technology vendors such as Net Perceptions, LikeMinds, Jango and Firefly Network (a Microsoft acquisition) have begun enabling commerce Web sites with collaborative filtering engines. Formerly known as GroupLens, the *Net Perceptions For*

E-commerce recommendation engine can be plugged into Web catalog products such as Microsoft Commerce Server, BroadVision's One-to-One, and IBM Net.Commerce, and has been integrated directly by firms such as Amazon.com, CDNow and the iVillage Woman's Network.

LikeMinds technology has been integrated directly by merchants with highly custom sites such as Columbia House, Home Box Office, Cinemax and West Coast Entertainment.

SHARING A VISION

BroadVision is a Net Perceptions reseller (and HP Partner), offering its recommendation engine as one of the One-to-One Intelligent Mapping Agents. By implementing a Microsoft Active User Object provider (through ADSI), *Net Perceptions for E-commerce* can be easily configured to drive the Personalization & Membership feature of a Microsoft Commerce Server catalog. Net Perceptions' *Ad Targeting* product can similarly be plugged into Microsoft's Ad Server to boost a banner ad's click-through rate. (Microsoft Commerce Server itself provides a simplified collaborative filtering component, the Intelligent CrossSell Predictor, that makes recommendations from purchase data.)

Outside the storefront, Vignette's *StoryServer* content management oriented Web server makes content recommendations with a built-in

"express" version of Net Perceptions' engine. And Oracle's *FrontOffice Marketing* software comes standard with a Net Perceptions engine.



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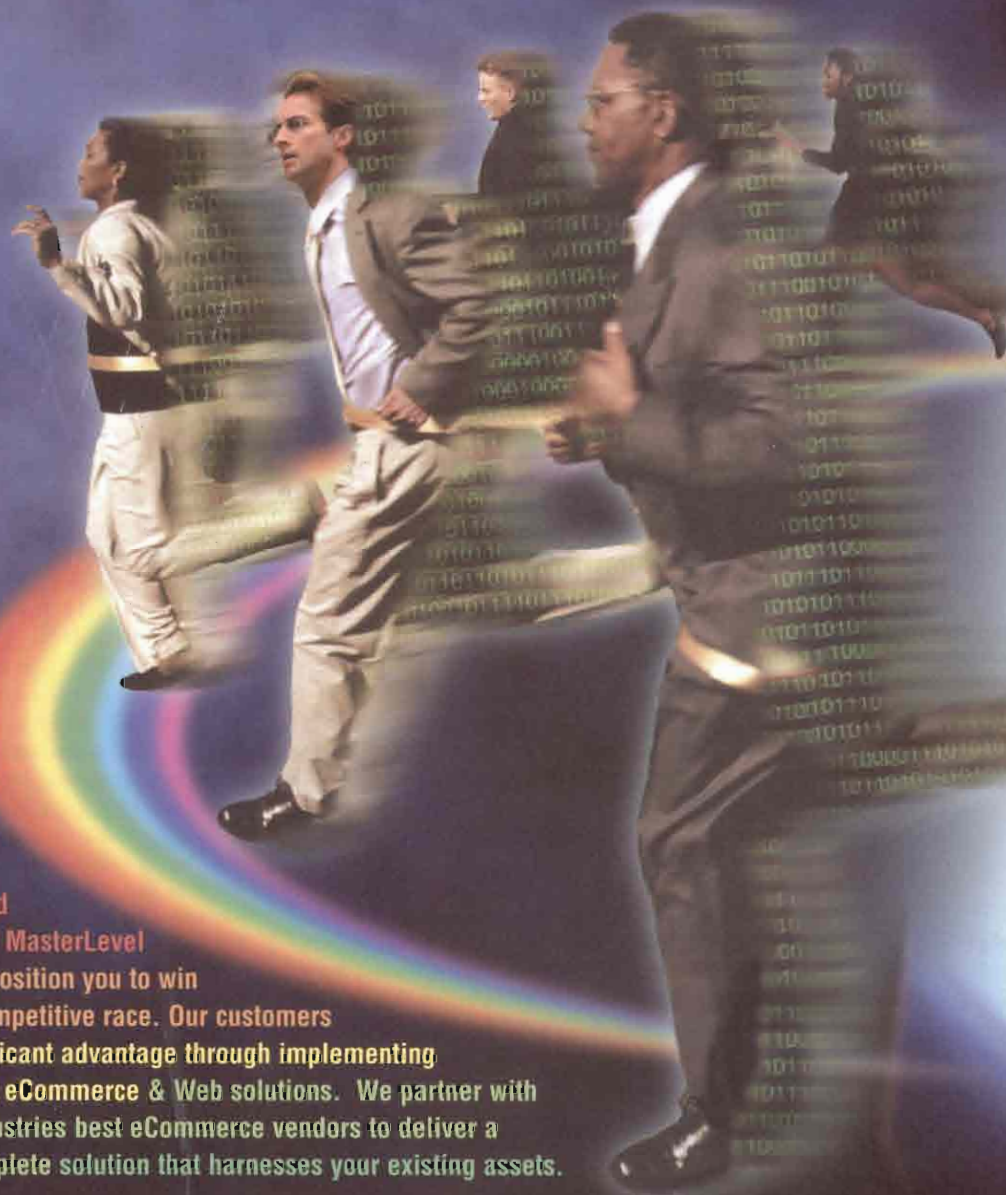
While such integrated solutions exist, there is often a meaningful return associated with customizing the interface to a sophisticated recommendation engine, especially in the area of collecting preference information. The ways of gathering preference information from

