

END-TO-END RELIABILITY: MISSION CRITICAL FACILITIES

# TURNING VISION INTO ACTION

2013 FALL CONFERENCE

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November 17-20, 2013  
JW Marriott San Antonio Hill Country  
San Antonio, TX



The end-to-end reliability forum.™

[www.7x24exchange.org](http://www.7x24exchange.org)

# 2013 FALL CONFERENCE

# TURNING VISION INTO ACTION

## ***What is 7x24 Exchange?***

The 7x24 Exchange is the leading knowledge exchange for those who design, build, operate and maintain mission critical enterprise information infrastructures. We are a not-for-profit organization seeking to promote dialog among industry professionals to address the many challenges facing owners and operators of these facilities. In addition to the ever present challenge of maintaining and improving end-to-end reliability; addressing the challenges of energy efficiency and sustainability and the potential for increased regulatory oversight have become a major focus of our membership.

The organization was founded on the assumption that professionals involved with data center uptime and operational issues often work in isolation when dealing with strategic, technical, budgetary, regulatory, and career issues. This often results in expensive, time consuming, and, sometimes, painful trial and error efforts. 7x24 Exchange members work together to advance the state-of-the-art by sharing best practices, lessons learned, and evolving strategies to address the challenges of infrastructure reliability and industry leading energy efficiency. Armed with this information members are enabled to proactively communicate, to technical peers, non-technical team members, clients and corporate management, the solutions necessary to drive operational efficiency and protect their companies' information lifelines.

## ***The Goal of 7x24 Exchange Conferences***

The field of mission critical operations continues to evolve. Before its founding in 1989 as the Uninterruptible Uptime Users Group, learning how to deal with reliability and operational issues largely resulted from individual trial and error. Continuing this random rate of reliability improvement increasingly restricts the potential productivity of the large and rapidly growing investments in computer and communication infrastructure. Adding to the challenge has been the rapid growth in energy demand and the ever increasing cost of energy. With 7x24 operations now more common, how much higher will availability requirements be in five years? How much will these facilities cost to operate? How will environmental and regulatory concerns impact operations? How can cost effective, reliable responses be assured? Addressing, and, hopefully, answering these and related strategic questions, 7x24 Exchange conferences provide stimulating discussion forums. Collectively, we know much about the future options and alternatives available. With the 7x24 Exchange, that knowledge can be shared. All program elements aim to increase the reliability and

availability of an enterprise's information infrastructure by presenting case studies, new ideas, techniques, equipment and tools. Open dialogue between attendees and presenters is encouraged throughout. Further, by involving the many specialists from end users to service providers to equipment manufacturers in both formal and informal sessions, the experience is rewarding and enjoyable for all. This conference is designed for anyone involved with 7x24 infrastructures - IT, data center, disaster recovery and network/telecommunication managers; computer technologists; facility or building managers, supervisors and engineers. Vendors, consultants, or anyone concerned with uninterrupted access to critical information also will find the conference of value. Attendees and their organizations benefit from the conference because proactive plans and cooperation from diverse corporate functions are needed to improve reliability. By promoting a dialogue and clarifying the synergies among functions, past conferences have enabled teams of attendees from a given organization to better communicate the critical importance of a proactive approach to continuous uptime. Attendees are also able to participate in breakout sessions and network with other professionals in similar companies/industries with like problems. Conference attendees benefit in three ways: professional development and advancement; increased recognition of their function's importance; and exposure to new ideas, contacts and resources. CEU credits are also available.

First-time attendees often discover that many companies face similar, if not identical, technical and organizational challenges in their quest for higher availability levels. 7x24 Exchange conferences provide insights into what is being planned and executed by others to mitigate or eliminate downtime risks. Recommended changes can then be justified, both on their practical merits and in the context of business cases that have been successful elsewhere.

## ***What is a Tutorial Session?***

7x24 Exchange has been offering tutorial sessions for many years. These tutorials are designed to deliver value to a broad range of participants. Whether your need is advanced training on a specific topic of the day or a refresher course on fundamental concepts, there is a tutorial that will meet your need. Almost all of the 7x24 Exchange general session presentations are geared towards those with an advanced understanding of the concepts that will be presented. The tutorials are intended to complement the Monday through Wednesday general session presentations and help each attendee deepen their level of comprehension.



