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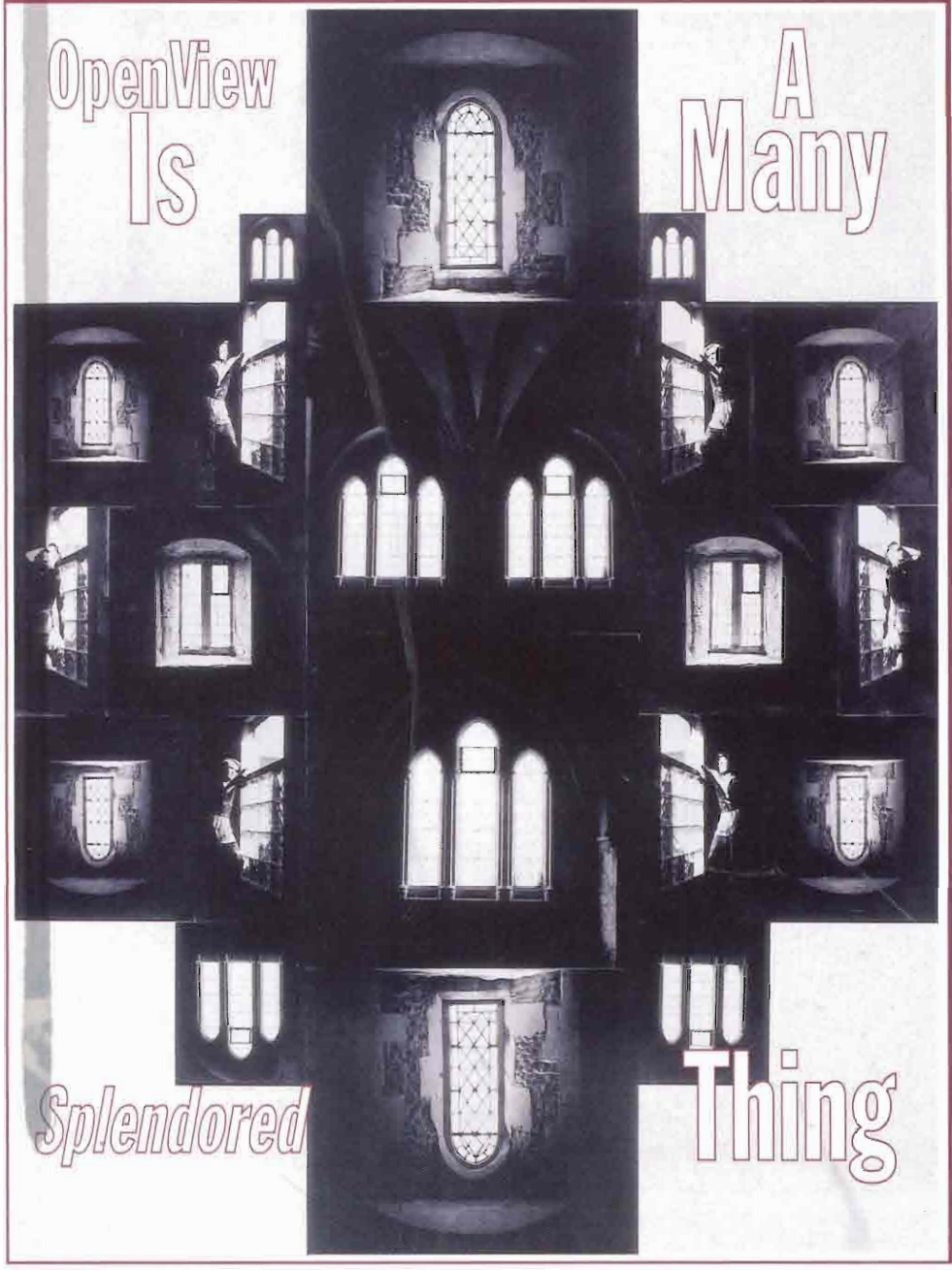

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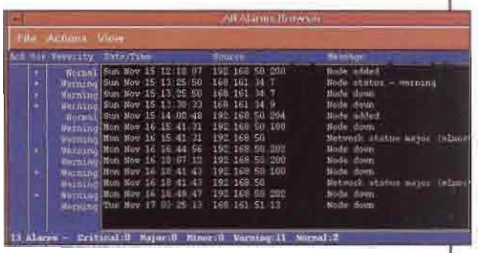

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On The Server Side
Reviewing Micrografx's *Network Charter Pro* and Visio's *Visio Enterprise 5.0*

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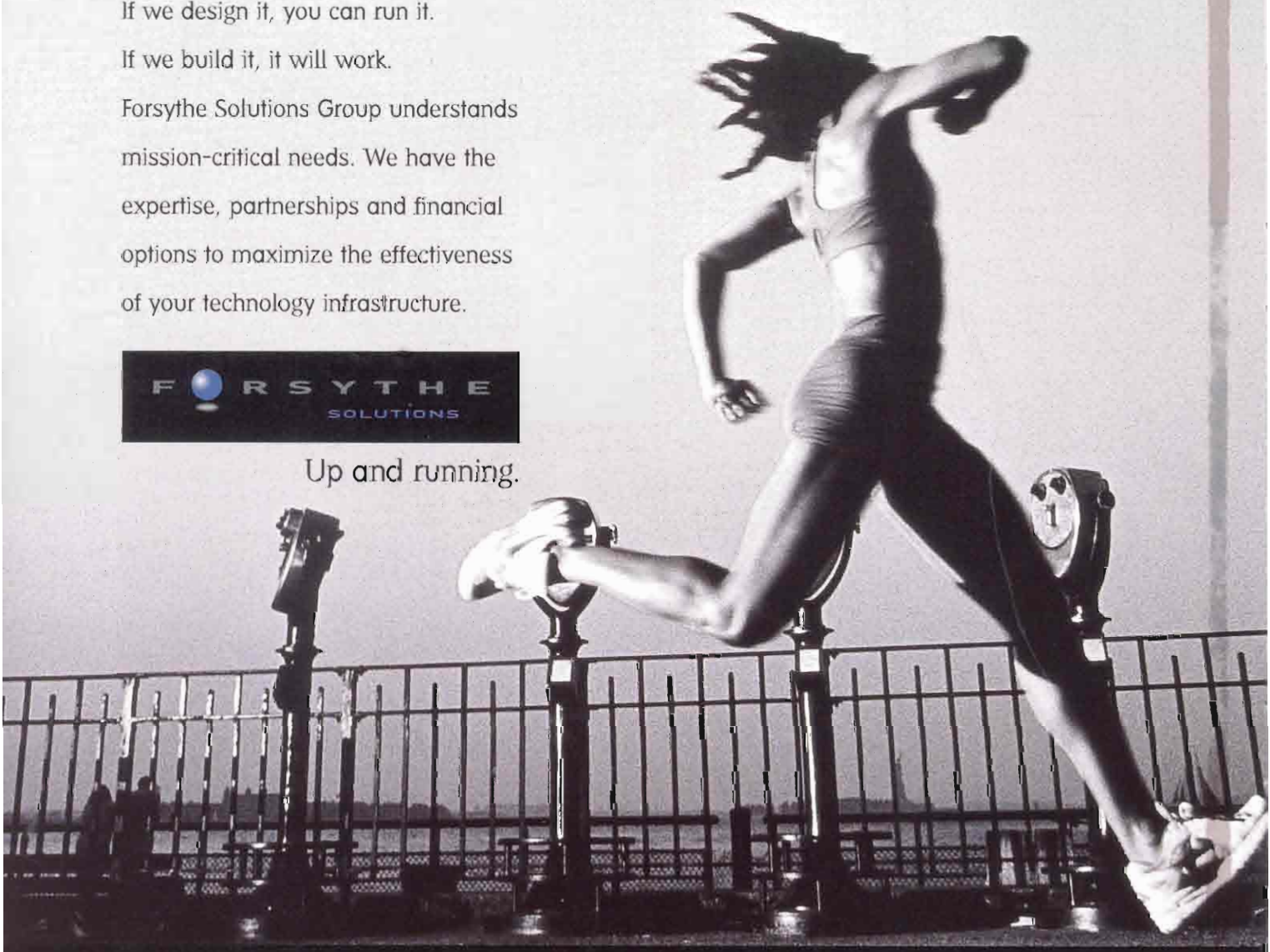

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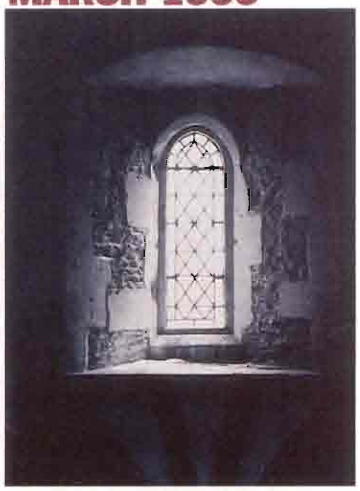

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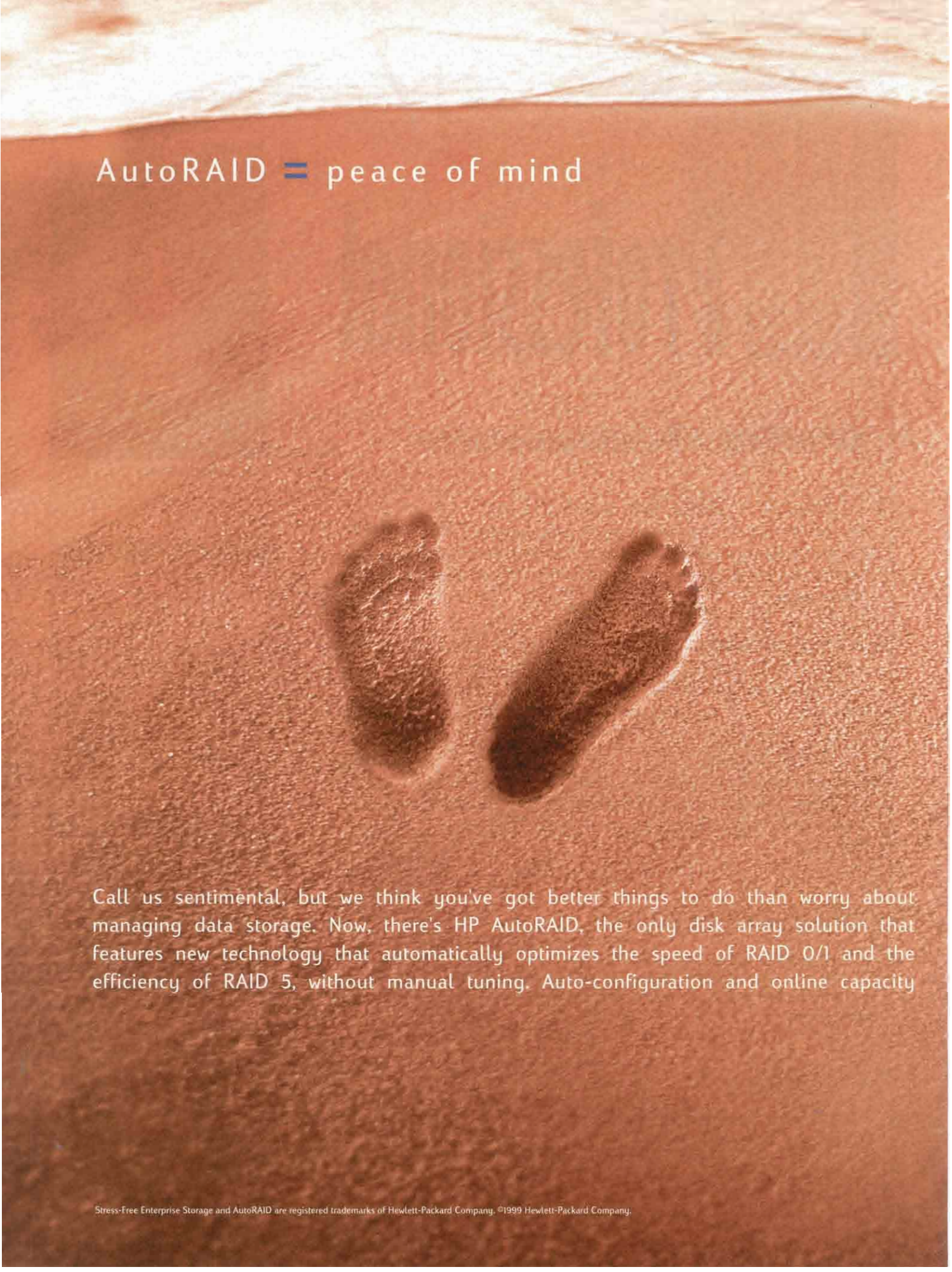

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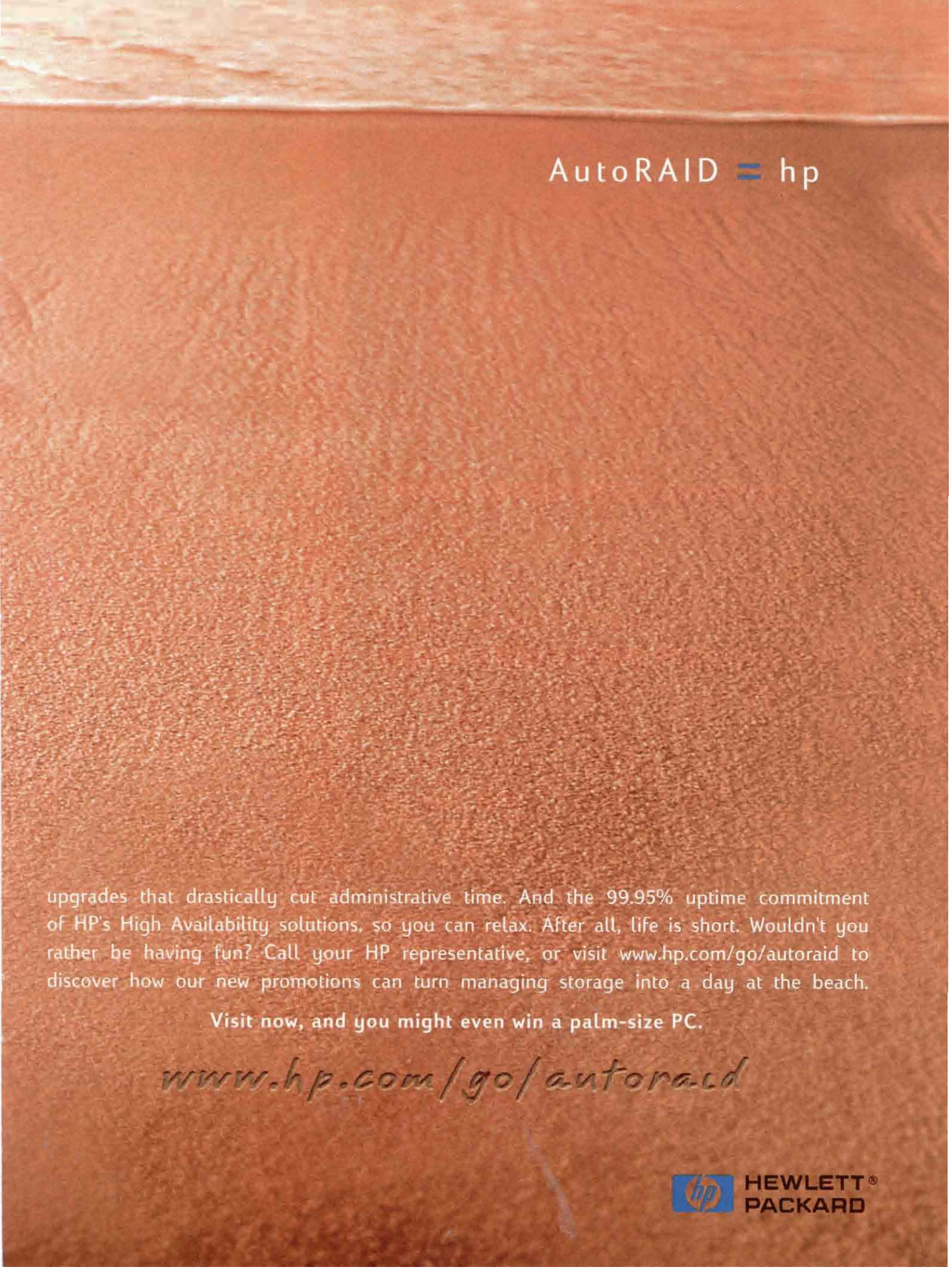
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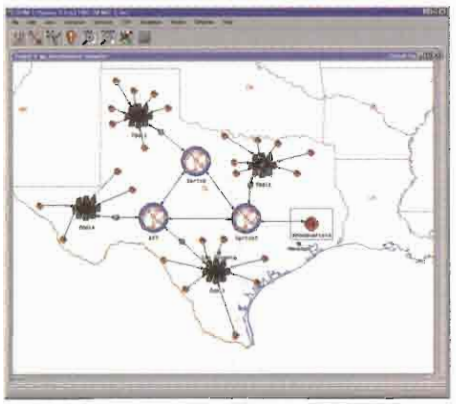