visitor behavior can be as varied and unique as each site's shopping or visiting experience. Yet, the more preference information an engine has to work with, the better the performance of resulting referrals will be.

At the SEPIA Video Guide (vguide.sepia.com), you can see collaborative filtering in action yet still remain fairly anonymous while remembering and enriching its knowledge of your film preferences and perhaps reconsidering some decent films for rental.

Sites with repetitive purchasing of products, such as rentals, books, music and information are prime candidates for collaborative filtering. Many current implementations recommend commodity products. That's why collaborative filtering is appealing to online buyers and is poised to become a very visible part of the Web experience. ♦

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Contact Cognos, Inc., Burlington, MA, at (800) 426-4667.

Data Commander 2.3

Data Commander 2.3 adds XML 1.0 support for automatic analysis, comparison, and conversion of complex flat-file data structures to eXtensible Markup Language. It handles data aging, analysis, comparison, and conversion for Y2K compliance, Euro conversion, and data migration projects moving non-relational legacy data to relational forms like SQL. By adding support for XML 1.0, it offers programmers a way to move legacy archives to the XML format.

Data Commander 2.3 supports over 220 date formats and handles data from IBM MVS, VSE, VM, OS/390, and AS/400, and Data Commander will run on any system with a resident COBOL compiler.

Contact Blackstone and Cullen, Atlanta, Ga. at (770) 612-1550.

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Contact Acta Technology, Inc., Palo Alto, CA at (650) 691-2500.

Red Brick Warehouse

Informix Corporation announced enhancements to Red Brick Warehouse as part of the data mart component of its data warehousing environment, Informix Decision Frontier Solution Suite. With version 5.1.7, a 64-bit Sun Solaris port and Intersolve 3.11 driver manager for IBM AIX and Sun Solaris have been added to the existing Informix Red Brick Warehouse.

The enhancements allow Red Brick Warehouse to power Analytic Merchandising with data mining tools from iSell e-commerce solution. Informix Red Brick Warehouse is integrated in the Informix Decision Frontier Solution Suite that includes Informix's new MetaCube 4.2 advanced ROLAP analytic engine.

Contact Informix Corporation, Menlo Park, CA, at (650) 926-6300.

