

Catalyst

Dell technology accelerating business growth / Issue No. 2, 2012

The IT Services Issue. Global services trends [6](#) /
Business continuity goals [16](#) / Storage infrastructure [22](#) /
Special Section: New Dell PowerEdge server line [24](#)

A close-up photograph of a person wearing white gloves pouring a clear liquid from a small glass vial into a row of test tubes. The test tubes are arranged in a rack and contain a vibrant green liquid. The background is a soft, out-of-focus white, suggesting a laboratory setting.

Researcher discovers
the merits of
customized IT.

[Page 12](#)

Catalyst

Catalyst magazine is a joint Dell/IDG publication



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Program Team

Tony Parkinson, Laura Kemp-Pedersen,
Myriam Darmon, Scott Evans, Ernest Brown

Editorial Team

Editors

Susan Fogarty, Debra Bulkeley, Bill Laberis

Contributing Writers

Jorge Aragon, Howard Baldwin, Lynn Haber,
Matt McGinnis, Andrew M. Nichols,
Lauren Gibbons Paul, Paul Steeves

IDG Publishing Team

SVP Strategic Programs and Custom Solutions Group

Charles Lee

Project Manager

Amy Greenleaf

Arnold Team

Gerard Barbakian, Michelle Lentz,
Megan Keith-Curtis, Gordon Chislett

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Post: Dell – Suppressions, PO Box 59,
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Email: delluk@clientmail.eu.com

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Make services part of your IT strategy.

Why would you do something yourself if you could hire someone else to do it much better, using the best tools available and at a far lower cost? You wouldn't. And that's why IT services are increasing in importance.

IT is changing rapidly, making it tough for small IT teams to keep up with new developments. Technology service providers can focus on their particular area, making constant improvements, day in and day out. It makes sense to capitalize on that expertise and examine where services can benefit your organization the most.

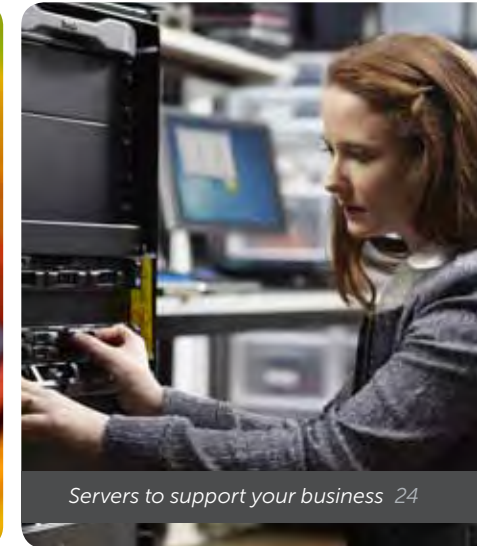
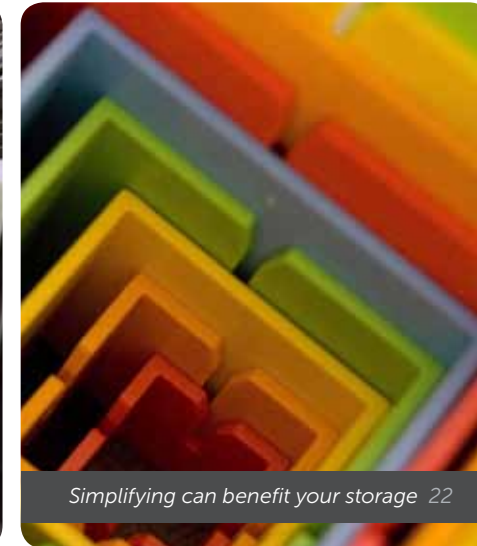
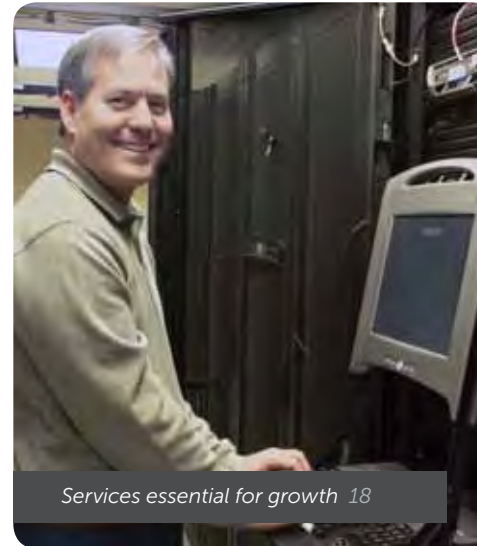
If you're thinking services are too expensive, odds are they are more reasonably priced than you realize. Hardware and software have improved and are easier to implement and manage, so many IT functions have become commoditized and inexpensive. Widespread high-speed networks make information and applications available almost everywhere, almost immediately. And the development of virtualization, followed by cloud computing, has made it possible to scale the delivery of services at an unprecedented level. In short, advancements are making it far easier and less costly for the technology to come to you than for you to build the technology yourself.

This could be for installation and maintenance, as you'll see in our cover story on page 12, or it could be in the form of design and consulting services that leverage the expertise of specialists in a certain area, like the storage area network experts that helped Passport Health Communications in our case study on page 18. Ask any IT team, and they will say they are under pressure to do more with less—using internal staff wisely and bringing in specialized skills when needed is often best for your business.

Expert opinions are always valuable, especially when it comes to new equipment purchases. And experts are praising the new generation of PowerEdge™ servers from Dell. If you're looking for better performance and ability to handle virtualization and increased workloads, you'll want to read our special section starting on page 24.

As always, please contact me with your comments and story ideas. I'd love to hear from you.

Susan Fogarty
Editor, *Catalyst* magazine
susan_fogarty@dell.com



6 Market Trends.
SMBs shift toward IT services.

8 Dell Innovators.
Meet businesses building success with technology.

10 Expert Advisors.
Advice on security and virtualization.

12 Customized laptops accelerate merger, save IT time and resources.

16 How to unify disaster recovery and business continuity goals.

18 Services fuel virtualized data center, company growth.

21 New Products.
Dell's newest ultrathin notebook; switch and storage array for 10GbE speeds.

22 Simplifying can benefit your storage infrastructure.

30 News.
Find out how Dell is involved in your part of the world.

Special Section:

24 New servers support your business needs.

27 Q&A: Customer requirements come first in PowerEdge development.

28 Features deliver performance in 12th generation PowerEdge servers.



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SMBs shift toward IT services.

It's no secret that big changes are happening in IT, and much of this shift revolves around the availability of services. *Catalyst* wanted to find out more about which services medium businesses are really using, and the changes they plan to make and why.