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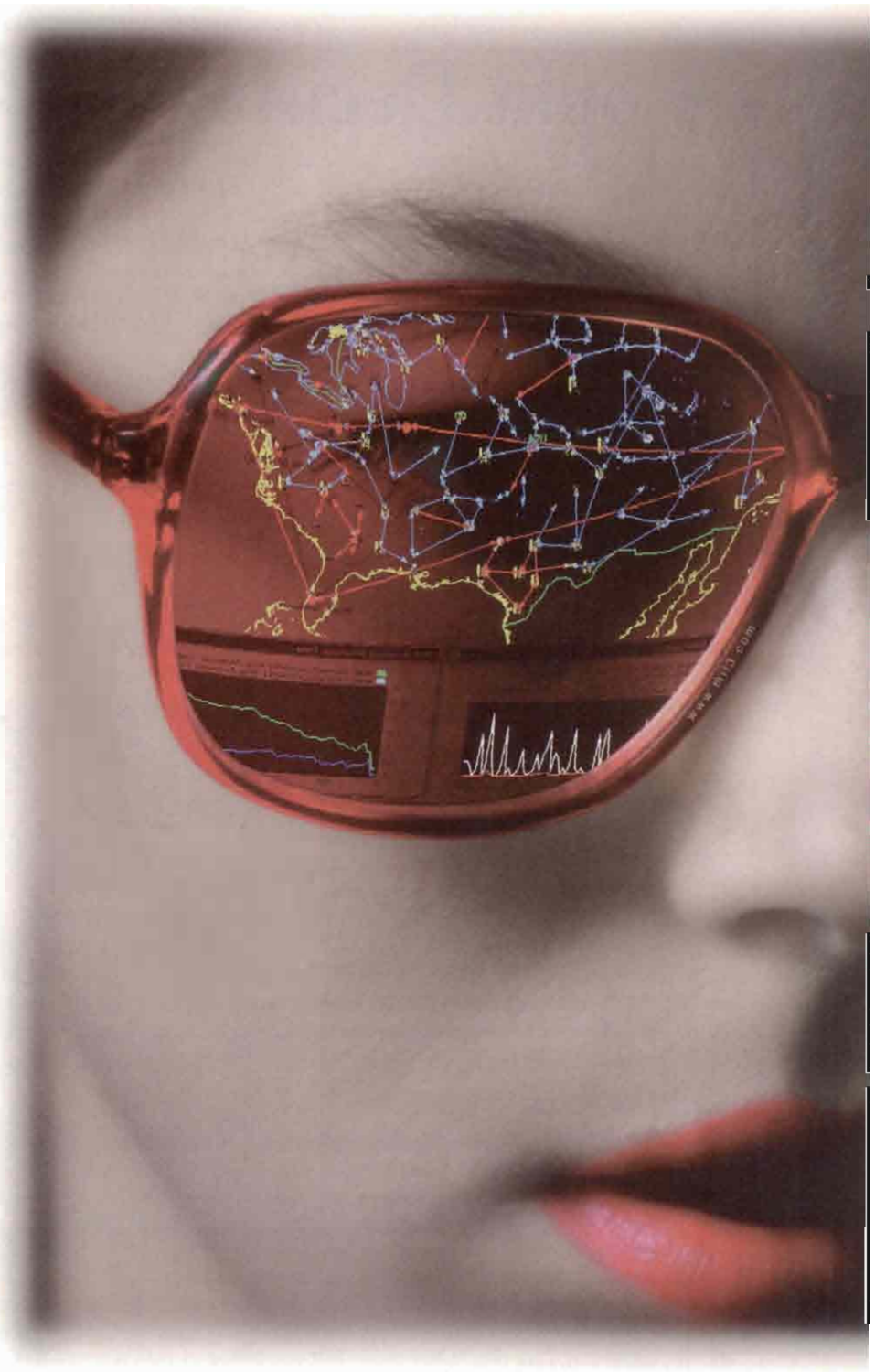

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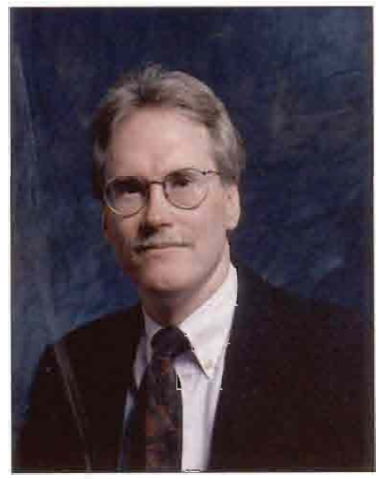
A Split Decision

Whatever made you successful in the past, won't in the future.

—Lew Platt, Chairman, CEO, President of Hewlett-Packard as quoted in *Circles of Innovation: You Can't Shrink Your Way To Greatness*, by Tom Peters (Knopf, 1997)



"Are two HP Ways better than one?"

If the measure of a man can be judged by how well he follows his own advice, then Lew Platt can be held in high esteem. On March 2, 1999, as this issue was going to press, Mr. Platt, with the blessing of the Board of Directors, decided to take one HP entity and "create two independent publicly-traded companies." According to Mr. Platt, each company will have its own CEO and management team, board of directors and capital structure. HP stockholders, on the other hand, will end up with shares of stock in both companies.

CRAWLING WITH CONSULTANTS

Rumors of such a radical measure had been widely circulated after Mr. Platt invited consultants to examine HP's organization and culture from top-to-bottom (and sideways). Mr. Platt and HP (celebrating 60 years of corporate life in 1999) were roundly criticized in the business and trade media for its lackluster earnings in the first quarter and lack of strategic vision, if not execution. What was less expected was Mr. Platt's announcement that after the transformation is completed, he intends to step down from the company he has led for the past six years. During his tenure, HP had several years of 20% growth rates, was dubbed *Company of the Year* by Forbes Magazine (in 1995) and became a component of the Dow-Jones Industrial Average (in 1996).

Until mid-2000, Mr. Platt will continue to lead the now $39 billion computer and imaging company (retaining the Hewlett-Packard appellation). That still makes HP the world's second largest computer company behind IBM. The newly streamlined HP will help "sharpen HP's strategic focus," according to Mr. Platt. "It was a no-brainer" seemed to be the Wall Street consensus. Most other analysts were also optimistic, anticipating that the computer and imaging entity would move forward aggressively without distractions from the Test and Measurement Organization (TMO).

MEASURE FOR MEASURE

Ironically, the measurement and testing business, which was the original reason for the creation of the company built by William Hewlett and David Packard remains nameless (at this writing). But the $7.6 billion company — let's call it HP2 — will be led by Ned Barnholt, who has been the de facto chief for some time now. According to Mr. Platt, an initial public offering for approximately 15% of the shares in this new HP2 are being considered. "If so, we expect to do it by the end of this year and it will be the largest technology IPO in Silicon Valley history."

I imagine it must not have been an easy decision (no matter how practical) for the 58-year-old Platt (who has spent his entire career with HP), to change the course, if not the culture, of history. So, understanding that what made HP successful in the past has fundamentally changed, Mr. Platt has changed HP's future. And in the process, made himself obsolete. You don't hear about that kind of leadership every day. But in Silicon Valley, where tech-savvy residents have an insatiable appetite for change and wall streeters have grown accustomed to instant gratification, there's no respect for history. From this point forward, the HP Way diverges.

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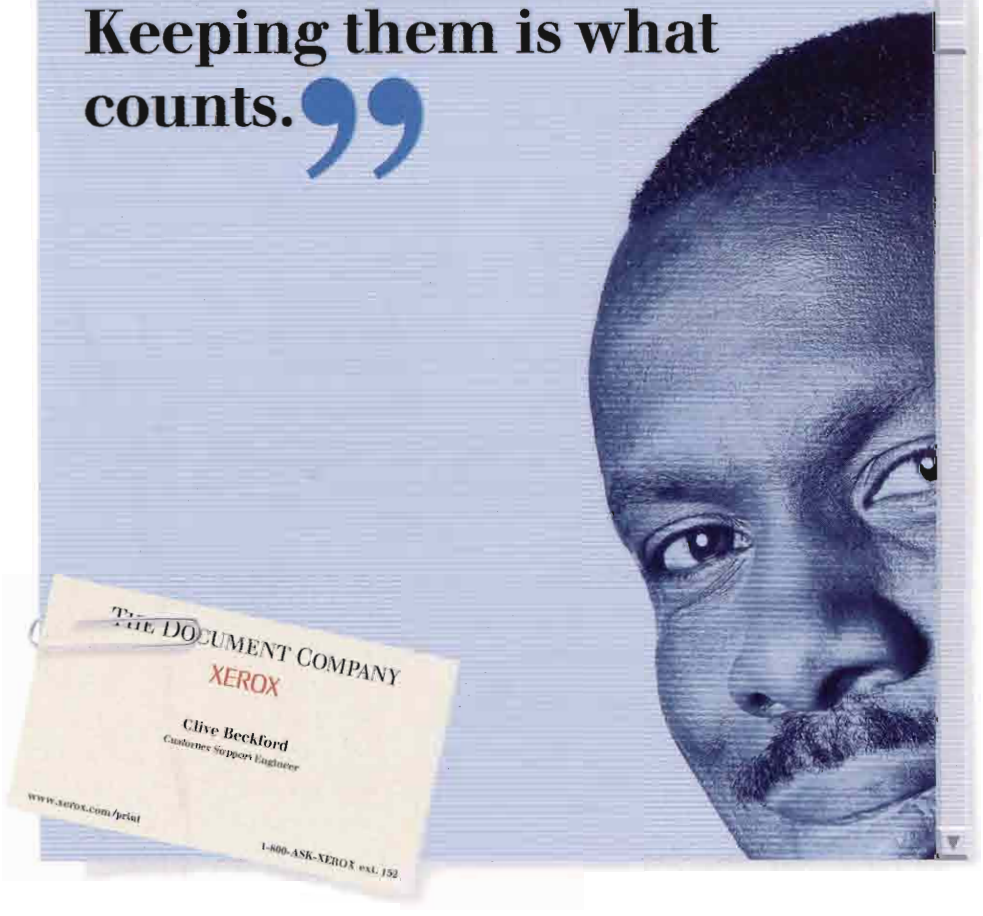

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Predicting Your Network's Future

Is Neural Network Technology Unnerving IT Managers?

Every once in a while a change in conventional technology comes along which strikes a nerve. Computer Associates' (CA; Islandia, N.Y.) latest predictive network management philosophy, "neural network technology," may be just such a change.

CA makes use of neural network technology in its new Windows NT server-based network agents, branded Neugents. When combined with Unicenter TNG, it studies the target environment, becomes familiar with its daily behavior, identifies when the system is going out of its normal operating state and notifies network administrators. And, in a break from traditional rules-based network management tools, does it without human intervention.

A typical prediction of a problem issued by Neugents may look like: "At 11:00, Unicenter TNG Neugents predict a 95% probability that server AB232 will run out of virtual memory in approximately 45 minutes." It goes on to itemize all the monitored variables that led it to that conclusion.

NERVOUS TENSION

With these capabilities in mind, is it time to scrap network management technologies such as HP OpenView in favor of this nouveau nervous system? Steven Foote, senior vice president of market research firm Hurwitz Group touts Neugents' low overhead by stating " ... large-scale implementation [of rule-sets] leads to loading up a system with a large number of policies and creates a maintenance effort in maintaining all the individual policies for each system." He adds, "[the] use of neural networking technology for predicting system and application state changes provides an attractive, possibly compelling, alternative."

Maryville Data Systems (St. Louis, Mo.) is an enterprise integration management firm that specializes in enterprise systems management and technology training. Charlie Henke, Maryville's solutions marketing manager says, "From an integration point of view, [Neugents] fits well into a proactive approach to infrastructure planning. [Its] predictive capabilities are complementary to the business-critical environments that we design."

CHANGE IS NOT GOOD

"It's a really good idea if they can make it work," says Jasmine Noel, an analyst with D.H. Brown Associates, Inc. (Port Chester, N.Y.). Noel explains that network management is made up of too many pieces other than servers and any predictive technique needs to take all of them into consideration. Handling change in the network may also be a stumbling block. The more change, the more time Neugents will need to learn what a normal state is. Enough change and it may never learn. "A stable

network with just PC changes will work fine," she says.

The nature of Neugent's predictions also troubles Noel. "Its point is to predict the immediate future." Knowing that a server is about to run out of a critical resource in the next hour may not be good enough. "CA doesn't want to talk about predictive capacity planning. They see it as a separate issue. Their main focus is on not having operators write rules and crash prevention."

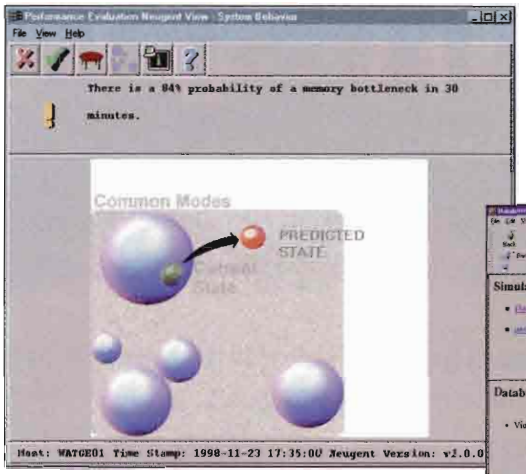
The proposed rollout of Neugents will include HP-UX, Sun Solaris and IBM AIX during the first half of 1999 with the intention of including the entire Unicenter TNG product line by year-end 1999.

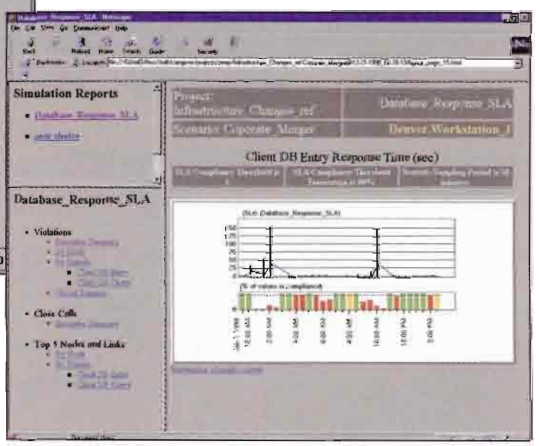
A MODEL NETWORK

HP's answer to the question of predictive network management has come from its recent alliance with MIL 3, Inc. (Washington, D.C.).