DESKTOPS AND SERVERS

NetFiler Network Attached Server

NetFiler is a multi-protocol network file server that gives users the ability to store, share and retrieve data simultaneously over the network from Windows, UNIX and Web clients. It performs over 2,500 NFS operations per second with less than 9 milliseconds response time. The base system starts with 36.4GB of RAID and can be configured with up to 1.1TB per cabinet. It is being targeted at ISPs, database administrators and environments where files need to be shared across different platforms. Base system pricing starts at \$18,000.

Contact Western Scientific, San Diego, CA at (858) 565-6699.

Diamond Pro 710 Monitor

The 17 inch Diamond Pro 710 monitor has a 0.25mm aperture grille pitch, 30-86kHz horizontal scanning range and 150MHz video clock frequency with a maximum non-interlaced addressable resolution of 1600x1200 at a refresh rate of 65Hz. Onscreen display controls over 20 separate settings including brightness, contrast, positioning and geometry. It meets TCO 95 and MPR-II emissions, EPA Energy Star, DPMS and NUTEK power management standards and DDC compliant for Plug & Play. Its auto-scanning compatibility range makes it possible to upgrade video cards without purchasing a new monitor. The estimated price is \$449.

Contact Mitsubishi Display Products, Cypress, CA at (800) 843-2515.

Q91 Monitor

The Q91 19-inch monitor features 0.27 mm dot pitch, 11,280x1,024 resolution @79Hz, Plug & Play+, TCO '92 certification, Viewmatch color control to match screen color to printer output, OnView on-screen menus with push buttons for precise adjustments and OSD image and geometrical controls for brightness, contrast and moire reduction. The back of the Q91 is rounded to fit in the corner of a desk and occupy less space and it meets MPR-II and EPA Energy Star standards for reduced emissions and power consumption. It sells for \$479.

Contact Optquest, Walnut, CA at (800) 843-6784.

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Contact Liebert Corporation, Columbus, OH at (800) 877-9222.



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PC ParaChute

PC ParaChute lets administrators fully recover a crashed system without re-installing the operating system, add-ons, registry, upgrades and software packages. It schedules system backup to a central server and verifies that data has been protected down to the bit level. All backup and protection data is logged and catalogued so administrators can reference it locally or remotely. It provides integration with a company's normal backup software and provides full Y2K compliance. Its crash protection backups are performed from a bootable floppy so all registry entries are fully backed up and users don't have to worry about open or locked files.

Contact UniTrends Software Corp., Myrtle Beach, SC at (800) 648-2827.

CryptoSwift Secure Web Server

Rainbow Technologies has announced that its CryptoSwift secure Web server PCI card is now Entrust-Ready and Rainbow has become an Entrust Technologies Hardware Partner. Entrust-Ready is the designation given that applies to products and applications that inter-operate with Entrust's Public Key Infrastructure (PKI) technology. CryptoSwift passed the comprehensive testing procedure of Entrust Technologies' Hardware Partner Program. A single CryptoSwift card can handle up to 200 transactions per second and perform a reference RSA signature in 5 milliseconds. Rainbow has also announced partnerships with Xcert International and IPivot, Inc. that will further enhance security offerings to e-commerce providers.

Contact Rainbow Technologies, Irvine, CA at (949) 450-7300.

E-COMMERCE

Remark Web Survey

Principia Products, Inc. has announced Remark Web Survey, which enables users to create and administer interactive forms on the Internet or an Intranet.

It allows businesses, marketing professionals, educators and Web administrators to create online surveys, evaluations, registrations, guest books, etc. for the Internet or for their intranet. The software uses wizards to help the user create and publish their forms, so no knowledge of HTML is required.

Principia designed Remark Web Survey to integrate with Remark Office OMR, the forms processing and tabulation software that uses common PC image scanners to collect data. Users can convert paper-based surveys into on-line surveys, and combine the results from both

sources.

Contact Principia Products, Inc. Paoli, PA at (800) 858-0860.