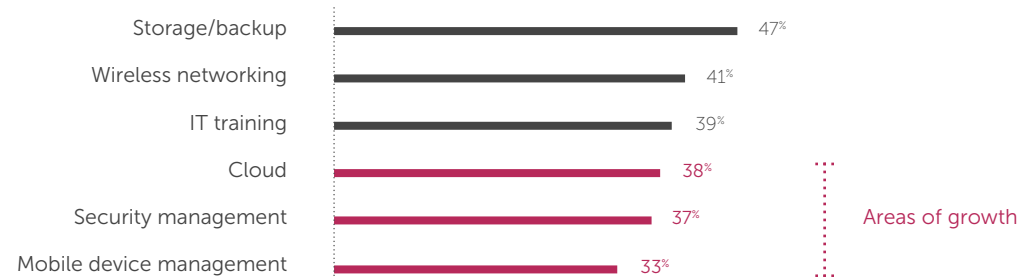
We commissioned IDG Research Services to poll your peers around the globe, and found that SMBs' heaviest usage of IT services is in core functionality — especially storage — and models are shifting away from complete on-premise systems.

Data from the study, IT Services at Mid-Sized Businesses, conducted on behalf of Dell by IDG Research Services. Respondents consisted of 175 individuals with involvement in the purchase process of IT services in companies with 50 to 500 employees in the U.K., U.S. and Australia.

What IT services are medium businesses using now?

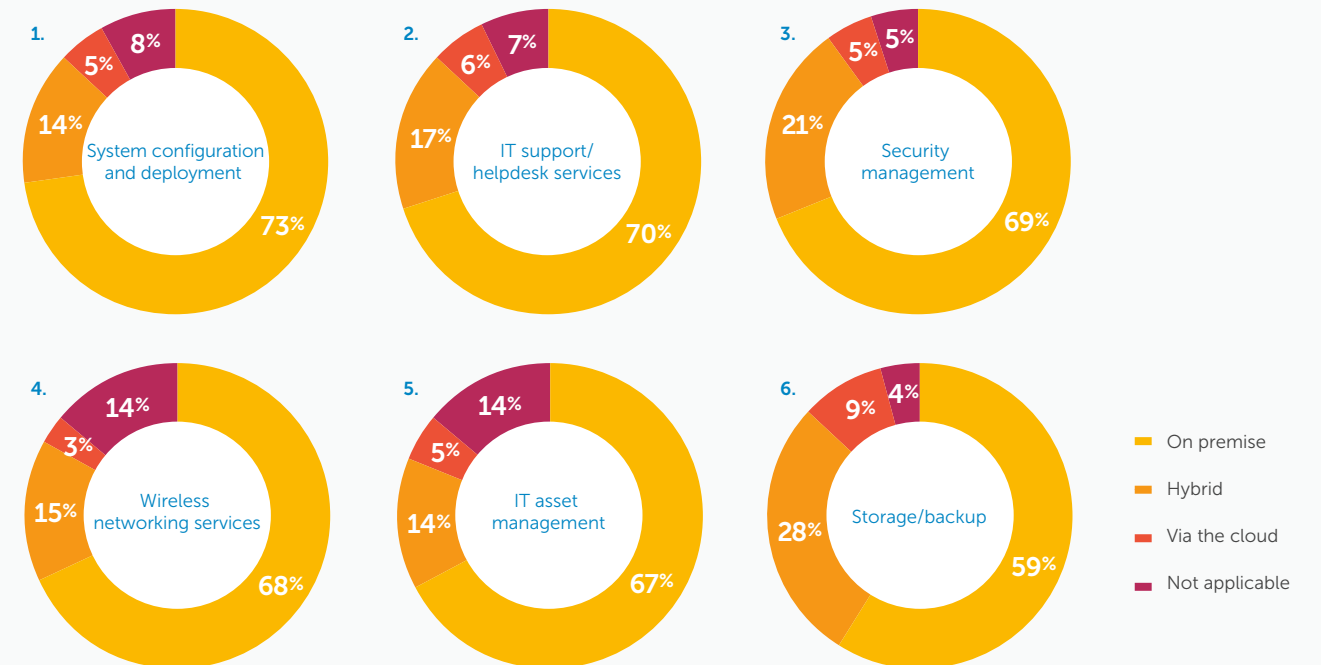


What will they be using next?

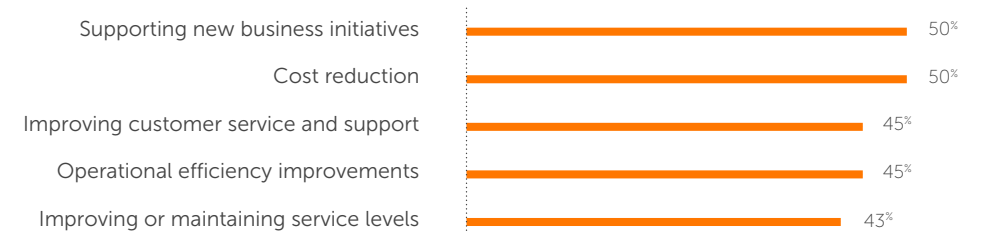


Percentage of respondents 0 20 40 60 80

How will they get IT services?



What do they hope to achieve?



Percentage of respondents 0 20 40 60 80



advomas®

Advomas



Who they are

Advomas, Troy, Michigan,

is a privately held company that helps uninsured patients find alternative sources of funding to pay for health care costs.

How they innovate

With the rising costs and increasing demand for health care, Advomas needed efficient and prompt IT scalability. To achieve this, the company partnered with Dell, which recommended Advomas virtualize both desktop and server infrastructure. Together, Dell and Advomas deployed Microsoft® Hyper-V® virtualization technology, running on a six-node cluster of Dell™ PowerEdge™ R710 servers with Intel® Xeon® processors. The time it took to set this up? One day.

Advomas immediately began seeing benefits. The company has the rapid and easy scalability it needs because it only takes minutes to create a new virtual server or desktop. Advomas also has much-needed mobility. Factors like travel and inclement weather no longer defeat efficiency because employees can access their virtualized desktops from home, work or the road. Finally, the virtualized infrastructure has decreased electricity costs by 20%.



To learn more about Advomas, download the entire article: dell.com/advomas

Who they are

BMS Telecorp, Victoria, Australia,

is a private contact center providing outsourcing services to clients in a number of sectors, including finance, government, health and media.

How they innovate

After reaching maximum capacity in its original contact center in Kew, BMS Telecorp knew it needed to expand, so it migrated to a new contact center in Richmond. The company wanted to think long term for Richmond, so BMS Telecorp partnered with Dell to deploy a virtualized solution at the new contact center. This solution included Dell™ PowerEdge™ servers with VMware® vSphere™ 4 server software, Microsoft® SQL Server® 2008 R2 and Symantec Backup Exec™ 2010 software.

Even though BMS Telecorp was increasing its data center capacity by 500%, it did not want the migration to have any impact on client services. Due to careful planning and execution with Dell, services ran seamlessly throughout the transition. And thanks to the Energy Smart technology of the PowerEdge servers, data center capacity increased without any additional energy consumption.



To learn more about BMS Telecorp, download the entire article: dell.com/bmstelecorp

Who they are

Expereo, Amsterdam,

is a global telecommunications company with offices in Singapore and the United States. The company's networks reach across more than 200 countries to offer Internet, Ethernet and VPN services.