Steve Johnson is MIL 3's director of marketing and business development. Not surprisingly, he sees trouble ahead for the future of neural network technology.

"[Neugents'] initial focus is on systems, primarily NT, with no support for the network/application infrastructure." As to network change, "What about new patterns [of behavior]. It takes time to understand a new condition. And, it's not able to recognize arbitrary change." On the claim of artificial intelligence at its base, "How many real-world AI solutions are in production today? Not many." On predictability, "Output is based on data from the past — not the future. Once detected, it's generally already too late."





In summary, Johnson says, "[Nugent] doesn't take into account the interdependencies of multi-level protocol stacks involved in every networked application transaction. Even when a signature or pattern is learned, it's a theoretical impossibility for the behavior of the pattern to remain the same as the application environment load increases."

HP's product to emerge from the pairing with MIL 3 is HP OpenView Service Simulator 6.0, which automatically integrates network topology and network traffic information with projected network service loads. IT managers can then use this information to run simulations of their environment against service levels to determine if current resources will support future requirements.

But, Service Simulator 6.0 notwithstanding, OpenView has been in the business of predictive network management for some time with the combination of HP MeasureWare 'listening' agents and HP PerfView monitoring tool, says Ed Gillis, one of HP's solutions specialist for OpenView. "Neugents works very well in a black and white environment. But, network performance is all gray."

TRADITIONAL VALUES

Gillis adds that HP believes there is value in following the traditional rules-based methodology in using pre-defined metrics. He explains that OpenView users can customize their library of rules and assign different weights to different variables according to their own specifications. For instance, he says an operator may want to place a higher priority on a particular server's CPU utilization than on another's disk usage.

Like Noel, he also expressed concern in the limited warning time afforded by CA's neural network technology. "It's one hour notification vs. six months to get more CPUs, more disk, more memory, etc."

So is neural network technology and Neugents the long-term answer to network nervous disorder or just an ultimately sputtering synapse in the network body topology?

Once more from Hurwitz Group's analysis: "With business applications becoming more complex and mission-critical ... it's more necessary than ever for IT staff to proactively predict and address performance." The questions still to be answered are: How much notice is enough notice and how much control should operators have in determining what to monitor?

—Ken Deats, Associate Editor

A CONVERSATION WITH KARL CHEN

George A. Thompson

MINIMIZE RISK. MAXIMIZE POTENTIAL. That's the solution for any successful venture, isn't it? But how do you accomplish it? If you're smart, enterprise network management technologies are part of the sweat and financial equity you've invested in to minimize risk and maximize the potential of your network. HP OpenView, as one of the "Big Three" (Computer Associates TNG and IBM/Tivoli NetView being the others) is one of the leaders in the enterprise network management market. And no wonder, OpenView (and related services) actually accounted for $1 billion of HP's over $40 billion in revenues last year. That's about 2.5%, if you're doing the math.

However, HP doesn't get all the credit — or even all the revenue. If you're familiar with OpenView software then you've likely become acquainted with an OpenView reseller (more than 50% of HP's OpenView revenues goes through the reseller channel). By comparison, CA's and Tivoli's reseller sales are pegged at less than 30%.

In light of OpenView's success (HP's OpenView business grew about 40% in 1998), Editor-in-Chief, George A. Thompson spoke with Karl Chen, HP OpenView Channels Marketing Manager. Chen believes that systems and network management technology is a stabilizing force against the sea changes that many IT managers have already been experiencing; namely globalization, the Internet and Y2K. He also notes that OpenView Network Node Manager has a 50% market share and that HP has taken the lead in NT management.

HP Professional: What's your value proposition?

Chen: Because we provide best-in-class software solutions, it lets resellers drag along services business. For every $1 of OpenView software, it generates (on average) $3 to $5 of services revenue.

HP Professional: What's the most significant trend for HP resellers in the enterprise network management market?

Chen: More and more Channel Partners are moving up to become system integrators [using] a service model as opposed to just pushing boxes. Margins are shrinking and the advent of the Internet and direct distribution from players like Dell reduces margins for both hardware and software products.

HP Professional: If more and more resellers are moving up the chain, how is the system integrator's role changing?

Chen: They tend to make a lot more of their billable hours and revenue on the front-end — business process reengineering and design work. They are less so on the implementation side. They see their value-add in two areas: one is to be the prime [vendor] in risk management. That's where the Big Six and companies like EDS and Perot Systems really play, because they are large enough to

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underwrite the risk of a large IT infrastructure. And the way they do that is primarily by redesigning the business processes. So, they'll use our tools, like IT Service Managert to set up service level agreements.

HP Professional: Can you elaborate on the OpenView model, strategy and your investments?

Chen: Our whole distribution model is very channel-centric. More than half of our business last year was sold through the channel. And we have a channel-neutral compensation model. Our direct OpenView sales force gets compensated on a sale whether it gets booked by a Channel Partner or by them. And [our direct sales people] are encouraged to bring in skilled Channel Partners [into a project].

From a year ago, we doubled our investment in our channels strategy. We have four dedicated channel sales districts and two dedicated marketing organizations. We have field market people who work with our Channel Partners to do local demand generation. Also, at the end of February, we rolled out an 11 city road show called the OpenView Tech Series. The initial sessions revolve around the topics of taking control of your network, defusing the Y2K time bomb and Microsoft Exchange management.

We've also come out with Ready-to-Run channel kits which teach our Channel Partners how to successfully configure, deploy and implement management solutions; [for example], like deploying in SAP environments.

HP Professional: But all Channel Partners are not necessarily exclusive to HP.

Chen: That's correct. But CA is out there acquiring services companies, so what we are hearing [from our resellers] is that they are not sure if CA is a supplier partner or a competitor. And Tivoli is also pretty fickle. We've also heard [from our resellers] that for a large deal if they think they need to go direct, they will do that — and rip the business out from underneath [them]. So, [the OpenView] model and our investments in the channel and our building block strategy is being viewed as a huge advantage in relation to our competitors.

More Channel Partners are becoming system integrators [using] a service model because the Internet and players like Dell are reducing hardware and software margins.

HP Professional: Doesn't that get confusing for the customer?

Chen: People recognize that we all compete. But systems management has been around awhile. Customers do have legacy systems, and so where [that happens], we all cooperate. If people use OpenView for the enterprise console, but like Tivoli's software distribution tool, then there will be some level of integration.

For example, if customers are primarily in a mainframe environment, they have implemented Tivoli or CA. But if they like our NT management solution, we will provide integration into those enterprise consoles. It's pretty standard, across the industry through SNMP and the ability to send and receive traps that you get that level of integration.

HP Professional: Can you explain the various categories of resellers?

Chen: We have a three-tier program that dovetails with the HP Partner Program. At the base level, if people sign up to be a HP reseller, we have some open sourcing, open distribution products that are very turnkey, that they can resell.

The first level is what we call our HP OpenView Authorized Partner. [At this level], we ensure that within a given location that they have at least one OpenView salesperson. And one certified technical consultant. In order to be certified you have to pass an exam for each of the six solution areas within the OpenView portfolio.

And we have the OpenView Authorized Gold Partner, which is a minimum of five salespeople and five trained system engineers per location or region. Larger corporate resellers and system integrators will train 50, 100, 200 or more sales consultants, whereas some of the smaller CSP's will train one to five in each of their local offices.

HP Professional: And where do DARs fit in?

Chen: Some of the larger DARs like DIS and Forté will be Gold Partners and some of the smaller DARS will be in the Authorized Partner Program. In virtually all cases, the people who are trying to build a service, or software and service business, will be Authorized or Gold status. For people who are still in the hardware or box pushing kind of business, they will continue to be HP resellers.

Because we ship special editions of OpenView with HP Vectras, HP NetServers, Dell servers and servers from Data General, if customers want to have one stop shopping and buy out of the box upgrades and start up packages they can do that through the traditional HP reseller base.

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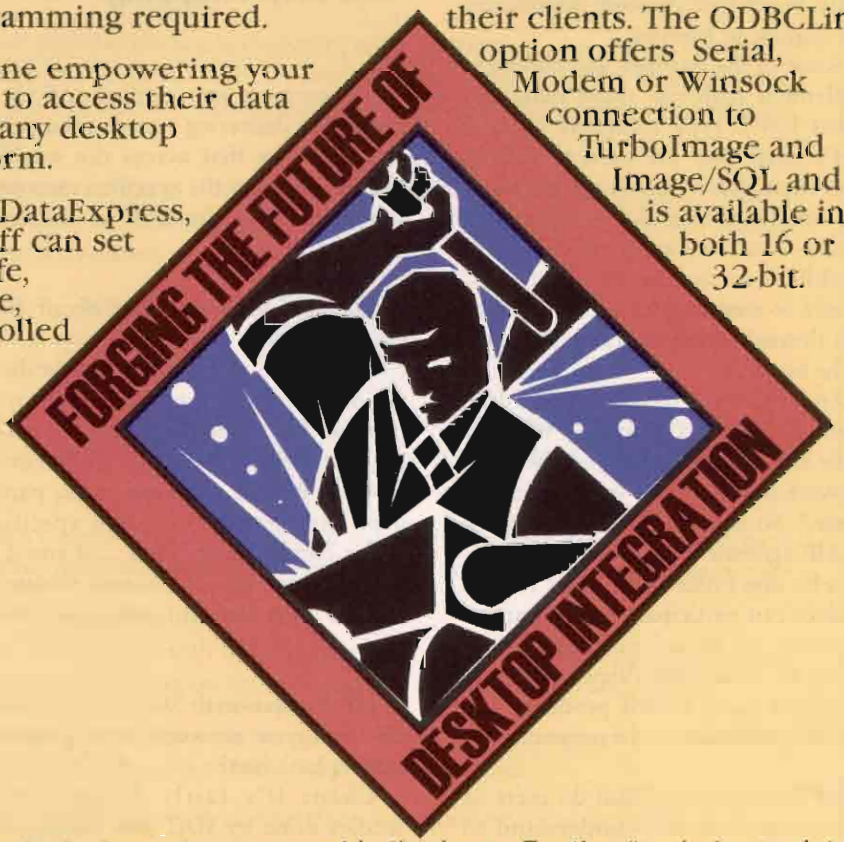

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HP Proffessional: How does the HP OpenView reseller program work with HP's general Channel Partners program?

Chen: There are some commonalties. [For example], we use the [standard] HP contract. That makes joining the program a lot easier. [But] we have some specific guidelines for being an OpenView reseller.

HP systems are generally categorized into two buckets ... enterprise solutions like the HP 9000, which is where the DARs came from, as well as some of our volume distributors like Hallmark and Gates-Arrow. And then there's the PC, or PSG side of the house where corporate resellers and NT SPs have played. But then it's generally purchased through distributors like Ingram or Merisel.

Some of the partners will choose to implement high-end more heterogeneous UNIX type solutions because that's what they are used to selling. And then there are other partners who specialize in middle-market solutions — maybe deploying NT manageablility or storage backup for PC servers — and they can source products through distributors on that side of the house.

And then we have partners like American Power Conversion who are in the business of reselling hardware or software and they are solution implemented. So we've augmented some of the HP agreements to ensure that people who don't necessarily want to pass product can participate in our partner programs. So there's no limitation in having to be an OpenView reseller. If you don't want to sell product, you can still participate in the program.

HP Professional: What do users or IT managers need to understand to use the channel effectively?

Chen: The way we try to meet the customer segment is to have our direct sales force focus on the Global 2000. And they have specific name accounts. They will go and call on those customers.

In the mid-market space, it's primarily a push through channels. We ask our partners to cultivate that turf. It's their business to find prospects, drive through the sales cycle and we will support them. We have four channel sales districts that help them in that vein. If the request comes to us and is not one of the named accounts, we will funnel it out to one of our Channel Partners. We have a complete channel map that identifies which partners are certified and specialized at delivering certain solutions. And we have that across the world. So, we can map the specific customer requirement to the skill of channel partners.

Because we ship OpenView with HP Vectras, HP NetServers, Dell and Data General servers, customers have one stop shopping.

HP Professional: What about co-op programs?

Chen: We obviously provide discounts. We also provide back-end rebates. The criteria will vary depending on whether you're an Authorized or Gold Partner. In some cases, partners have come to us with specific dollar commitments. And ... if you do a certain amount of business through us, you'll get some advantageous benefits.

HP Professional: What's the overall enterprise network management market look like?

Chen: It's fairly fragmented. Studies done by IDC and Dataquest show that you have the big three: HP, IBM/Tivoli, and Computer Associates. And then you have a bunch of other players that specialize around a particular area.

We are organized to make sure that we have solutions that are integrated as part of our building block approach around the major segments: network management; application and server management; storage management; desktop management; NT manageability, which is a growing segment; and we are driving the market from a service management [perspective]; that is, to tie service level agreements from IT organizations to line of business and end users.

The overall market is growing by 20%. Growing very rapidly are NT management, network management and application and storage management.

HP Professional: You mentioned that over 50% of the OpenView business went through the channel. Isn't that less than the overall average?

Chen: In 1998, 56% of our business went through the channel. This year, our goal is for 60% of our overall OpenView business to go through the channel. It's a little lower because it's much more of a services business model; were not just pumping out boxes.

At the end of the day, we want to have satisfied customers. And if you really want to lower their risk they have to have good services capabilities. This year we are expanding our channel to recruit high-end system integrators and enhance our relationship with Ernst and Young, Andersen Consulting, EDS and [others].

We're also fortifying our traditional HP Distributed Authorized Resellers (DARs). We continue to build our capabilities with companies like DIS, Forté and Maryville Systems.

And we've gone and rolled out new partners — corporate resellers — that have historically not participated in the systems management space. Partners like Entex, GE Capital, Inacom Vanstar; as well as gone and recruited Microsoft Solution Providers, who also typically have not participated in this area. These folks are NT-centric, focused on managing Exchange or NT file and print server environments or NT network environments. Examples are Forté Systems, Allstar System in Houston and Inacom Oakland.

So, we are trying to expand our reach of partners. But we are going after people who have a services orientation who want to build a business around OpenView's suite of products.◆

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Network Management And NNM Move To The Web

A User's View Of HP OpenView Network Node Manager 6.0.

SOME USEFUL IMPROVEMENTS and significant administrative enhancements, especially the Web Launcher, will allow more users to efficiently access the information contained in NNM. However, there are more databases to contend with instead of fewer, which limits the scalability of the system.

Jerald Murphy

HP's OpenView Network Node Manager (NNM) 6.0 has many exciting new features. Most of them make the system easier to use, with added flexibility to meet specific needs. Like most things in life, however, it's not a panacea for all possible network management ills. Therefore, it's important to balance the identified strengths and limitations in order to create an optimal managed environment.

Automated Backup is probably the most exciting new feature of NNM 6.0. Older NNM versions forced you to shut down the entire NNM suite of daemons in order to back up a database, an unacceptable procedure for many 24x7 operations centers. Now, NNM "freezes" the state of the network so that the various databases can be in synchronization when the databases are copied.

This is done with the new **ovpause** command. The OpenView database directory is copied to a temporary directory specified by the administrator. Once the copy is complete, the **ovresume** command is executed and the "frozen" daemons function again. The temporary directory can then be copied to tape at the administrator's discretion.

Not surprisingly, during the backup procedure, writing to data cannot occur. In fact, the map and alarm displays are frozen, so no panning or event acknowledgements can be done. While this is limiting, the overall down time of the system is reduced from 20 to 60 minutes for existing setups to two to three minutes. I think most network managers will accept the tradeoff.