NeTracker 4.0 eBusiness Edition

NeTracker 4.0 eBusiness Edition is Web-based usage tracking software designed to provide online commerce providers with traffic analysis. It can process large log files with an Oracle8 database and industry standard reporting tools. Users can combine their Web site traffic data with other customer data to market their products with greater efficiency. Other features include the use of cookies for accurate user tracking, the ability to archive older reports, link tracking to identify which sites visitors go to when leaving a Web site, server performance reporting and the ability to analyze multiple Web, proxy and FTP servers, and firewalls.

Contact Sane Solutions, North Kingstown, RI at (401) 295-4809.

MESSAGING AND E-MAIL

Video VoxPhone Gold

Video VoxPhone Gold provides real-time audio PC to PC telephone communication with another PC anywhere in the world via the Internet — free from long distance charges. It also offers direct PC-to-phone calling capabilities which gives Internet Phone users the ability to call regular telephone numbers anywhere in the world. This allows users to save up to 90% on long distance charges by using an Internet Telephone Service Provider (ITSP).

Other features include PC-to-PC real-time, full-duplex voice communications, PC to regular telephone voice communications, full live-motion video, 5-party conferencing and voice e-mail.

Contact E-Tech Canada Limited, Markham Ontario, Can. at (905)479-9696.

NETWORK INTEGRATION

Reflection X 7.2

Reflection X 7.2 is WRQ's first Reflection product to support Linux. Reflection X 7.2 also includes enhanced management and deployment tools and standards support. For Linux, it contains connection templates and a connection script for easily establishing common Linux sessions. Support for X11R6.4 protocol specifications allow X client applications to discover more information about the X server's graphics capabilities and use of color maps. Reflection X can now run a wider range of applications in PseudoColor emulation mode. And networked communica-

tions are now faster because TCP/IP, DECNet and UNIX-to-Domain sockets all are supported using the WinSock2 interface. Per user price is \$360.

Contact WRQ, Inc., Seattle, WA at (800) 872-2829.

Perle 8331S Remote Access Server

The Perle 8331S Remote Access Server 5.8 lets companies connect remote offices/branch offices or Small Office/Home Offices to a central site over V.90, ISDN or analog dial-up connections using IP or IPX protocols. Providing bi-directional LAN to LAN routing, it allows users at remote sites to connect to a central LAN using a dial up router and the Perle 8331S. It also allows users at the central LAN to dial out to remote offices via the Perle 8331S and the dial up router.

It's available free to registered users from the Perle Technical Assistance Center or the Perle Web site.

Contact Perle Systems, Westmont, IL at (800) GO PERLE.

MKS Toolkit 6.2

With the introduction of MKS CShell, users can choose which UNIX shell, KornShell or CShell to use as a primary command line environment under Windows 95/98/NT. Users can preserve the environment of various KornShell windows at log off and have them restored at log on. Other new features include: increased size limits on file and tape utilities; change the color of the console window; convert from 8.3 to long file names and back again; build a url from component parts; manipulate NT privileges; display all known pathnames for executables; and dump contents of a file in hex.

Contact Mortice Kern Systems, Inc. Fairfax, VA at (703) 803-3343.

PRINTING

OTC6500 Electron Beam Printer

The OTC6500 Electron Beam Printer, coupled with Formation software, provides a full replacement for the HP2680 printer without reprogramming. At 65 pages per minute and 1,000,000 pages per month duty cycle, the OTC6500 prints for less than 1 cent per page. Formation software allows users to replace preprinted forms for invoices, purchase orders and/or checks without reprinting them each time something changes. It has been certified with Formation and is compatible with the HP2680 PSP intrinsics so programs do not have to be rewritten. The OTC6500 is plug-and-play compliant with the HP3000

Sometimes You Don't Know What You've Got Till It's Gone



Remember that autographed baseball you had as a kid that you wish you still owned? And what would you give to get your old car back, the one that would be a classic today? We don't always recognize the true value of things until it's too late. Some executives don't realize how dependent their organizations are on information technology until something goes wrong.

Whether the result of a weather-related emergency, the devastation of a fire, equipment failure or even a misguided jackhammer, a systems shutdown has far-reaching consequences. You can't risk losing access to your critical data—the lifeblood of your business.