# NOVEMBER 17

# SUNDAY

**10:00 A.M. – 9:00 P.M.**

**Registration**

**10:00 A.M. – 1:00 P.M.**

**Tutorial A: Introduction to IEEE Std 3006.7-2013 – Reliability of “7x24”**

The IEEE has a new standard, Std 3006.7-2013 Recommended Practice for Determining the Reliability of “7x24” Continuous Power Systems in Industrial and Commercial Facilities. Reliability engineering is a very effective tool for data center assessment, upgrading existing facilities and in evaluating new designs. In the data center/critical facility world, much has been written about reliability, but only a small amount of it could really be considered “engineering.” This new standard provides actual reliability analysis of common configurations of the electrical power for the critical equipment, the mechanical cooling system and the electrical power to the mechanical systems. It also discusses significant issues and how they impact the reliability.

**Robert Schuerger**

Principal Reliability Analysis Corporate Lead  
HP Critical Facilities Services



**2:30 P.M. – 4:30 P.M.**

**Tutorial B: Safe and Effective Electrical Troubleshooting**

Learn safe troubleshooting techniques for electrical mechanical equipment at a higher-level. Topics covered include: meter inspections, demonstrating safe live-dead-live on lockout-tagout equipment, energized work permit requirements, when equipment should be labeled, and how to select and inspect appropriate PPE. View a motor control troubleshooting simulator lab exercise as well. Attendees will learn new information about electrical safety, guarding/lockout-tagout, inspections, audits, job safety analysis, assessments, regulatory compliance, policies, program administration safety performance, metrics, statistics, and train the trainer. Attendees will walk away with new knowledge to apply in their workplace.

**Rick Elwell**

Senior Electrical Safety/Technical Consultant  
LP Management Services

**6:00 P.M. – 9:00 P.M.**

**Welcome Reception**

SPONSORED IN PART BY:



Join us for a reception with open bar accompanied by music. This is an excellent opportunity to dialogue with conference presenters, meet new people, network, welcome first time attendees, renew old acquaintances, and meet the board members.

# NOVEMBER 18

# MONDAY

**7:00 A.M.**

**Registration & Breakfast**

Check in, pick up your name badge, conference materials and enjoy a hot buffet breakfast.

**8:00 A.M.**

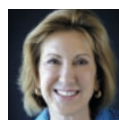
**Welcome and Opening Remarks**

Bob Cassiliano, 7x24 Exchange chairman, will open the conference, provide an overview, review meeting logistics and address general housekeeping items.

**8:30 A.M. Conference Keynote**

**What it Takes to Stay Competitive: Sparking Innovation for Business and Economic Growth**

Innovation is a requirement for any company that wants to stay ahead of the competition and thrive in the global economy. Innovation is not simply a breakthrough idea, a hot new product or a lucky accident. Instead, consistent and effective innovation requires the focused introduction of new ideas and new ways of doing business. Innovation must be managed, measured and inspected. As the leader of the largest technology company in the world, no one is more qualified to speak about innovation than Carly Fiorina. As an active participant in the public policy and political process, Carly also speaks knowledgeably about the role of government and the impact of regulation and taxation on innovation.



**Carly Fiorina**

Former Chairman and CEO  
Hewlett Packard

QUESTIONS? CALL 646.486.3818 [www.7x24exchange.org](http://www.7x24exchange.org)

**9:30 A.M.**

**Refreshment Break**

**10:00 A.M.**

**Leading the Way to a Connected Enterprise –  
Fidelity's Next Generation Data Center**

Fidelity will highlight the thinking and attributes behind Fidelity's next generation data center solution for the connected enterprise. Typical data center planning often produces a solution that is not optimally flexible or cost-efficient, due to the mismatch between the needs of the firm's IT organization, real estate group, business units, and risk-security operation. Rather than broker a compromise where each group gives up some of their requirements, the team relied on a trust-based collaborative process involving senior-level sponsorship from all stakeholders. The result, called Centercore, is the basis for Fidelity's next generation data centers. It is a rapidly deployed, on-premises, hardened data center that scales easily, has the feel and functionality of a traditional data center, and easily adapts to a changing IT landscape.

**Joe Higgins, PE**

VP Engineering and Corporate Sustainability  
Fidelity Investments

**Eric Wells**

VP Data Center Services  
Fidelity Investments

**11:00 A.M.**

**PANEL: The Power of Data in Data Center Operations**

Gathering data is practically an obsession in the data center industry. In this session, panelists will speak not only about the importance of data in achieving high reliability and reducing energy use but also compare approaches to gathering data, understanding which information is important and how to access it, as well as confirming conclusions drawn from data. Expect the panelists to address the elements of a good plan to gather and evaluate data, such as how many data points are needed, how should they be configured, how to establish a performance baseline, and how to adapt to changes such as growth and consolidation.