NNM has several extremely good administrative enhancements. To date, the UNIX and Windows NT versions have had some significant differences in functionality; but not any longer. For example, the UNIX version contains a command line option for *map status propagation* or *map copy/delete*. These features are now in the NT version as well.

Even more noticeable, is the similarity between the pull-down menus. In NNM 5.01, the NT pull-down menus had a distinctly Microsoft Windows style. Now in both the UNIX and NT versions, Windows pull-downs are the rule.

Unfortunately, however, a number of features continue to distinguish the UNIX version from its NT counterpart. IPX discovery will remain in the NT version, as will submap help, cascading submap display, DMI and SMS integration. The NT Tools menu will remain NT only. But most of these functions are clearly in the PC/NT category anyway.

Remote console configurations are now interchangeable. That's good news because now either an NT or a UNIX GUI can be attached to either a UNIX or NT server. The biggest plus: an NT console can be attached to a UNIX server. This has the potential of greatly reducing the cost of network operations center equipment, a possibility that should score big with corporate IT departments.

Collection Selections

NNM 6.0 has the ability to mix and match NT and UNIX Collection Stations (CS) and Management Stations (MS). Previously, you could attach an NT or UNIX CS to a UNIX MS, but only an NT machine could be used as a standalone MS or a CS. While you now have the ability to attach a UNIX CS to an NT MS, this probably won't happen much.

However, NT-centric shops can now apply CS-MS configurations with strictly NT boxes. There's still

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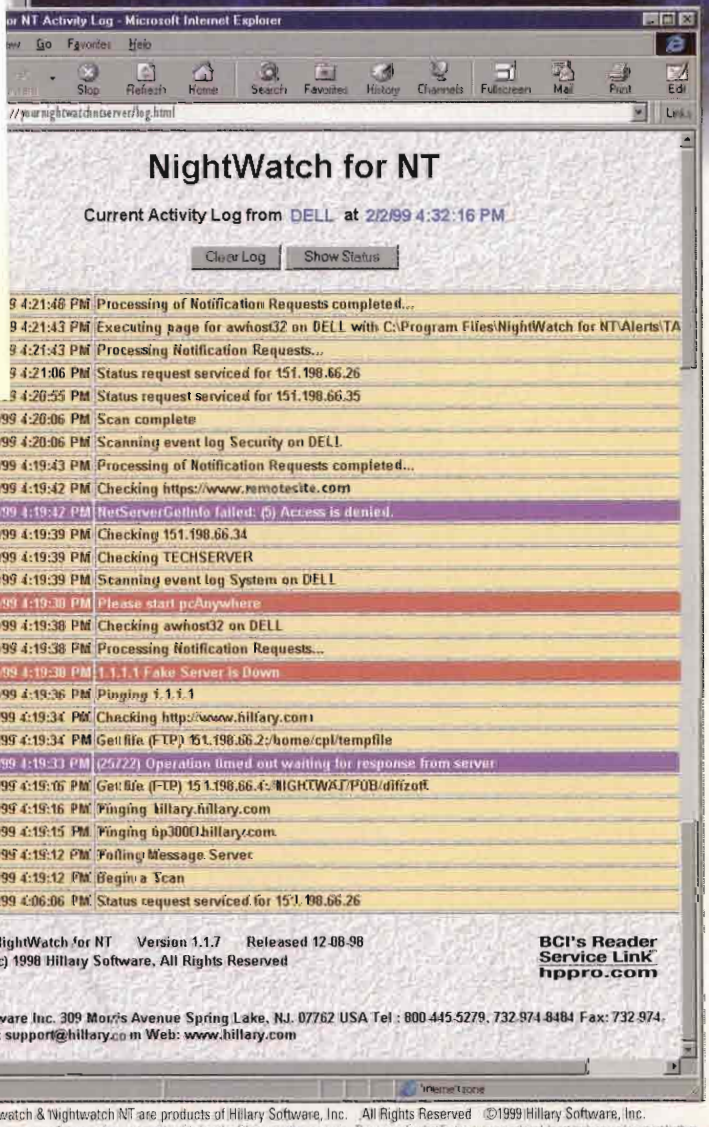

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Is SECURITY OK on the NT Server? ..... YES NO

Is the remote INTERNET site up and running? ..... YES NO

Is the REMOTE LOGIN enabled for the network? .... YES NO

Are our WEB pages available to our customers? ..... YES NO

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the question, however, of whether NT has the horsepower yet to work effectively in the large environments that typically need a Distributed Management (DIM) architecture.

Another nice new feature is the *map import/export* function. Internet level maps can be saved to an ASCII file and import maps from ASCII files. This is good for making many map layout changes while having a backup. This feature works very well; however, *it works for the Internet-level only* and does not save user plane symbols. While I don't believe it's supported, I was able to export a map from a UNIX system and import that map into an NT system (and vice versa).

The categories of NNM filters keep growing. In the previous version, you had four different kinds of filters to apply for managing your environment. Now there are seven:

Map. This filter selectively limits what is presented to the user in a map. It's an automated way of only allowing a particular user to see devices that are their responsibility.

Persistence. This filter forces some submaps that would normally be transient to reside in memory. It's used mainly for compatibility with third-party applications that assume needed objects are in memory. In practice, this is rarely used, since submaps that are custom drawn (which is most of the time) permanently reside in memory anyway.

CIRCUITS MAXIMUS

ECS out-of-the-box provides the user with four circuits to help correlate network events. A circuit is a set of logic that reads information from the environment and takes some defined action depending on the information received. Those circuits are *Connector Down, Scheduled Maintenance, Repeated Event,* and *PairWise Correlation*. Each of them helps reduce unneeded data and identify the root cause.

Connector Down. This is the main circuit for downstream event suppression. When **netmon** attempts to poll an unreachable device, NNM generates a critical "Node Down" event. The problem is, every device downstream from the first unreachable network element will also be unreachable. Previously, **netmon** would continue polling all downstream elements, causing excessive polling traffic and showing numerous devices on the map and in the alarm display as down.

This makes it difficult for operators to determine the real point of failure. The connector down circuit tells **netmon** to not bother polling those devices on the far side of the unreachable device. Additionally, it doesn't show alarms from those downstream devices and colors them on the map in blue for "unknown," which is really the case.

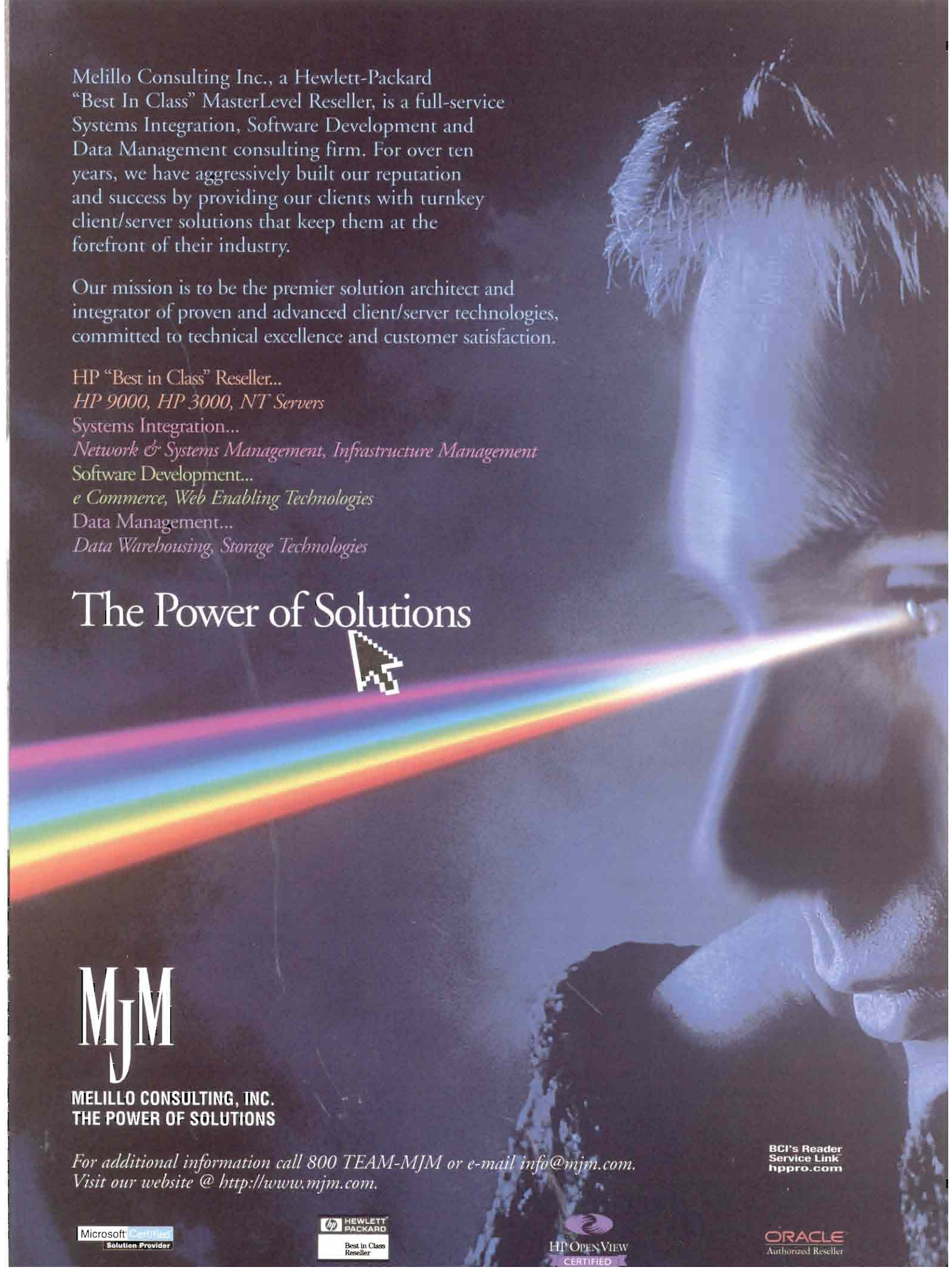
Scheduled Maintenance. The scheduled maintenance circuit allows users to tell NNM when routing maintenance is being performed on given devices, so that any alarms that would normally have come in from **netmon** or from traps will not get displayed. This is handy, because there's no reason to take action on an unavailable device if we know ahead of time about its unavailability.

Repeated Even. This circuit prevents the same alarm from being repeated numerous times on the alarm display. Often, when a device sends a trap, it's sent repeatedly until some action is taken. The Repeated Event Circuit doesn't display these duplicate events, helping to reduce screen clutter.

PairWise Correlation. This circuit allows the system to pair two events together and take some action. It is often the case that a "linkDown" alarm will be followed shortly by a "linkUp" alarm. This can happen when circuits are in transient states. These frequently have no perceived impact on the network user, but each state transition gets recorded in the NNM event display. PairWise Correlation allows you to tie the "linkUp" with a previous "linkDown" (from the same device!) and suppress showing any alarms.

Parameters can be set for each of these circuits (affected IP addresses, enabling or disabling circuits, etc.) and all of the circuits can be configured with the ECS configuration GUI. However, you can only change parameter values, not the logic of the circuits. In order to change circuit logic, or to create your own circuits, you need to purchase the ECS Designer. The good news here is that any circuit made with the designer can be loaded into any existing NNM 6.0 system without additional license issues. This is particularly good news for consultants, who often have to build similar types of logic for different clients.

—J.M.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Topology. Topology filters are used in a DIM environment to describe what objects from a collection station will be forwarded to a management station. While the MS-CS architecture looks logically like a master-slave relationship, in reality management stations and collection stations are peer autonomous systems. The topology filter is a collection station's way of telling a management station what it has permission to see.

Discovery. Discovery filters help minimize the number of objects in the database by only allowing objects which pass a certain criteria into the database. The problem with a discovery filter is that an object has to be demand polled before it's checked against discovery logic. This means that **netmon** will constantly demand poll the same objects in the network before discarding them.

A much better option is to use the *noDiscover* filter, the Discovery filter's complement. The *noDiscover* filter is checked before the demand poll is done. If the IP address to be polled is in the *noDiscover* file, the object is not demand polled. This is much more efficient. However, because NNM has no knowledge of what kind of device an object is before the object is polled, *noDiscover* filters can only filter by IP address.

Failover. The first of three new filters in NNM 6.0, the failover filter is designed to tell a management station what objects from a collection station the management station should take over polling. This is a very big improvement over previous NNM environments. Many configurations use failover with a collection of complicated scripts that make command line changes to **netmon**'s polling attributes. This is now greatly simplified. Keep in mind, however, that database sizes will increase substantially when implementing any failover strategy.

DHCP. More and more enterprises are using Dynamic Host Configuration Protocol (DHCP) to dynamically allocate IP addresses for PCs. This makes address management easier, but the constantly changing IP addresses cause complications for managing objects in NNM. This filter allows you to identify the range of addresses that comprise your DHCP address space. Once NNM knows this, you can choose several different ways to manage these addresses. This can all be done via a Java GUI.

A number of features distinguish the UNIX version from its NT counterpart. IPX discovery will remain in the NT version, as will submap help, cascading submap display, DMI and SMS integration. The NT Tools menu will remain NT only. But most of these functions are in the PC/NT category anyway.

Important Nodes. The Important Nodes filter is used in conjunction with Event Correlation Services (ECS) to allow **netmon** to override downstream event suppression for critical nodes in the network. Usually, if a router is unreachable, event suppression will tell **netmon** not to bother polling any devices downstream from that router because they will be unreachable.

However, there may be critical devices you still want to identify beyond the root problem; or you may have the ability to dial back into a far side device via ISDN. The Important Nodes filter gives you the ability to identify these critical devices and have **netmon** continue polling them. Filters provide the ability to automate much of the network discovery and maintenance processes. The good thing about these filters is that they are ASCII files that are easy to read and edit.

Jump On The Web

The Web Launcher is the jumping off point for all Web-based users of the system. Not only does the launcher provide the start point for Network Node Manager, but also any other applications that are integrated into OpenView. There are Web Launcher Registration Files (WLRF) that allow new third-party applications to integrate into OpenView, which is where you'll see these applications integrate into OpenView in the future.

This is so straightforward to use, it will make it very easy for future applications to quickly integrate. The main drawback to the Web Launcher is that it gives you a false sense of administrative security. Users can be registered to go through an access screen to get onto the system, however, if they figure out the absolute path to the application, this "front door" security is completely bypassed. Security concerns aside, the Web Launcher was a wise move by HP because users are demanding the ease of use and universal accessibility that a Web interface provides.

The alarm browser also has some key enhancements, but the most important is that alarm acknowledgements and deletes are applied throughout the entire environment. This is in contrast to the previous browser, where every user had their own copy of the alarms. This synchronization between event displays will increase staff coordination.

Draw Me A Map

Some significant Web influences have taken place in the network presenter map. It's now completely Java-based. Previously, most of the pull-down menu items from the map were unavailable. Now, almost all of these items are available in Network Presenter. However, the map contin-

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ues to be read-only and no administrative actions can be taken through the Java interface (except ECS configuration, which can *only* be done through Java). The trend here is that as new features and functions are added, they will be added as Java-capable applications. NNM reflects the fact that the future of management is Web-enabled.

The SNMP Data Presenter provides a method of viewing SNMP data via the Web. The application builder, which is a part of the Data Presenter, is an easy way to build custom SNMP queries that can be executed via the Web Launcher.

I found this tool very easy to use. It's driven by a GUI dialog box. Previously, any SNMP collections needed to be manually added via application registration files (ARFs). It's important to note that the SNMP Data Presenter is not a replacement for more all-encompassing performance management tools, such as NetMetrix.