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WHAT DOES ADAGER DO FOR YOU?

Adager makes your life easier by performing a variety of tasks on your IMAGE/SQL databases (and their subsets, IMAGE/3000 and TurboIMAGE). During the past few years, Hewlett-Packard has provided many enhancements to TurboIMAGE and IMAGE/SQL. At the same time, Adager has included the necessary enhancements to allow you to use IMAGE/SQL (as well as TurboIMAGE, of course) to the fullest, including support for dynamic dataset expansion, jumbo datasets, IMAGE/SQL, Third-party Indexing and B-Trees. The early adopters have been pushing the limits for a while now. Most of you are just now beginning to take advantage of the IMAGE enhancements.

This is a sample of the functions you can perform with Adager:

Vital day-to-day maintenance tasks

Manage dataset capacities, repack and erase datasets. Document the exact layout of your database structures and objects. Copy and rename databases.

Exotic one-of-a-kind challenges

Change your date-oriented formats to comply with the next millennium. Change master datasets to details (and vice versa). Create new files for missing datasets. Redefine the specifications of data items, without changing the information in your dataset fields.

Fine-tuning and optimizing for on-line transaction processing

Repack detail datasets along the most desirable path. Change master capacities to minimize secondaries due to synonyms. Move datasets from one disc unit to another, to balance your I/O loads. Add and delete paths. Reblock datasets for better performance and disc space.

Adapting to changes in your environment

Change item definitions (for instance, from integer to ASCII) and convert the information from the source format to the target format in all of the fields defined by the changed items. If some of these fields are master search fields, Adager automatically rehashes the appropriate master datasets. Add and delete items, fields, datasets, paths.

Sort and unsort paths. Change the order of data items, datasets, and fields.

Examining and fixing structural problems

Thanks to the robustness of IMAGE, you rarely have to deal with this issue. But it is reassuring to have Adager available, just in case. These are some of the database objects that you can examine, diagnose, and fix with Adager:

Root-file tables (Adager always examines these fundamental objects when opening a database; if Adager finds anything untoward, it tells you and gives you the opportunity to correct the problems on the spot). Dataset files (including their UserLabels and creators). Paths between datasets. Chains within paths (including synonym chains, detail chains, and free-entry chains). Date-oriented data items (and their corresponding fields). In fact, you should always use Examine Date to review the validity of all of your date-oriented information before using Change Date to convert it to formats that can hold years beyond 1999.

Getting ready for the Year 2000

Examine Date produces an exhaustive report of potential problems in your date information. Change Date converts the formats of your date-oriented data items as well as all of your dataset field values.

Adager handles ASCII as well as binary date-oriented values in a variety of standard and special formats. For instance, if you have PowerHouse, MM/3000, CA-MANMAN, HP Calendar, SRN Chronos, and other special bit-packed formats, Adager knows about them and handles them with authority.

Adager allows embedded dates with fillers around them, such as "abc880312xyz."

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www.adager.com



environment and is PCL5e compatible.

Contact Output Technology Corp., Spokane, WA at (800) 468-8788.

EasyCopy 6.0

EasyCopy/X 6.0 comes with a new GUI, an integrated image viewer and a fast image browser. For image printing the new GUI offers complete control of the printer setup and selection of page layout and color options. WYSIWYG preview assists the user in printing or saving the image with the right options. EasyCopy 6.0 includes EasyCapture, which gives Catia users the option of screen capture from the GUI, from the command-line, or via hot-key. It imports common CAD and DTP image file formats and filters can be installed to import most image or graphics file formats.. Pricing begins at \$395.

Contact AutoGraph International, San Jose, CA at (408) 436-7227.

Troy Paper Presenter

The Paper Presenter is an accessory that offers immediate fulfillment printing for HP LaserJet printers and Troy printers used in automated environments such as unattended retail kiosks. It is designed for special paper-handling requirements beyond a printer's normal output tray by extending the printer's output reach. The device is less than two inches high and fits inside the computer enclosure and deliver printed pages outside the barrier. It sells for \$299.

