Software AG Focuses On Management

BY JEFF FEINMAN
Suppressing complexity in software-oriented architectures was the key takeaway from a mid-May summit held by Software AG.

At its SOA Governance Summit, Software AG executives discussed three main things to remember when dealing with SOA: Focus on the organization's capabilities, decouple providers from consumers and have end-to-end visibility.

Organizations should think of SOA environments in terms of their own capabilities, and not product categories, said Jignesh Shah, Software AG’s senior director of SOA product management. Executives also pointed out four capabilities organizations should have: service enablement, which allows the creation of new services from existing applications; service management; security, which protects applications from threats; and self-driving, which keeps applications up and running. Shah said the sky is the limit for companies entering this space.

Certified Management Professional (CMP) Brenda orthan, a certified SOA practitioner and business analyst at Wells Fargo Bank, said SOA is not a viable option for enterprises—”it is being built for a brand-new buyer.”

Debian Shaken, Not Stirred by Security Leak

BY ALEX HANDY
It was a nightmare scenario. The Debian Linux distribution discovered that, in 2006, one of its developers had swapped out the random number generator used for OpenSSL key generation. In May, two years after the fact, the mistake was finally acknowledged, and users of both Debian and Ubuntu found they had encryption keys that could be cracked in a matter of minutes.

For Debian and Ubuntu sys admins, last month was spent regenerating and distributing OpenSSL and SSH keys. Paul Pasika, senior systems administrator for Cyntegrity Inc., a commercial real estate marketing firm in Chicago, said the company had around 30 servers running various versions of Ubuntu when the OpenSSL problem came to light. “My first reaction was that I was frustrated that I had to go regenerate everything just because,” said Pasika.

Rene Mayrhofer, currently a guest professor of mobile computing at the University of Vienna and a regular Debian contributor, wrote to the Debian mailing list with advice on fixing the problem. He wrote, “This whole issue is very bad for Debian, so we need to make it as simple and painless as possible to fix it on individual machines.” Mayrhofer and others prepared a script for identifying weak keys and offered it alongside software patches to help administrators clean up the mess.

Mark Shuttleworth, founder of Canonical and its Debian-based Linux distribution Ubuntu, is now contemplating ways to bring more scrutiny into his operating system’s security development. In an e-mail to Systems Management News, he said the issues here did not come from any flaw in Debian’s people or processes. That does not mean, however, that there won’t be changes.

“We are still conducting a review of this failure,” wrote Shuttleworth, “and we’re taking steps to make the software more robust.”

A Cloudy Future for Computing

Path to cloud deployment hazy as companies try to find silver lining

BY MICHELLE SAVAGE
Companies looking to embrace cloud computing are finding that getting a grasp on the technology is a lot like trying to grab hold of, well, a cloud.

The increasing costs of power, staff and equipment have prompted many small- and medium-sized businesses to embrace cloud computing as a viable solution for managing computing environments. As cloud computing becomes a more accepted way of delivering enterprise system functionality, it seems the sky is the limit for companies entering this space.

But experts said the cloud will not be embraced overnight. According to Forrester Research analyst James Staten, there are a couple of things going on in today’s cloud computing market that make its future a bit cloudy.

First of all, he said, cloud computing is simply not a viable option for enterprises. When we talked to enterprise IT departments, they’re not interested in this at all,” he said. “They view this as rinky-dink, high risk and not ready for them. And they’re right. It’s not. That’s the other thing that makes this market really interesting. This market is not being built for enterprises—it is being built for a brand-new buyer.”

A CERT Advisory: Comprehend Those Vulnerabilities

BY ALEX HANDY
Carnegie Mellon University’s Computer Emergency Response Team, or CERT, identifies between 7,000 and 8,000 vulnerabilities a year. Those vulnerabilities are analyzed and channeled out as information, advisories and warnings to the many systems administrators who are in constant danger of the dreaded 0-day.

And CERT is only one of thousands of exploit tracking systems and groups around the world. With so many people finding so many holes in so many weeks, how is an administrator supposed to keep track of it all?

Art Manion, vulnerability analysis team lead at CERT, said that keeping up to date with security holes is an ever-expanding problem for systems administrators. “The sheer number is hard to deal with. I think the problem is vulnerability management,” said Manion. “There are 20 new reports today; which ones should my administrators worry about? Just getting information and managing it effectively is a huge part of the problem. We’re worried about the details, but I think on the whole it’s just trying to patch their systems when they can,” that’s the number one goal of most admins.

Naturally, Manion suggests security managers keep track of new vulnerabilities and create a list of which ones have been patched. CERT continues to monitor vulnerabilities and “we also provide an online vulnerability management system,” Manion said. “It’s public, it’s free and it’s easy to use.”
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Community Brings Liberty to the Web

Open source helps Alliance move toward interoperability with OpenID

BY ALEX HANDY

The Liberty Alliance has, for the most part, been the province of large enterprises with difficult identity and trust issues. This standards group, formed in 2001, has largely concentrated on building the standards needed to bring trusted sources and identity to enterprise networks. But the independent open-source project started around Liberty at OpenLiberty.org has brought the standards body new cache in the Web 2.0 world, thanks to some moves toward interoperability with OpenID.

Asa Hardcastle, technical lead for OpenLiberty.org, started out as the only full-time programmer working on Liberty’s Web 2.0 initiatives. When he set out on the project in early 2007, the goal was to provide enterprise identity and security features to the Web 2.0 community. Today, the project employs four full-time coders and has produced the beginnings of an overarching Web services framework for Liberty.

For that framework to become truly popular and usable, however, it needs to work with the predominant identity systems out there today. According to Hardcastle, those systems are OpenID and Windows CardSpace, also known as InfoCard. At a recent conference, Hardcastle showed, for the first time, how to blend OpenID and Liberty.

“We showed that we can play together. We’re starting out as an enterprise-grade service on the back end that supports your identity data. The plumbing we are building at OpenLiberty.org allows for applications to utilize a layer that protects and provides that information through a secure and private method,” said Hardcastle.

TRIED AND TRUE

After seven years of work, Brett McDowell, executive director of the Liberty Alliance, said the group’s newfound fondness for open-source implementations may be the cure for past problems of interoperability.

“What we haven’t done in standards so far in pure convergence, we may be able to do through software and pure open source development,” said McDowell.

Robert Temple, chief security architect of British Telecom (BT), has been working with Liberty to implement trust at the massive communications firm. But for Temple, Liberty is still about huge user pools, disparate networks and extreme security.

Temple said that Liberty has been an important part of BT’s work to federate identity across its 35 separate networks. That’s a gargantuan task, however, and Temple said that Liberty is far from alone in the solutions found. Specifically, BT has used RFC 3280, RFC 3647, WS-Trust and SAML. Temple and the BT team have also relied on the Liberty Alliance’s Identity Assurance Framework for its coders.

All this has allowed BT to let its employees access internal systems while in the field or on the local network without worry of misidentifying users. The project has brought together identity for applications like PeopleSoft, Siebel, Oracle’s financial applications, Citrix and a host of newer XML gateways. He said that identity management has paralleled network management in its evolution.

“We’ve been thinking about this in the research community,” said Temple, “and we see some similarities between the learning we had in the network world and where we are in trust. It’s the same move from scattered clusters to the single-hubbed spokes. Then the move to multihubs, then mesh multihubs. But how do we get there? I clearly think this is an area where we as the community have done a great deal to help deploy it, but there’s still a lot yet to do.”

HP Melds Mercury, SPI Dynamics

BY ALEX HANDY

Security in software development has gotten the short end of the stick for years. According to a survey conducted by research firm Vanson Bourne this past May, only 27 percent of enterprises push security concerns into the development process, while the rest load the burden entirely onto the development process, while the push security concerns into the operations.

Mark Sarbiewski, senior director of products, HP Software, said that HP hopes to unify IT and development teams through SaaS collaboration and issue tracking tools. The first step on the path to unification, said Sarbiewski, will come this August when SaaS penetration testing will be merged into HP’s QA SaaS offerings.

The security portions of HP’s forthcoming Software as a Service offerings are coming from the acquisition HP made last year of SPI Dynamics, a company known for application-level security analysis. SPI Dynamics also performed remote penetration tests, and has subsequently offered these through HP. But it’s the new work from the former Mercury Interactive, which HP acquired in 2006, that’s bringing the former SPI’s work into the modernized IT infrastructure.

“Mercury had a managed service offering,” said Sarbiewski, who came to HP from the Mercury acquisition. “We had a big infrastructure. So we took the SPI capability to run these security tests and we brought that to this infrastructure.”

That infrastructure currently hosts bug reports, test results and development metrics. With the addition of penetration testing, developers can integrate such tests earlier on in the development process.

EXISTING UPDATES

HP also refreshed the product line formerly known as SPI Dynamics in late May, the same day it announced its intention to merge SPI into its SaaS strategy. The company’s three products now fall under the guise of the HP Application Security Center.

The former SPI’s software makes up a stack that can follow a Web application through from creation to deployment. HP DevInspect is targeted at Visual Studio 2005 and 2008; and Eclipse developers.

HP QAInspect puts security tools in the hands of the testers. The big change in this update is that QAInspect ties the tracking of security bugs into HP QA infrastructure software. It is now compatible with the former Mercury tools.

For operations, there’s HP WebInspect, which can poke Web applications with metaphorical pointed sticks. WebInspect scans for cross-site-scripting and SQL injection vulnerabilities, as well as other common attack vectors. The former SPI vulnerability research team remains at work inside HP and this update brought new tests for Flash and ActiveX vulnerabilities.

Cisco Completes Nuova Purchase

BY MICHELLE SAVAGE

Cisco said it completed in late May the purchase of Nuova Systems, a data center switch startup funded by Cisco to develop next-generation data center products.

In 2006, Cisco purchased an 80 percent stake of Nuova for US$70 million. The deal was dubbed a “spin-in” investment, in which employees separate from the company for about two years to run their own venture, then rejoin once Cisco acquires the startup.

Nearly two years later, Cisco has wrapped up the deal, acquiring the 20 percent of Nuova that it doesn’t already own. The final purchase price will be based on Nuova’s performance through fiscal year 2011, with the minimum payout being $10 million and the maximum being $678 million.

Last month, Cisco rolled out the Nuova-developed Nexus 5000 switch, which is designed for data center consolidation through a unified switching fabric that supports Fibre Channel over Ethernet, lossless Data Center Ethernet and virtualization technologies. According to Cisco, the switch is an important part of Cisco’s Data Center 3.0 vision of enabling IT companies to dynamically provision application and infrastructure services from shared pools of consolidated compute, storage and network resources.

Nuova will operate as an independent business unit led by founders Luca Cafiero, Prem Jain and Mario Mazzola.
Four Key Elements for ILM

BY MICHELLE SAVAGE

With the explosive growth in storage needs continuing to advance exponentially in the enterprise, a business’ ability to manage data is more important than ever. Industry experts believe information life-cycle management (ILM) may be the solution to data management challenges.