Like the Data Presenter, the SNMP MIB browser is a Java-based application that can be launched via the Web Launcher. But, the browser can also be launched from the pull-down menus. This gives you the ability to traverse MIB trees for compiled MIBs, and then perform an SNMP *get* against a particular host that supports the given MIB.

Correlation's purpose is to minimize the number of events that come from external entities, in order to display to the system user the information that focuses on the fundamental issue that needs to be addressed. To date, NNM has had filtering, invoked via *trapd.conf*, that allowed you to not view (or log) particular events. However, there was no way to associate related events, or count a number of duplicate events that came in over time. OpenView's Event Correlation System (ECS) expands NNM's ability to add this functionality. (See *Circuits Maximus* sidebar.)

The Big Event

All events now go through the event correlation system. This happens before both logging the events and displaying them to the user. Second, *trapd.log* has been replaced by a binary event store. This is yet another database created as part of the core system. It remains to be seen how this will impact performance, but I believe it may cause compatibility problems with some third-party applications.

Many people who customize NNM will tail the log file to parse out specific messages or to do their own homegrown correlation. With *trapd.log* disappearing, these applications and scripts may no longer function properly, if at all. There is a way to keep *trapd.log*, but it has to be specified during initial configuration or upgrade, since the HP default is to eliminate it. Those who do a lot of customization will need to pay close attention.

Last, but not least, in an effort to pave the way for more reporting, NNM 6.0 contains a new relational, ODBC-compliant database, which allows for greater flexibility in extracting data to various applications for reporting. This new data warehouse capability is read-only, extracting information from NNM's flat file databases: ovwdb, ipmap and the topology database.

Consequently, the topology database will have to be back-ported to a flat file database if a user currently has it configured as relational. The procedure is documented. The key to remember is that a re-migration plan will need to be put in place if you are using a relational database for your previous version of NNM.

—Jerald Murphy is director, Network Management with RPM Consulting (Columbia, Md.) and the Network Management Track Chair for the OpenView Forum.

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Do Not Be Alarmed

Remember the boy who cried "Wolf!" one too many times? You know what happened. No one listened when the wolf came along. The same is true for network operators forced to prioritize alarms from a torrent of "Wolf!" alerts.

Charles T. Hebert

Ultimately, everyone is concerned about Quality of Service (QoS). Or they should be. So the question becomes, "How do we get to QoS from thousands of events per day?" The answer is simple: event correlation. That is, taking a large number of raw events and reducing them into only the most important. While some systems use simple filtering to reduce unimportant events, most others use some kind of basic pattern matching and thresholding.

Another method is a sophisticated means of combining a number of raw events and creating a few new events that better describe a problem. Many of these systems, like Seagate NerveCenter, even surpass some of the basic functionality of HP OpenView Network Node Manager (OVNNM) with improved polling engines and advanced Java and Windows interfaces.

OVNNM identifies problems by using an event correlation engine. The engine correlates events into high-level alarms, attempting to immediately pinpoint the root cause of network problems. A drill-down capability allows network administrators to see all of the contributing events for each of the alarms.

The HP OpenView Event Correlation Services (OVECS) Designer for IT/Operations (ITO) and Network Node Manager allows development and testing of correlation "circuits" for custom correlation requirements through a GUI. These "circuits" can then be deployed to collection stations or management stations in the enterprise.

The ECS Engine is bundled with every product, enabling the out-of-the-box correlation "circuits" that come free with the product to be

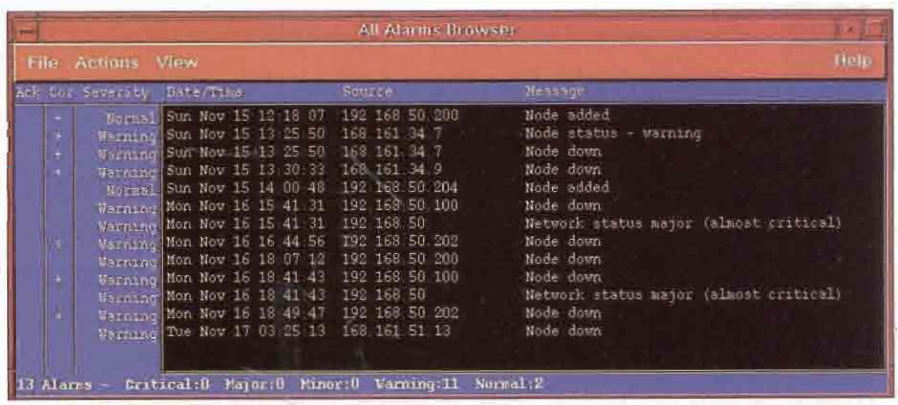

Figure 1. Event Browser from HP OpenView NNM 6 showing events that have been correlated and suppressed.

Figure 2. Suppressed events from HP OpenView NNM 6 event browser.

immediately implemented. (For a detailed description of each out-of-the-box circuit, see the *Circuits Maximus* sidebar in "Network Management And NNM Move To The Web" on page 26). Events are processed through the logic, either to completion (suppressed or output); or they are held pending the evaluation of some future conditions.

The ECS engine implements Boolean logic when deciding whether to suppress an event or to forward the event downstream in the correlation logic. Information from outside the engine may be retrieved and used to make correlation decisions, to modify event attribute values or to add created events. Figure 1 presents an example of correlated events from *xnmevents* in HP OpenView NNM 6.0. Figure 2 shows the correlated events for the "node added" event on Sun Nov 15 12:18:07.

Nervous Network Nodes

Seagate's NerveCenter uses the concept of "alarm states" to represent status information. Alarm state information is always available in NerveCenter's Aggregate Summary window. An alarm state has a name, such as Critical and a color, typically used to communicate the severity. Alarm state information can also be passed to the HP OpenView management platform or sent via several interfaces to other entities such as trouble ticketing or notification systems.

In day-to-day operation, NerveCenter users typically interact with the NerveCenter client to view the Aggregate Summary and to configure property groups, alarms, polls, masks and Perl subroutines, which are the mechanisms used to create behavior models. A behavior model is a combination of these mechanisms used to model some situation or process.

The Aggregate Summary is NerveCenter's primary mechanism for presenting information. It presents a summary of the number of object

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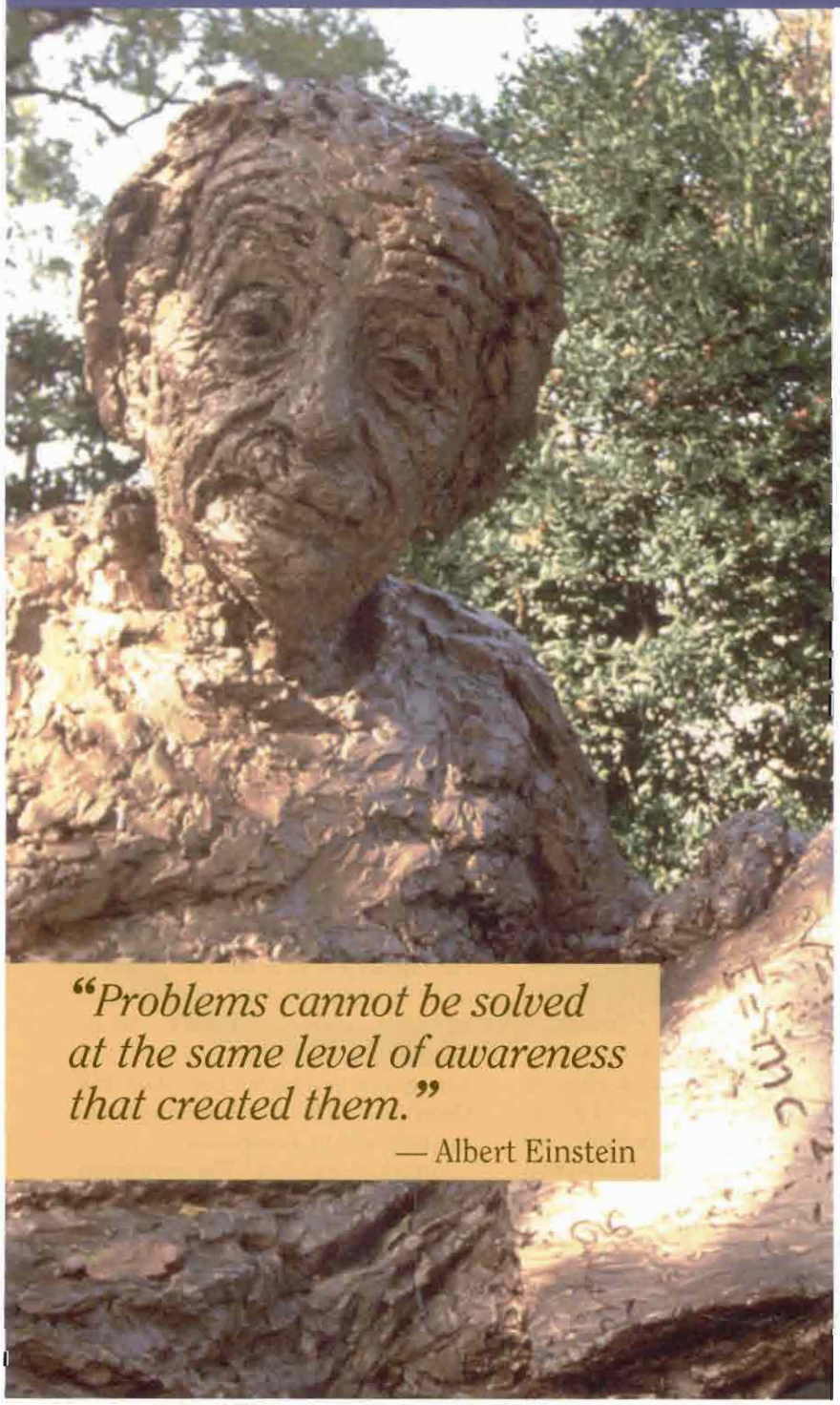

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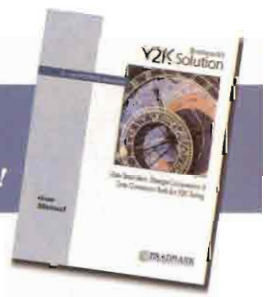

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OTHER CORRELATIONS

Two other companies offer event correlation products that integrate with HP OpenView:

System Management Arts' (SMARTS; White Plains, N.Y.) InCharge is a family of products that provide IP Fault manager; InCharge IP Fault Management; InCharge SNMP Management Applications; InCharge Service Impact Management and enables managers to improve network and system service levels. It automatically identifies the root cause of faults and performance problems by cross-correlating network, system and application data.

Tavve Software Company (Durham, N.C.) extends the functionality of HP OpenView with software that's been developed through years of network management and systems integration experience and has culminated in the Tavve applications suite tsc/Event Management, tsc/Web, tsc/Utilites, tsc/X Window Tools and tsc/EventWatch.

Tsc/EventWatch offers four major components: Event Correlation & Root Cause Analysis; Impact Analysis; Fault Notification; and Service Level Management.

—C.H.

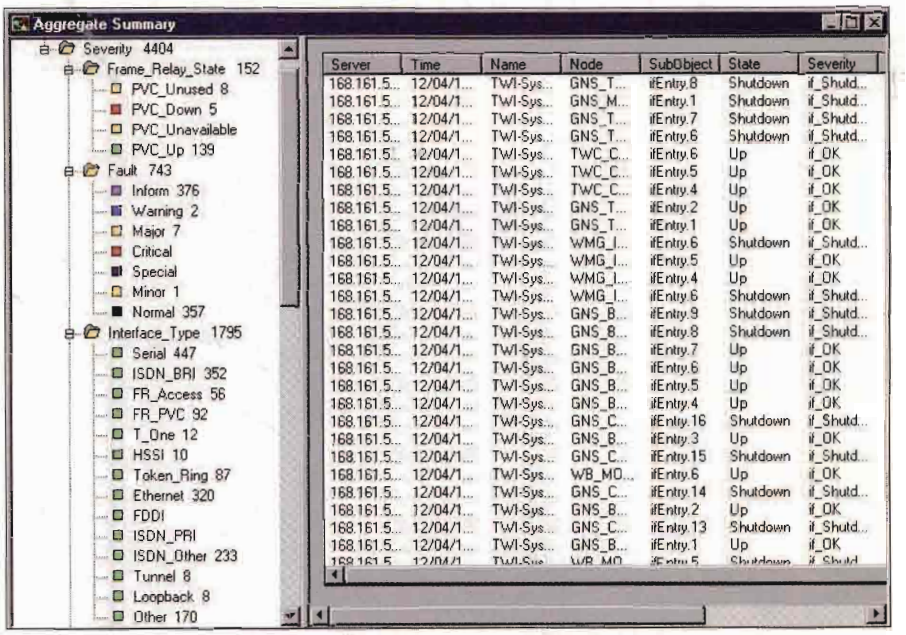


Figure 3. Seagate NerveCenter's Aggregate Summary.

instances that are in a particular alarm state (see Figure 3).

Property groups are used to categorize managed devices into groups that share common traits or properties. For instance, a network manager might define a property group named "CiscoRouter" into which all Cisco routers are placed.

Alarms are the heart of NerveCenter. An alarm usually relies on the results of a poll or an SNMP trap to generate "transitions" within the state machine. For example, a state machine might use the results of an ICMP echo reply (i.e., a ping) to determine if a device is "up" or "down." NerveCenter provides 30 predefined behavior models covering numerous situations including:

- ICMP status (is a node able to be pinged or not)
- SNMP status (is a node's SNMP agent responding or not)
- Interface errors
- Interface loading
- Interface status

This is not an all-inclusive list of behavior models. Included, but not loaded by default, are additional behavior models created specifically for Bay Networks devices and Cisco routers.

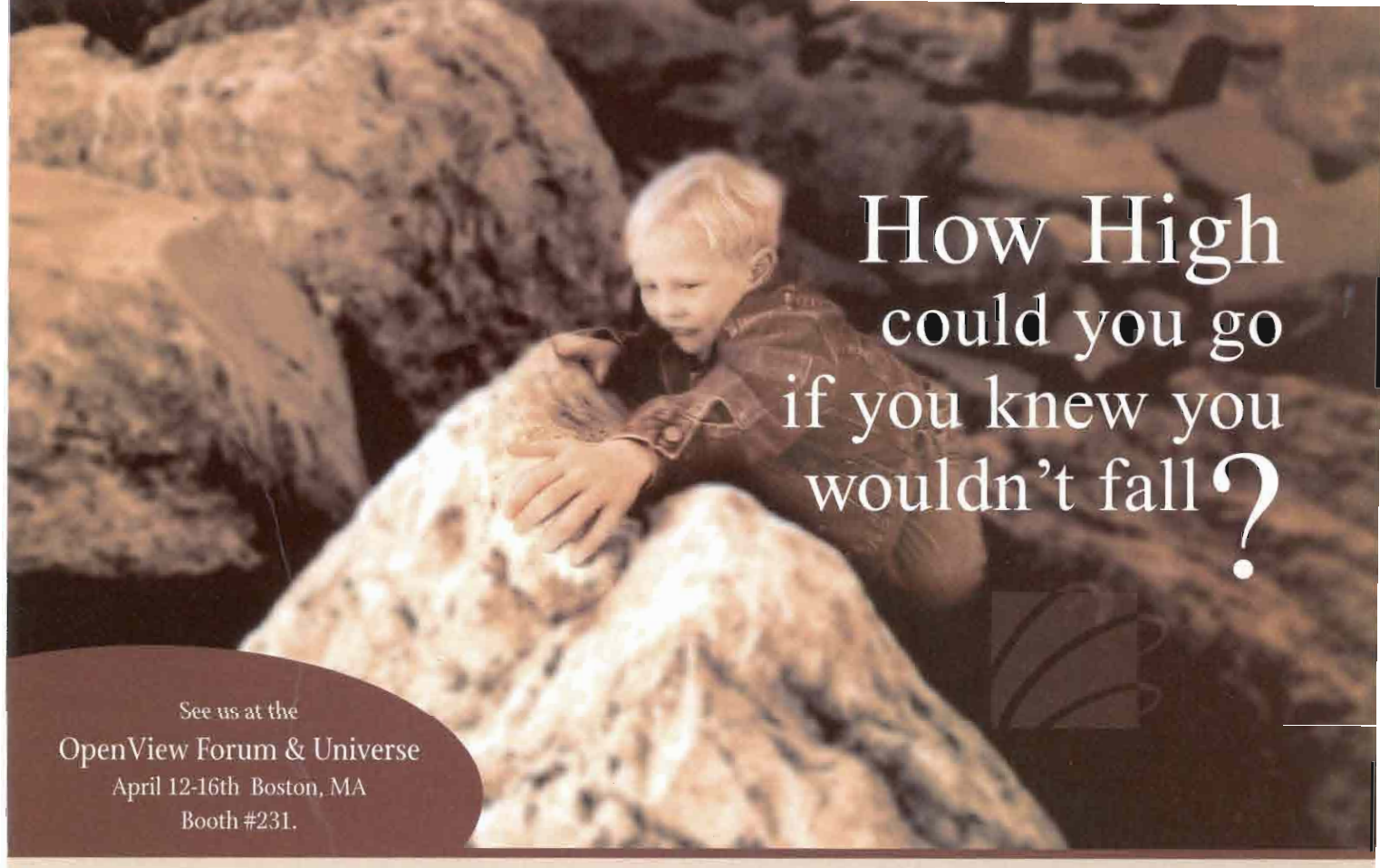
Cost and complexity can be the downfall of these systems. What you don't see are some of the hidden costs. Seagate NerveCenter is the least expensive product at $6,995 for a 250-node license. NerveCenter is also the most extensible and flexible solution but can be complex to implement.