How they innovate

Having partnered with Dell for many years, Expereo already had a virtualized infrastructure with Dell™ PowerEdge™ servers and Intel® processors. With three offices spread across the globe, the company needed a deployment and systems management solution. After consulting with Dell, Expereo deployed the Dell KACE™ K1000 Management Appliance. This solution saves the IT department time on routine tasks and reduces IT maintenance costs.

For Expereo, deploying KACE was easy, taking less than a day. With it, IT has become more efficient and increased its productivity. Workstations can be updated and patched remotely and simultaneously. Maintenance that had taken the IT department a week now takes half a day. KACE has also meant increased mobility for Expereo employees, many of whom travel or work from home. Employees can update their workstations remotely, with no interruptions.



To learn more about Expereo, download the entire article: dell.com/expereo

Dell Innovators.

Innovators exist everywhere — around the globe and in every industry. These businesses not only rely on Dell technology, they take advantage of its many benefits to make their businesses more productive, efficient and profitable.

Know a Dell Innovator that should be highlighted in a future issue of *Catalyst*? [Nominate them at catalyst@dell.com](mailto:catalyst@dell.com) or [@DellCatalyst](https://twitter.com/DellCatalyst).



Control access to IT resources with NAC.

By Jorge Aragon

Every day we are faced with security measures designed to control user access—when entering a secure building, at the airport or accessing our email. This can be annoying, but we cope with it for the safety benefits. In the IT world, poor access-control measures leave networks open to a myriad of malicious programs. IT should ensure that end-user devices posing risk, both inside and outside the organization, are identified and forbidden to access the network until they are corrected or unsafe elements are removed.

Network Admission Control (NAC) can help address the challenges described above and improve overall security in an organization. NAC enforces a security policy before granting end-user devices access to a network and also can provide continuous monitoring of the health of such devices, so that access to resources can be stopped if the device's health deteriorates over the course of the day.

There are basically three components in the NAC framework:

1. The supplicant is a piece of software installed on the end-user device and used to communicate with the enforcer. Most current Microsoft® Windows® devices have this preinstalled.

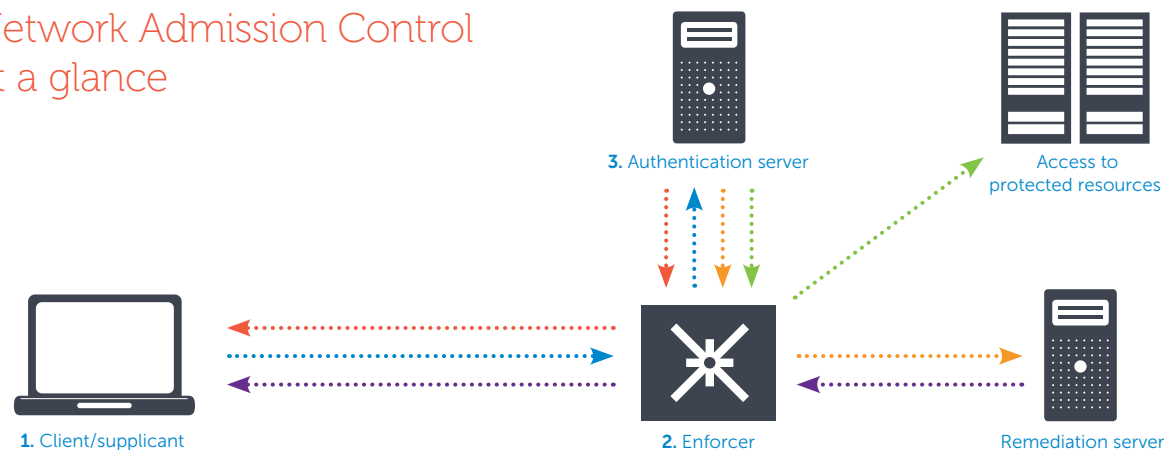
2. The enforcer, or authenticator, is a device that sits between the end-user device that is requesting access and the infrastructure used to perform authentication. Examples include a network switch or wireless access point. It follows direction from the authentication server about what to do when end devices request access to the network.

3. The authentication server communicates with the enforcer and receives the end-user credentials. This server validates such credentials and grants or denies access and notifies the enforcer of the decision. It also has the capability to indicate to the enforcer the security measures that should be included in the physical port connecting to the end-user device. This server has the ability to periodically monitor the health condition of the end-user device and act upon it accordingly.

Organizations aiming for enterprise-grade security and a high degree of regulatory compliance should explore NAC for its corporate and remote office locations. Is your network taking the proper steps to prevent user devices from compromising your network security?

Jorge Aragon is an enterprise technologist at Dell, specializing in networking and security.

Network Admission Control at a glance



VDI solves modern IT challenges.

By Andrew M. Nichols



Watch the first in a series of videos from VDI guru Brian Madden: dell.to/Acdu7

Virtualization has been rapidly and broadly adopted in the data center as a means to cut costs, improve efficiency and gain more control over IT assets. But adoption of virtual desktop infrastructure (VDI) has been comparatively slow, mainly because desktop services have historically been maintained separately from data center services.

It's time to view desktop services as a strategic asset. Indeed, in June, ABI Research said VDI solutions "are ideal for meeting two of the key challenges facing IT administrators today: providing data security and meeting the demands of the mobile work force." In addition, there are persistent needs in midsize organizations to reduce desktop support and management costs, enhance data security and disaster recovery, and integrate mobile devices into the enterprise mix.

Consistency and ease of management

Today's higher-layer virtualization techniques enable complex applications and tools to be delivered in a modular fashion. The result is a higher degree of consistency in a desktop image than was practical just a few years ago. Furthermore, the separation of the different layers of desktop services—OS image, applications, user profile and user data—allows them to be managed, maintained and delivered independently as needed.

- VDI changes desktop access from a distributed service to a data center service. The benefits of this are many and include:
- **Centralized management and control,** which often results in lower maintenance costs.
 - **Greater flexibility** in terms of the types of devices (including smartphones and tablets) employees can use to access server-based data and applications.
 - **Greater security** because data is stored not on individual hard drives but in locked-down data centers.
 - **Greater resource efficiency.** Migrating desktop environments onto virtualized servers lets IT better match resources and compute power to the demands of the user.

VDI transforms a company's desktops from a commodity to a valuable and strategic asset, based in the data center. That's because

the data, applications and services made available to users via the desktop and other clients are nothing less than business critical.

Further, VDI enables disaster recovery and business continuity capabilities (such as automated failover and backup) that have historically been limited to servers. VDI also supports the demands of an increasingly mobile work force by allowing users to access their full desktop through whatever device they are using.

VDI's past challenges have been virtually eliminated by a combination of faster and more reliable networks, VDI management platforms and connection protocols, and more robust servers. The bottom line: VDI is effective as a strategic and valuable data center service.

Andrew M. Nichols is an enterprise technologist at Dell focusing on virtualization, cloud computing and the next-generation data center.