According to Carmen Carey, CEO of CopperEye, a provider of data retention and retrieval solutions, ILM is driven by a number of forces, all of which are related to cost and accessibility. The use of new technologies that create large datasets, such as cell phones, videos and online transactions, blast data file sizes beyond previous trends. In addition, regulatory compliance is mandating data storage be retained for many years, in some cases decades or even longer. As a result, the storage systems required to retain such data are becoming larger and need to remain in service longer, adding cost, operational overhead, and resulting in data center sprawl. Businesses need to get more diligent and fine tuned about exactly what data they store and for how long, said Carey.

“People need to hold data for periods of time, and they don’t necessarily have options to get rid of it because it’s valuable,” said Carey. “ILM gives them a viable option for finding a way to work around the demand of keeping the data. It’s not just the length of the time, it’s also the volumes that are now being generated—we’re creating more and more data everyday!”

According to Dan Crain, CTO of Brocade Communications, a data center networking solutions and services provider, rather than being just another buzzword, ILM holds the key to harnessing the power of enterprise file systems, block storage and databases to align IT operations with achievement of overall corporate business goals.

“Crain explained that typical block-based storage knows nothing about what data is being stored. Rather, it is only within the file system that context about the data can be assigned. This context provides the necessary categorization of various sets of information and subsequently dictates the data retention policy of the individual sets of data. “File awareness is the backbone of ILM,” said Crain, as “attribut- es can be assigned to file system indexed data.”

One of the challenges businesses are faced with when trying to reach the de-duplication “nirvana” is, as Crain pointed out, that data ends up getting “replaced with a pointer and a hash key.” “It’s like the early days of RAID—except to RAID, it’s scrambled across 80 different disk drives! Things like de-duplication and content addressable storage are going to become more useful as ILM platforms,” he said. “File-based management systems will eventually drive ILM policies and technology.”

Secerno Plays Defense For Databases

BY ALEX HANDY

There are few servers on a network as juicy and rich a target as the database server. With all those interesting social security numbers, credit reports or confidential company information inside, databases are under constant attacks. That’s why Secerno has updated its Secerno.SQL database defense appliance to block out bad SQL queries and non-standard access.

Paul Davie, founder of Secerno, said that his company jumped into the database market in late January, and Secerno.SQL 3.0 is the company’s first product to make it into the market. Secerno pricing begins at US$45,000 and ascends according to the number of databases defended.

“The system itself is a database security appliance. It sits on the network in front of the database—so you can automatically set a policy for that database based on that fine-grained analysis. It plays well into the audit area. DBAs and auditors can get reports on how the database is being used.”

Automating report generation is especially important for SOX and PCI compliance, said Davie. Secerno features Crystal Reports built in and offers some pregenerated report types for the major governing and compliance problems, like PCI.

But at its heart, Secerno is a security tool, and Davie maintained his company’s product can offer full protection from attacks such as SQL injections. The product can also be used to defend multiple databases.

“It is absolutely perfect for SQL injection,” said Davie. “What we’re doing is looking at what constitutes normal traffic into the database. We will detect any attempt to use a database through SQL injection.”

Money and Space Are Top Drivers of Virtualization

BY MICHELLE SAVAGE

A survey released by Microsoft, in late April, revealed that 71 percent of U.S. retailers are looking toward virtualization solutions as a way to save costs, maximize space and generally gain better control of their IT infrastructures. Microsoft’s “Virtualization in Retail Survey 2008,” which was conducted by research firm KRC Research, included responses from 205 technology decision-makers at U.S. retail companies with annual revenues of $250 million or more who have IT management responsibilities for store locations or regional or national headquarters.

The survey found that 49 percent of the participating retailers are using virtualization within their store locations to help them save money, while 46 percent are using it to better respond to issues and failures of applications and systems and 43 percent said virtualization helps them save space. Energy savings were also a factor; 31 percent of respondents cited green incentives as driving their purchase of virtualization technology.

According to Geoff Thomas, general manager of Microsoft’s U.S. Retail and Hospitality Group for large retail chains, adding just one more server or application per store can be costly. “That is why virtualization is an attractive alternative, as more than 50 percent of retailers surveyed had between three and 10 servers in each of their stores already,” he said.

Among the 29 percent of respondents who are not using virtualization, one quarter said their company is considering it. Among those not considering implementing virtualization technologies, more than half said the main reason is cost.
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VMWARE CERTIFIES THIN CLIENT VENDORS
VMware has created a certification program for thin client devices that allows enterprises to choose from more VMware-certified hardware options that work with VMware’s virtual desktop infrastructure (VDI) technology. The company said that open standards ensure that thin client devices running on multiple platforms will give virtual desktop users a consistent experience. Companies can choose what type of device suits their business needs, rather than being limited to a specific device that will only support that company’s VDI.

VISIONAPP BRINGS APP DELIVERY MANAGEMENT
Application delivery management provider visionapp has made available the One Solution Strategy virtualized application delivery infrastructure management system. The Server Management component allows IT departments to create servers with a high degree of automation and the ability to enforce a methodology, according to the company. Additionally, the Workspace Management component makes sure all application delivery actions look and feel consistent for the user no matter what platform they are published with, according to visionapp. The One Solution Strategy has integration capabilities with Citrix products including Provisioning Server, XenApp and XenDesktop.

PLATESPIN CONNECTS WITH XENSERVER
Novell subsidiary PlateSpin has added interoperability with Citrix XenServer for its product line focusing on server virtualization. The company said that PlateSpin’s Workload Portability and profiling technology helps Citrix customers in accelerating the integration of XenServer into data centers. Additionally, Citrix officials said the company uses PlateSpin’s PowerRecon data center analysis and planning product for its virtualization readiness assessment service. PlateSpin executives said that all future releases of its products will have the ability to work with Citrix.

SONASAFE SPORTS MAILBOX BACKUP
Sonasoft, a provider of backup and recovery automation for Microsoft Exchange, SQL and Windows Servers, has added mailbox backups, customized ports and enhanced replication to its SonaSafe product suite. The company said backup of mailboxes larger than 2GB on the Exchange server is “impossible” because of limitations in the Mail Application Programming Interface, which generates .pst Personal Folder files in Microsoft products. The dynamic mailbox backup capability automatically splits those large mailboxes into smaller files. Sonasoft also said that the new version of SonaSafe reduces storage costs by having one complete backup of a mailbox and then having incremental backups as needed.

SUGARCRM PUTS SYSTEMS MANAGEMENT IN SAAS
SugarCRM, a customer relationship management software provider, released a beta version of a data center product line that brings systems management, provisioning and monitoring in software-as-a-service form. Sugar Data Center Edition lets service providers manage different versions of SugarCRM from one management console, according to the company. Sugar Data Center Edition comes in two versions. An edition for partners lets SugarCRM resellers and hosting providers offer the software-as-a-service edition to their customer base, and an enterprise edition that lets organizations manage multiple versions of SugarCRM from a single location.

OPENGEAR RELEASES SOFTWARE FOR NAGIOS
Communications device management product provider OpenGear made available central monitoring software for the Nagios open-source monitoring system. The new Nagios software helps server administrators and network managers monitor distributed computers and networks, OpenGear executives said. Nagios can monitor network resources such as switches and routers, along with applications. 

VMware Being Chased On Hypervisors, VDIs
BY JEFF FEINMAN
Over the last several years, VMware has been a torch carrier in the virtualization space, but company executives have indicated that other runners are nipping at their heels in two main areas: hypervisors and virtual desktops.

VMware provides system infrastructure services in a virtualized environment. Bogomil Balkansky, VMware’s senior director of product marketing, called a faster and cheaper way than traditional IT infrastructure services. Some of those infrastructure services include disaster recovery, resource management, capacity management and security.

“It’s a very powerful notion to be able to provide all these things within a single platform,” Balkansky said during a mid-May trip to New York City. “Companies right now have solutions for all these things. The trouble is it’s a patchwork of disparate solutions that are tied to hardware or the operating system.”

The virtualization market is certainly not a single-horse race, however, and one of the main areas that VMware is seeing competition take shape is around hypervisors. Hypervisors turn physical servers into virtual ones, and allow multiple operating systems or applications to run simultaneously on a single host. This can help reduce the number of servers required in an enterprise, cutting hardware and power costs.

John Gilmartin, a senior product marketing manager with VMware, said the company is trying to hold an edge with hypervisors by building what it calls virtual infrastructure services on top of the hypervisor.

Among the capabilities built into these services is failover, so that if a physical server fails, VMware’s infrastructure automatically will take care of restarting the virtual machine, Gilmartin said. VMware uses what it terms Live Migration to identify a new location for a virtual machine in seconds with a migration wizard.

VIRTUAL DESKTOP
Along with hypervisors, another emerging trend VMware has delved into is virtual desktops, according to Gilmartin. VMware’s virtual desktop offering is the Virtual Desktop Infrastructure, which replaces PCs with virtual machines that can be managed from a data center.

VMware Releases New Macintosh Desktop Beta
BY MICHELLE SAVAGE
VMware released, in early May, a public beta for Fusion 2.0, a virtualization software that allows Intel-based Macintosh computers to run Linux, Windows and other operating systems.

According to VMware, the free beta download includes several industry firsts for Macintosh virtualization, including multi-display support for virtual machines and experimental DirectX 9.0 Shader Model 2 3D acceleration. The new release brings the first multi-display support for anyone using multiple Macintosh monitors, making it easier to switch from competitors’ virtual machine programs, said VMware.

Users with virtual machines can see additional displays attached to the Macintosh as individual displays. It also adds easier conversion tools to retrieve a virtual machine from Parallels Desktop or Virtual PC, as well as older VMware VMs.

The beta release allows users to take their Boot Camp partition and convert the Windows piece into a full virtual machine, eliminating the need to dual boot.

It also provides support for DirectX 9.0 Shader Model 2 support in Beta 1 is considered experimental and performance will vary based on hardware and applications in question.

Fusion 2.0 will be a free upgrade to all Fusion 1.x users where the final version is released.
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EMC Offers Backup and Reboot Solutions

BY MICHELLE SAVAGE AND ALEX HANDY

EMC unveiled several new backup offerings that it claims will lower the cost of disk-based backup and make it a more attractive alternative to tape, and also offered software to help reboot and refresh IBM mainframes.

New data de-duplication and spin-down technologies designed to increase storage efficiency were unveiled at EMC World in Las Vegas in late May.

EMC Disk Library 3D 1500 and 3000 are LAN-based, backup-to-disk systems featuring policy-based data de-duplication and IP replication to ensure availability, reduce the amount of disk space required and enable off-site protection without physically transporting tapes. The 1500 model, which starts at US$115,000, provides up to 36TB of capacity, while the 3000 model, starting at $230,000, provides up to 148TB.

EMC Disk Library 4000 is a $200,000 virtual tape library that spins down unused disks to save power. EMC said that the combination of these new technologies will reduce energy usage for power and cooling by as much as 47 percent.

EMC also upgraded its data-protection software with new versions of EMC Avamar Data Store Gen 2 and EMC Avamar 4.0, which feature global source-based data de-duplication and a doubling of backup capacity.

Avamar Data Store Gen 2 is Avamar 4.0 running on a new pre-configured, EMC-certified hardware platform, available in models, ranging from single node to scalable multi-node. It provides twice the capacity per server node of the previous technology, which EMC said reduces overall cost of ownership by up to 25 percent.