LEADERSHIP POTENTIAL

HP OpenView ECS has the potential to be a leader because the engine is bundled with Network Node Manager 6.0, but at $25,000, it's expensive to implement. And HP OpenView ECS' technical complexity can only add to its expense.

So what's my pick? The integration of HP OpenView ECS with Network Node Manager and the Web configuration screens are attractive, but when it comes to cost and flexibility, I must choose Seagate NerveCenter.

—Charles Hebert (charles@southernview.com) is President of Southernview Technologies, Inc. (Marietta, Ga.) and the Chairman of the Program Committee for the 1998 OpenView Forum & Universe Conference.



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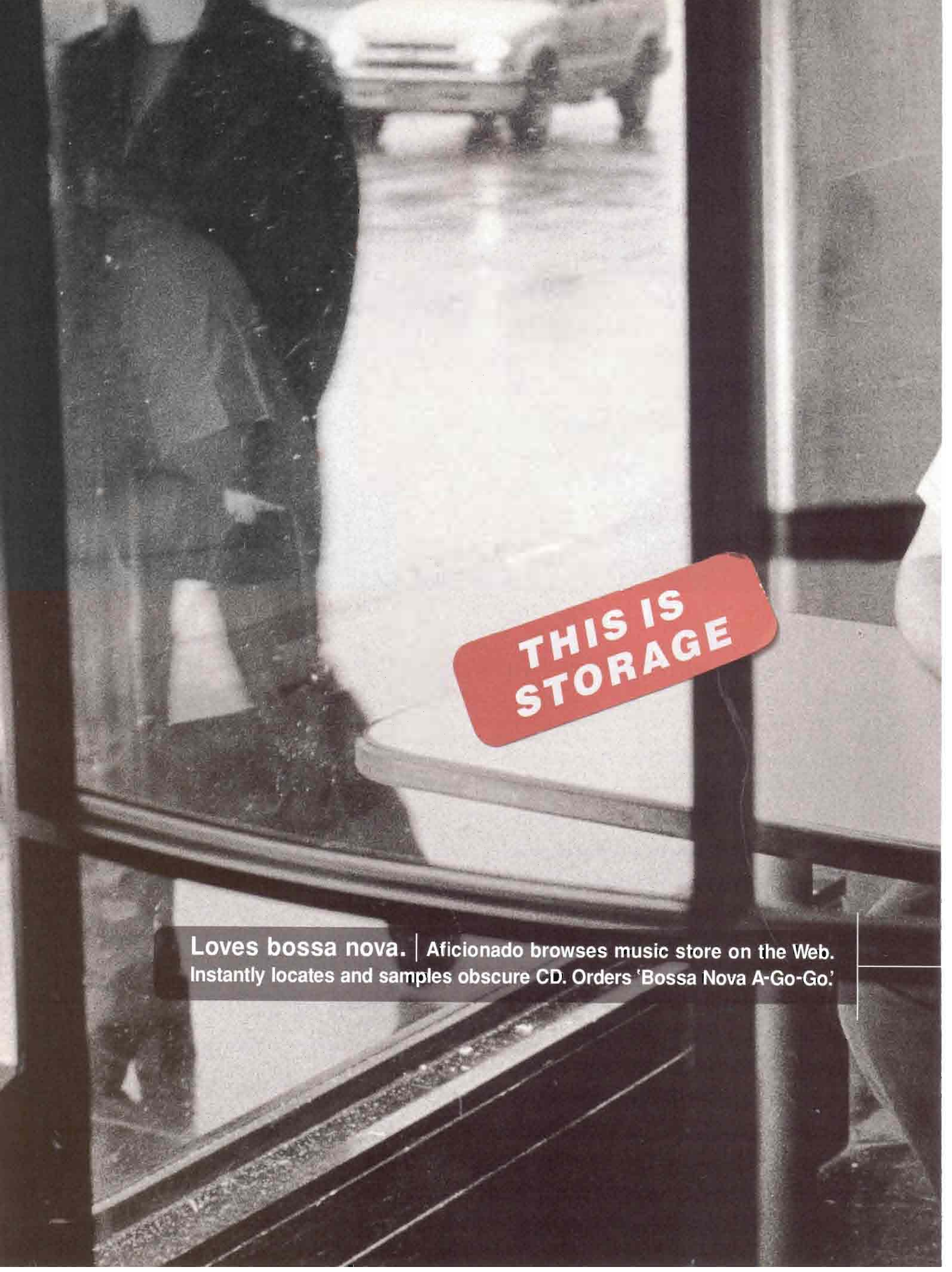

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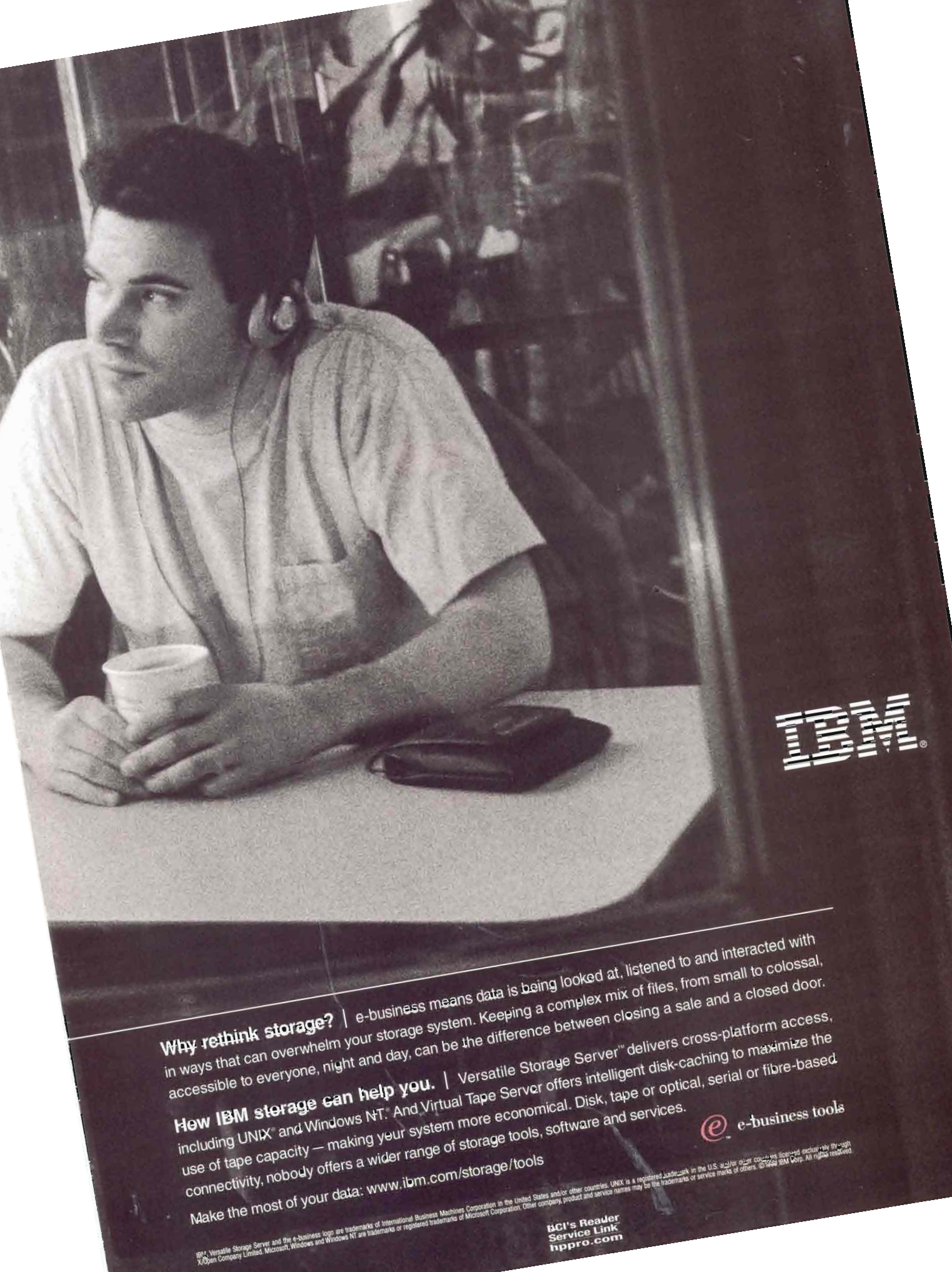

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UNIX Users Caught In The NeT

IF YOU'RE A HP-UX or other UNIX user, it's fun to complain about Microsoft Windows. One of my pet peeves is how everything is done with a mouse. I hate mice.

But if you're willing, many tasks and data requests can be performed from the Windows command line — just like you would do in UNIX. Take the Windows NT **net** command, for example, which just happens to be the subject of this month's column.

As is typical with many commands, **net** is not the most accurate name. In this case, it's because the command does so much more than just network-related issues. The syntax for the **net** command is:

```
net command-word options
```

Fred Mallett
frederm@famece.com

The power of this command becomes apparent when you realize that there are over 20 command-words. The options allowed vary depending on the command word being used. There is not much consistency in how the options are formatted. Most use a preceding backslash, some do not. A few take a preceding hyphen. You'll see some examples later.

MESSAGE-WHERE?

In UNIX, you can issue the **write**, **writeall** or **talk** commands to send a quick message to another user. In NT you can use the **send** command-word of the **net** command. It takes a target option and the message is a quoted string on the same command line. The target option could be a user name, a Domain name (where a message is sent to all logged-in members), or **/users** (messages sent to everyone connected to a server). If you specify * as the target, the message is sent to all members of your own group. Here are examples:

```
net send lwall "When is version 6 shipping?"
net send * "Meeting in 10 minutes."
net send /users "Shutting down in 1 minute."
```

The message service must be running on the targeted computer for the dialog box to appear. The GUI equivalent of this is in the Server Manager menus.

On UNIX boxes, very few users are given the rights to shutdown a machine, even the one on their own desk. In NT networks, that varies, because it's up to the administrators to decide if you can shutdown your machine. Before shutting down any computer, you should check to see if anyone is using resources from over the network. Checking for shared file access on NT boxes can be done with the **session** command-word of **net**:

```
net session
net session \\fredspc
net session \\fredspc /delete
```

In the first line above, the command returns a list of computers that are using local resources, including the user name, and most important, how many files are open. That is similar to the UNIX command **showmount**. If there are open files and this host is shutdown, you can cause data loss.

The second line shown will give you more specific information about sessions accessing this computer from the computer name supplied (**fredspc** in these examples). The third example is what might be used to forcibly disconnect a session. Remember that there are other ways that a system might be in use over the network.

TRACKING FILES

If you want to know what files are being used remotely (open), use the **net file** command — similar to the UNIX **fuser** command. With no options, **net file** provides a list of open files; an item number precedes each. You can then issue the command again with an item number as an option to get more detailed information:

```
net file 3.
```

Occasionally the system loses track of which files are open. This typically happens when a client crashes while it has files shared from another computer. Once you've determined that the file is not really in use, you can "fix" this with the **net file** command's **/close** option:

```
net file 3 /close.
```

In the discussion above, we men-

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tioned sending a message to all members of your group. On a UNIX box, sophisticated users know they can look at group information by issuing some **grep** commands against **passwd** file data. On NT it's easier to find out who is a member of a particular group. The **net** command-words of **user**, **account**, **group**, and **localgroup** give you access to a great deal of data. They also allow you to modify account, group and user information, but this all assumes you have sufficient permissions.

To display all groups in a domain, issue **net group** by itself. If you want to see what users are members of a group, for example, before sending a message to the entire group, supply the group name as an option. The command: **net group design** would list all members of this domain's group named *design*. If you're using local accounts instead of domain-wide accounts supplied by a Domain Controller, you can use the **localgroup** command-word to similar purposes.

If there is a name you expected but which did not appear in a list of group members, you'll find the **net user** command helpful. It lists all usernames that exist on a system or in a domain. If you also specify a username as the final argument, you'll get account information for that user.

WHO'S IN A NAME?

Considering that we began talking about sending messages, I'd better mention the **name** command-word of the **net** command. It provides a list of names that are valid for sending messages to. If you are a UNIX geek, think of it as a type of **who** command. This might be more useful than the list of all usernames, because it provides currently available names.

This command can also be used to add names that are available for messaging. Added names are aliases and are rather helpful if you must be logged in using a generic account. For example, if I was logged in as "dbmanager," I could issue **net name frederm /add**. Now people can send messages to me using my normal login name —"frederm" — which is the one they might expect to find.

Most of us at some time or another have gotten cryptic error messages from commands. The **net** command is no different. If you ever issue a **net** command, and get a four digit error code, use **net helpmsg**; and supply the error number as the last argument. For example **net helpmsg 6118**. What it returns is a much longer cryptic description of the error.

—Fred is currently creating a 12-step program for helping people deal with learning NT.

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Today keeping routine tasks under control requires partnering with the right software vendor. Even if you have a solution installed, be cautious. Certain vendors' HP3000® support is eroding, Y2K fixes are suspect, and Windows NT® adoption is expanding — all of which make it harder to keep the "routine" mundane. When selecting your scheduling partner, be sure to consider:

1. **PROVEN TECHNOLOGY** Untested enterprise management software can bring your operations to a screeching halt. If the software provider indicates the technology has been thoroughly tested in live operations, ask to see the quantitative data.

2. **COMMITMENT TO THE OPERATING SYSTEM/HARDWARE MANUFACTURER'S MARKET** If your current scheduling software vendor has been slow in providing upgrades or Y2K fixes, it's time to question their long-term commitment to your environment. When problems arise, you won't want to wait because the vendor's resources are distracted supporting another platform or product.

3. **SCHEDULING IS THE COMPANY'S PRIMARY BUSINESS - NOT JUST A SIDELINE** No company can offer "best of breed" products in every category. By specializing in scheduling software, a vendor can maintain the depth and breadth of knowledge required to deliver consistently high-quality products and upgrades.

