



POWER SOLUTIONS

2010 ISSUE 1

DELL.COM/PowerSolutions

8

COVER STORY

VIRTUAL CLIENTS FOR THE EFFICIENT ENTERPRISE

By Roberto Ayala and Juan Vega

By shifting the focus from physical systems to end-user digital identities, the Dell™ Flexible Computing framework helps simplify image management, hardware transitions, and security through central IT control of virtualized client devices. Now, alternative desktop models enable enterprises to achieve measurable efficiency gains thanks to technology advances such as PC-over-IP technology, composite images, and client hypervisors.

14

DESKTOP ALTERNATIVES

SHIFTING TO A VIRTUAL DESKTOP PARADIGM WITH DELL FLEXIBLE COMPUTING AND CITRIX XENDESKTOP

By Calvin Hsu and Roberto Ayala

Integrating Citrix® XenDesktop™ 4 desktop virtualization software within the Dell Flexible Computing framework is a cost-efficient way to enhance security, streamline management, and boost user productivity, while providing the flexibility to support a comprehensive array of business requirements.



STEP INSIDE THE **DELL EXECUTIVE BRIEFING CENTER**



The Dell Executive Briefing Center (EBC) facilities create opportunities for customers to experience a build-to-order briefing program based on desired outcomes for their IT environments. This award-winning approach features customized executive-to-executive conversations about how IT can advance enterprise efficiency and business objectives—helping customers become more successful in their industries, markets, districts, institutions, and agencies. The Dell briefing experience—available in multiple locations globally—offers enterprise, client, and solutions-based content to visiting customers. For more information, visit DELL.COM/EBC or delleventmarketing.com/ebc.

BUILDING THE **EFFICIENT ENTERPRISE**



The Efficient Enterprise framework provides organizations with tools to reduce costs associated with managing and operating IT and uses the newly created capacity to drive innovation and business advantage. Standardization, simplification, and automation are the keys to success. For the full story, visit EfficientEnterprise.com.

CONTENTS

EDITOR'S COMMENTS

6 **Supplementary Skills**

By Tom Kolnowski

FEATURE SECTION

BUILDING AN EFFICIENT ENTERPRISE WITH CLIENT AND SERVER VIRTUALIZATION

18 **Integrated Management for Virtualized Dell Servers Using the Dell PRO Pack and Microsoft System Center**

*By Brent Douglas, Viswanathan Balakrishnan,
Saravan Kumar, Tushar Oza, Ravi Kumar Pare,
Sridhar Chakravarthy, and Amit De*

In environments based on Dell PowerEdge™ servers and Microsoft® Hyper-V™ virtualization, the Dell Server Performance and Resource Optimization Management Pack (Dell PRO Pack) provides robust, integrated monitoring and proactive management through Microsoft System Center.

22 **Virtual Machine Queues: Enhanced Throughput for Microsoft Windows Server 2008 R2 Hyper-V**

By Ravikanth Chaganti and Barun Chaudhary

Enabling the Microsoft Windows Server® 2008 R2 Hyper-V virtual machine queue feature on Dell PowerEdge servers with supported Intel® adapters can help significantly increase overall throughput while reducing the network processing burden on host servers.

DEPARTMENTS

CLIENT SOLUTIONS FOR THE EFFICIENT WORKFORCE

26 **Investing in Productivity**

MICROSOFT WINDOWS SERVER 2008 R2

32 **Remote Management Using Microsoft Windows PowerShell and the Dell Lifecycle Controller**

*By Steven Grigsby, Jon Hass, Gong Wang,
and Weijia (John) Zhang, Ph.D.*

36 **Power Management in Microsoft Windows Server 2008 R2 and 11th-Generation Dell PowerEdge Servers**

By Thomas Cantwell, Greg Darnell, and Peter Tsai

SPECIAL SECTION

STORAGE OPTIMIZATION



SIMPLIFYING MANAGEMENT PAGE 53

WINDOWS STORAGE CONSOLIDATION ON DELL POWERVAULT NX3000 NAS APPLIANCES

By Timothy Sherbak

Consolidating Microsoft Windows® file shares into a common pool of network-accessible resources helps increase utilization, simplify management, and enhance service levels. Organizations can deploy scalable Dell PowerVault™ NX3000 Series network attached storage (NAS) appliances as stand-alone file servers or as gateways to storage area networks (SANs) to enable reliable, efficient, high-performing Windows file share and application consolidation.

48 **Demystifying Deduplication**

By Joe Colucci and Kay Benaroch

Understanding how deduplication technology fits into a comprehensive data management strategy and taking advantage of Dell Services consulting expertise can provide the first steps toward an optimized storage and backup environment.