**MODERATOR:**

**Kevin Heslin**

Senior Editor  
The Uptime Institute

**PANELISTS:**

**Stephen Fairfax**

President  
MTechnology, Inc.

**John Sasser**

Vice President Operations  
Sabey DataCenter Properties

**David Schirmacher**

Senior Vice President of Operations  
Digital Realty

**W. Pitt Turner, IV**

Director Emeritus  
The Uptime Institute

**12:00 P.M.**

**Lunch and Networking**

**12:00 P.M.**

**End User Xchange Forum**

Designed to encourage in-depth discussion and debate on the latest challenges in data center planning, design and

operation, topics will include: trends in infrastructure design resiliency, energy efficient design and operational practices, capacity planning and management, and the day-to-day challenges in managing data center operations. The moderator will guide the discussion with the use of PowerPoint slides and handouts; however, the real star of this session will be you, the end user! Bring your appetites, but more importantly, be ready to engage your peers for an exciting interactive discussion on the latest challenges of our industry. Don't forget those business cards as this will be a great opportunity to meet your peers in the industry!

**MODERATOR:**

**David Schirmacher**

Senior Vice President of Operations, Digital Realty and  
President, 7x24 Exchange International

**1:30 P.M.**

**Water Cooling of IT Equipment**

The presentation will be divided into two portions – the first will be a description of IBM's water cooled servers of today; the second portion will be given by NCAR which deployed IBM's water cooled equipment in their new state of the art data center in Wyoming.

Part 1: We will describe the current state of the art of water cooled equipment offered by IBM, which currently has 9 of the top 20 supercomputers in the world, all cooled by water. The water cooled designs are implemented across a broad range of products from the mainframe, x86 servers to specialized servers such as Bluegene. Increased performance and improved energy efficiency are two primary advantages of the use of water cooling. Recently installed and the #1 Supercomputer in Europe is an IBM water cooled cluster of servers. This one is very unique in that it uses 45°C (114°F) water to cool the 3.5 MW cluster of servers and then has an opportunity to use the waste heat from the computer for heating adjacent buildings during the winter months. A broad overview of our water cooled systems will be given including this warm water cooled cluster.

Part 2: The NCAR-Wyoming Supercomputing Center (NWSC) provides advanced computing services to scientists studying atmospheric and related sciences, including weather, climate, oceanography, air pollution, space weather, energy production and carbon sequestration. Ranked currently the 17th fastest supercomputer in the world, the NCAR Yellowstone supercomputer is a 1.5-petaflops high-performance computing system with 72,288 processor cores, 144.6 TB of memory, and 29 times the workload throughput of NCAR's Bluefire supercomputer, which was decommissioned January 31, 2013. This water cooled x86 cluster is installed in a new state of the art data center located in Cheyenne, Wyoming. NCAR has deployed innovative facilities technologies receiving two awards this year for "Green Data Center of the Year" and a top honor in facility design. The high performance water cooled system, early experience in operation and the new data center will be described.

**Roger Schmidt**

IBM Fellow and Chief Engineer for Data Center Energy Efficiency  
IBM

**Aaron Andersen**

Deputy Director of Operations  
National Center for Atmospheric Research (NCAR)

**2:30 P.M.**

**Create Your Own Sundae Break**

**3:00 P.M.**

**Benefits of Fully Modular Data Centers**

Modular, containerized data centers have been gaining traction for the many benefits they provide data center owners, including lower TCO (lower CapEx and lower OpEx), faster speed of deployment, and high efficiency from demonstrated low yearly PUE averages. Equally important, modular solutions are equal to, and sometimes better than, brick & mortar in providing Enterprise availability and reliability. Compared to traditional facility construction and

conventional data center capacity expansion, these factors make containerized modular data centers a compelling option that demands consideration. In our presentation, we will evaluate the requirements and benefits that were considered when HP IT chose a container-based solution to expand capacity at their Georgia facility, and the selection criteria they used for evaluating the IT and Power container partners.