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5. **EXPERIENCED WITH THE IMPLEMENTATION ENVIRONMENT** If the vendor hasn't installed the product in your environment, proceed with caution. And even if the vendor is experienced, request references from customers with similar requirements.

6. **REPUTATION OF THE VENDOR** Contact others who have purchased the vendor's scheduling product and learn from them. Make sure the product performs, installation schedules were met, and initial implementation issues were quickly resolved.

7. **SUPPORT OF INDUSTRY STANDARDS** Compliance with industry standards simplifies system maintenance and installation of upgrades. Standards help ensure that the solution has been designed for compatibility and stability.

8. **SCALABILITY AND ADAPTABILITY** Change is inevitable with computing systems. Organizations often grow rapidly and new technologies emerge. Make sure your scheduling software can keep up with the times.

9. **EXTENSIVE EXPERIENCE IN THE APPLICATION AREA** Your scheduling software vendor should understand your business requirements, the software you use, and the issues involved in controlling your routine tasks. Ask questions to ensure the vendor has the background required to deliver as promised.

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Minimize Documentation Dilemma

A WELL-DOCUMENTED NETWORK is more than a list of all of its PCs, laptops, servers and hubs. It's the network's manual. The problem is that it's one of those projects for

when "things slow down a bit." Fortunately, two companies have released new software to help get it done. Network Charter Pro by Micrografx, Inc. (Richardson, Texas) and Visio Enterprise 5.0 by Visio Corporation's (Seattle, Wash.) make documenting if not a pleasant experience, at least a quicker and easier one.

Ryan Maley
ryan@maley.org

Both packages feature auto discovery, which searches and automatically detects networked devices and diagrams and documents network connections. While both packages perform auto-discovery (even calling it the same thing), they do it differently.

MAGNA CHARTER

With Network Charter Pro you begin discovery by entering the IP address of your local subnet or any SNMP community names you use. It pings each IP address on the subnet, records any devices that answer and performs a reverse DNS lookup to return the host name. It then tries to locate any SNMP-managed devices based on the community names and return what information it can. Lastly, Network Charter Pro can query any Windows or NetWare server and return information such as domain names and software versions.

Discovery on a 30 node, 10 Base-T network segment took about 2.5 minutes. A segment with 160 devices took about 20 minutes. The discovery was complete. Every device in my test network was discovered.

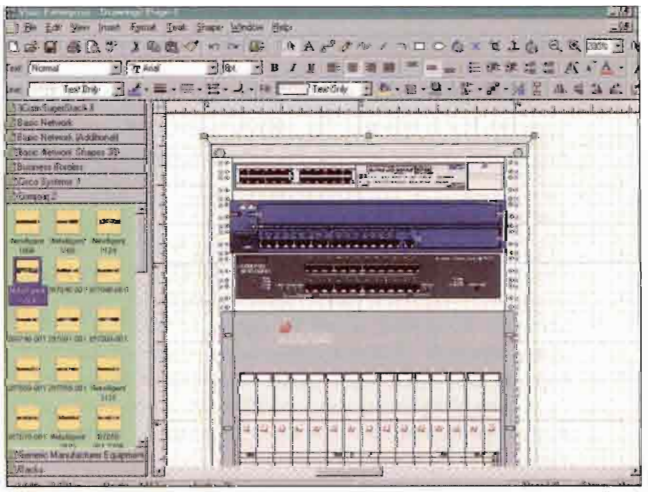
The *Visio Enterprise* process is similar. But Visio adds functionality by allowing you to specify a seed router to query that, in turn, is used to discover other network segments and routers, allowing the process to map an entire network in a single pass. *Network Charter Pro* offers no function to automatically cross segments. You must manually connect to each segment to perform discovery.

Visio relies almost completely on SNMP queries in its discovery process. Every device on the segment is pinged, but not all answers are recorded. Apparently, after a successful ping, an SNMP query is done.

If the device responds to that query, it's included in the discovery. Because not all the devices in my test network used SNMP, the network was not completely discovered. To create a diagram of your network, you'll have to manually add any devices without IP addresses or those that are not SNMP-managed. This may include devices such as network hubs or switches.

Both packages offer a library of realistic images and icons. For instance, if you want to represent your Cisco router, select an icon from a list of Cisco models. They look just like the real thing, right down to the logo.

You can also document the contents of individual network devices. Both packages maintain lists of properties for each item. Such things as the purchase date, service contract numbers, serial numbers and notes on



Visio Enterprise 5.0 features an ample database of manufacturers' equipment to include in your network diagrams.

Year 2000 compliance can be recorded.

Which package to choose? I liked *Network Charter Pro's* auto discovery over Visio's. Because Micrografx doesn't solely rely on SNMP, they're able to discover more devices. The information returned may not be as complete as the information an SNMP query can return, but at least they're included and can be updated manually.

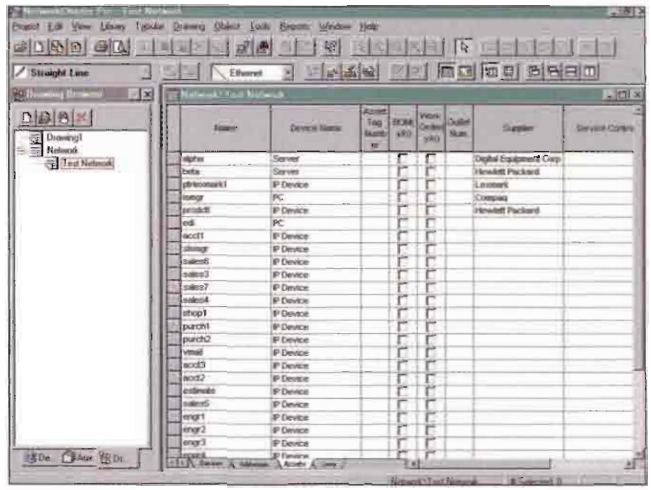
NETWORKED CHASMS

Many network managers are now trying to close the gaping hole in their security that poorly implemented SNMP can present. By relying solely on SNMP, Visio may not be returning a complete picture of your network. But, if you have many segments in your network using SNMP, Visio's ability to automatically cross network segments is a big time saver.

Visio offers a better library of diagramming images. The software CD is packed with product icons from not only the usual vendor suspects such as Cisco, Compaq and 3Com, but also includes some, such as rack manufacturers and distributors, that are a surprise. Micrografx seems to be playing catch up in this area. Both vendors offer subscription services to provide you with the latest sets of product images from various manufacturers.

Visio provides several other significant features in Enterprise 5.0. For instance, software and database modeling, which includes such things as relational database modeling, UML diagramming and connections to Microsoft's *Visual Studio*, allow you to model code.

You owe it to yourself and your co-workers to provide the best possible documentation and either package can offer significant help. Make the time to document your network. ◆



Network Charter Pro's auto discovery feature identifies network devices and allows you to inventory the devices in great detail.

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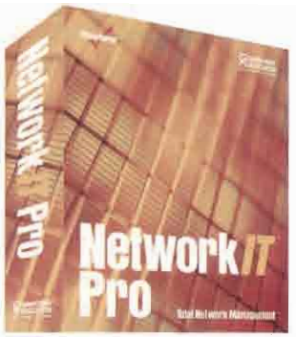

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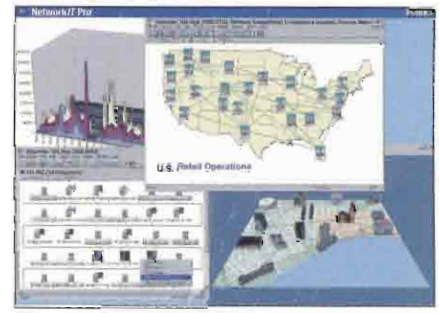

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SPECIAL SECTION

Coffee, Tea And The HP 3000

Ken Deats, Associate Editor

In October of last year, HP acquired as a wholly-owned subsidiary, the privately-held Open Skies, Inc. (Salt Lake City, Utah), developers of the OpenRes airline reservation system and a host of revenue management and integrated e-ticket/e-commerce solutions for small- and medium-sized airlines.

The technical foundation for the company's fleet of products has always been the HP 3000 running Turbo Image/SQL databases. Open Skies is not immune to technology changes taking place in the travel industry, however, and interfacing those HP 3000 stalwarts with Windows NT and UNIX clients and servers and Internet-based transaction processing is an important focus for the firm.

Taking Flight

One popular application for Open Skies is its takeFlight Online Internet booking engine that allows customers to reserve flights and purchase tickets from a Web browser. Airlines are being drawn to it because it doesn't require a reservation agent. "That saves them a ton of money," says Roy Breslawski, Open Skies' marketing and sales manager.

The HP 3000 acts as an OLTP server that communicates to the client workstation using sockets protocol and a combination of proprietary applications, explains Jim Sartain, Open Skies' R&D manager. Those local applications are comprised of Java scripts used for network validation at the client site and Perl CGI scripts. In that environment, the HP 3000 "waits for a proprietary message to come from the client," says Sartain.

Sartain adds that the applications are customized for each airline for a smooth "blend with the customer's other Web applications." He adds that those clients prefer a combination of either Windows NT and Microsoft IIS or UNIX and Apache as their Web servers and that Open Skies has found no difficulties working in either environment.

Open Skies' Revenue Management System (RMS) acts as a fare control center for the OpenRes reservation system. Using RMS, fares can be created, modified and discontinued on a real-time basis. In addition, customers with access to the Airline Tariff Publishing Company can use RMS for competitive fare analysis on a market by market basis.

Breslawski explains that RMS performs a user-definable batch transfer of OpenRes database historical information from the HP 3000 host to a Windows NT database server. Massaging reservation data on the NT server (Microsoft SQL Server 7.0 is recommended) is done running RMS

This kiosk allows passengers to check-in at an airport without airline employee contact. A passenger can pick their own seat and print a paper boarding pass.

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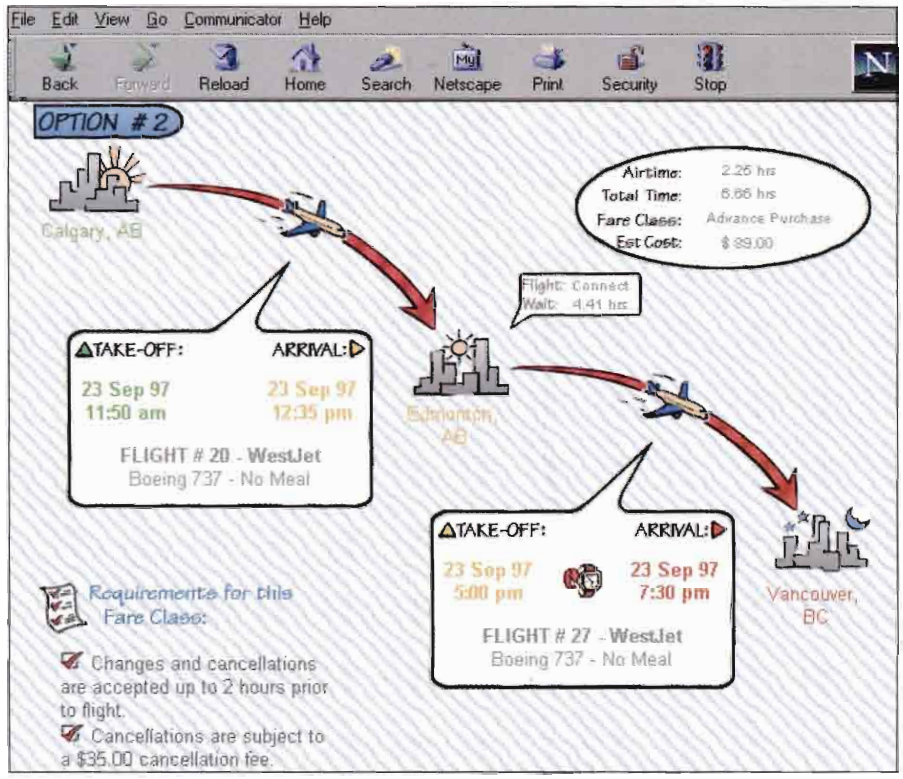

TakeFlight is an Internet booking engine which lets customers look up schedules, reserve flights and buy tickets over the Web.

on a Windows 95/98 client with Internet access and e-mail capabilities. This operation separates the CPU-intensive, decision support, number crunching process from the OLTP function of the HP 3000. Updated data is then batch transferred back to the host and re-merged with the OpenRes database. Other client software required for a RMS installation includes Microsoft Internet Explorer 4.01, WRQ Reflection for HP with NS/VT 5.2, Nico Mak Computing, Inc.'s WinZip 6.3 and Symantec pcAnywhere32 8.0.

Passenger Pergola

Travelers with no baggage can use a "Self-service Check-in Kiosk" to secure their seat assignment. One of a series of GUIs developed by Open Skies (using C++) aimed at helping each airline improve their efficiency and cost effectiveness, the kiosk communicates to the HP 3000 servers via a Dynamic Link Library (DLL) using TCP/IP. Each kiosk contains a Windows 95/98/NT PC with a touch-screen color monitor that displays a graphical image of the plane and an updated seat availability chart. Passengers can choose a seat assignment by touching the desired seat on the display then print out a paper boarding pass. The OpenRes database is then updated accordingly in real-time.

Breslawski says although the kiosk's lack of a need for ticketing personnel makes it popular with the airlines, overall acceptance has been slow in coming. He compares the technology to being "in a state where ATM technology was a decade ago. [Passengers] are not quite used to it yet."

Flight Speed is OpenRes' front-end GUI booking software. It's written in C++ for Microsoft Windows 95/98/NT and communicates with the OpenRes database using TCP/IP. It lets agents perform availability

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Stable And Capable

When HP acquired Open Skies, one of the reasons was to launch HP's Commercial Systems Division (CSY) into the transaction-based business-process services industry. Reliability, scalability and interoperability are the capabilities of the HP 3000 that, HP says, made the push feasible. And, it's those often-heard buzzwords that, Breslawski says, keep the HP 3000 server firmly in control of the Open Skies product line.

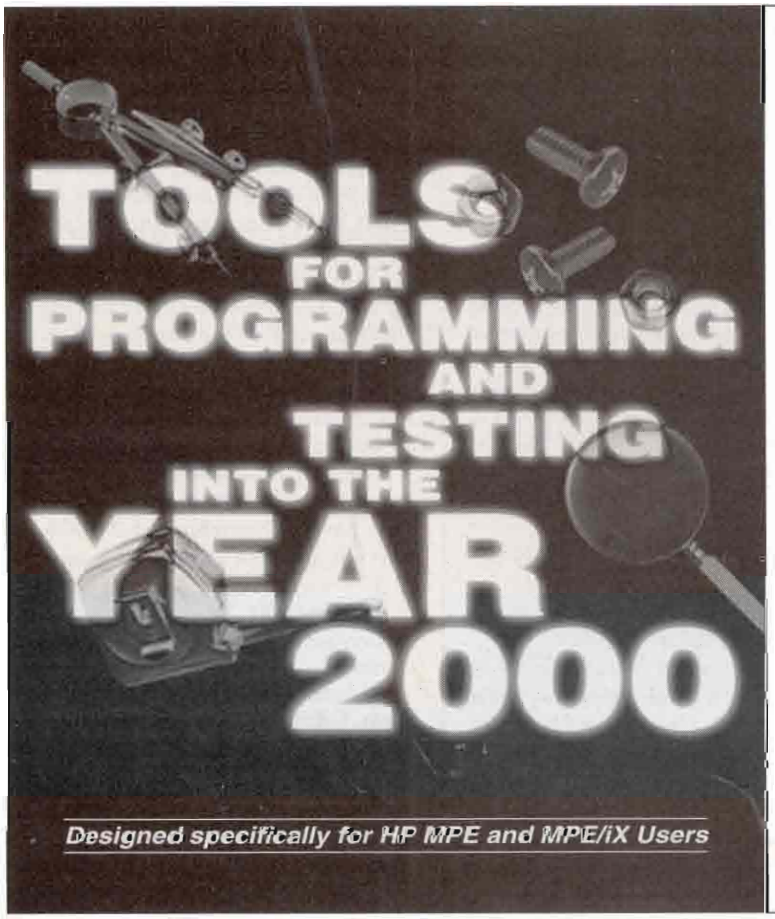
System reliability is accomplished by mirroring servers across EMC disk drives. Quest Software's SharePlex/iX-NetBase is used to duplicate the database and keep it in synch to the second server. "Mirroring and the EMC drives are most important to us," says Breslawski, speaking of insuring availability and speed to the airlines flying the Open Skies. "A three second response time for an inquiry is very slow to them."