Contact Troy Systems International, Inc., Santa Ana, CA at (800) 332-MICR.

Remote Print Manager

Remote Print Manager 2.3 for Windows NT (RPM/NT) delivers TCP/IP printing for diverse environments that include NT and other host systems. It receives print jobs from host platforms (e.g. mainframe, mid-range, AS/400 or UNIX systems) over a TCP/IP network and offers the user control that includes the ability to create and manage unlimited print queues with distinct configurations, specify data conversions, configure text printing and transfer print jobs to another application. RPM/NT can enhance native text formats from mainframe, AS/400, and Unix systems. Additionally, print jobs can be sent to any Windows printer, local or remote.

Contact Brooks Internet Software, Inc., Idaho Falls, ID at (800) 523-9175.

SERVICES AND SUPPORT

ATL Products' SiteCare

ATL Products new SiteCare professional service is designed to improve overall sec-

ondary storage availability and optimize ATL library performance. It's a proactive, complementary program that extends beyond services covered by warranties and service contracts. SiteCare is designed to provide interoperability between the tape drives, tape library, media and operators of the system. It includes such preventative services as installation preplanning, library installation, operator training and certification, media management assessment, library service appraisal and review, and quarterly secondary storage system health checks.

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

STORAGE

Capellix SAN Switch

Capellix is a chassis-based switch for storage-server connectivity. The Capellix features port scalability from 6 to 34-ports, a 28-gigbit per second switching backplane with switching latency of less than 2 microseconds and support for multifunction and multiprotocol plug in modules. It supports up to three PIMs for "pay-as-you-grow" scalability and mix and match configuration with GBIC, optical or copper connectors. Ventana SAN Manager GUI provides end-to-end management and administration of switch and SAN services. The Capellix switch base price is \$9,998.

Contact Gadzoox Networks, Inc., San Jose, CA at (888) 423-3222.

Internet Storage Configuration

Storagenow.com designs and customizes products and services to customer requirements through its Web site. Users are able to build a total storage infrastructure including RAID systems, automated tape libraries, single tape drives, disk drives and NAS solutions. The storage configuration engine processes user needs then provides recommendations. In addition, the Web site offers product information, comparisons, live demonstrations and e-commerce ordering system. It provides products from HP, IBM, Quantum, Adaptec, Sony, Seagate, Computer Associates, and Overland Data.

Contact StorageNow.com, Irvine, CA at (800) 495-8700.

Storage Utility

StorageTek's Storage Utility solutions include the management of onsite, network- or Internet-enabled storage based on the company's disk, tape, SAN and backup and restore technologies.

They include: guaranteed performance

and availability backed by SLAs; design, implementation and management of the optimal storage solution; all required hardware, software, maintenance and support; a capacity buffer that allows for quick increases in storage level; data assistance; and pay as you go pricing. Delivery options include onsite management, remote monitoring and remote management.

Contact StorageTek, Louisville, CO at (800) 786-7835.

Quota Manager 5.0

Quota Manager controls and manages disk storage for Windows NT Server. Enhancements include report module generates customized reports; support for SNMP alerts; templates that can apply quota management profiles to a group of users; end user support for Microsoft Windows Explorer for determining disk quota status; up to five warning thresholds; and the ability to assign non-locking quota to notify users when they are over their limit. It works in both NT Server 4.0 and Windows 2000 Server environments. Pricing starts at \$1,090.

Contact NTP Software, Manchester, NH at (800) 226-2755.

Storage Migrator

Storage Migrator for UNIX 3.2 supports VxFS 3.3.2 file systems and 32- and 64-bit versions of kernels of HP-UX, Solaris, Auspex and IRIX. It displays a synopsis of selected and unselected files and groups of files can now be cached using the migstage command with a request to NetBackup for UNIX. Storage Migrator Remote for Windows NT 3.2 is a file and data management system for mixed NT and UNIX environments. It can migrate data from an NT server to any file folder or FTP server including UNIX or mainframe.