Guidelines for selecting a VDI solution.

Ready to invest in VDI? This list includes the most important capabilities medium-sized businesses should consider when reviewing their options.

- **Hardware compatibility** with existing systems
- **OS compatibility** with current operating systems (such as 64 bit)
- **Scalability** in terms of projected business and user growth
- **Performance** on servers and endpoints
- **Cost** and anticipated ROI
- **Centralized** deployment and management
- **Ease of installation**
- **High availability**
- **Security features** that are built in, including password protection, strong authentication, and guest isolation
- **Support** that is prompt and reliable



Customized laptops accelerate merger, save IT time and resources.

By Lauren Gibbons Paul

When two companies merge, one goal is to manage the IT consolidation as seamlessly and smoothly as possible. So when CROM, a 200-employee provider of clinical research services, merged with MSOURCE in June 2011 and its headcount increased to 450, the small IT staff faced several challenges.

One was that almost all the 200 former MSOURCE employees would soon need new PCs, as their lease contract was about to

expire. Another was that CROMSOURCE (the name of the newly merged company) needed to buy 160 laptops for employees.

"We needed to have the easiest situation to manage," says Francesco Mercanti, network administrator for CROMSOURCE. The company, based in Verona, Italy, provides clinical research services for the pharmaceutical, biotechnology, vaccine and medical device industries, with more than 40 offices in 10 countries.

Clinical research provider CROMSOURCE simplifies laptop rollout with Dell Services.

Company profile

CROMSOURCE, provider of clinical research services.

Location

Based in Verona, Italy

40 offices in 10 countries.

Growth

Workforce

Increased employees—200 to 450.

Technology

Solution

Installed 160 customized laptops.

Product

Dell

Latitude™ E5420 notebooks.

IT management

Efficiency

50% savings on time to implement.



Both IT demands coupled with a small IT staff meant that CROMSOURCE needed a technology supplier that would be a true partner.

Preloaded software saves time

CROMSOURCE elected to purchase Latitude™ E5420 notebooks from Dell, along with an array of services designed to minimize the impact on employees. Mercanti estimates the company saved at least 50% on implementation time thanks to having the software preloaded at the Dell factory rather than having IT staff manually load the operating system and applications.

In the past “when we would buy a new laptop, we would have to install all the software ourselves,” Mercanti says. “With Dell, it was possible to have the image preinstalled.”

The company also purchased Dell PCs. “The new corporate standard [Dell on the desktop] will simplify things. It is strategic from the IT point of view.”

Dell services help relieve the burden of managing the IT environment, says Riccardo Codifava, Dell’s services and solutions business manager for the CROMSOURCE installation.

Leveraging services for IT management

CROM’s small IT staff was already stretched thin when the company more than doubled in size after the merger with

MSOURCE. The company was particularly interested in engaging with a partner for a comprehensive analysis of its post-merger IT infrastructure as well as implementation and support services. IT management was looking to consolidate systems and implement standards wherever possible to simplify the task of managing IT.

CROMSOURCE had been working with Dell to implement a storage area network, and was happy with the Dell team’s performance, so it decided to stick with Dell for laptops and tech support as well.

“All the IT systems [used by MSOURCE employees] were rented,” says Mercanti. “We had to decide whether to rent or buy. We decided to buy to have the most control over installation.”

Mercanti regarded installation of the Latitude E5420 laptops, absent major help, as a potential problem. “We needed to customize the installation according to location, and we had a multilanguage requirement for the keyboard. Given the economic situation, we did not want to have to install them ourselves,” he says. So, CROMSOURCE contracted Dell to preconfigure the software images for each country and each level—four in all—at its factory, an option called custom factory integration (CFI). The operating system for the researcher machines is 64-bit Microsoft® Windows® 7 Enterprise because this type of worker runs high-powered clinical research applications. The management profile is lighter weight, and needs standard business productivity applications and workloads.

Customized integration benefits

CFI is a real boon for SMBs, which generally have small IT resources, says Mark Bowker, senior analyst at the Enterprise Strategy Group in Milford, Mass. “If you have to install all your applications, that can be a very time-consuming process, even if you have a systematic way to do it,” says Bowker.

In this case, leveraging Dell’s resources to preload the image saves a tremendous amount of time and effort, speeding the organization’s time to value. “All the user has to do is log on and they can immediately become productive. It’s a lifesaver that frees them up to do the other pile of projects they have on their plate,” he says.

CFI allows customers to remotely inspect the software image for quality control, says Diego Brunelli, configuration services project manager for Dell’s Global Service Support group. “Before logging the image on all the orders, we allow the customer to inspect its own image. They only need to do the quality check one time per image,” says Brunelli. Another advantage: If CROMSOURCE keeps growing and needs to buy another 50 machines, for example, Dell can quickly deploy the same image on the same model, adding more speed.

After determining client needs, Dell performs the custom configuration during the initial system build. Thanks to the “one-touch” process of custom integration, systems are not

built or shipped twice via factory or multiple-vendor channels. The systems are configured to specification and delivered from Dell’s quality-certified factory.

CROMSOURCE was also able to customize the BIOS (the opening screen shot users see when they power up their Latitudes) with its logo.

CROMSOURCE had to delay the rollout of the bulk of the Latitudes due to a necessary network upgrade. But early deployments have been fast and easy, according to Mercanti.

“The surprise for me with this project was that we were able to find not only a supplier but what we call a partner,” Mercanti says.

“The people from Dell took care of us and always gave us the right direction. We had a deep collaboration.”

Lauren Gibbons Paul specializes in writing about SMB technology issues.



This handy configurator will help you select client devices for your workforce: dell.to/w8KvFB

Added services: Disaster recovery road map

CROMSOURCE needed advice on implementing a disaster recovery plan for its new Dell storage network. “Dell was the only one that was able to provide all the technologies that were available at the storage level,” says Francesco Mercanti, network administrator for CROMSOURCE. “It was the only one that was able to manage all of our storage. The scalability of the Dell storage was the best.”

As part of the comprehensive assessment of CROMSOURCE’s IT environment, the Dell team is working in conjunction with the company to prepare a disaster recovery plan for the storage servers. “We will deliver an analysis for our client to bring to the decision maker, showing the return on investment,” says Riccardo Codifava, Dell’s services and solutions business manager.

For CROMSOURCE, Dell is proposing a cloud-based, infrastructure-as-a-service (IaaS) solution for disaster recovery. The plan has not yet been accepted or implemented, but Mercanti will be provided with a complete, in-depth proposal he can present to his board of directors.

Below: Silvio Severini, chief information officer (left), and Francesco Mercanti, network administrator (right), for CROMSOURCE.



How to unify disaster recovery and business continuity goals.

By Howard Baldwin

Use business objectives to prioritize disaster planning.

With IT ingrained in nearly every business process, it pays to give careful attention to disaster recovery (DR) and business continuity (BC) planning. Although the two are often linked, they are not the same. Exploring the differences can help ensure your operation will continue if the unthinkable happens.