**Dave Rotheroe**

Distinguished Technologist - Global IT Infrastructure and Operations  
Hewlett Packard

**Jake Ring**

GM, Structured Solutions  
GE Critical Power

## 4:10 P.M. Concurrent Breakout Sessions

### Breakout A: A Practical Guide to Implementing Rack Cooling Index (RCI)

Managing today's dense equipment environments is a challenge; over-temperatures may not only harm expensive electronic equipment but also interrupt critical and/or revenue generating services. This presentation will review Hewlett Packard's experience with implementing a methodology for analyzing the rack cooling effectiveness using the "Rack Cooling Index" in its IT data centers. HP will share what technologies were deployed, how they were integrated into existing systems, and what challenges presented themselves during the project.

The Rack Cooling Index (RCI) is designed to be a measure of how effectively equipment racks are cooled and maintained within industry thermal guidelines and standards. By testing the methodology and the index on a typical data center environment with two contrasting cooling systems, it is shown that the index indeed provides a meaningful measure of the rack cooling effectiveness. The index has the capacity to help evaluate the equipment room health for managing existing environments or designing new environments.

**Matthew Brown**

Director Data Center Operations  
HP Cloud

### Breakout B: Uptime in the Age of Cloud Computing - Bringing Industrial Automation into a Connected World

Collaboration increases productivity, reduces development time, and improves quality. With a collaborative cloud environment, enterprises can more easily share thoughts and ideas across industry forums where feedback and advice can be provided in real-time. Additionally, the cloud environment creates a community approach to solving problems for a more effective resolution. This is especially important for industries that stand to gain the most from ensuring the uptime of their equipment for safety, productivity, and cost reasons. This session will describe how a collaborative cloud atmosphere can maintain the uptime of mission-critical enterprise infrastructure to keep systems running in today's connected world.

**Bernie Anger**

General Manager, Control & Communications Systems  
GE Intelligent Platforms

### Breakout C: Is It Time to Reassess Your Availability Approach?

Information availability is in the middle of a period of intense change. What were acceptable business continuity and disaster recovery strategies even a year ago are now being questioned, and organizations must constantly re-examine information availability capabilities. For IT infrastructure, data center and disaster recovery managers, it has become a challenge to keep up. But this presentation can help. We will address the following questions:

- 1 | What's causing the current shift in information availability?
- 2 | What are the emerging technologies that IT managers should be discussing with their teams?
- 3 | Is near-zero recovery time a realistic expectation?
- 4 | How can companies deliver always-on IT while reducing cost and risk?

**David Edborg**

Chief Architect, EMC Availability Services  
EMC

### Marquis Plus+ Partner Showcase

6:30 P.M.

#### *Monday night... IS BACK!*

7x24 Exchange is proud to present the Marquis Plus+ Partner Showcase. This premier exposition will resemble the Hospitality Events of the past where ALL attendees can gather around top notch food, beverage and entertainment, to network and enjoy themselves thanks to our Marquis Plus+ Partners. Each of our partners will display their latest and greatest equipment, products and services available to assist you in your day to day data center operational needs.

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**7:00 A.M.****Breakfast & Registration****8:30 A.M.****Opening Remarks**

Bob Cassiliano will review day one highlights, recognize the conference Corporate Leadership Program sponsors and give a 7x24 Exchange update.

**9:00 A.M.****Keynote: Optimizing Data Center Operations**

It's time to recognize that making data center operations more efficient greatly reduces OpEx, increases internal customer satisfaction, and increases employee satisfaction and retention. Facebook has developed a wide range of tools and systems to measure the status and reliability of data center hardware; automate repair processes; deploy staff more effectively; and perform a variety of other functions that help it run one of the most efficient server fleets in the world. In this talk, Facebook data center operations director Delfina Eberly will describe how Facebook addresses operations challenges, with a focus on best practices and systems that can help you unlock more efficiencies.

**Delfina Eberly**

Director, Data Center Operations  
Facebook

**10:00 A.M.****Refreshment Break****10:30 A.M.****The Evolving State of the Data Center Industry**

The data center industry is rapidly nearing an inflection point. In order to effectively support the increasingly sophisticated applications and technologies being implemented by end users, data center providers are being forced to reevaluate their solutions and business models. In this presentation, Chris Crosby, Compass Datacenters' CEO will examine the trends and challenges that are facing today's data center providers and how they will impact the designations, terminology and solutions that will define the industry in the coming years.