Avamar 4.0 licensing starts at $17,000 for 1TB of de-duplicated disk capacity, while Avamar Data Store Gen 2 starts at $30,000 per 1TB node.

The company has also created EMC NetWorker in a new package for medium-sized businesses. NetWorker Fast Start, which costs $18,500, aims to reduce deployment and installation times by decreasing the number of manual steps necessary to configure and implement NetWorker.

REBOOT AND REFRESH

When the power goes out unexpectedly, it’s always the biggest system in the building that seems to have the most trouble getting back up to speed. To this end, EMC has been working on its Geographically Dispersed Disaster Restart (GDDR) software for two-site IBM mainframe environments. EMC had previously released a version of the software for three-site environments, but announced the availability of the two-site version in May.

GDDR can reboot and refresh IBM mainframes when the power comes back on, even when there’s no one nearby to push all the important buttons. The system also ensures data integrity by checking the information stored on both ends of the two-site puzzle. If anything has gone sideways out in the field, GDDR can sync up the rogue big iron with the local system to fix any data loss. Applications can also be rebooted and retriggered after a cold reboot, eliminating the need for massive startup scripts and crontabs.

SunGard Takes Strohl Down Continuity Lane

BY JEFF FEINMAN

Financial services software provider SunGard will add business continuity planning software and services by reaching a definitive agreement to acquire Strohl Systems Group.

The acquisition was announced in mid-May, and Strohl will be rolled into SunGard Availability Services, the company’s information availability department. SunGard executives said that having a business continuity plan in place is “one of the musts” in organizations today. “For the past 20 years, Strohl has been solely dedicated to the design and distribution of business continuity software,” said Rick Toler, SunGard’s executive vice president of sales support and consulting services.

SunGard claims its systems account for more than US$25 trillion in investment assets and process more than five million trades per day.

King of Prussia, Pa.-based Strohl has created a suite of business continuity products, including the BIA Professional business impact and risk assessment product, LDRPS continuity planning software and the NotiFind notification software. Another product from Strohl is the virtual emergency operations center product. In total, Strohl claims more than 2,000 customers in 20 different countries.

SunGard executives said its Paragon information availability product will be strengthened in its ability to help users prepare for business disruptions by combining with LDRPS. This combination will help with meeting recovery time objectives, they said. Additionally, Strohl Systems customers will have access to SunGard’s IT services, shared recovery and consulting services, according to the company.

Terms of the deal were not disclosed.

Splunk Brings Search to Server Virtualization

BY MICHELLE SAVAGE

Splunk, an IT Search company, introduced in late May its first server virtualization management application, Splunk for Citrix XenServer Management, which connects to XenServer.

Splunk for Server Virtualization Management supports all management use cases throughout the virtualization life cycle, including virtualization planning, workload optimization, performance monitoring, root cause analysis and log management. It also brings IT Search, indexing, alerting and reporting to the challenges of troubleshooting server virtualization.

Simon Crosby, CTO of virtualization and management for Citrix Systems, said, “XenServer customers have been asking for a way to correlate hypervisor data and metrics with everything else going on in the IT stack, including guest VMs and apps.”

Splunk puts all the relevant logs, metrics and events together to help users understand what’s happening all the way up the stack.

In the next few months, Splunk will release applications for each of the leading server virtualization platforms, built on the company’s IT Search platform.

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Meet the Systems Administrator’s Boss

Uptime is everything. The data center has more applications than ever, and despite the move toward virtualization, there are more boxes scattered throughout the enterprise. That means more systems, more platforms, more complexity. What it doesn’t mean is more staff. Fortunately, because of investments in automation and management software, his admin team can monitor and manage more systems with the same number of trained professionals. But not forever.

The good news is everything is under control this week. The bad news is that there’s no certainty about the future. The SOA and mashup initiatives favored by the CIO will be placing increased strain on applications, servers and infrastructure. And what about all those mobile platforms? Demand is strong, but there’s nothing in the budget for supporting iPhones and Blackberry PDAs. It’s only a matter of time. How can he get ready for the next shift?

The sys admin publications and tips-and-tricks Web sites his admins visit can’t help. He’s not looking for patches and fixes; he’s looking for tactics and strategies for managing the increasingly critical IT systems. He needs a wide-angle view of the interconnected world of systems administration, not narrow slices focused on just networking or security. He needs news—to tell him what’s going on—and analysis—to help him make sense of it all. All systems, all platforms, all the time.

That’s why he reads Systems Management News.

www.sysmannews.com
New Microsoft Software Sparks Innovation

IPM gives enterprises the tools they need to support creativity

BY MICHELLE SAVAGE

Microsoft rolled out a new initiative designed to streamline the process of innovation by helping companies build flexible IT platforms that support innovation in products, services and processes.

The Gartner Group’s 2007 annual CIO Survey shows that “improved competitive advantage, increased revenue growth and faster innovation are among the top 10 issues for CIOs.” According to Microsoft, its Innovation Process Management (IPM) initiative can help resolve these issues by helping companies encourage people to share their ideas, rate them, and make critical decisions about their associated risks, benefits and strategic value.

IPM helps enterprise customers apply tested technologies and formal processes to address the challenges of innovation, which include capturing the best ideas from all levels of the organization, identifying and harnessing the right people and other resources both inside and outside of the organization, coordinating innovation project teams, monitoring project progress, and measuring success.

Microsoft said that, to drive transparency, metrics development or cross-functional collaboration, companies need to have structured innovation processes in place. By speeding the process of innovation with an effective collaboration process, IPM gives companies a stronger competitive advantage and a higher return on investment.

IPM is built on top of Microsoft Office SharePoint Server 2007 and offered as part of Microsoft’s Enterprise Product Management (EPM) system. According to Microsoft, SharePoint Server 2007 provides a flexible, customizable management system for ideas and their associated content. Users can capture their ideas and collaborate with others on idea definition. Members of the community can provide ratings, reviews and feedback on submitted ideas. SharePoint Server also provides a collaborative environment that facilitates team involvement in an ad-hoc or structured fashion.

The IPM system is based on several components of the EPM platform, including unified communications software, enterprise content management, search and business intelligence. It is built around three key aspects of the overall process of managing innovation—ideation and knowledge capture, process and knowledge management, and project and portfolio management.

Microsoft said that IPM provides a unique way for organizations to centralize ideas from all levels of an organization, focusing on the right people and resources, and providing capabilities such as coordination, monitoring and success metrics.

Of Quad-Cores and Dual CPUs

IBM puts Opteron in X series; HP sharpens up its blades

BY ALEX HANDY

The titans of x86 servers both announced new hardware in late May. From IBM came three updated X Series servers, now based on the quad-core AMD Opteron processor. Meanwhile, HP announced the availability of its new dual-server blades, which include two full computers in a single blade slot for HP’s existing ProLiant series.

Both offerings brought new features to increase performance, and focus heavily on power efficiency and virtualization.

HP’s new ProLiant BL2x220c G5 relies on the Intel dual-core or quad-core 5400 and 5200 chips. The systems can reach 3.0GHz and carry up to 16GB of RAM per CPU. With a 1.3GHz frontside bus and a 120GB hard drive per CPU, these systems can pack 32 processors and motherboards into a 10U enclosure. HP has not disclosed pricing information on the BL2x220c blades, or on the chassis.

IBM’s new servers fall into the X Series product line and feature a number of performance-increasing features. For starters, the x3455 now supports up to 48GB of RAM, giving the machine more room to crunch high-performance transactions. The x3455 is also now based on the AMD quad-core Opteron server chips, and costs US$1,809.

IBM’s x3655 includes speed enhancements and new hardware support for virtualization thanks to the AMD chips at its core. The x3655 will cost $2,499. Finally, the IBM x3755 includes a three-processor option which can shave precious dollars from the total cost. There is also a four-socket configuration, and three-socket versions can be upgraded after the fact. The x3755 will cost $3,407. All three of these servers will be available this month.

MokaFive Launches Virtual Desktop Solution

BY MICHELLE SAVAGE

Startup MokaFive released in late May its Virtual Desktop Solution, which the company said meets the need for centralized management for IT administrators and provides greater freedom and flexibility for users.

Virtual Desktop Solution automates lifecycle management for virtual machines and automatically compresses files to reduce network overhead. Its virtual desktops are manageable from a central location throughout the entire life cycle from creation to retiring.

MokaFive said the product has been in development for almost three years and has had more than 80,000 downloads already. It has also been deployed in 50 different pilots.

Virtual Desktop Solution’s virtual desktops, known as LivePCs, run on Macintosh, MokaFive’s BareMetal Linux operating systems, and Windows. Because LivePCs can be executed on laptops, desktops or from portable storage devices, users can securely work in the office, home or on the road, online or offline. LivePCs self-heal on every reboot and will self-destruct with unauthorized use.

The company said that because Virtual Desktop Solution is delivered as a service, IT administrators do not need to invest in or manage new infrastructure. The service requires a per-user subscription fee and can take advantage of existing Web servers. Individual users can download it for free, while professional users pay an annual subscription that is priced per user with unlimited use of LivePCs, ranging from US$79-99 per year.

HP’s new dual-system blades can be packed into a ProLiant chassis that’s a fraction of the size required for 1U servers.
Path to Cloud Deployment Is Hazy

continued from page 1

Staten added that cloud computing is showing the classic signs of disruptive innovation, which he describes as “the use of technology that does not meet the needs of the current market but directly meets the requirements of a tangential market, and then rides the growth of that tangential market to the point where it either topples the current market or topples all the players that are currently meeting the need of the current market.”

CLOUD CONCEPT BLURRY

Cloud computing, once a concept as blurry as its name suggests, is becoming an increasingly familiar buzzword, but when combined with “computing,” the meaning gets cloudier.

Forrester Research analyst James Staten offers a good working definition for IT professionals: “A pool of abstracted, highly scalable, and managed compute infrastructure capable of hosting end-customer applications and billed by consumption.”

IBM elaborated on this definition: “Cloud computing is an emerging approach to shared infrastructure in which large pools of systems are linked together to provide IT services. The need for such environments is fueled by dramatic growth in connected devices, real-time data streams, and the adoption of service-oriented architectures and Web 2.0 applications, such as mashups, open collaboration, social networking and mobile commerce.”

Staten identified several companies as “cloud providers,” including Akamai Technologies, Amazon.com and Salesforce.com’s Force.com development platform. Microsoft and Google are also rumored to be developing pay-per-use computing services, such as hosted server processing and storage.

—Michelle Savage

One-time Leaders No Longer

BY MICHELLE SAVAGE

Amazon has been the leader of the pack when it comes to cloud computing. However, Amazon is certainly not alone in the cloud. A number of cloud computing companies, including Akamai, Google, HP, IBM, Microsoft and Salesforce.com, are offering a wide variety of cloud services, ranging from Internet search and social networking services to services that predict market trends and tailor pricing.

“There are various facets to cloud computing—delivery being one, computing another, storage another,” said Joshua Woodruff, senior architect at CafePress. “Akamai is easily the leader in the delivery space. However, Amazon’s AWS platform offers leading solutions for online storage and computing, and, of course, now Google’s recent offerings look to challenge Amazon’s position. Microsoft and others are also starting to offer fully integrated solutions from the cloud to your virtual, roaming desktop.”