DR is a set of processes, policies and procedures for recovering a company's technology infrastructure after a disaster. BC is broader, specifying the key processes a company needs to perform after a disaster to stay in operation. "When you talk to C-level executives, business continuity to them means devising alternative ways to run the processes that enable the company to keep making money," says Brian Renken, solution advisor for Dell SMB.

This means that IT's disaster recovery processes must be unified with the goals for business continuity. "IT has traditionally done DR, but it's really important to link more closely with the business," says Greg Schulz, founder and senior advisor at the Server and Storage IO Group. "By having more awareness of BC planning, IT can truly support the business objectives if a disaster strikes." Often such collaboration will involve significant trade-offs.

Carefully evaluate trade-offs

Consider, for example, a small California-based tax accounting firm that wanted to protect its business against the possibility of a major earthquake. The initial DR plan proposed replicating the company's entire IT infrastructure at a site in Arizona. When it became clear that the company's customers would also be affected by the quake, and not need full service right away, the cost of the full DR site was overkill. A better plan was to deploy a secondary server off-site that would provide access to the firm's database of tax records, the information customers were most likely to need during an outage.

This illustrates the idea that BC planning doesn't necessarily mean restoring processes to full effectiveness, but to an acceptable level for temporary operation. It could entail the HR manager writing checks by hand if the payroll system is down. And it doesn't make sense to fully restore servers and applications if employees can't get to the office, unless they can log in from home PCs. Naturally, IT would provide the remote access technology and security. Similar trade-offs relate to data recovery. Although not losing a single byte of data in an outage would be laudable, working with the business to establish a realistic recovery point would be more cost effective.

Business continuity is a company-wide problem with an IT component. Says Renken, "The best advice is to work closely with the business to understand key BC processes and make sure the IT part is covered."

Silicon Valley-based freelancer Howard Baldwin has been writing about business and technology since 1987.

Disaster recovery/ business continuity action items

- **Align with the business:**

Before setting DR processes, check the BC plans of your business counterparts.

- **Follow the money:**

BC focuses on revenue generation after a disaster. IT DR processes must support this priority.

- **Evaluate the trade-offs:**

Full recovery of data and systems is ideal, but it may be cost prohibitive.

- **Consider all options:**

In a pinch, manual processes can serve until full service is restored.



Learn more about must-haves for business continuity:
dell.to/w0Bw1S



Services fuel virtualized data center, company growth.

By Lynn Haber

Passport Health partners with Dell to design integrated server and storage environment.

The value of services is very evident to Passport Health Communications Inc., a company that provides hospital and health care clients with unique software-as-a-service (SaaS) solutions. So when Passport Health began to face IT infrastructure challenges—power consumption, space restrictions and data center resources—it turned to services experts to help design and implement the necessary technology upgrades.

The company's flagship SaaS product, Passport eCare™ NEXT, is a revenue-cycle management system used by one in three U.S. hospitals and more than 8,000 other health care facilities in 50 states. It's a complete set of solutions and services that verify patient information, ensure compliance, and manage payment for every patient.

With software customization a distinct part of its business, it's vital that Passport Health respond to client demands quickly. Fast response times are critical to Passport Health's competitive position in its market and its clients' abilities to secure payment for services.

IT teams partner up

Business was growing at a rapid pace, and data center infrastructure concerns—such as server sprawl, cooling, heating

“As we find more ways to add value to our clients, we need more data and more ways to access it.”

—Steve Witucke, senior network engineer, Passport Health Communications Inc.

and power—were on an upward trajectory. Passport was pressured to rethink its data center strategy. Partnering with Dell™ Services, Passport Health's IT team of five professionals brainstormed a data center strategy and design to standardize, simplify and automate operations while minimizing costs.

According to David Stewart, manager of network and systems at the Franklin, Tenn.-based company, the combined team decided to consolidate Passport Health's IT infrastructure using VMware, Dell blade servers, Dell EqualLogic™ virtualized iSCSI storage area network (SAN) and Brocade switches. With the help of Dell, Passport Health began the project with its test and development environment, using early versions of VMware running on Dell PowerEdge™ 1955 blade servers running Microsoft® Windows® software. Today, Passport Health has consolidated more than 40 production-class virtualized machines (VMs) on a single blade server.

Server infrastructure provides 70% virtualization

Currently, 70% of Passport Health's systems are virtualized, including its entire Web farm, EDI transaction processing and all its test and development. That wasn't the case in the past when the company had a mix of about 50 Dell and HP physical servers running the Windows® 2000 and 2003 operating system and a big Fibre Channel SAN. “Just provisioning and configuring new servers to develop a customized module could take a couple of weeks,” says Steve Witucke, senior network engineer at Passport Health.

Older, power-hungry and underutilized hardware was removed from the data center, freeing up valuable rack space. This translated into an ability to grow significantly from 50 physical servers, to more than 600 physical and virtual servers in the same data center footprint.

The virtual environment includes a Dell PowerEdge M1000e blade enclosure and Dell PowerEdge M710 blade servers running the VMware® vSphere™ 4.1 data center operating systems for its x86 IT infrastructure. The company has over 500 VMs across its corporate data center and a disaster recovery site on 16 physical hosts.



Watch the video to learn more about the benefits of Dell blade servers: dell.to/w538JQ



Success story

Services help realize solid results.

1. Transaction processing **increased 30%**
2. **Virtualized 70%** of systems
3. Consolidated **40 production VMs on one blade server**
4. Grew from 50 physical servers to **600 physical and virtual**
5. Increased disk space **from 50TB to 100TB+**

Above: Pictured in the data center of Passport Health Communications Inc., in Franklin, Tenn., are Steve Witucke, senior network engineer (above), and David Stewart, manager of network and systems (below).



Passport Health's iSCSI SAN complements servers

Passport's data center modernization project also implemented Dell storage systems to integrate seamlessly with the server architecture, providing better performance, reduced risk of downtime and far less management complexity. A new iSCSI SAN is used for back-end storage for all VMs, replication for disaster recovery and growth to meet business demands.

Storage infrastructure includes the Dell EqualLogic PS 6000XVS iSCSI SAN and more recently, the Dell EqualLogic PS6010XVS iSCSI SAN, reflecting Passport Health's new direction from 1GbE to faster 10GbE throughput. The PS6010XVS iSCSI SAN is configured with 12 10GbE arrays.

The enterprise-class Dell EqualLogic iSCSI SAN outperforms the legacy 2GB Fibre Channel infrastructure and is highly scalable. "Rather than relying on a central Fibre Channel SAN to provide disk resources to multiple consumers, the EqualLogic modular building blocks enable us to deploy groups of disks dedicated to individual consumers and distribute the risk of a failed module across multiple pieces of hardware," says Witucke.

During 2011, Passport Health increased the amount of disk space allocated to production-class databases by 100%, from roughly 50TB to more than 100TB.

Integrated solution builds stellar services

"As we find more ways to add value to our clients, we need more data and more ways to access it," says Witucke.