As to scalability, Sartain says to look for Open Skies to offer more fully hosted solutions in the near future. Clients will be able to turn over their complete reservation software repertoire to Open Skies technicians. "This way, we can take full responsibility for the system, including backup and security," he says. He adds that there is also an economy of scale to be gained by increased hosting. "We can get more than one airline per 3000," he says. "With small airlines, we may host up to eight on one [server]."

Sartain adds that the servers, installed at the sites of clients who prefer to host their own applications, range from the HP 3000 Model 918 up to the 979KS/200.

"We're also putting more emphasis into integrating with global distribution systems like Saabre and Apollo," says Breslawski. This will give individual travel agents, not just each airline, the ability to run inquiries, look at an airline's seat inventory and book tickets.

In the few months since HP acquired Open Skies, it has added Win Air (Salt Lake City, Utah) and Athabaska Airlines (Prince Albert, Sas., Can.) to its fleet of clients and is in the process of installing the system at Avior Express in Venezuela. And through it all, the HP 3000 stays in the pilot's seat. ◆



With the Year 2000 deadline quickly approaching, reliable programming tools are essential to help you manage the additional demands placed on the IS Department.

On-going maintenance activities must continue while working on your Year 2000 Project. Harmonizer allows you to effortlessly compare and merge all Year 2000 modifications and other changes to your production version, without impacting your day-to-day programming and development activities.

"Test, test and test again" is the unofficial rule of Year 2000 conversion projects throughout the computer industry. Analyzer allows you to apply strict and systematic testing to your Year 2000 modifications.

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APPLICATIONS DEVELOPMENT

Suprtool 4.2

Suprtool 4.2, a data extractor and sorter for HP 3000 databases, integrates enhancements for Year 2000 date handling, including support for additional data formats and the ability to sort and select on data ranges. It also supports the new IMAGE/SQL features in MPE/iX 6.0, specifically B-trees and expanded master dataset maximum.

On HP-UX, Suprtool supports bigger filesizes. The former limit of 2GB has increased to support file sizes as large as 2.1 billion records. Suprtool for HP-UX can also control line feeds in the STExport module that facilitates Oracle database loads.

Contact Robelle Consulting Ltd., Surrey, B.C., Can. at (888) ROBELLE.

IMSL C Numerical Library 3.0

IMSL C Numerical Libraries (CNL) is a set of more than 250 pre-built mathematical and statistical analysis functions written in C or C++ that programmers can imbed in their numerical analysis applications. The new release supports symmetric multiprocessing and 22 new statistical functions focused primarily in time series analysis and non-parametric statistics. This includes the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) function, widely used in financial services.

IMSL CNL supports UNIX-based workstations from HP, Sun, IBM, Silicon Graphics and Compaq and Windows 95/98/NT. Pricing starts at $1,195 depending on platform and number of concurrent users.

Contact Visual Numerics, Inc., Boulder, CO at (303) 939-8797.

DATA WAREHOUSING

Informix i.Reach

Informix i.Reach is a Web-based corporate repository for managing and distributing company information throughout the enterprise. i.Reach provides rapid deployment of a corporate repository for Web-based information dissemination.

A Web browser interface allows anyone within an organization to be a "content owner" and contribute, access, review and maintain their own documents or content from an intranet, Internet or extranet Web site. Web site visitors can define preferences for information they want to receive and automatically have the latest content sent to them on their own personal page.

i.Reach is available on HP, SUN SPARC, Solaris, Silicon Graphics, IBM and Windows NT platforms.

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

DISASTER RECOVERY AND SECURITY

PowerSwitch/NT 4.0

PowerSwitch/NT 4.0 is a multi-node clustering solution that provides automatic failover for up to 16 Windows NT servers in a single Switched SCSI Cluster. It supports N+1 server configurations and moves data, applications and peripherals to a secondary server with no user intervention.

The new release features SNMP support allowing operators to monitor the cluster with TCP/IP tools and an automatic paging, e-mail and network notification function. PowerSwitch/NT 4.0 software is $995, upgrades from 1.x and 2.x are $350 and upgrades from 3.x are free. The kits including software, SCSI Switch and cables start at $3,140 and $3,388 for rack mounted.

Contact APCON, Inc., Portland, OR at (503) 639-6700.

Encryption Plus 2.1

Eplus 2.1 encrypts and compresses one or more files into a single self-decrypting, password protected file. A new file history feature keeps a history of the 15 most recent EXE files to eliminate re-inputting those settings. A new interface design lets users manage the software from one window. Eplus calls up the resident e-mail package and attaches EXE file to a new message and the decryption of the EXE file is done through a Windows interface. A new right-click function lets users use Explorer directly to select files for export.

Eplus uses the Blowfish algorithm with a 56-bit block cipher. It sells for $49.95 for single user copies.

Contact PC Guardian, San Rafael, CA at (800) 288-8126.

PRINTERS

Canon's CFX-L3500IF

The CFX-L3500IF is a Laser Multifunction System designed to allow companies to add or replace outdated printers and fax machines. Its functionality includes six ppm laser printing at 600 dpi, 14.4 Kbps plain paper faxing, PC faxing, scanning, convenience copying and full telephone capability.

It comes with MultiPass Desktop Manager 2.71 for Windows which allows for remote administration of speed dial and fax settings. It is also TWAIN-compliant so users can scan graphic images at 600 dpi with up to 8-bit, 256 grayscale capability. The 14.4 Kbps modem provides 6 second-per-page TX speed.

Suggested list price is $1,095.

Contact Canon USA, Inc., Lake Success, NY at (800) 848-4123.

STORAGE

Scalar AIT Series

Advanced Digital Information Corp. (ADIC) has announced the Scalar AIT series, based on Sony's AIT tape technology. The Scalar AIT library series contain the 220, 480 and 1000 that can all use the 70GB capacity AIT media as well as the original 50GB AIT tape. All are designed to be field-upgradeable to support new AIT 2 drives and media when they are introduced.

Capacity ranges from 1.4TB for the Scalar 220 to 80TB for the Scalar 1000. They have a throughput of 21.6GB per hour per drive and average file access time of 37 seconds. Scalar libraries list price starts at $14,400.

Contact ADIC, Redmond WA, at (425) 881-8004.

Web-Total Library Control

Web-Total Library Control (TLC) is software from Overland Data that enables remote operation and management of its automated tape libraries and autochangers from anywhere with a standard Web browser. Web-TLC will be embodied in a thin Web server also developed by

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Contact Overland Data, Inc., San Diego, CA at (619) 571-5555.

Xyratex To Use Mylex RAID

Xyratex, a server storage systems vendor based in the U.K., has signed an OEM agreement for Mylex's Fibre Channel RAID controller technology. Xyratex will integrate Mylex's DACFL and DACFF RAID controllers into its new Salient family of external Fibre Channel server storage systems.

The DACFL controller provides an Ultra2 SCSI LVD interface to the drives and a Fibre Channel interface to the host. Xyratex's implementation will enable higher bandwidth's over greater distances than SCSI with data transfer rates up to 80MB/second per channel. The DACFF provides end-to-end Fibre Channel interface from the host to the disk drives.

Contact Xyratex, San Jose, CA at (408) 894-0800.

SYSTEM AND NETWORK MANAGEMENT

PerfectDisk 2000

PerfectDisk 2000 can defragment every type of file on Windows NT/2000/95/98 system disks, including the Master Table File (MFT), paging files and directories. It gives users 100% defragmentation and enables users to schedule and control defragmentation runs on any Windows 95/98 or NT system anywhere in the enterprise from a central site. SMART Placement relocates the most recently used files, including the MFT, directories and paging files, to a place on the disk where they may be accessed faster.

It includes a Windows Explorer-like interface and a command line interface and multiple domain support. Single quantities are $49.

Contact Raxco Software, Inc., Gaithersburg, MD at (301) 527-0803.

WORKFLOW AND DOCUMENT MANAGEMENT

Vista Plus 4.1

Quest Software has released Vista Plus Report-Based Information Management 4.1 with enhanced report management and electronic document management capabilities. The new release contains TransVue Capture. Data from any application such as Word, Excel, PowerPoint, Lotus 1-2-3, AutoCAD, WordPerfect and Adobe PDF can be stored, along with related reports, in the Vista Plus warehouse and accessed through the Vista Plus interface.

Report bundling groups reports or pages together and prints or distributes them to more than one user.Vista Plus can capture different data streams including ASCII text, PostScript, PCL, ASA, DJDE, Metacode and AFP.

Contact Quest Software, Inc., Newport Beach, CA at (949) 720-1434. ◆

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HP Professional

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NEW FROM HEWLETT-PACKARD

E-COMMERCE

OpenPix ImageIgniter

HP OpenPix Internet imaging software is now available on Sun Solaris systems with the same features as the Windows NT-based OpenPix product. HP OpenPix products and services let Web users zoom in/out on, explore, pan and share Internet photos and other images to examine the detail of such things as clothing, jewelry, art and other visual communications.

The OpenPix developer subscription is available for $495. HP OpenPix ImageIgniter software for Solaris is available for $4,995 per CPU.

url: image.hp.com

NETWORK MANAGEMENT

Messaging Support For OpenView

HP's Lotus Domino/Notes SMART Plug-In for OpenView provides proactive monitoring of Notes services, event logs, queues and performance statistics. It works with HP OpenView IT/Operations and HP OpenView PerfView. It expected to start at $975 per Domino/Notes server.

In addition, HP OpenView ManageX 4.0 health monitors now support Domino/Notes 5.0. Improved reporting affords greater diagnostic capability, and a Web-based event browser enables correlation of Domino/Notes statistics with those of Windows NT.

The health monitors are included with the HP OpenView ManageX 4.0 Application Server for $1,195.

HP's OpenView Manager for Microsoft Exchange Server is based on a combination of HP OpenView ManageX 4.0 and HP OpenView SMART Plug-In for Microsoft Exchange Server 2.0. It includes more than 80 management rules that monitor Exchange and NT services, key Exchange and NT performance and health metrics, and NT event logs. Pricing starts at $1,990.

url: www.openview.hp.com

Secure Remote Access

HP's secure remote access (HP-SRA) is modem-based software for global HP customers of UNIX system- and Windows NT-based telecommunications, in-circuit, board and semiconductor test and inspection systems. It allows HP engineers to view and interact with remote native applications as if they were on-site and enables HP to provide real-time support services for its test-system customers.Customers have total control and access authorization for each system and application.

HP-SRA is available to many HP test-system customers at no additional cost through the company's test-system warranty and support contracts. It is being integrated into most new HP test systems.

PERIPHERALS

CapShare 910

HP's CapShare 910 information appliance can now communicate with all of the company's Windows CE 2.0-based devices, including the HP Jornada 820 Handheld PC and the HP 300LX and the HP 600 series palmtop PCs. The portable, CD-player-sized device lets mobile users capture, store and share hardcopy documents. The appliance features a new click-and-capture capability and now supports the TIFF file format.

It is expected to sell for $699.

url: www.capshare.hp.com

JetDirect 400N Print Server

The new HP JetDirect 400N is the first MIO print server to offer support for the Internet Printing Protocol (IPP). The print server features upgradable firmware, an embedded Web-server and remote management with HP Web JetAdmin. It is designed for use with Ethernet, Fast Ethernet and Token Ring networks and also offers multiprotocol and multi-NOS support.

HP JetDirect 400N print servers are expected to sell for $369 for 10Base-T, $479 for 10/100Base-T and 10Base2, and $619 for Token Ring networks.

url: www.hp.com/go/networkprinting

PRINTERS

HP LaserJet 2100

HP's new LaserJet 2100 family of printers replaces the LaserJet 6P/6M series. Designed for small workgroups, the three new printers produce true 1200 x 1200 dpi resolution at 10 ppm speed. They feature optional Postscript emulation and support for HP JetDirect Enhanced print servers. Estimated street price for the printers is expected to start at $699.

SERVICES

Exchange Consulting Services

HP's new Microsoft Exchange management services help customers define management requirements and design and implement Microsoft Exchange management policies and procedures. The services will cover Exchange architecture operations and server management, statistics and management requirements analysis, Exchange performance consulting design and audit, statistics and management design, disaster-recovery planning and system-management integration.

url: www.hp.com/go/consulting_messaging

STORAGE

Colorado Tape Drives

HP's new Colorado 14GB tape drive exceeds the capacities of the latest 11GB drives from leading disk-drive manufacturers. Benchmark tests confirmed by Veritest show that the HP Colorado 14GB runs approximately 40% faster than previous HP Colorado products. It includes HP Media Monitor software that warns users when failure is likely due to wear, or when a cartridge has exceeded what HP deems a "safe" life span.

The internal version is $355 with a tape cartridge included and $321 without. The external version is $413 with a tape cartridge included and $378 without.

url: www.hp.com/tape/colorado

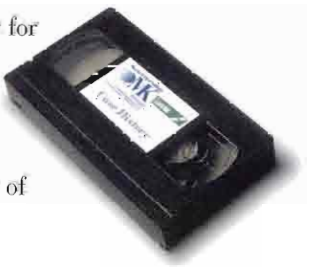
"We have 9 companies running MK Group solutions. Their software is bulletproof."

—**Terry Simpkins,** *Director, ISIT*
Lucas Control Systems

Lucas Control Systems is a $100+ million manufacturing company that was built by acquisition. This, of course, presented the company's Director of Information Systems and Technologies, Terry Simpkins, with an information systems nightmare. "Our 7 manufacturing locations were using 5 platforms, 6 MRP solutions, 6 general ledger solutions and 6 order processing systems." Some of the systems were no longer supported. Others could not cope with the Year 2000 problem. What's more, the company intends to triple in size in the next few years. Clearly, Terry Simpkins needed to standardize on a single, robust, scalable and flexible system. He found it in the MANMAN® integrated manufacturing management software from MK Group, an independent business unit of Computer Associates International, Inc. The software runs on the HP 3000 platform.

MANMAN and MK Group had both proven themselves to Terry Simpkins over the years. "We are very satisfied with MANMAN and MK Group. Their solutions have always given us the flexibility, robustness, support and future options we needed. They handle multiple currencies and they're Year 2000 compliant. And our HP 3000 system defines the word reliability. Staying with MK Group and Hewlett-Packard as we grow will save us millions in total cost of ownership."

The cost savings with MK Group were expected. But the real benefits, according to Terry Simpkins, are the "increased functionality, improved business integration and better information management." Find out for yourself what Lucas Control Systems has proven. You can't beat the powerful, bulletproof software and total customer support of MK Group. Contact MK Group at 1-800-407-8686 or visit www.mkgroup.com for a free videotape case history of Lucas Control Systems' experience with MK Group and Hewlett-Packard.



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trustworthy = hp

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