58 **Protecting Critical Infrastructure and Mobile Data: An Information-Centric Security Strategy**

By Annette Cormier, Mark Christenson, and John McDonald

Dell, EMC, and RSA have teamed up to provide an efficient and flexible information-centric security strategy spanning the enterprise infrastructure from client laptops through applications and storage systems.

64 **Intel Ethernet Server Adapters Maximize Throughput Performance for iSCSI Connectivity**

By Sunil Ahluwalia and Gary Gumanow

By selecting Intel Ethernet server adapters with Dell PowerEdge servers and Dell EqualLogic™ PS Series Internet SCSI (iSCSI) SANs, organizations can achieve enterprise-class application performance while benefiting from the cost- and labor-saving advantages of iSCSI connectivity.

67 **Quantum StorNext: Accelerating the Enterprise with Rapid Data Access**

Quantum® StorNext® data management software enables a highly efficient, cost-effective approach to shared storage that can dramatically reduce server and storage requirements while providing high-speed access to critical data.

70 **Robust, Efficient Data Protection with Symantec Backup Exec 2010**

By Charles Butler

New Symantec™ Backup Exec™ 2010 features help to reduce storage costs and increase backup performance, while support for the latest Microsoft Windows platforms and granular recovery from virtualized application servers help to simplify management for IT administrators.

74 **Symantec Virtual Vault: Seamless Archive Integration for End Users**

By Sean Roth

The virtual vault feature in the latest release of the Symantec Enterprise Vault™ 8.0 archiving solution enables seamless integration of archived e-mail messages and data into the Microsoft Office Outlook® client to help streamline routine interactions and increase productivity.

CASE STUDIES

86 Streaming Education

Montgomery Independent School District estimates that it will reduce help-desk calls by 20 percent, power costs by 20 percent, and total cost of ownership by US\$266,000 over eight years by standardizing on Dell hardware and Dell Flexible Computing Solutions.

88 A Thinner, Greener Solution

A Dell Flexible Computing Solution helps the Dutch province of South Holland create a versatile, multipurpose infrastructure while simplifying management and supporting an environmentally conscious approach to IT.

90 A Blockbuster Marriage of Form and Function

Seeking to maximize mobile productivity, Creative Artists Agency selects the Dell Latitude™ Z laptop for its combination of full-featured, energy-efficient performance and elegant design.

92 Building a Scalable Cloud

By migrating its databases to standards-based Dell PowerEdge servers, cloud computing leader salesforce.com achieves cost-effective scalability and doubles performance while dramatically reducing costs.

DELL POWER SOLUTIONS DIGITAL EDITION



Dell Power Solutions Digital Edition offers a comprehensive IT library at your fingertips—featuring powerful searches across archived issues and direct links to related resources. For instant accessibility, visit powersolutionsdigital.dell.com.

Dell Power Solutions Magazine and special edition articles are also available online at DELL.COM/PowerSolutions. Check the Dell Power Solutions Web site for early-release articles, how-to's, case studies, best practices, and expert tips you won't find anywhere else.

MICROSOFT EXCHANGE SERVER 2010

40 Optimizing Microsoft Exchange Server 2010 Deployments on Dell Servers and Storage

By Casey Birch and Stanley L. Stevens

ORACLE DATABASE

44 Oracle Grid Computing: Changing the Way IT Operates

By Logan McLeod, Nathan Saunders, Thomas Kopec, and Jaime Delgado

SYSTEMS MANAGEMENT

76 Maximizing Data Value with IT Analytics and the Dell Management Console

By Ryan Stolte and Feris Rifai

78 Using Dell Repository Manager to Simplify Updates for Dell PowerEdge Servers

By Bhuvaneshwari Robin, Jamal Blackwell, and James Watt

82 Unified Monitoring and Proactive Management of Dell Hardware with Microsoft System Center

By Viswanathan Balakrishnan, Saravan Kumar, Mahendran P., and Vignesh Pandian

HIGH-PERFORMANCE COMPUTING

94 Comparing DDR and QDR InfiniBand in 11th-Generation Dell PowerEdge Clusters

By Munira Hussain, Gilad Shainer, Tong Liu, and Onur Celebioglu



CLIENT SOLUTIONS FOR THE EFFICIENT WORKFORCE

PAGE 28

INTRODUCING THE DELL OPTIPLEX XE: PURPOSE-BUILT FOR DEMANDING ENVIRONMENTS

Designed with the flexibility to meet exacting requirements for embedded systems in a wide range of industry solutions, Dell OptiPlex™ XE platforms offer long-term stability, remote manageability, and robust purpose-built features. In addition, Dell OEM Solutions experts provide a comprehensive set of services that help reduce time to market, optimize operations, and enhance business agility.

