



# POWER SOLUTIONS

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## 10 COVER STORY

# STORAGE EFFICIENCY: A VIRTUAL SNAP

*An exclusive interview with Darren Thomas and Paula Long*

Building on the strengths of a relationship with EMC since 2001, Dell took a significant stride forward with its US\$1.4 billion acquisition of Internet SCSI (iSCSI) pioneer EqualLogic in January 2008—resulting in a combined storage portfolio spanning Fibre Channel, iSCSI, and network attached storage (NAS) technologies. The visionaries behind this game-changing strategy recently spoke with *Dell Power Solutions* about the state of enterprise storage technology today and why storage virtualization plays such a pivotal role in data center optimization.

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## STORAGE VIRTUALIZATION

### ALLOCATING STORAGE WITH VIRTUAL PROVISIONING ON DELL/EMC CX4 SERIES STORAGE ARRAYS

*By Greg White, Annette Cormier, and Eric Cannell*

Virtual provisioning on Dell/EMC CX4 Series storage arrays is designed to dramatically increase storage utilization, simplify storage management, and minimize power and space requirements. By taking advantage of this flexible, automated approach to storage allocation, administrators can help reduce total cost of ownership and enhance the energy efficiency of the data center.

# MIXING GIGABIT AND 10 GIGABIT ETHERNET IN A DEDICATED SAN INFRASTRUCTURE

By Tony Ansley

The recent availability of 10 Gigabit Ethernet (10GbE) and the expected enhanced Ethernet standards such as Data Center Bridging (DCB) present an opportunity for administrators to transition to a consolidated Ethernet infrastructure. The reference architecture illustrated in this article shows how enterprises may make the transition to 10GbE for storage using Dell™ EqualLogic™ PS Series arrays and Dell PowerConnect™ switches.

## BREW YOUR OWN IDEASTORM



Do you have an innovative idea for improving a Dell product, service, or solution? Or want to see new offerings? Share your ideas with like-minded community members at IdeaStorm, a collaborative community where customers share, discuss, and vote on ideas. Dell monitors IdeaStorm to gauge which ideas are most important and most relevant to you and then works to implement them. Join in the discussion at [ideastorm.com](http://ideastorm.com).

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By Bharath Vasudevan, Annette Cormier, and Eric Cannell

When deployed in Dell/EMC CX4 Series storage arrays, enterprise flash drives can dramatically boost storage performance for targeted data center workloads while helping increase resource utilization, enhance energy efficiency, and reduce total cost of ownership.

#### 24 A Dell EqualLogic Storage Solution for Oracle Database 11g

By Wendy Chen, Roger Lopez, and Ujjwal Rajbhandari

Dell EqualLogic PS Series iSCSI storage area network (SAN) arrays can provide a cost-effective, high-performance foundation for Oracle® Database 11g—helping enterprises create a highly flexible, scalable, and reliable clustered or single-instance database environment.

#### 28 Super Scalability: Supporting 90,000 Microsoft Exchange Mailboxes on Dell EqualLogic Storage

By Suresh Jasrasaria and Rob Young

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By Suresh Jasrasaria

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# THE EFFICIENT ENTERPRISE

42 **10 Gigabit Ethernet: Unifying iSCSI and Fibre Channel in a Single Network Fabric**  
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46 **Streamlining Data Protection in VMware Environments Using CommVault Simpana**  
*By Brian Brockway and Zahid Ilkal*  
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*By Sanjeet Singh*  
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54 **Building the Efficient Enterprise with Dell, Intel, and VMware vSphere 4**  
*By Andrew Gilman, Mike Monthei, and Andrew I. Fields*  
The next generation of virtualization solutions goes beyond just servers to include virtualized storage, networking, and I/O. When IT managers combine VMware® vSphere™ software, 11th-generation Dell PowerEdge™ servers with the Intel® Xeon® processor 5500 series, and advanced Dell EqualLogic storage arrays, they can create the ultimate in powerful, flexible computing models: an internal cloud.

60 **High-Availability Virtualization with Dell EqualLogic Arrays and Microsoft Windows Server 2008 R2 Hyper-V**  
*By Stanley L. Stevens, Darren W. Miller, and Jim Schwartz*  
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64 **High Value, High Performance: 11th-Generation Dell PowerEdge Servers for SMBs**  
*By Nick Jervis and Hariharan Ramalingam*  
The high-value, high-performance Dell PowerEdge R410 and PowerEdge T410 servers are designed to meet the electrical, mechanical, thermal, and acoustic standards of the 11th-generation PowerEdge server family while incorporating cost-effective components and features to help meet the needs of small and medium businesses.



The 11th-generation Dell PowerEdge server family is optimized for VMware vSphere environments. See page 54.



DELL POWER SOLUTIONS  
ONLINE EXCLUSIVES

## Virtualization: Taking the Fast Track to Business Efficiency

IT belt-tightening is geared toward saving money—but you can surpass that goal by boosting business efficiency. Virtualization is the secret to this strategy.

## Forecast: Cloudy with a Chance of Virtualization

Is cloud computing or in-house virtualization the answer to your scalability challenges? Maybe both.

## Mission Control

Why client virtualization is the key to supporting a distributed workforce—without sacrificing security, IT control, or end-user customization.

## Build or Lease?

Do the benefits of software as a service (SaaS) outweigh the risks? The short answer: maybe.