The key players in cloud computing each have a unique approach and target audience for cloud-based services, said Woodruff. For example, Akamai, Amazon and Salesforce are the companies that have the most to offer to enterprise IT organizations, while Google and Microsoft are valuable to consumers and smaller organizations. And Enki, Layered Technologies, Terremark and XCalibre are lesser-known players in the hosting business that fuels and manages the cloud.

DIFFERENT APPROACHES

Akamai offers application performance services that speed up applications for users of cloud services.

Amazon offers two ways to utilize the cloud: Elastic Compute Cloud, in which customers pay for compute resources by the hour, and Simple Storage Service, for which customers pay based on storage capacity. In addition, SimpleDB is Amazon’s latest pay-by-use service, which provides access to a scalable, user-friendly database through simple API calls.

Salesforce.com’s cloud computing offerings promote using applications via “the cloud,” which means via the Internet rather than the traditional enterprise software model. The company recently announced the Force.com platform, which is a “platform as a service” offering that is accessible on-demand to help other software developers create and distribute applications.

Rather than offering up infrastructure as a service, Google utilizes its sprawling infrastructure to offer a variety of applications and information as services over the Internet. For this reason, there is some debate over whether Google Apps qualify as cloud computing in the same manner as other services.

Google’s cloud offerings band huge numbers of computers together to allow researchers to do massive calculations. Based on the same principles as “grid computing,” Google’s vision bands together much more raw computing power.

Google recently went one step further into the cloud by offering access to their Google App Engine beta platform, which allows users to create databases and manage it via their current Google account. This new service competes with Amazon’s Web Services and will primarily be used by Web developers and third-party companies providing services to end users.

According to James Staten, an analyst at Forrester Research, Google App Engine is “not exactly one to one with Amazon or any of the other cloud vendors because it’s marketed purely as a developer tool, rather than an infrastructure thing.” However, he stated that it is, for all intents and purposes, a cloud offering.

Last year, Google partnered with IBM to help universities promote large-scale, highly parallel computing practices among the next generation of programmers and system architects. As a pilot project, the companies gave the universities a compute cloud platform for delivering scalable IT capabilities as a service.

Leaders of IBM and Google hinted in early May that this alliance will move beyond the

"Cloud computing’s future could be cloudy," says Forrester’s Staten.
Alone in the Clouds

pilot phase. Google chief Eric Schmidt and IBM CEO Sam Palmisano announced general plans to build a global network of servers from which users could access everything from e-mail and word processing services to enterprise-class processing capacity and management tools.

MAINSTAYS DRIFT TO CLOUD

The pioneers in cloud computing have been Internet companies like Akamai, Amazon and a slew of start-up companies, which frequently design their own data centers. The Internet companies' requirements are growing, but mainstream corporations are becoming increasingly interested in cloud computing as well.

In the past few years, major vendors, such as Dell and IBM are stepping up with hardware offerings that power the clouds. IBM, with its Blue Cloud line, offers servers directly targeting cloud computing, allowing customers to use huge amounts of combined computing power via the Internet to slice and dice their massive data sets quickly and easily. With its new iDataPlex line, IBM allows data centers to fit more servers in their racks while saving significantly on the power and cooling fronts. When combined with IBM's Tivoli-based Blue Cloud software, customers are positioned to become major players in the cloud market.

According to Dennis Quan, CTO of IBM's high-performance on-demand solutions group, IBM has been running a cloud inside IBM, called the IBM Innovation Cloud, for use by its internal employees for two years. “If an employee has an idea and wants to get something implemented quickly, they usually have to jump through a lot of hoops to buy machines, find a place to put the machines, manage the machines...,” he said. “With the Innovation Cloud...a user can go to a self-service portal and request access to some amount of compute resource. The system will satisfy your request by automatically provisioning the resources, then give you access within a half-hour or so.”

Quan said that this cloud has been used for more than 100 projects and many types of applications (collaboration, social networking, development tools, even a game has been written using this infrastructure). “We see this as a huge success, and about 20 percent of the projects contribute back to our product technologies that we sell to customers,” said Quan. “It’s been good for our bottom line and for stimulating innovation at a high level.”

Dell's Data Center Solutions division was created last year to address the custom needs of its massive Internet search customers (three of the top five in the United States), and now serves what it refers to as the hyper-scale market (Web 2.0 service vendors and users deploying 5,000-plus-node HPC clusters).

So where is Microsoft in this cloud computing haze? Microsoft has begun testing a so-called cloud computing, Web-oriented software platform called Live using cloud computing it can connect all of their devices into their own personal mesh folder, which lives on the Internet and can be accessed by all devices.

Microsoft announced its Live Mesh platform in April, and it is only available as a technical preview to a limited number of beta testers. However, while some say Microsoft is behind the times when it comes to cloud computing, Staten contended that the company's size and reputation ensures that it cannot be ignored as a future contender in the cloud computing space.

Microsoft declined requests to comment on its cloud strategy.

but Future's Bright

ment cycles and accelerates the ability to innovate. For companies just starting out or who want to test the feasibility of a new online service concept, it may even be good enough for initial production use.” Staten said that, while smaller companies are certainly more aggressive in exploring the cloud computing possibilities, there are many benefits for large companies to use cloud computing services—even if it’s just an experiment. He noted speed of deployment, reduction in cost, and ability to produce fast prototypes as the most attractive benefits for large companies.

However, these benefits carry a certain amount of risk, said Staten, including security and compliance issues. “If your service takes off and now you want to put your security around it, that’s not an option on the cloud,” he said. “If you want your security, you have to migrate it back to IT. And IT may not take it back. You may move forward on a cloud vendor and people in your company start asking, who are these people? What kind of financial backing do they have? Will they be around in a year? With some of the cloud vendors out there, these are tough questions. If you do it on Amazon or Salesforce or Google, it’s easier to answer those questions. That’s why we see more cloud activity gravitating to the branded vendors today.”

BUSINESS ASSURANCES

In addition, when it comes to a business depending on a cloud computing service, Woodruff cautioned that contractual commitments and service level agreements must be firmly in place. One of the biggest risks is the availability of services. Earlier this year, Amazon’s S3 service was offline for several hours due to an internal problem with the authentication server. While the service was quickly restored, a number of companies were affected because they could not access data stored on Amazon’s servers.

“This is a major gap in current cloud computing offerings, and is why you typically only see Akamai as a dominant player in most enterprise environments, while services such as AWS (Amazon Web Services) are being used primarily by startups, or as R&D efforts used to fill a small, specific niche in larger companies,” said Woodruff.

Woodruff said that, while the benefits are plentiful, cloud computing is still in its early stages and is not yet a viable option for every company’s needs. “If you’re filling a specific niche that can be filled more effectively and cheaply using cloud computing infrastructures, the benefit may outweigh the risk,” he noted. “If your revenue depends on that niche, you don’t want to bet your business on someone else’s availability unless you have a contract that protects you.”

According to Staten, cloud computing has yet to meet the needs of large enterprises and gain their support. However, he said, most large enterprises are now experimenting with using cloud computing internally for research and development and quick-hit projects. “So far, we categorize it as dipping their toes in the water,” said Staten. “The bulk of people using clouds today are startup companies and small businesses who have no database or infrastructure legacies. They’re basically building their business using this cloud model and they’re the ones that are going to demonstrate the most innovation because they’re starting from scratch.”

MUCH IS AT STAKE

Woodruff agreed that large enterprises are reluctant to embrace cloud computing because it has yet to meet their IT needs. “Without a service level agreement, there is no guarantee that this risk has any indemnification,” he said. “Who will be accountable when connectivity or service fails and my revenue is impacted? I need a contract that has commitments, penalties and credits, and no cloud computing infrastructure offers this on a level that is suitable for enterprises.”

Outside of service level agreements, Woodruff said that there is no guarantee that the Internet will work. “The Internet is a public service that can go down at any time,” he said. “Portions of the Internet get congested or interrupted. There’s enough challenges in keeping our own internal businesses up. It adds a layer of complexity and impacts your liability to be dependent on a external service, such as a cloud computing service.”

Woodruff also cited lack of visibility to data protection and adequate fault tolerance to sustain highly available services as major barriers to enterprise adoption.

“Cloud computing has a long way to go before it’s completely embraced by the business community, but there is no doubt it’s coming as the potential cost savings and efficiencies to be gained by leveraging someone else’s economies of scale is simply undeniable,” he added. “Once cloud computing vendors get around to fortifying their service platforms, guaranteeing service availability levels, and providing more intelligent fault tolerance/highly available service paradigms, the adoption rate will become higher.”

Despite hesitation, Staten has no doubt that cloud computing will grow on the enterprise side in the near future. “The cost value of this is just too compelling for it not to grow,” he said. “It’s something you can purchase with your credit card. Rather than going through the corporate purchasing process or asking any business unit for authority, you can use it. That’s very empowering. And there’s no long-term commitment. I can use it today and never use it again.”
Debian Shaken, Not Stirred by Vulnerability

Debian and Ubuntu security firms have been delayed in creating patches for a recently discovered exploit in the Debian Linux operating system.

Cert Advisory: Know Your Network

CERT provides a guide to understanding how to protect your network from vulnerabilities.

Summit: Decouple SOA Providers, Users

The summit discusses the importance of decoupling SOA providers from users, allowing for greater flexibility and autonomy in IT management.

Mistake. It was obvious if you over-relied on a key system that was directly vulnerable to attack.

Regulating Services

To set up the best possible SOA infrastructure, the key notion is service management, according to Matsumura. The marketplace is no longer linear.

Unbreakable constraint: what assets do you consider the most important? That's the question you need to ask yourself.

CERT Advisory: Know Your Network

CERT provides a guide to understanding how to protect your network from vulnerabilities.

Summit: Decouple SOA Providers, Users

The summit discusses the importance of decoupling SOA providers from users, allowing for greater flexibility and autonomy in IT management.
BY MICHELLE SAVAGE

Startup Paglo launched the beta version of the first search engine designed specifically for IT, giving IT departments a new solution for solving problems.

According to Paglo CTO Chris Waters, Paglo, a software-as-a-service offering, has been dubbed the “Google for IT” because of its ability to take all available information about an IT environment—from network to configuration to users—and make it searchable via the Internet.

“Paglo is really a system of record for IT,” said Waters. “Because it collects all the information and maintains a complete history of what’s changed over time, it’s the go-to place for the history of your IT environment. This means greater productivity, because it can proactively address issues, solve problems and enable better use of an infrastructure that’s already in place.”

Paglo has three components: a crawler, a search index and a Web 2.0-style user interface. Once downloaded, the crawler automatically finds every server, device and application that exists on a network. It then sends this information to the index server, using encrypted technology. Paglo stores a separate search index for each customer, allowing users to perform keyword searches and use other features from their Web browsers.

Paglo’s crawler does not index documents, images and other forms of media found on the Internet. Rather, it identifies the resources within a corporate or organizational network (such as devices, users and software) and makes this information available in traditional, Google-like form.