The company also invested in Brocade FastIron SX 800 switches that offer scalable, secure, low-latency and fault-tolerant IP services infrastructure for 1 and 10GbE enterprise deployments.

With a virtualized data center, Passport Health works smarter, saves money and poises itself for growth. The company keeps breaking its own record for number of health care EDI transactions processed, realizing an increase of 30% this year compared to last year.

"Servers are turned up in minutes, we can begin development work immediately and bring services to our clients fast," says Witucke.

Lynn Haber is a freelance journalist reporting on business and technology from Norwell, Mass.

Learn more about storage with these educational resources:



Download the storage needs decision-tree:
bit.ly/zC19NM



Get details on the iSCSI standard for networked storage:
dell.to/AiAY4z

New Products.

Find out about the latest products and services from Dell and the details that make them distinctive.



1. Ultrathin notebook boasts "frameless" display

The XPS 13 laptop is the first Ultrabook™ produced by Dell to run on the second generation Intel® Core™ i5 and i7 processors. It features a compact 13.3-inch screen with edge-to-edge glass for a nearly frameless display, measures between 6mm and 18mm thin, and starts at 2.99 lbs. The device leverages innovative technology to make it easier to use and manage: The solid-state hard drive enables phone-like responsiveness, and Intel® Smart Connect keeps content updated even when the system is asleep. The XPS 13 is available with configuration services, including custom imaging, BIOS settings and asset tagging, along with Dell™ ProSupport™ services.

More information: dell.com/business/xps13



2. Switch scales to 10Gb Ethernet

The Dell Force10 S4810 switch combines the flexibility of Layer 2 and 3 switching with scalability and performance. The switch supports 48x 10GbE ports, and allows the system to be configured with four 40GbE ports, offering 640 Gbps bandwidth. Force10 ASICs provide line-rate, non-blocking, forwarding performance, even with all features enabled.

More information: dell.to/z2ErVn



3. 10GbE iSCSI storage arrays

Dell introduced the EqualLogic™ PS6110 and PS4110 storage arrays, which offer 10GbE Internet SCSI speeds in a flexible number of form factors. Designed with automated load balancing for dynamic, virtualized environments, the arrays feature an easy-to-use management interface and application integration, on-the-fly capacity expansion and cache-to-flash protection. Models are available optimized for capacity, for performance or both, and come in 2U or 4U configurations. The arrays accommodate SSD, SAS and NL-SAS drives in 12 or 24 drive slots and have 4GB of memory.

More information: dell.to/anQaFe

Simplifying can benefit your storage infrastructure. By Howard Baldwin

NAS, SANs and unified storage boast advantages beyond simple capacity.

As a midsize business grows, often the IT infrastructure grows along with it in a haphazard manner. Storage is a prime example: As data stores increase and servers are added, storage often proliferates as islands of direct-attached storage. Though arguably the cheapest option, this adds complexity that makes it more difficult to manage.

The best way to improve the storage infrastructure is to work toward simplifying, standardizing and automating it. A good first step is replacing direct-attached storage with network storage. Typical network storage solutions include network-attached storage (NAS) and storage area networks (SANs) as well as unified storage that combines the two in a single device.

Consider unified storage

"For the SMB/midsize market, there are excellent opportunities to leverage unified storage systems that combine the block storage

of SANs with the file storage of NAS," says Greg Schulz, founder and senior advisor at the Server and StorageIO Group. "A key advantage is that the storage is sharable across different servers and applications." This makes it easy for users to locate and share documents without IT involvement.

For IT staff, network storage simplifies administration by eliminating silos of direct-attached storage that must be backed up and managed. And network storage works well in virtualized environments, where virtual machines can be moved between different physical servers.

Standardization starts with storage products that support industry standards. Key interfaces for SANs in midsize businesses include Fibre Channel and especially iSCSI. For NAS, support for the Common Internet File System (CIFS) and Network File System (NFS) is a must. These standards help ensure interoperability among different vendors'

products and will likely result in plug-and-play implementations. Standardizing on a single vendor's storage can also simplify the environment. Pluses include one source for technical support, integrated tools for storage management and reduced complexity of the infrastructure. Pricing could be lower if all purchases are made from a single vendor.

Storage automation saves time and effort

When evaluating network storage, it's important to consider features that can automate common tasks. "Many modern storage systems offer high levels of automation, being able to automatically detect and repair, isolate and contain faults if a drive fails," says Schulz. Storage devices may also feature redundant components such as storage controllers that automatically fail over when needed. Storage systems can include support for

hypervisors such as VMware® WebSphere or Microsoft® Hyper-V® enabling faster and even automated provisioning of virtual servers and backup of the virtualized environment.

An additional level of automation can occur when storage devices are paired with network switches from the same vendor. As an example, if an iSCSI SAN is paired with a matching Ethernet switch that supports iSCSI optimization, the switch automatically optimizes itself for the storage. Such self-management maximizes performance while reducing manual intervention by IT staff.

Simplify, standardize and automate. Follow these guidelines and your storage infrastructure will be more efficient, boosting the productivity of your IT staff so they can focus more on improving the business.

Silicon Valley-based freelancer Howard Baldwin has been writing about business and technology since 1987.

Follow these guidelines and your storage infrastructure will be more efficient, boosting productivity of your IT staff.



Watch the video for details about unified storage with Dell:
dell.to/w1L4pv

New servers support your business needs.

By Paul Steeves and Matt McGinnis



Get a video introduction to the new Dell PowerEdge Servers: dell.to/wLKGjl

In many of today's businesses, IT is at the heart of productivity and revenue generation. Scaling to deliver compute capacity for applications and business services that increase productivity, efficiency and return on IT investments has a direct impact on the business bottom line.

However, many organizations find themselves caught in the gap between the strategic vision and the everyday reality. End users are continuing to generate and process massive amounts of data, and powerful business applications are pushing infrastructures to the limits of capacity. While virtualization and cloud computing approaches offer the scalability to increase capacity on demand, IT organizations must also consider the ramifications of increased infrastructure management complexity.

To meet intensifying service-level requirements within the confines of flat IT budgets, decision makers need to leverage technologies in the following ways:

- Heighten systems performance to help improve workload and applications output
- Optimize resource utilization and operational efficiency
- Increase the flexibility and reliability of supporting infrastructure to enhance throughput capacity, data access, and security.

Built for innovation

The latest Dell™ PowerEdge™ servers reflect input from more than 7,700 customers around the world on what they need to power their business. For more details, see page 27. The result is a portfolio of systems designed to address the biggest challenges IT faces today—and the flexibility to evolve with upcoming technological advancements.

Dell PowerEdge servers introduce important innovations designed to improve system performance, increase throughput capacity, and speed data access. The article on page 28 explains these performance features in depth.