## NEXT-GENERATION IT

# JOURNEY INTO THE CLOUD

Cloud computing promises to revolutionize enterprise IT and drive unprecedented levels of efficiency and flexibility. And there's nothing nebulous about the potential business benefits. To read about cloud computing alternatives in this *Dell Power Solutions* online exclusive, visit **DELL.COM/PowerSolutions**.

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#### EDITORIAL STAFF

**EDITOR-IN-CHIEF AND PUBLISHER** Tom Kolnowski  
**MANAGING EDITOR** Debra McDonald  
**FEATURES EDITOR** Kathryn White  
**ASSISTANT MANAGING EDITOR** Jim Duncan  
**SENIOR EDITORS** Dawn Davidson, James Hurd, and Terrence O'Donnell  
**EDITORIAL ASSISTANT** Amy J. Parker  
**ART DIRECTOR AND COVER DESIGNER** David Chan  
**DESIGNER AND ILLUSTRATOR** Cynthia Webb  
**BUSINESS DEVELOPMENT MANAGER** Cissy Walker

**STAFF WRITERS** Romy Bauer, Jeanne Feldkamp, Julie Jervis, Greg Thomas, and Chris Young

**CONTRIBUTING WRITERS** Anthony Ansley, Brady Black, Brian Brockway, Eric Cannell, Ron Carovano, Achmad Chadran, Gaurav Chawla, Wendy Chen, Annette Cormier, Jim Duncan, Andrew I. Fields, Franklin Flint, Andrew Gilman, Scott Hanson, Zahid Ilkal, Suresh Jasrasaria, Nick Jervis, Fred Johnson, Morten Loderup, Roger Lopez, Darren W. Miller, Mike Monthei, Ujjwal Rajbhandari, Hariharan Ramalingam, Jim Schwartz, Sanjeet Singh, Stanley L. Stevens, Wendy Torell, Bharath Vasudevan, Anand Vridhagiri, Greg White, and Rob Young

**CONTRIBUTING PHOTOGRAPHERS** Tony Bolding, Bryan Kuntz, Adran Matte, Joey Pena, and Bryce Vickmark

#### ADVERTISING SALES

**SALES DIRECTOR** Kyle Walkenhorst (323-340-8585)  
**WESTERN U.S. AND SOUTH/CENTRAL AMERICA SALES** Shaun Mehr (949-923-1660)  
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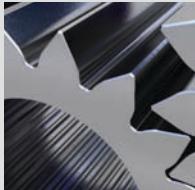
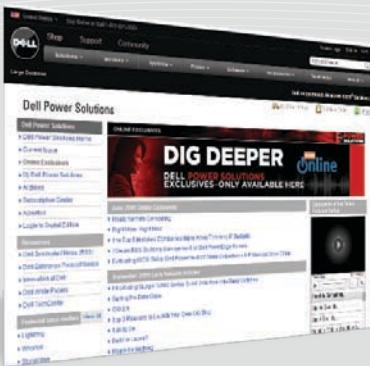
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## DELL POWER SOLUTIONS ONLINE EXCLUSIVES



## ENTERPRISE INSIGHTS

### Top 3 Reasons to Launch Your Own CIO Blog

Creating a culture of innovation and inclusion starts with you.

### Top 5 Reasons to Consider VoIP

Voice over IP (VoIP) outstrips standard enterprise telephone service in several key ways. Is it time to make your move?

### Top 5 Enterprise 2.0 Mistakes

Avoid the missteps that can make your social media initiatives less effective.

### Surfing the Data Wave

You can't fight the rising tide of data. But you can keep it at bay with an opportune strategy for information life cycle management.

### CIO 2.0

Social media is changing the rules of engagement for enterprise communication—and how CIOs go about business as usual.

### Talk to Me

Best practices for a unified messaging strategy help ensure security, compliance, and employee productivity without hindering the free flow of communication.

### Ready for Anything

An executive survival guide for calculating potential losses—and the cost of recovery after a disaster.

### People Power

How talent management software is reshaping the way organizations evaluate, train, and develop employees.

### Visualize This

Live video technologies are transforming the way companies communicate with their customers and their employees. Get the picture?

### Social Security

Top four issues to consider when shaping social media security policies.

### Smart Talk

By pushing the envelope on IP-based infrastructure, the telecom industry is opening up a whole new world of communication-enabled business processes.

### Wanted: IT Business Visionaries

It's no longer enough for IT administrators to know their way around the data center. The true measure of success is the acumen to view the company as a whole and wield technology to strategic business advantage.

### New Rules

How personal technologies drive upstream change to alter the way businesses operate.

### Changing the Locks

Securing business information used to be as simple as locking the door to the data center at night. In the age of mobile computing, it's not such a straightforward proposition anymore.

### Building a Better Business

How the manufacturing industry is using advanced technology for strategic advantage—and why it may benefit large enterprises across a range of industries to tear a page from their IT playbook.

### Customers in the Palm of Your Hand

No matter how diverse your customer base, they all likely use mobile phones—and that gives you the chance to extend the reach of your business by developing mobile applications that become part of their daily routines.

## INDUSTRY SOLUTIONS

### Dell Digital Cinema: The Sequel

By Franklin Flint

Advances in media technology have enabled the Dell OEM Industry Solutions Group to develop and extend efficient digital cinema architectures—helping simplify deployment, reduce power and cooling requirements, and lower both up-front and operational costs.

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