Users can also search for information using a keyword search or a notification system that is similar to Google’s Alert system, which allows users to quickly see if a server is experiencing technical problems.

Paglo is unlike Google in that it can answer questions quantitatively and exactly. For example, a user could identify the number of copies of Microsoft SharePoint being used across the company or find out how many routers are being used in one department. In addition, Paglo allows users to take search results and see them in other formats, such as tables and charts.

Waters said that Paglo has the unique ability to cross multiple domains, including software, users, computers and network information, that are typically managed by separate systems management tools. Because of this ability, Paglo can tell users everything from how many copies of Microsoft Office they have to how much bandwidth they are consuming to what the exact source of an IT problem is.

“If I read something about a new vulnerability in Adobe Acrobat and want to find out which copies of Acrobat are vulnerable, I can do a quick search and narrow it down to find an exact answer,” said Waters. “It’s a really powerful idea to help IT users solve their problems.”

Brian de Haaff, CEO of Paglo, said that many vendors today offer solutions tailored to one data set, such as log files, but fail to collect information about the overall IT environment, which can be used to solve many problems. “We’re providing a universal search tool—we collect all the information available about an IT environment and give companies a search paradigm to access it,” he said. “It’s on-demand, it eliminates headaches and it enables people to benefit from the wisdom of their peers.”

The public beta will last at least through the end of the summer, according to Paglo, at which time it will move to a paid model.

Paglo has been working with computers for almost 20 years, since the Z80® days. Fluent in four languages, Mihai holds almost a dozen certifications, including the CISSP®.

As a Security Analyst for a multi-national human resources solution provider, he manages over 600 Windows® servers across the enterprise and has to report to compliance auditors on a regular basis. Security, documentation, and server monitoring are his greatest concerns.

“Several years ago, EventSentry was an instant hit. It was a great investment for us. It automated the alerts and notifications, providing a bird’s-eye view of our environment, and we haven’t looked back.”

Mihai Petre uses EventSentry to monitor his server environment.
Mu Dynamics Blocks DoS Attacks

BY ALEX HANDY

When it comes to network security, it’s always good to kick the foundation and bang on a few virtual walls, just to make sure the house won’t collapse when a tornado hits. For two years now, Mu Security has been selling a network appliance that can do just this: test internal systems for holes. The company announced in late May that it had changed its name and expanded its flagship Mu-4000 security analyzer with a new DoS module.

Now known as Mu Dynamics, the company behind the Mu-4000 is hoping to address the rising problem of distributed denial of service attacks. The new DoS module can be used with existing Mu-4000 appliances, but Mu Dynamics is expecting the addition of these capabilities to drive more interest in the security analyzer.

The new DoS module can push DoS-like packets around a network, targeting specific systems with specific attacks. Each attack package can be customized with XML, and payloads can be tweaked to mimic the ever-evolving host of possible vectors found in the wild. In addition, the module includes some pre-configured attacks that simulate SIP floods, the Slammer Worm and other common DoS attacks.

“Helping network operators reduce their costly downtime problem, maximize service revenue and ultimately bolster their customer satisfaction is Mu’s number one priority,” said Dave Kresse, CEO of Mu Dynamics. “The technologies has new DoS Module helps improve customer satisfaction by enabling network operators to proactively understand where their services can be negatively impacted by DoS and Distributed DoS attacks. We expect that many of our existing 100-plus deployments globally will add the DoS Module to their current configurations, and that many new customers will purchase Mu’s proactive service assurance solution based solely on its breakthrough capabilities.”

More information can be found online at www.musecurity.com.

StorageCraft Releases ShadowProtect 3.2

BY MICHELLE SAVAGE

StorageCraft Technology Corp., a provider of storage, data protection, disaster recovery and backup technologies, announced in early May the release of ShadowProtect 3.2.

StorageCraft ShadowProtect 3.2 is an update to the ShadowProtect line of disk-based backup and disaster recovery software. This new release affects StorageCraft ShadowProtect Server Edition and ShadowProtect Desktop Edition.

Now, in addition to supporting 32-bit systems, the software will support 64-bit platforms, such as Windows Server 2008 and the new Microsoft Exchange Server.

The release also includes enhanced retention policy for removable drives, graphical user interface updates and ImageManager improvements.

StorageCraft ShadowProtect 3.2 is available free of charge to existing ShadowProtect customers who have version 3.x or later, and to customers with existing maintenance contracts.

AMD Unveils Low-Power Opterons

BY MICHELLE SAVAGE

Advanced Micro Devices (AMD) unveiled in mid May five quad-core Opteron processors, which the chipmaker claims will help lower power costs in the data center.

According to AMD, the new chips are the industry’s first energy-efficient x86 server processors with four processing cores and an integrated memory controller in a low 55-watt ACP thermal envelope.

The Quad-Core AMD Opteron HE (highly efficient) processors are designed in both the 2300 and 8300 series for two-, four- and eight-way rack servers and blades. According to AMD, these chips have outperformed comparable x86 energy-efficient processors. The chips earned top scores for SPECfp_rate2006 in both two- and four-processor configurations, enabling the scalability and efficiency benefits of AMD’s Direct Connect Architecture for businesses of all sizes.

AMD said that blade and rack systems based on five new low-power Quad-Core AMD Opteron HE processors are now widely available from global OEMs and solution providers.

Wyse Thin OS Updated For Virtualization, Multimedia

BY ALEX HANDY

Wyse Technology updated in late May its thin client operating system to perform better in virtualized environments. The update also included new support for multimedia playback through Citrix’ presentation server. The updates bring more options to the Wyse Thin OS when running in environments that serve up virtualized applications and desktops.

With version 6.2, Wyse has embraced Citrix’ Independent Computing Architecture (ICA). ICA allows hosted server applications to offer virtualized desktop clients regardless of operating system. A windows application can be served up through a virtualized client in Linux, for example. Wyse Technologies has enabled ICA to function more effectively under its thin client operating system.

This updated version of the OS also includes new support for IdentifiPHI SAF-solution 5. IdentifiPHI is a biometric and smart card security solution, and the inclusion of support in this iteration of the Wyse Thin OS allows users to securely access their data from any compatible terminal in an organization.
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EDITORIAL

Don’t Take Encryption for Granted

When the Debian team revealed in May that it had cryptography problems, many systems administrators found themselves regenerating and managing thousands of encryption keys. From a management standpoint, the biggest hassle was, likely, figuring out which keys were bad and where they all resided. But for the end user, the whole debacle was likely ignored. When it comes to public key encryption, most end users have trouble understanding what it is or why it is important. To them, it’s just another way to log in to their Web access set up for them. They don’t even know there’s encryption involved, let alone understand what an elliptic curve is.

These users are probably taking your security measures for granted. And, now that Internet encryption is an old and proven discipline, perhaps you’re taking your encryption for granted as well.

Encryption can be a double-edged sword, however. If your system is locked down, and all your keys are 1024 bits or higher, it’s very likely that, if there’s a security breach, you’re not going to consider a successful brute force attack against those keys as your first culprit. Instead, it’s more likely that someone’s password has been stolen, a database has been compromised or a trojan has made its way onto a server. Should security practitioners think this way? Probably not, but after years of solid and reliable encryption being available to anyone everywhere, it’s no wonder that crypto tends to be the last possible place people expect a failure. Blame vendors and open-source developers: It’s easy to spin the wheel and scramble things beyond recognition before sending them out into the wild.

And this is why the Debian failure has been such a massive nightmare: With the changing of just a few lines of code, millions of keys generated by thousands of users over the past two years have been completely vulnerable, and there’s been nary a clue. Even the best of cryptographers can’t tell if a bad random number generator was used just by looking at the key. And that’s the worst part about crypto vulnerabilities: They’re the sort of problem that can be hidden for years then pop up suddenly to reveal an entire infrastructure as vulnerable.

It’s unfortunate that the Debian team made this mistake, but perhaps, as a warning, it’s a good thing overall. We’d bet that no one who’s following this issue is going to take cryptography for granted anymore. As rightly they shouldn’t.

GUEST VIEW

What’s It Mean to Be Green?

While the notion of being “green” has become a familiar marketing concept, it offers IT managers very little in the way of tools for reducing escalating power and consumption needs and costs. The key to reducing power consumption in the data center is through an eco-efficient approach that integrates environmental, social responsibility and economic impact analysis into the planning and design processes. Additionally, the industry needs to create a clearly defined set of metrics that will allow organizations to control power consumption and costs.

The concept of “green” is a bit misleading in regards to computing and networking equipment (considering it requires power), and as new features are added, such as PoE, or system density increases, even more power is needed. Unless it is powered by a truly renewable energy source, it is a fact of operating a typical data center was to a major metro-politan area, today, they should look at how close a potential data center is to renewable energy that can either power or cool the data center. At the system-level, much work is being done by vendors to reduce power consumption, including using lower voltage components and passive copper backplanes. Advanced management features that allow customers to tune power needs are also providing a way for enterprises to control escalating power needs. At the computing-level servers are increasingly being packaged with self-cooling systems, eliminating a significant source of power consumption.

Finally, and perhaps most significantly, technologies are crucial to ultimately optimizing the data center. Virtualization is at the top of that list for its ability to reduce, in a drastic and immediate way, the number of servers in a data center. While virtualization is in widespread adoption, it is not the only technology means through which data centers can control power consumption. Network automation offers another set of tools. By automating the data center infrastructure, for instance, a load balancer could tell both an underutilized server and the port on the switch that is connected to that server to power down. When traffic increased, the load balancer would then tell all components to power up. It is this type of network planning that will allow IT managers to gain an immediate reduction in power consumption without a wholesale data center upgrade.

Despite all good intentions to build a data center that utilizes energy-efficient best practices, without a standardized metric or measuring stick it, is virtually impossible to plan for power consumption within the network, much less make an informed decision about which products will work within given business requirements.

While industry groups like the Green Grid are attempting to standardize metrics, networking vendors have instead engaged in a battle of funny math to demonstrate how their products are more green. This creates a high level of confusion at the customer level and prevents any real analysis of power consumption or eventual reduction.

Consider the following number: 61 billion kilowatt-hours. This represents the amount of energy consumed by the nation’s data centers in 2006, according to a recent report by the EPA. It’s equivalent of 1.5 percent of total U.S. electricity consumption in 2006—or US$4.5 billion spent on powering up and cooling. In addition to mounting costs, a vast majority of businesses have reported server and storage downtime, outages and, ultimately, loss of customer satisfaction and revenue as a result of power- and cooling-related issues, according to a survey by industry analyst group IDC.

Power and cooling are serious issues for organizations today and will only get worse unless the industry moves away from muddying the waters with claims of being green and toward a serious discussion focused on how to best help IT managers build more efficient data centers.

Through eco-efficient optimization, a typical data center can reduce energy costs by as much as 50 percent—or $400,000, according to IDC.

Stephen Garrison is a vice president and serves at Force10, a company that builds and secures high-performance networks.
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TOOLING UP TO GO GREEN

By Jeff Feinman

Companies everywhere are emphasizing energy-efficient data center technologies.

THE NAME OF THE GAME IS GREEN

According to Steve Sams, vice president of IBM Global Site and Facilities Services, it is green, as in energy efficiency and reduced expenses.