**Chris Crosby**

Chief Executive Officer  
Compass Datacenters

**11:30 A.M.****PANEL: Modularity & Containers – What's the Hype About?**

Modularity is a delivery model that is gaining popularity whether it be in the form of a container or multiple building blocks used to create a scalable efficient environment for the delivery of power, cooling or IT. Container and modular solutions have sometimes been viewed as one in the same but this is far from the truth. This panel discussion will work to break down the barriers and misconceptions surrounding issues experienced during the infancy stages of these concepts. We will work to identify many of the lessons learned that will help to ensure a proper installation should you choose to select this type of deployment. The panel will focus on how the use of common elements helps to reduce the design cycle and accelerate the construction cycle saving time and money. It will also address how each of these solutions have morphed into a more streamlined and economical deployment method capable of replacing brick and mortar for varying types of infrastructure projects.

**MODERATOR:****Rich Hering**

Technical Director  
M+W Group

**PANELISTS:****Marc Faig**

Chief Technology Officer  
AST Modular

**David Gauthier**

Director, Data Center Architecture  
Microsoft Global Foundation Services

**Ty Schmitt**

Executive Director, Dell Fellow  
DELL

**Eric Wells**

VP Data Center Services  
Fidelity Investments

**12:30 P.M.****Lunch and Networking****2:00 P.M.****Maintenance Considerations for Emergency Power Systems**

Long term reliability of an emergency power system is dependent upon a rigorous and proactive preventative maintenance plan. There are many common contributing causes for an emergency power system failure to start (e.g., batteries, not in auto, etc.), however a robust maintenance plan applies across the entire lifecycle of the system. This presentation will address maintenance considerations specific to discrete points in the generator set system lifecycle; the importance of system monitoring to prevent unscheduled downtime; preparation of a maintenance plan to deal with an extended outage; considerations in designing a facility for maintenance and repair; emergency system maintenance practices and the importance of regular system testing.

**Benjamin A. Thomas**

Electric Power Americas Customer Services Manager –  
Western Region  
Caterpillar

# 2013 FALL CONFERENCE **TURNING VISION INTO ACTION**

**3:00 P.M.**

**Refreshment Break**

## **3:30 P.M. Concurrent Breakout Sessions**

### **Breakout A: Bringing Colo into the Cloud Era**

Enterprises are increasingly accessing a range of outsourced data center services, including colocation, hosting and cloud. Yet while customers are reaping the benefits of automation, remote visibility and management with cloud services, these same qualities have not been extended to colocation. Demand for colocation services is projected to achieve 15% y-o-y growth through 2015, yet it has remained siloed from other infrastructure services and retains its legacy-based culture, with routine operations and management left to data center managers. Adam will discuss how to bring colocation into the cloud era to deliver the same level of remote automation and agility, as well as integration with other infrastructure services.

**Adam Weissmuller**

Director of Product Management, Managed Hosting & Cloud Internap

### **Breakout B: Whack-A-Mole for Data Centers: Capacity Management vs. Dynamic IT Power**

The dynamic range of power usage by IT devices has been increasing significantly in recent years, spurred on by developments in Energy Star ratings for IT devices. At the same time, growing employment of virtualization technologies is causing increasing CPU usage and dynamics. Historically, CPU utilization had minimal effect on power usage by IT devices and the short term impact of virtualization on power and cooling requirements were minimal. However, combining the trend of increasing CPU usage dynamics with increasing power consumption dynamics (associated with CPU usage) increases the challenge of IT rack power consumption dynamics – a rack of 2013 “Energy Star rated” IT equipment has the potential to more than double in power usage (and heat output) in a matter of minutes.

**Donald Mitchell**

Team Leader, Systems Engineer  
Schneider Electric



### **Breakout C: Balancing IT Performance and Energy Efficiency in Virtualized Data Centers**

Refreshing IT equipment to newer, higher performing, power-efficient systems, and consolidating and virtualizing servers to improve overall utilization can produce counter-productive results with regard to energy efficiency and the Power Usage Effectiveness (PUE) rating system. The reason is that a reduction in the energy consumed by IT assets (the denominator in the PUE equation) causes PUE to increase when the power required for cooling, lights and the inherent inefficiencies in power distribution systems remains largely the same. This session will explore the use of more effective metrics like McKinsey's Corporate Average Datacenter Efficiency (CADE), to rate the overall energy efficiency of an organization's data center that could be used to compare the energy consumption and utilization against another data center. CADE combines measurements of IT equipment energy efficiency and utilization as well as facilities into a single percentage. Organizations that have refreshed, consolidated and/or virtualized servers invariably achieve a significant improvement in their CADE rating, with PUE getting better, or sometimes worse, depending on the specific circumstances.