At the heart of it all, 12th generation PowerEdge servers are powered by the latest processors from Intel—the Intel® Xeon® processor E5 family. Designed to deliver the optimal combination of performance, functionality and cost-effectiveness, the Intel® Xeon® processor E5 family can power environments ranging from virtualization and cloud computing to design automation and real-time financial transactions. Even demanding workloads typically get a big performance boost compared to prior generations at consistent power levels. Moreover, peak workload demands can break

through the performance ceiling with Intel® Turbo Boost Technology 2.0, which is designed to enable up to two times more performance than the previous generation Intel® Turbo Boost Technology. To maximize throughput gains, Intel® integrated I/O is designed to dramatically reduce latency by providing more lanes and higher bandwidth than previous generation Intel® processors, with support for PCIe 3.0.

Streamline operational tasks

Under constant fiscal pressure, IT departments must heighten resource efficiency, streamline and automate operational tasks, and leverage existing investments to optimal advantage. Twelfth generation PowerEdge servers contribute to this goal.

The latest PowerEdge servers are equipped with the Dell OpenManage™ systems management portfolio, which includes the Integrated Dell Remote Access Controller 7 with Lifecycle Controller (iDRAC7). Dell OpenManage is designed to simplify the lifecycle of deploying, updating, monitoring and maintaining PowerEdge servers. In addition, it enables IT administrators to manage Dell servers in physical, virtual, local and remote environments, operating in band or out of band, with or without a systems management software agent.

Dell OpenManage integrates and connects to leading third-party systems management approaches, enabling administrators to introduce additional infrastructure while maintaining their existing systems management investment. It also accelerates the deployment and provisioning of systems cost-effectively and efficiently. Moreover, administrators can automate the reconfiguration of replacement parts and streamline many day-to-day operations through the easy-to-use Dell OpenManage Essentials interface.

Advance virtualization

Virtualization is an important design focus for 12th generation PowerEdge systems. Utilizing powerful processors, large memory footprints and big I/O pipes, the latest PowerEdge servers provide an outstanding platform for organizations that are looking to consolidate the inevitable server sprawl that results from explosive growth. These servers also offer an optimized platform for organizations that want to centralize operations with a virtual desktop approach, or increase the number of virtualized applications running on a single server.





Learn more about Dell PowerEdge servers:
dell.com/performance

Optimize energy management

Energy efficiency is a key consideration for data centers, and 12th generation PowerEdge servers offer exceptional efficiency in terms of power and energy. These servers include components optimized for efficient operation and they are engineered for minimum power consumption. Moreover, 12th generation PowerEdge servers continue to grow the recently introduced Fresh Air program.

Fresh Air servers are designed to operate at ambient temperatures that are higher than typical—enabling organizations to save substantially on data center cooling costs. Dell OpenManage Power Center is another tool enabling 12th-generation PowerEdge servers to heighten data center efficiency. Power Center enables IT organizations to control power at the server, rack, row or room level. It also allows administrators to collect and aggregate power usage and implement policies for power reduction in response. In addition, Intel® Intelligent Power Node Manager technology offers fast, proactive power capping—at the millisecond level—to help prevent outages.

Because power efficiency and standards-based innovation are becoming increasingly important to enterprises, Intel and Dell are working together to develop and deliver standards-based power management. Dell is the first enterprise server vendor to offer broad support for Intel® Intelligent Power Node Manager technology across its server portfolio.

Security at the server level

Security in the virtual age is a complex, multifaceted challenge. PowerEdge servers help protect data from accidental loss or malicious intrusions by incorporating innovative security technology.

At the hardware level, the latest Dell PowerEdge servers are designed to protect data with self-encrypting drives (SEDs), an essential piece of strong infrastructure security. Protection from intrusion is also critical to security; for example, 12th generation PowerEdge servers provide signed firmware updates to help prevent accidental introduction of a virus during systems maintenance operations.

These servers also provide a way to clear any infrastructure changes or inventory information from the Lifecycle Controller to reset them to the factory configuration.

Intel® Xeon® processors provide security functions as well, with Intel® Advanced Encryption Standard New Instructions (AES-NI) encryption technology for fast encryption, and with Intel® Trusted Execution Technology (Intel® TXT), which helps protect against the introduction of malware. In addition, data is protected against accidental loss with best-in-class RAID options and leading-edge backup solutions. What's more, administrators can authenticate the integrity of updates using digitally signed firmware, safeguard access to passwords and certificates with the iDRAC Credential Vault device, and protect access to data at rest with automatic encryption and self-encrypting disks.

Paul Steeves and Matt McGinnis are marketing professionals in the Dell server platform group.



Customer requirements come first in PowerEdge development.

Forrest Norrod, vice president and general manager of Dell Server Solutions, gives Catalyst the inside story on how 12th generation Dell™ PowerEdge™ servers were developed with customer input to create a solid foundation for demanding applications and workloads.



What drove the innovation that Dell has put into 12th generation PowerEdge servers?

Norrod: Dell has exceptional access to customers through our direct model. These interactions give us a special perspective on bringing innovations to market to meet their needs. Acting on customer feedback is what sets Dell apart.

When we designed our 12th generation PowerEdge servers, we met with more than 7,700 customers worldwide to listen to their business needs, how they intend to address them with IT, and what they need most from a solutions provider. There is a lot of technology that we could deliver, but we've chosen specific innovations in response to real customer needs.

What did your IT customers tell you about the challenges they are facing?

Norrod: IT professionals have expressed three key concerns:

- They want the applications that run their businesses to operate with the utmost effectiveness and efficiency.
- They need to streamline their operations to save time and money.
- They need a high-performance, highly reliable infrastructure to deliver real results quickly.

They are focused on these three issues because they face common challenges. Our IT customers are caught in the middle of competing priorities. On one hand, end users are telling IT that they receive better service at home than at work. That they need to work anytime, anywhere, and they need IT to help them do that. On the other hand, IT is hearing business stakeholders say that they need IT to help drive business forward, not get in the way.

How are businesses responding to these demands?

Norrod: Delivering on conflicting demands is not simple. Doing it in a way that is scalable and efficient is even tougher. Data centers today are constrained. Many IT departments are unable to meet current demands with what they have, and they're even being asked to cut that.

While IT departments are under the gun to produce for the business, gone are the days when the IT decision maker could purchase infrastructure equipment based on its technical merits alone. Today, many IT purchase decisions are heavily influenced by business decision makers who need solutions to run specific applications.

How do PowerEdge servers meet the need for comprehensive solutions?

Norrod: Workload and application solutions are the driving force behind what we deliver—directed by customer needs and fully supported with broad services, deep engineering support, and best-in-class intelligent infrastructure that provides an easy-to-deploy, easy-to-use and easy-to-manage solution environment.

It's not a one-size-fits-all mentality. We provide solutions that meet customers' needs and help achieve business goals. Customers can feel comfortable knowing that Dell provides solutions that are easy to install and boost productivity quickly. Even more importantly, these open, flexible enterprise solutions help reduce the overall cost of ownership by providing a stable, resilient platform that is easy to maintain and manage.



Features deliver performance in 12th generation PowerEdge servers.