The name of the data center game these days is green, as in energy efficiency and reduced expenses.

Many of the IT industry is putting its focus on decreasing data center power consumption mainly because of customer demand, and that it can result in a significant drop in operations cost. There are various ways in which this is being done.

Some organizations are seeking to institute standards for data center management. The Green Grid, for instance, has created two metrics, Power Usage Effectiveness and Data Center Efficiency, which helps data center operators estimate the energy efficiency of their data centers. Also, Leadership in Energy and Environmental Design is a third-party certification program that provides data center ratings. However, there is no clear data center standard and there is difficulty in defining exactly what a green data center should entail due to different sizes and needs of facilities.

While data center standards may not be quite ready for prime time, many companies are already implementing power-saving, cost-efficient technologies both as products on the market and for their own operations. Whether it’s phase-changing batteries, technologies that remotely power down servers or server consolidation efforts, many companies are trying their best to bring energy-reducing technologies to the table.

EVERYTHING GREEN

IBM has committed to a number of goals in reducing energy consumption with Project Big Green. About a year into Project Big Green, IBM has worked with more than 2,000 customers worldwide building data centers and creating energy-efficiency initiatives. The company is also partaking in a large server consolidation effort that it hopes to complete by the end of 2009.

Project Big Green attempts to conserve energy in every possible aspect of data center management, ranging from the facilities level to the administrator level. The project is aimed at implementing more intelligent design and more efficient cooling systems (for example, using liquid as opposed to air for cooling). It is trying to increase virtualization and put into practice what the company calls active energy management, which involves managing and monitoring data centers for optimal energy use.

There has been a push in the industry as a whole to “go green” and adopt data center management methods that cut energy costs and employ environment-friendly processes, so IBM is not alone in that respect. It has, however, rolled out some notable products within Project Big Green.

IBM executives said that between 55 percent and 65 percent of the power coming into data centers is used by HVAC systems, lighting and other maintenance factors, so IT equipment is using less than half of data center power. To try and shift those figures to a more efficient level, IBM has created the cold battery, which aims to improve the efficiency of data center chillers. The cold battery is a phase-state changing material that can turn from a liquid into a solid. It is a better option for chillers than water, IBM said, because the temperature at which it turns to a solid can be set, rather than solidifying at the freezing point. This can use less energy when charging the battery. The cold battery can be used as a primary chiller or as a means of disaster recovery during power outages.

The cold battery is part of a cooling tower, a source for cooling the air in data centers. Executives said the battery holds power better than a traditional cooler and it can be charged at night when it is cooler and utility rates are lower.

Project Big Green also brings to light IBM’s Active Energy Manager, which is included in all of the company’s servers and storage devices. Active Energy Manager allows users to manipulate the amount of power being used when a server is running. It can run on Windows on System x and Linux on each of System x, System p and System z.

At the system level, IBM has created the Rear Door Heat Exchanger, which is a water-cooled exchanger attached to the

POOLING DATA CENTER HEAT

IBM and Intel repurposing facility runoff

There is much concern surrounding excess heat from data centers nowadays. Large quantities of heat can have an adverse effect on the environment, and it can cost companies very much to have the proper cooling to counter this data center issue.

However, some companies have come up with creative ways to recycle this data center heat and channel it in other ways. IBM is taking a dip into a project that’s using this data center runoff to heat a public swimming pool in Uitikon, Switzerland. In the data center that IBM built for Swiss IT service provider GIB-Services, air conditioners will cool the machines and pump hot air out. Instead of venting the hot air outdoors like most centers, the Uitikon facility will utilize heat exchangers to heat water that will be pumped into the neighboring pool.

IBM claims that recycling the heat will save approximately 130 tons of carbon emissions, which is a similar discharge of mid-sized cars driving 500,000 miles. The company also said that the heat emitted from the data center is enough to warm 80 homes.

“Theoretically, it is possible to reuse up to 90 percent of the electric power required for operating a data center as heat energy,” said Steve Sams, vice president of IBM Global Site and Facilities Services.

In similar fashion, Intel has designed a system that captures data center heat and uses it to warm offices and heat water. Intel executives said the system prevents hot air from mixing with cold air and can work with a chilled-water system of 55 degrees instead of 42, which saves energy in running the chilled-water plant. As a result, Intel was able to raise condenser water temperature up and use it as a water-heating source. This can save approximately US$235,000 annually, the company said.

One of the benefits of using excess data center heat in this fashion is that data centers produce heat year-round, Intel said. It can warm the building during winter and provide hot water for kitchens and bathrooms all year.

The Environmental Protection Agency (EPA) refers to these measures as distributed generation technologies, and the agency said it can reduce pollutants and greenhouse gas emissions. A full rack of blade servers can require up to 20-25 kilowatts of power to operate, which is the equivalent of about 15 houses, according to the EPA. Almost 60 percent of this energy can go to waste since it is only used for cooling and not actual IT function, which is why using this heat can be important to the environment and a company’s wallet. —Jeff Feinman

—Jeff Feinman

For more information about Project Big Green, go to www.projectbiggreen.com.

For more information about IBM’s new products, go to www.ibm.com.

For more information about Intel’s new products, go to www.intel.com.

For more information about the Green Grid, go to www.greengrid.org.

For more information about Leadership in Energy and Environmental Design, go to www.leged.org.

For more information about the Environmental Protection Agency, go to www.epa.gov.
back of servers that removes heat generated in the data center. “Water is far more efficient at dissipating heat than air is, and it can take as much as 60 percent of heat out right at the source,” said Rich Lechner, IBM’s vice president of enterprise systems.

At some point in 2008, IBM will introduce a new version of the Rear Door Heat eXchanger, which Lechner said will remove as much as 100 percent of heat generated from servers.

Other energy reduction efforts from IBM include thermal sensors for fans and products in the company’s Tivoli IT management line. Sensors inside of servers help fans spin as fast as is necessary to cool off the server. The Tivoli Usage and Accounting Manager can allocate costs of energy usage by department or user and track the use of resources.

Down the road, Lechner said IBM will release products to address data growth and application efficiency, along with more advancements to its liquid-cooling methods. Additionally, the company will continue with its recycling efforts to help assuage growing e-waste problems. IBM claimed to have become the first company to recycle 1 billion pounds of IT equipment last fall, and Lechner said the company will carry on recycling 40,000 systems per week and design equipment to be more recyclable.

**PRACTICING WHAT THEY PREACH**

Project Big Green is not just a way for IBM to promote energy-efficient practices around the technology industry, but also a means to improve its own methods. IBM has set a goal to double its server capacity by 2010 without increasing energy consumption. IBM has more than 10,000 servers around the world, and it identified 3,900 of them for server consolidation. Those will be consolidated onto 33 mainframes running Linux.

“Once we do that, we can dramatically scale the capacity of those mainframes without significant increase in power consumption, as opposed to the distributed world where your capacity is almost linear in relation to your increase in power consumption,” Lechner said.

Many major companies today have a green initiative similar to that of Project Big Green. “I think there’s a lot of pressure from customers being concerned with how green a company is and whether or not they want to do business with that company,” said Winston Bumpus, a director for the Green Grid. “It’s an interesting time where we have energy challenges and environmental challenges and there seems to be huge support for being as energy efficient as possible.”

The Green Grid was founded in 2007 as a global consortium to promote energy efficiency in data centers and business computing. Some of its members include continued on page 22 ©
Companies Embracing Green Tech

> continued from page 21.

AMD, Dell, HP, IBM, Intel, Microsoft, Sun and VMware.

The Green Grid said that to save data center power, people should identify the servers that are using alarming amounts of power and enable server processor power-saving features, like the ability to remotely turn off servers when not in use. New technologies like Systems Management Architecture for Server Hardware (SMASH) can remotely power down a server into a sleep state. SMASH, developed by the Distributed Management Task Force (DMTF), is a Web services-based suite of specifications with architectural semantics and industry standard protocols for data center management.

Back in February, the Green Grid formed a relationship with the DMTF to make sure that all information on power and processor utilization is easy to gather, Bumpus said.

It is also important for organizations to develop an air management strategy for cooling, according to the Green Grid. A few simple tips from the Green Grid to conserve energy include moving cooling closer to the servers, maintaining higher operating temperatures and utilizing dynamic controls and higher specifications.

“A lot of cooling levels that people have in place today are based on equipment of a generation or so ago, and a lot of the equipment today can run at higher temperatures. Doing that can save quite a bit of cooling energy,” Bumpus said.

Some companies say the flow of air can be crucial in effective cooling. BlackMesh, a Herndon, Va.-based managed technology company, alternates the back of its data center racks so the hot sides of the rack get equal cooling, which the company said is a 40 percent decrease in the electricity being drawn to cool the equipment. Jason Ford, CTO of BlackMesh, compared this method to baseboard heating of rooms with a circular rotation, allowing the flow of hot air to return to the system and the cold air to be sucked into the server.

CONSOLIDATE AND VIRTUALIZE

Companies can concentrate servers in blades or racks to increase memory and the number of processors, or they can implement virtualization. “The more you’re able to consolidate and virtualize your infrastructure, there will be a concurrent reduction in size of the footprint of the data center,” said Jeffrey Hill, a senior research analyst with the Aberdeen Group. “Similarly, with storage, you can use de-duplication techniques or tiered storage with rotating data that doesn’t need to be accessed away from online storage. The net effect is that virtualization and consolidation allow people to reduce data center floor space, which means I’m reducing aggregate cooling requirements and power consumption.”

Virtualization is playing a large role in data centers as organizations are reducing the number of servers at 5-to-1 and even 10-to-1 ratios. This can increase the amount of productivity on a per-server basis and organizations like the Green Grid are trying to implement best practices for server consolidation and virtualization in data centers.

Novell is a company whose data center approach consists of server consolidation, hardware migration and data relocation. These three factors exist mainly within products and technologies acquired from PlateSpin, a company that creates virtual machine and server consolidation products. Converting physical machines to virtual machines and the ability to remove a service from the hardware required is Novell’s focus with its PowerConvert workload portability product. The product, which Novell gained in the February acquisition of PlateSpin, streamlines data center workloads between physical servers, blade infrastructures, virtual hosts and backup archives.

Novell has also flaunted its Forge disaster recovery and data restore product, also a former PlateSpin offering. “Because it’s constantly taking a snapshot of your existing servers, the product has a complete backup of that environment if for some reason the data center were to experience a hardware failure or a complete meltdown,” said Richard Whitehead, director of product marketing for Novell’s systems and resource management group.

Whitehead said that Novell also has initiatives to ensure that the company’s code within all of its products is as efficient as possible. The more efficiently that code is written to carry out tasks that don’t require a lot of CPU, the less work the machine will have to do, thus reducing power, he said.

Novell’s SuperLab testing facility in Utah tries to conserve power by viewing several machines through a single monitor, which Whitehead said is probably typical in most data centers. Also, the SuperLab runs virtual environments, so multiple services can run on a single server.

One data center company that has delved into virtualization technology is IT company Tideway Systems. Tideway has a topology system that maps business applications to an underlying physical and virtual infrastructure and finds servers that have no dependencies on them. Tideway’s Foundation application dependency mapping product does an IP scan of subnets to find IP-facing devices, according to the company.