**Clemens Pfeiffer**

Chief Technology Officer  
Power Assure



**QUESTIONS? CALL 646.486.3818** [www.7x24exchange.org](http://www.7x24exchange.org)





“Six Flags Over Texas” is the slogan used to describe the six countries that have had sovereignty over some or all of the current territory of the U.S. state of Texas. This slogan has been incorporated into shopping malls, theme parks, and other enterprises and now it is the theme of the 7x24 Exchange Sponsored Event.

You are invited to join 7x24 Exchange for a journey to La Villita, the little village in downtown San Antonio on the historic “River Walk” for a celebration of the Six Flags Texas has served under. The destinations you will experience are Spain, France, Mexico, Republic of Texas, the Confederate States of America and United States of America. In addition to experiencing the culture, food and entertainment offerings from these 6 countries you will also have the opportunity to enjoy a one of a kind River Barge cruise showcasing the best of what downtown San Antonio has to offer. Feel free to stay after the event is over as 7x24 Exchange will be providing transportation back to the resort until 1:30 A.M. so you can enjoy downtown San Antonio.

*Located on the south bank of the San Antonio River, La Villita was San Antonio's first neighborhood. It was originally a settlement of primitive huts for the Spanish soldiers stationed at the Mission San Antonio Valero (the Alamo). After a flood in 1819, brick, stone and adobe houses replaced the earlier structures. In 1836, La Villita was the site of General Santa Ana's cannon line in the Battle of the Alamo and a map from early that year showed the village to be of considerable size.*

*Late in the 19th century European immigrants from Germany and France moved into the area. These pioneers became San Antonio's business leaders, bankers, educators, and craftsmen. The cultural mix that occurred at this time is best illustrated by the variety of architectural styles reflected in La Villita's buildings. The architecture portrays the evolution of buildings from palisado to Victorian houses.*

*The first part of the 20th century saw La Villita decline into a slum area. In 1939, as ground broke on the San Antonio River Walk development, city fathers led by Mayor Maury Maverick acted to preserve this colorful part of San Antonio's history. Today La Villita is a thriving art community that stands as a monument to San Antonio's past.*

6:30 P.M. – 9:30 P.M. SPONSORED EVENT

# Six Flags Over Texas at the River Walk



Special thanks to the partners that made this event possible:



THE SWEDISH TRADE & INVEST COUNCIL





**7:00 A.M.****Breakfast****8:30 A.M.****Opening Remarks**

Bob Cassiliano will review highlights from day two and address housekeeping items of interest.

**8:45 A.M.****Keynote: The Integral Role of Power Monitoring in DCIM**

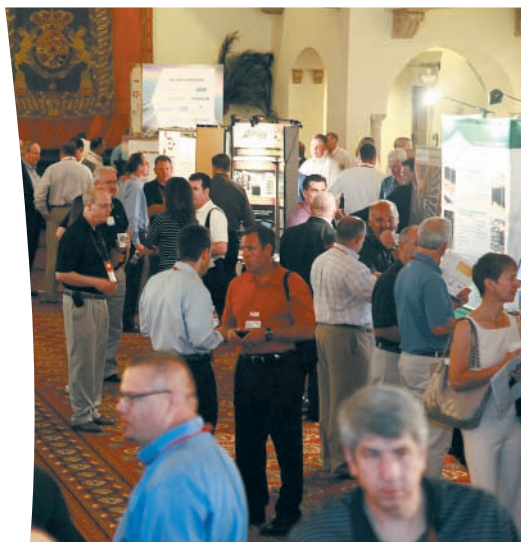
Maintaining 100% uptime is a continual challenge for data centers. However, with proactive power monitoring and alerting, steps can be taken to minimize a data center's risk from power-related downtime and keep costs under control. Power monitoring is an exceptional tool for finding system issues and troubleshooting them. With the added benefit of accurately tracking energy consumption, it enables data centers to operate continuously with a secure and economical supply of energy. Power monitoring plays an integral role in data center infrastructure management (DCIM) by maximizing the use of existing capacity to defer new capital investments and delivering insightful diagnostics and metrics to help verify the reliability of backup systems. This session will highlight a case study on RagingWire's strategic development and deployment of power monitoring within their DCIM system.