Contact Veritas Software Corp., Mountain View, CA at (650) 335-8000.

SYSTEM AND NETWORK MANAGEMENT

SiteSpy 1.1

SiteSpy 1.1 automatically monitors whether a Web site is up or down. It actively monitors any domain, at regular, user-defined intervals and notifies Webmaster if it becomes unreachable, or difficult to connect to. SiteSpy 1.1 is capable of monitoring any site 24x7 from the user's desktop. It's an unobtrusive system-tray application that only notifies a user if something is wrong. If SiteSpy cannot connect to a given domain, it sends a notifica-

tion of trouble by pop-up window, or email. It also provides a statistical history of successful and unsuccessful contact attempts.

Contact PBD Technologies, Whittier, CA at (775) 843-4038.

EnlightenDSM 3.1

EnlightenDSM provides a single GUI to simultaneously manage mixed UNIX and Windows environments. Version 3.1 now supports Windows 95/98. It has extended agent support for HP-UX 11 (32-bit), Solaris 2.6 and Solaris 7 (32- and 64-bit) and SCO 5.05. It also features support for job scheduling across UNIX and Windows NT, enhanced product security, full Y2K compliance and a quicker installation.

Contact Enlighten Software Solutions, San Mateo, CA at (650) 578-0700.

Bus-to-FPDP Interface VXI Module

Pentek's Model 4404 offers a high-speed data bridge from the HP Local Bus within a VXI chassis to front-panel data port (FPDP). In output mode, it accepts data

transfers from the HP Local Bus on the VXI backplane, packs the data into 16- or 32-bit parallel words using a programmable gate array. Data is buffered in dual FIFO memories and delivered to front panel FPDP connectors. An FPDP controller provides interface logic, timing and handshaking and support TTL and PECL data strobes. Prices start at \$4,790.

Contact Pentek, Inc., Upper Saddle River, NJ at (201) 818-5900.

StorageVision

StorageVision optimizes Oracle database applications running on EMC's Symmetrix disk arrays. It enables users to map the logical performance properties of the Oracle system with the physical layout and placement of data stored in the Symmetrix array. It provides the ability to visualize and detect overloaded disks and to change the physical placement of data to improve an application's performance. Prices start at \$15,000 depending on environment and configuration parameters.

Contact Terascape, Needham, MA at (781) 433-0092.

YEAR 2000

Time Machine Rel. 3

Time Machine Release 3 is a date and time simulation tool that helps ensure that Y2K projects are completed on time and keep operations running until they become compliant. It enables concurrent testing with different clocks on the same system and eliminates reloads between clock changes. A contingency planning capability — designed for applications that will not be Y2K compliant before the millennium — can “blast applications to the past” without interfering with daily operations.

It's available for HP MPE/iX, HP-UX, NCR MP-RAS, SUN Solaris, IBM AIX and Windows NT and starts at \$2,000 for the first server.

Contact SolutionSoft Systems, Inc., San Jose, CA at (888) 884-7337. ♦

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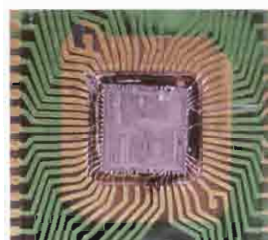
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NETWORK MANAGEMENT

TopTools

Enhancements to HP TopTools provide support for an expanded range of devices such as HP NetVectra Windows-based terminals, network-attached storage products and HP 9000 Enterprise Servers. A new device manager lets administrators install HP TopTools and HP LaserJet printer drivers on each desktop and notebook PC from one central location.

url: www.hp.com/toptools

WebQoS For NT And Linux

HP is porting its WebQoS product to Windows NT and Linux as a key component of its overall e-services strategy. HP WebQoS has a new tiered product line to allow customers to custom-fit their solution. WebQoS Peak delivers consistent performance and capacity similar to the "take a number" method in face-to-face situations. WebQoS Priority helps ensure access and performance for key users and applications. WebQoS Premium allows businesses to always run at full capacity and lets service providers offer business-oriented service-level agreements.

url: www.hp.com/go/webqos

PRINTING

Dazel Output Server 3.2

Dazel Corporation, a newly acquired, wholly owned subsidiary of HP announced the Dazel Output Server 3.2.