For the server hardware, the product then runs commands to view the network communications and configuration files to see dependencies.

“We use quite sophisticated pattern-matching techniques to work out what we’re seeing,” said Kosten Metreweli, vice president of product marketing for Tideway. “Obviously, in a data center, things are deployed in very different ways. You need to be flexible for data center activities.”

Metreweli said in addition to this server consolidation and decommissioning capability, Tideway can also cut power for organizations with virtualization initiatives. The company uses VMware technology and can consolidate physical servers on an 8 to 1 ratio. Metreweli claimed some Tideway customers have been able to identify 30 percent of servers to virtualize, and that translated into saving $1.8 million per year, along with 968 tons of carbon per year.

DATA CENTER SNAPSHOT

Avocent, a Huntsville, Ala. IT infrastructure management product provider, has created software solutions to help data center managers view capacity and consumption. The company’s DSView 3 is data center management software that monitors all connected IT and network devices, the company said.

Data center functionality is put into a single interface and allows administrators to remotely access devices on multiple platforms at numerous locations.

“We will capture the power consumption information from the power distribution units, and then aggregate that information at all different levels within the data center,” said Ashish Moondra, a product manager at Avocent. “What I mean by different levels is you can aggregate that for an entire rack or row of racks. The reason we’re doing that is that once you have that information down to that granular level, it becomes a tool that makes sense for a lot of different people working in the data center.”

DSView 3 can help systems administrators, IT managers and CIOs obtain information about their organization’s data centers, Moondra said. It offers a snapshot of the data center power levels, and the organization can create comparative reports between specific racks or power distribution units.

Force10 Networks brings a high-density system with a backplane that can work with many ports. Executives of the San Jose-based network builder said this is done by implementing a passive data center model, which lowers costs and doesn’t use active components. By using less devices, there is less consumption and less heat, which reduces HVAC needs.

“One of the bottlenecks is how to build a backplane that can scale and support a lot of ports cost effectively,” said Stephen Garrison, vice president of marketing for Force10 Networks. “Think of a giant PC board in the back of a switch acting as a motherboard connecting components. That is still a very difficult problem. Some people do it by using optical technology or active components to help push the signals through the copper and not have issues. So we had to invent some new ways to do that on a passive model.”

Garrison said that some companies talk about 10-layer structures, with an access layer, an aggregation layer and a core layer. This is a way to get around not having high-density systems, as an organization will have to build horizontally to scale without high density. With high-density systems, the company said, it is possible to scale by having more ports per server.

“We don’t preach three layers,” Garri son said. “We look at the cabling infrastructure. Sometimes customers want a top-of-rack solution that aggregates back to a core versus a direct connect solution with no intermediate devices.”

Whether it be IBM’s server consolidation efforts or the Green Grid’s creation of metrics, it’s obvious that organizations want more energy efficiency to reduce costs and be more environment-friendly. With companies big and small working to provide more energy-efficient data center products, everyone seems to be on board the ship going green.
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**What’s the Word on Standards?**

**Green Grid and LEED target lack of data center blueprints**

By Jeff Feinman

A vast majority of data center companies believe there should be an industry standard outlining how to achieve effective power usage, according to figures from Digital Realty Trust. The San Francisco-based company, which runs 70 data centers, claimed that 94 percent of respondents in a survey conducted in April called for a standard for defining such standards and is becoming that singular voice.

Another stoppage to standard creation is limited understanding around the general issue, Smith said, even with the buzz around green IT. There is still much education left for decision makers in data center operations. Additionally, there is a fear of the results of data center assessments. “The measurement process can cause apprehension about how the results of that assessment will reflect on the people responsible for managing the data center,” Smith said.

**Standard Alternatives**

Some alternative measures, meanwhile, have cropped up for increasing efficient power usage through defining metrics and developing standards. Some of the first creations from the Green Grid are two metrics: Power Usage Effectiveness and Data Center Efficiency. These metrics let data center operators estimate the energy efficiency of their data centers, compare results against other data centers, and determine if any improvements need to be made. Executives from the Green Grid said metrics are important for improving operations, comparing usage among companies, and to validate claims of being more energy efficient.

One difficulty in achieving standards might be the diversity of different data centers. Winston Bumpus, a director for the Green Grid, said there is no one-size-fits-all method of data center operation because of different sizes and needs of facilities. “What the Green Grid is doing is defining some metrics and best practices, and then even looking at data center rating systems that are being done by different organizations,” Bumpus said.

One of those rating systems, and another alternative to standard methods, is Leadership in Energy and Environmental Design (LEED) certification. More than 60 percent of the responders in Digital Realty Trust’s study said they look to LEED building methods for green data center initiatives. LEED is a third-party certification program for the operation of green facilities. A creation of the U.S. Green Building Council, LEED rating systems are developed through an open process by committees made up of experts in the building and construction industries, according to the organization.
IBM Promises a Greener World

BY MICHELLE SAVAGE

IBM announced new software and services that the company said will address the issues hindering the growth of IT services, including power and capacity cooling concerns.

At its Pulse 2008 conference in May, IBM launched “Software for a Greener World,” which it said is an expansion of its Project Big Green energy efficiency initiative. According to a 2007 Environmental Protection Agency report, U.S. energy consumption by servers and data centers is expected to nearly double in the next five years.

“Customers today are faced with an array of energy challenges such as increased power and cooling costs, exceeding power capacity, and an inability to monitor and plan for power consumption,” said Al Zollar, general manager of IBM Tivoli.

IBM launched Project Big Green last year, promising to invest US$1 billion per year to deliver technologies that help customers use power more efficiently in their data centers. Since then, the company has released a variety of hardware, software and services designed to help customers increase efficiencies for their businesses, reduce carbon emissions and benefit the environment.

The “Software for a Greener World” program will include new and updated offerings to help companies optimize their infrastructure, workloads and employee practices.

The announcement included new products—IBM Compliance Warehouse for Legal Control, Maximo Facility Management and Tivoli Monitoring—and enhancements to IBM Active Energy Manager, Maximo Asset Management and Maximo Spatial Asset Management.

Virtual Enterprise is one of the capabilities offered in the new software. It provides application infrastructure virtualization capabilities that aim to lower operational and energy costs required to create, run and manage enterprise applications and SOA environments.

Lotus Notes and Domino 8.5 provide “green” collaboration benefits for end users and IT departments by enabling significant reductions in travel and commuting.

WebSphere Portal 6.1 comes with many upgrades to its performance monitoring infra-

structure. IBM said it offers customers the ability to understand energy usage and alerts data center managers to potential energy-related problems so that they can take preventive action.

Lotus ActiveInsight 6.1 integrates with Business Intelligence solutions for real-time energy dashboards.

Rational Team Concert enables context collaboration for multisite software development and collaboration, which IBM said reduces carbon dioxide emissions.

IBM also announced self-assessment tools to help companies quickly identify “green” starting points. These tools contain services and guides for subsequent “green” projects.

IBM combined the new energy management software with partner solutions to create a more comprehensive view of energy consumption across the enterprise and in data centers, air conditioning equipment, power distribution units, lighting and security systems.

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  LDAP & LDAPS, TACACS+ & RS-232 access
Cloud computing is a new economic model for how computing can be delivered. This model change happens at the data center as well. While cloud computing subscribers abandon their own infrastructure, the cloud providers are ramping up theirs and building massive, scaled data centers. This shift in technology could have a great impact on IT workers. Instead of just having to keep up with different hardware and software skills that are ever-changing, the shift to cloud computing has the potential to all but eliminate the small- and medium-size business IT staff, where infrastructure is migrated to the cloud. The employee desktop is migrated to a virtualized instance in the cloud; all applications, databases and virtual machines or servers can be moved to the cloud, and support for all of this can also be supplied by the cloud provider.

Clouds aside, there are some interesting trends to observe in technology staffing. The mega data centers being built by Microsoft and Google are interesting case studies in staffing ratios and what it takes to support a facility of that size. Both companies have highlighted the factor of available workforce in their site selection studies and both stress the importance of being near universities with good IT programs. Microsoft, Yahoo and others have been cited as having around 50 employees per data center, while many have questioned the reported 200 employees to staff a Google data center. I think it is simply a difference in the fact that Google needs more employees to maintain the large quantities of low-cost commodity servers, while Microsoft probably pays more up front for an enterprise-grade server and thus needs less staff to maintain them.

On datacenter.tv, Don Denning from Lee Technologies talks about the shrinking data center staff as more processes become automated and the on-site roles move toward facilities staff. The jobs needed inside the data center are primarily to maintain the mission-critical environment for IT equipment and the technicians to physically place and replace servers and network gear. Everything else can be done remotely. The required skill set splits into maintaining the data center environment and operating the equipment in the data center.

As the data center landscape changes, it is becoming more complex and architect and network designer jobs will proliferate. Unfortunately, these jobs typically are filled by senior-level technical and management professionals, a talent pool that is shrinking 45 percent by 2015, according to AFCOM. An October 2007 study by Symantec showed that data centers are understaffed. The primary reason was not the economy or a lack of applicants, but a lack of qualified applicants. The increasing complexity of the data center environment and integration with facilities is making it hard for employers to find the right kind of person to entrust with their critical infrastructure. The shortage of skills and experience will force companies to train the younger work force quickly and keep programs in place to keep them current with a rapidly changing, complex environment.

I recently spoke to a group of graduating high school students that were interested in IT careers. As someone who has read a fair number of resumes, I stressed to them not to list MS-DOS, Microsoft Word or similar items on their resumes. In an age where we are surrounded by technology, it is not enough to simply use it. The IT employee must understand it and embrace the right attitude toward diving in headfirst to the IT and business challenges that a company faces. Much of the IT architect and design jobs that less experienced employees can grow into require an understanding of the business and business requirements, and then translating them into IT solutions.

The data center industry seemingly runs on a different cycle than what the other economic sectors experience, but a different type of talent crunch will require a new strategy to solve the problem.

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The Storage Rack

Low-Power Alternatives Exist To Solve Storage Needs

"Storage density" is the term that describes how much storage capacity can be packed into a specified amount of space. The actual measurement varies a bit depending on your focus. Disk-drive vendors measure bits per square-inch, while tape vendors think in terms of bits per-linear-inch. Data center managers measure things at a more macro level: For them, storage density is a measure of terabytes (and increasingly, petabytes) per square-foot of floor space.

Those of you who do not walk to work may have noticed that gas prices have been inching up of late. If the monthly power or heating bill at home comes out of your account, you are certainly acutely aware that prices are going up. And if the price for data center power and cooling is a line item in your budget, then you really feel the pain.

The price of power is just part of the problem. On the other side of the coin, many data centers have simply maxed out their ability to draw power from the local power grid. They’re not willing to pay for more power, but, in some locations, there just isn’t any more power available. At such places, vendors know that if they have any hope of replacing existing storage assets, they’ll have to do so without adding to the existing power load. The mantra in this case has become “more storage, less power.”