**William Dougherty**

Vice President, Information Technology  
RagingWire

**Luke Dalske**

Solution Sales Engineer  
Schneider Electric

**9:45 A.M.****Refreshment Break****10:15 A.M.****Who is Responsible for Energy Efficiency?**

This presentation will provide discussion on where the responsibility for energy efficiency lies based on current trends and findings. Should the data center look to spec energy efficient equipment on the infrastructure side? Is it up to cloud architects to try to influence server and power supply manufacturers to affect a bigger global goal? The goal of this session will be to positively affect energy efficiency throughout the industry by closely examining the current breakdown of responsibilities and examine opportunities for data center and cloud executives to work together.

**Chris McLean**

Director of Design  
Markley Group

**11:15 A.M.****Meeting Today's Data Center Security Challenges**

Security concerns have grown more multi-faceted and formidable as data centers face an increasingly broader variety of threats. While once data center security concerns largely focused on protecting the data center structure itself, today's security planners must address layered facility protection from outsider threats as well as vulnerabilities posed by unauthorized access to servers inside the building which could occur from insider threats. This presentation will describe latest innovations in physical security, megapixel cameras, hardening of servers and server rooms, and new strategies allowing operators to monitor a data center's security indicators and economic performance indicators in continuous real time.

**Paul Vaccaro**

Engineer and Strategist for Global Data Center  
Intel

**Forrest Gist**

Global Technology Lead for Integrated Security and  
Emergency Preparedness Group  
CH2M Hill

**12:15 P.M.****Conference Adjourns**

## 1. Conference Registration

Complete a Conference Registration Form for each participant online or mail or fax a copy of the Conference Registration Form on next page to:

### 7x24 Exchange

322 Eighth Avenue, Suite 202, New York, NY 10001  
Phone: 646-486-3818 | Fax: 212-645-1147

[www.7x24exchange.org](http://www.7x24exchange.org)

To guarantee early bird rate, registrations must be received by **October 18th**.

## 2. Official Conference Hotel Reservations

To take advantage of 7x24 Exchange's special rates at the **JW Marriott San Antonio Hill Country** you can visit the conference website at [www.7x24exchange.org](http://www.7x24exchange.org) to make an online reservation or call Marriott Reservations directly at **877-622-3140** and ask for the **7x24 Exchange Conference room rate of \$249/night** for a single or double plus tax. Please tell the reservation agent you are with 7x24 Exchange when calling. The optional daily resort fee is \$25.



*Please Note: Room reservations are available on a first come, space available basis. Space permitting, this block will be available until October 24, 2013. Register for the conference and make your hotel reservations early, as the blocks will likely sell out. Previous 7x24 Exchange conference room blocks have sold out. 7x24 Exchange is not responsible for matching rates, finding additional rooms or providing transportation to hotels that have not been contracted by 7x24 Exchange once the block is sold out. 7x24 Exchange makes every effort to reserve the appropriate number of room nights for attendees. In the event of a sellout 7x24 Exchange will recommend nearby accommodations.*

## Hospitality Events

Due to the launch of our NEW Marquis Plus+ Partner Showcase, hospitality events will not be permitted at this conference. All are invited to join us on Monday, November 18th for the introduction of this new event.



## Guest/Spouse RIVER WALK SHUTTLE

Monday, November 18, 2013

9:00 A.M. – 4:30 P.M.



## Enjoy a day at your leisure at the famous San Antonio River Walk!

The San Antonio River Walk is a public park, open 365 days a year. It is a network of walkways along the banks of the San Antonio River, one story beneath approximately 5 miles of downtown San Antonio. Lined by bars, shops and restaurants, the River Walk is an important part of the city's urban fabric and a tourist attraction in its own right.

The first shuttle leaves the resort at 9:00 A.M. Additional shuttles will depart every 30 minutes thereafter on the hour and half hour with the last shuttle departing from downtown San Antonio at 4:00 P.M. arriving at the hotel by 4:30 P.M.





Name:		
(Informal Name/nickname for badge)		
Position/Title		
Company		
Address		
City	State	Zip
Phone	Fax	
E-mail		

**CONFERENCE FEES:**

	Early Bird Discount through Oct 18	After Oct 18
<b>VENDOR</b>		
<b>Member:</b>	\$1,900	\$2,200
<b>Non-member:</b>	\$2,200	\$2,500

An individual that sells or distributes products and/or services.