By Howard Baldwin



See a demo of the new Dell PowerEdge rack servers in action: dellserverdemo.com

Dell's new line of servers is designed for increased workloads and virtualization.

When Dell designed its 12th generation PowerEdge™ servers, it focused on creating a holistic system. The new line aims to handle increased workloads, optimize virtualization and simplify management, all in one well-designed package. "Balanced system performance is important for a number of reasons," says Tad Walsh, product line manager for tower servers. "If you put in a new screaming processor with high cycles but you don't expand the memory capability or IO in proportion, customers will still have bottlenecks."

Here's a look at improvements in Dell™ PowerEdge 12th generation servers.

Memory: The Intel® Sandy Bridge® processor architecture enables higher memory densities than in previous Dell servers. More memory allows for better application performance, even while supporting additional virtual machines and applications per server. A two CPU Sandy Bridge-based machine can support up to 768GB of memory, significantly more than today's machines. "With the kind of memory footprint available in our new servers, we have essentially eliminated performance bottlenecks," says Jeff Silva, product line manager for enterprise servers.

Disk IO: The servers feature several technologies to automate and optimize application IO, which can dramatically improve performance for applications. The latest third-generation PCIe technology has higher bandwidth for more data transfer, both outbound and inbound. The servers also support the newest high-performance, flash-based solid-state disk (SSD) technology that connects via the PCIe bus, as well as traditional SSDs that connect through a SAS or SATA interface.

To increase throughput even further, Dell has incorporated its Cachecade™ IO Acceleration into the new PowerEdge RAID Controllers (PERC) for the 12th generation servers. Cachecade enables SSDs to serve as an extension of the cache contained

on the storage controller. It automatically moves copies of the most frequently accessed data on a traditional disk drive to the SSD for faster access.

Networking: The new servers offer more flexibility and choice than previous server generations. "There's a growing migration from 1GbE to 10GbE Ethernet networks, as well as in combining different kinds of networks into a unified network environment," says Silva. "One of our design goals was to provide as much flexibility as possible for facilitating these trends."

To this end, Dell is adding more modular networking capabilities with its Select Network Adapter™ (SNA) card. Rather than having fixed network connections soldered to the server motherboard, the SNA is a removable card that connects to a socket on the motherboard. SNAs come in many different configurations and enable users to more easily change the connectivity options on their server as their needs change.

Management: Similarly, Dell is offering more flexibility and choice in terms of its iDRAC™ (integrated Dell Remote Access Card) management features with a new structure that allows customers to easily try out different versions of the management software or upgrade from one version to another. "We're combining the functionality of our Lifecycle Controller and iDRAC add-in cards and embedding it all on the motherboards of our 12th generation servers," says Silva.

By embedding management on the motherboards, Dell is introducing the concept of agent-free system management. With traditional management environments, software agents must be installed and maintained on every server, and an operating system has to be running for those agents to conduct diagnostics. Dell's embedded management implementation allows administrators to run the same diagnostics on all servers, regardless of OS, and allows for remote management and monitoring.

1U, two-CPU R620



2U, two-CPU R720



2U, four-CPU R820



Also available in tower and blade configurations.

Many models to choose from

There are six new servers: four rack configurations (the 1U, two-CPU R620; the 2U, two-CPU R720 and R720xd; and the 2U, four-CPU R820); one tower configuration (the two-CPU T620); and one blade configuration (the M620).

Each server brings new capabilities. The R620 server is by definition a denser system, giving SMBs the same memory of a larger system, but in a 1U configuration. "If you use two R620s, you can get twice as much compute capacity and memory in the same rack space, which is helpful for virtualization purposes," says Paul Steeves, Dell's product line manager for rack servers.

For the first time, the T620 tower server supports up to four internal GPUs, along with support for two internal PERC controllers. Walsh anticipates these capabilities will support disciplines including business analytics, data information management, CRM, medical imaging and seismic rendering.

Silicon Valley-based freelancer Howard Baldwin has been writing about business and technology since 1987.

"With the kind of memory footprint available in our new servers, we have essentially eliminated performance bottlenecks."

—Jeff Silva, product line manager for enterprise servers, Dell.



United States

Women In Public Service Project gets backing

Dell is actively supporting the recently created Women in Public Service Project. Organized by the U.S. Department of State and members of the Seven Sisters colleges, the Women in Public Service Project launched in 2012 to educate and enable a new generation of women committed to public service and political leadership.

Representing the first and only technology partner of the project, Dell will provide social media, technology training and industry-leading hardware. These tools, designed to foster collaboration and creativity, will help propel women to leadership and entrepreneurial positions within the community and government.



United States and Canada

Old gear recycling plan expands to 319 additional sites

Continuing with its goal to recycle 1 billion pounds of computer equipment by 2014, Dell Reconnect, in partnership with Goodwill Industries, has expanded its offering to 77 additional counties across Florida, Ohio, Alabama and Kansas.

Dell Reconnect is a free program that provides an easy, convenient and environmentally responsible way for people to recycle their old computer equipment. The program recycled more than 150 million pounds of equipment in 2011. With the addition of 319 donation sites in the United States, Dell Reconnect now offers more than 2,600 drop-off locations in the United States and Canada.



United States

Dell Mobile Security for Android certified by DISA

Due to serious security implications, the flow of information for military personnel has been limited to confined environments with limited capabilities. As a result, Dell has partnered with Good Technology to develop a solution for the Android operating system to provide users with secure access to email, documents and applications.

The Dell™ Mobile Security for Android™ platform has been certified by the Defense Information Systems Agency (DISA) for information assurance on defense networks. The solution provides a means for military men and women abroad to wirelessly access and transmit information securely utilizing Microsoft® Exchange Servers and network operations centers.



United States

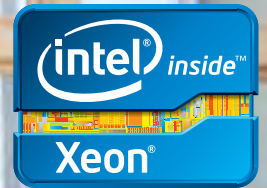
Technology helps fight pediatric cancers

Since 1980, the FDA has approved just one treatment of childhood cancer, compared with 50 approved treatments for adult cancers. One such childhood cancer is neuroblastoma, which attacks the sympathetic nervous system and accounts for one in seven pediatric cancer deaths.

Dell has donated cloud solutions that will provide necessary computing power to help increase the Translational Genomics Research Institute's (TGen) gene sequencing and analysis capacity by 1,200%. The solution will improve collaboration among physicians, researchers and scientists to accelerate genetic analysis and targeted treatments for individual cases of childhood cancers.



Dell recommends Windows® 7 Professional.



When your business meets innovation, great things happen.



The new Dell PowerEdge 12th generation servers

Welcome the new additions to the highest performing, most manageable, most innovative family of Dell servers ever.

Achieve more regardless of your size or budget. Featuring Intel® Xeon™ processors, the Dell™ PowerEdge™ 12th generation servers can offer double the performance and run databases up to 25.5% faster than previous generations. So you can collaborate, network, share files, even virtualize like never before. And there's one just right for you. After all, innovation runs in the family.

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The power to do more