If power consumption is high on your list of worries, it’s time to consider a newer metric for storage density: gigabytes per watt, a measurement that indicates how much storage you get from each watt of electricity you buy. Fortunately, there are several ways to squeeze more gigabytes of storage from each watt of power consumed in the data center.

Massive Arrays of Idle Disks systems spin down their disks until the data on them is needed, at which point they spin up again. This is highly efficient in terms of power use, but is clearly not a suitable technology when high performance is needed. Use it for “persistent” data, information that needs to be available for reference but for which speedy access is not necessary.

At the component level, a new generation of virtualized flashes will arrive toward the end of this year—samples are already out there—from all the major vendors. These 2.5-inch HDDs will offer high performance and much lower power consumption. When I was giving the Serial Attached SCSI keynote talk for the SCSI Trade Association last month, interest in these was HOT. These are for tier-1 storage devices to be used with your most important data.

Want even less power consumption? Solid State Devices (SSDs) have become increasingly interesting of late because their prices are now beginning to rival those of traditional top-tier disk arrays. Because they have no spinning media, they consume less power than more traditional approaches, and because they move data across RAM with no mechanical movement, I/O speeds are measured in microseconds rather than milliseconds.

While the pricing has dropped significantly of late, they are still more expensive than HDD-based arrays, and so are generally suitable only for specialized situations. This doesn’t mean high-performance computing. Rather, it critical as a non-judicious use of a relatively expensive asset.

Plain old commercial databases can get lots of value from these when they are used intelligently. SSDs represent what may come to be thought of as a new storage tier, “tier 0.”

Finally, you have the alternative of doing it in software. Every vendor now offers data de-duplication capability (sometimes referred to as "single instancing"), which eliminates redundant data and reduces the overall need for storage capacity by 10 to 30 percent. Note that there are several approaches to de-duping and the numbers the vendors give you are frequently optimistic. Note, also, that some data does not de-dupe well, and that de-duping becomes increasingly efficient as more data is kept online for comparisons. De-duping is an easy way to save on storage costs without having to commit to new architectures.

Storage as a function of power appears to be a simple measurement of efficiency, but experienced readers will realize it is not as simple as it appears. It makes no more sense to measure the efficiency characteristics of tier-1 storage against archiving devices than it does to compare a Ferrari with the family station wagon. Just as the Ferrari won’t cut the mustard when it is time to take the trash to the dump, some technologies will be unsuitable for your needs. But at least you have many choices.
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-Karl von Clausewitz

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Vista Power Management Can Be A Part of Energy Efficiency Plan

One of the most common reasons given for why an organization should upgrade from Windows XP to Windows Vista is that Vista is more power efficient. Vista has features that can make it more power efficient, but what problems does it actually solve for those of us up to our elbows in wires?

How about the value proposition of “green” computing? Vista has improved power management built in, virtualization is helping reduce resource costs, and more companies are working to build out their green technology reputation every month it seems.

Almost anyone you ask will tell you that not only is this all good for the environment and corporate image, but it also just makes good business sense in most situations. The problem is that reality gets in the way and it usually isn’t as easy as it sounds to do it for real.

In my travels as a consultant, I have seen many organizations run into troubles in the data center because of power, and almost never at the client workstations. In the data center, we will sometimes see this trouble in the form of an overloaded circuit due to the inattention of the network staff. More often it is that systems have grown beyond the ability for the physical infrastructure to support them power-wise. I have seen data centers in some of the largest cities, such as London and New York, where it is not possible, due to regulations, to add more power to accommodate ever-increasing needs.

With systems such as storage growing faster year after year, and storage consuming more power per unit of rack space than pretty much anything else in the data center, this can mean you end up saying “no” to things that are needed for the business. We all know that’s never a good situation. Maybe a push for “green” technology will solve this problem?

So with that being said, we have all the more reason to look at how we can conserve power. Why not make Vista part of that solution? The problem, if we can temporarily put aside the whole global warming, good citizen of the world, save the planet thing, is that the job of IT is to make sure things work. If there is time and it makes sense, then you can worry about it working with less energy or for less money. Good managers, administrators and pretty much everyone else have realized that the job is to get the job done. If you plan to be successful, you concentrate on the mission, and if you want to hedge against failure, then you can look to be cheap.

PRAGMATIC ON EFFICIENCY

Don’t get me wrong, I am a huge proponent of alternative energy and conservation and good stuff like that, but I am also a pragmatist, which means your arguments have to be based on reality that takes into consideration human dynamics and motivations. I seldom appeal to a board of directors to do something because it is a good thing to do. I normally lead with why it will benefit the corporation and further those goals.

Meet the Microsoft Admin’s Boss

Longhorn Server is coming. The testbed servers are configured with the latest versions of the Microsoft stack, from Windows Server to Exchange Server to SQL Server to SharePoint to BizTalk. His sys admins are ready to evaluate Windows Server 2008, just as they have with all of the server software upgrades and service packs. Not that it’s a question of whether to upgrade; his department is committed to the Microsoft roadmap. The real questions are “when” and “how.”

There are still questions pending on the desktop, too. While there has been some scattered rollout of Office 2007, the organization is still running Windows XP. While there might be some long-term benefits to moving to Vista, it’s too expensive in time, training and hardware upgrades. He has bigger matters on his plate, like interoperability. His Microsoft server infrastructure must co-exist alongside Web technology from IBM, databases from Oracle, app servers from BEA, and of course, Java. That’s not even counting all the users who prefer Firefox to Internet Explorer, and the influx of Macs, BlackBerries and iPhones. That’s why he can’t stay ahead of the game by reading Microsoft-only publications or by browsing Microsoft-centric Web sites. The last thing he needs is Microsoft cheerleaders. He needs a balanced view of the news, and news analysis, so that he can give proper guidance to his Microsoft admin team. He needs to know about everything happening in IT—whether it’s from Redmond, Silicon Valley or Armonk. He wants a wide-angle view of the interconnected world of systems administration. All systems, all platforms, all the time.

That’s why he reads Systems Management News.
The Open Source

BY KEN HESS

Last Year’s Penguin: Is OpenSolaris the New Linux?

I can’t think of anything sezier than dressing up a computer with a new operating system. Drinking in that new operating system smell, checking out the applications, tweaking the background, getting the sound to work, installing updates—just basking in the less-than-familiar glow of a new desktop.

OK, don’t let the crickets start chirping just yet. I know, I’m a nerd. I get as excited installing and discussing new operating systems as you must when you see next year’s car models, or as my wife does when she gets a peek at the newest fashion designs. I appreciate creativity, quality and something a little different in an operating system, too, but I maintain an undying loyalty to my first love: Linux.

It’s been just over a month since the first official OpenSolaris release and already people are saying it could replace Linux. Replace Linux?! It’s interesting to see the winds of change alter their course so quickly in favor of a fair-complexioned newcomer. I guess the OS business is much like fashion: “One day you’re in and the next day you’re out” (a la Heidi Klum on television’s Project Runway).

Linux won’t be going away anytime soon and certainly not in favor of upstart OpenSolaris. OpenSolaris hasn’t paid any dues in the OS Wars. It is a nice niche OS but just isn’t Linux. In fact, I scoff in the general direction of those who prefer it to Linux.

Would someone have the nerve to pluck the Linux kernel and replace it with OpenSolaris? Projects like Nexenta Core, which is the OpenSolaris kernel wrapped in a Debian/Ubuntu distribution schema, will pop up everywhere. They’ll expect us to embrace it as if we’d thought of it ourselves. Everyone who is anyone will sport the new hybrid operating system because of its status of hip and cool.

There’s buzz about what happens if OpenSolaris moves to a GPL3 license while Linux is still stuck with GPL2. The hope, I think, is to share code between the two projects. I guess if OpenSolaris changes from its current licensing ( CDDL) to a GPL, someone will have to change the recursive GNU ( Gnu’s Not Unix) to GIU ( Gnu Is Unix). To be honest, OpenSolaris doesn’t need the GPL to be viable. It needs support. It needs developer interest. It needs many things before anyone goes mucking about with its license. As end users, do we really care which license it holds?

I find myself quickly losing interest over discussions of such matters. Does it look cool? Does it perform well under pressure? Where did it get those drivers? Now, I can sink my choppers into those topics. Licensing doesn’t even rank in the top 10 things to discuss about OpenSolaris. Fashionable Penguinistas like me have neither the time nor the patience for such drivel.

Perhaps, to end the Operating System Wars, we could hold our own reality shows—bring out the best coders, developers and GUI designers in the open-source world and have them create something wonderful each week for our entertainment. The OpenSolaris community, although flegling compared to that of Linux, hopes that developers decide to throw their weight, skills and numbers behind the project to continue its forward momentum.

I’m just looking for some Linux loyalty here folks—but in the end, I’m a proponent of all things open source and will continue to support the movement in its entirety—including OpenSolaris. Scanning the available information on the project and the fact that many advocates want it to merge code with Linux brings me to quote Project Runway’s Tim Gunn when contemplating a poorly designed garment: “This worries me.” Linux is Linux, OpenSolaris is OpenSolaris, and never the twain shall meet; that’s my new mantra for any matters relating to either of these two systems.

I want Linux and OpenSolaris to live parallel lives on separate coasts, if you will. They can play nice together, share a little code, and even enjoy compatibility at a distance, but a relationship any closer may lead to something unspeakable: Unification. Unification, simply, is code sharing among all Unices. That would require standards and demand that everyone play nice with everyone else. Some interoperability is valid and desirable, but a single code standard for all Unix variants—no thank you.

I like having the ability to choose from Linux, Solaris, OpenSolaris, FreeBSD, AIX, HP-UX and others. They are all unique. No one wants just one brand of car, shoe or computer. Take a lesson from fashion: Coordinate, complement and accessorize, but if you’re too “matchy matchy,” it just doesn’t work. And you need to “make it work.” Thanks again, Tim Gunn.

Ken Hess is a freelance technical writer. Reach him at kenhess.com.
I designed the foundations of DNS 25 years ago to be simple and modular. That’s how dozens of extensions have been successfully added over the years to, for example, integrate DNS with DHCP, route VOIP calls, lookup RFID tags, and use international character sets. All aspects of the DNS are larger now. The email that needed one DNS lookup in 1983 now needs dozens for delivery and spam checking — not to mention a billion or so new public and private domain names.

But don’t let this seeming complexity get you down.

The first key for dealing with this challenge is to select tools that have been tested, proven and use the same simple and modular approach. That way, effort in one application helps another. At Nominum, we tested our ENUM servers to be sure that they could handle DNS databases that had millions of separate zones and billions of resource records and still deliver instant server restarts and still deliver industry-leading performance. That meant that when a huge antispam database application came our way we knew there was no scaling issue.

The second key is to use the advanced technology to monitor and control your DNS (and DHCP) systems. You shouldn’t expect your sysadmins to validate security credentials by hand or learn new languages when your business goes international. Human error is always a concern. DNSstuff uses its own dedicated network assets to monitor your DNS systems at a level of detail unmatched by other tools, then it uses its proprietary algorithms to give you the most specific results and actions to fix any problems.

When new DNS applications and extensions are added, DNSstuff tools are there. Not all DNS tools are created equal.

Paul Mockapetris, Father of DNS, invented 1983
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