**CONSULTANT**

<b>Member:</b>	\$1,700	\$2,000
<b>Non-member:</b>	\$2,000	\$2,300

An individual that provides professional advice or consulting services for a fee.

**END USER**

<b>Member:</b>	\$1,200	\$1,400
<b>Non-member:</b>	\$1,400	\$1,700

An individual that operates or maintains mission critical technology and enterprise information infrastructures for internal use.

*An individual that can be considered as an End User or a Vendor will be classified as a Vendor.*

*An individual that can be considered as an End User or a Consultant will be classified as a Consultant.*

**CONFERENCE BOOK OR MOBILE APP?**

In an effort to become paperless, 7x24 Exchange is offering attendees the option of receiving printed materials in the traditional format of a bound conference book or the use of our brand new mobile app which will be available on all mobile devices and tablets. Due to print deadlines, the mobile app will be the only option for attendees registering after October 24th.

**If nothing is selected the Mobile App will be the default choice.**

(Please check one)

- ☐ I would like to receive the traditional conference book
- ☐ I will use the New Mobile App

**PAYMENT METHOD:**

☐ Check enclosed

Charge (check one)

☐ American Express ☐ Visa ☐ MasterCard ☐ Discover

Card Number:

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Exp. Date:

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Name (as it appears on the card)

Signature

Promotion Code:

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**DO YOU PLAN TO ATTEND?****Sunday 10:00 A.M. – 1:00 P.M.**

Introduction to IEEE Std 3006.7-2013

☐ Yes ☐ No

**Sunday 2:30 P.M. – 4:30 P.M.**

Safe & Effective Electrical Troubleshooting

☐ Yes ☐ No

**Sunday 6:00 P.M. – 9:00 P.M.**

Sunday Evening's Welcome Reception

☐ Yes ☐ No

If yes, do you plan to bring a guest?

☐ Yes ☐ No

Name of guest:

A guest is a spouse/significant other or an adult child (18 and over) who is not in an industry related occupation. Co-workers or associates in the industry may not use the guest registration category and are required to submit a separate registration form. Only one guest is permitted for each paid registration. Guests are invited to attend the Welcome Reception, Monday Morning Keynote, Monday Evening Event, the Tuesday Sponsored Event and Wednesday Morning Breakfast.

**Monday 9:00 A.M. – 4:30 P.M.**

Guest/Spouse RIVER WALK SHUTTLE

☐ Yes ☐ No

**Monday 4:10 P.M. – 5:10 P.M.**

A Practical Guide to Rack Cooling Index (RCI)

☐ Yes ☐ No

Uptime in the Age of Cloud Computing

☐ Yes ☐ No

Is It Time to Reassess Your Availability Approach?

☐ Yes ☐ No

**Monday 6:30 P.M. – 9:30 P.M.**

Marquis Plus+ Partner Showcase

☐ Yes ☐ No

If yes, do you plan to bring a guest?

☐ Yes ☐ No

**Tuesday 3:30 P.M. – 4:30 P.M.**

Bringing Colo into the Cloud Era

☐ Yes ☐ No

Whack-A-Mole for Data Centers

☐ Yes ☐ No

Balancing IT Performance & Energy Efficiency

☐ Yes ☐ No

**Tuesday 6:30 P.M. – 9:30 P.M.**

Six Flags Over Texas at the River Walk

☐ Yes ☐ No

If yes, do you plan to bring a guest?

☐ Yes ☐ No

Do you wish to receive membership information?

☐ Yes ☐ No

The conference registration fee covers conference sessions and activities, handout materials or mobile app, Sunday's reception, lunches and breakfasts on Monday, Tuesday and Wednesday. Participants are responsible for all other expenses, including guest meals, transportation and hotel accommodations. The dress code is business casual. Cancellations received by Oct 11th will be refunded, less a \$200 handling fee. There will be no refunds after Oct 11th. However, substitutions of company participants may be made at any time.

All applications for registration are subject to review by 7x24 Exchange for accuracy and completeness prior to being accepted. We may contact you for further information.

We reserve the right to modify the registration if the incorrect fee is selected.

**RETURN THIS FORM TO:****7x24 Exchange**

322 Eighth Avenue, Suite 202, New York, NY 10001

Phone 646-486-3818 • Fax: 212-645-1147

Registration is also available online at

[www.7x24exchange.org](http://www.7x24exchange.org)



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#### MEDIA PARTNERS



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