INDEX TO FEATURED DELL CUSTOMERS

Creative Artists Agency.....	90
Montgomery Independent School District.....	86
Salesforce.com.....	92
South Holland Province.....	88
State University of New York.....	46

INDEX TO ADVERTISERS

American Power Conversion Corporation.....	73
Broadcom Corporation.....	7
Dell Inc.....	C2, 21, 25
Extreme Networks, Inc.....	81
Intel Corporation.....	57, 64a
Network Engines, Inc.....	39
Oracle Corporation.....	C4
Quantum Corporation.....	69
Raritan Inc.....	63
SonicWALL, Inc.....	31
Symantec Corporation.....	C3

EDITORIAL STAFF

EDITOR-IN-CHIEF AND PUBLISHER Tom Kolnowski
MANAGING EDITOR Debra McDonald
FEATURES EDITOR Kathryn White
ASSOCIATE 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 Sunil Ahluwalia, Roberto Ayala, Viswanathan Balakrishnan, Kay Benaroch, Casey Birch, Jamal Blackwell, Charles Butler, Thomas Cantwell, Onur Celebioglu, Ravikanth Chaganti, Sridhar Chakravarthy, Barun Chaudhary, Mark Christenson, Joe Colucci, Annette Cormier, Greg Darnell, Amit De, Jaime Delgado, Brent Douglas, Steven Grigsby, Gary Gumanow, Jon Hass, Calvin Hsu, Munira Hussain, Thomas Kopec, Saravan Kumar, Tong Liu, John McDonald, Logan McLeod, Tushar Oza, Mahendran P, Vignesh Pandian, Ravi Kumar Pare, Feris Rifai, Bhuvaneshwari Robin, Sean Roth, Nathan Saunders, Gilad Shainer, Timothy Sherbak, Stanley L. Stevens, Ryan Stolte, Peter Tsai, Juan Vega, Gong Wang, James Watt, and Weijia (John) Zhang, Ph.D.

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)
EASTERN U.S. SALES Steve Branda (201-483-7871)
CANADA, EMEA, AND APJ SALES Mark Makinney (805-709-4745)
ADVERTISING ASSISTANT Scott Hallquist (323-254-0905)
AD COORDINATOR Kathy Hartlove

READER SERVICES

Subscriptions are complimentary to qualified readers who complete the online subscription form. For the Print Edition: To sign up as a new subscriber or change your existing subscription, access the Subscription Center at DELL.COM/PowerSolutions. For the Digital Edition: To sign up as a new subscriber or convert your Print Edition subscription to the Digital Edition, visit powersolutionsdigital.dell.com. For other subscription services, please e-mail us_power_solutions@DELL.COM.

ABOUT DELL

Dell Inc., headquartered in Round Rock, Texas, near Austin, listens to its customers and delivers innovative technology and services they trust and value. Uniquely enabled by its direct business model, Dell is a leading global systems and services company and No. 34 on the Fortune 500 list. For more information, visit our Web site at DELL.COM.

Dell cannot be responsible for errors in typography or photography. Dell, the Dell logo, ControlVault, Dell OpenManage, Dell Precision, EqualLogic, FaceAware, Latitude, On-Demand Desktop Streaming, OptiPlex, PowerConnect, PowerEdge, PowerVault, and Vostro are trademarks of Dell Inc. Other trademarks and trade names may be used in this publication to refer to either the entities claiming the marks and names or their products. Dell disclaims any proprietary interest in the marks and names of others.

Dell Power Solutions is published quarterly by Dell Inc., *Dell Power Solutions*, One Dell Way, Mail Stop RR5-05, Round Rock, TX 78682, U.S.A. No part of this publication may be reprinted or otherwise reproduced without permission from the editor-in-chief. Dell does not provide any warranty as to the accuracy of any information provided through *Dell Power Solutions*. Opinions expressed in this magazine may not be those of Dell. The information in this publication is subject to change without notice. Any reliance by the end user on the information contained herein is at the end user's risk. Dell will not be liable for information in any way, including but not limited to its accuracy or completeness. Dell does not accept responsibility for the advertising content of the magazine or for any claims, actions, or losses arising therefrom. Goods, services, and/or advertisements within this publication other than those of Dell are not endorsed by or in any way connected with Dell Inc.

Copyright © 2010 Dell Inc. All rights reserved. Printed in the U.S.A.

Printed on recycled paper containing 10 percent post-consumer waste. Please recycle this magazine.