Dazel Output Server 3.2, in conjunction with new releases of Dazel Output Explorer 3.0 and Dazel Output Envoy 1.1, now offers a new graphical interface that allows administrators to discover, interrogate and configure print destinations; streamlined day-to-day operations with new documentation, including a Maintenance Log Book and Maintenance Guide; and system configuration enhancements that now support multiple administrative domains residing on the same server.

url: www.dazel.com

Web PrintSmart Plus! 2.0

HP Web PrintSmart Plus! 2.0 enables users to collect Web content from multiple sites into a personalized Web report they can format, print and share. The software lets users collect Web pages, frames and selected sections, GIF and JPEG images and e-mail text. They can format page layout (including page breaks), graphics, turn graphics on/off and advanced controls and cover page, table of contents and index of links. It's compatible with Windows 95/98/NT4.0, Netscape 3.0 and above and Internet Explorer 4.0 and above.

url: www.hp.com/go/webprintsmart

SECURITY

Praesidium Secure 9000

Formerly offered as a trial in the United States and only on HP-UX, Praesidium Secure 9000 is now available worldwide for both HP-UX and Windows NT and is being offered to HP master distributors and corporate resellers. It combines the Praesidium e-Firewall product with one of three HP hardware

servers: the HP 9000 A-Class Enterprise Server, the HP 9000 R-Class Enterprise Server or the HP NetServer E 60 Windows NT server. Pricing details are available from local distributors and resellers.

url: www.hp.com/security/solutions/secure9000

SERVERS

NetServer LXr 8500

HP's new NetServer LXr 8500 system comprises up to eight Pentium III Xeon 550MHz CPUs, up to 32GB SDRAM, with four 64-bit PCI controllers all in a 7U height rack-optimized system. It features fully hot-swappable/hot-plugable components, 90 system monitoring and reporting sensors, fault-resilient booting, advanced memory-scrubbing software utility and one-button disaster-recovery tape-backup solution available through the optional HP SureStore DAT24i accessory.

It ships with HP TopTools 4.5, HP TopTools Remote Control Card for remote administration and HP OpenView ManageX/SE 4.1 for operating-system and applications management. The new systems will be priced from \$23,600 to \$26,300 and are expected to be available in late summer. HP will offer an in-box upgrade from the HP NetServer LXr 8000 system to the HP NetServer LXr 8500 system.

url: www.hp.com/netserver

SERVICES

Digital Workplace Services

HP's Digital Workplace Services are part of HP's new solutions and services initiative targeted for customers facing the digital technology convergence and/or deploying large-scale IT applications and initiatives. The portfolio includes: ERP Output Management Services, which provides customers with an analysis of their current ERP environment and implements an integrated output-management solution; Host Print Services, which provides analysis, strategy, design and implementation of hardware and software to migrate critical information to a distributed LAN; Distributed Print Services, which provides analysis, design and implementation of a long-term hardcopy strategy; and Managed Print Services designed for customers to offload specific IT responsibilities.

url: www.printservices.hp.com

STORAGE

SureStore DAT40 DDS-4

The HP SureStore DAT40 DDS-4 tape drive, available this autumn, features a transfer rate of up to 6MB/s compressed (assuming a 2:1 compression ratio) — the highest performance yet in the DDS-4 field — cutting up to 30 minutes from the time required to back up 40GB of data. It includes HP's new One-Button Disaster Recovery feature for integrated full-system restoration. It offers a Mean Time Between Failures (MTBF) specification of 400,000 hours at a 12 percent duty cycle and is tested to be compatible with all major servers, software and operating systems.

url: www.hp.com/go/storage

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