2018 FALL CONFERENCE
END-TO-END RELIABILITY: MISSION CRITICAL FACILITIES

METRICS OF THE FUTURE

7x24Change
INTERNATIONAL
The end-to-end reliability forum.™
www.7x24exchange.org

OCTOBER 21-24, 2018
JW MARRIOTT DESERT RIDGE, PHOENIX, AZ

WHAT IS 7x24 EXCHANGE?

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 dialogue 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 **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 **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.

2018 FALL CONFERENCE
END-TO-END RELIABILITY: MISSION CRITICAL FACILITIES

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SUNDAY
OCTOBER 21ST

11:00 A.M. – 9:00 P.M.
Registration

1:00 P.M. – 2:00 P.M.
Emerging Air Sampling Fire Detection in HVAC Design Models

Codes and standards drive many of the decisions made in data centers. As facilities grow to the industrial scale, blindly following code requirements may cause you to miss opportunities for better fire protection. Many of the improvements can be realized by using air sampling smoke detection in place of regular smoke detectors. In addition to reviewing what the code requires, this presentation will show how data center fire protection has outpaced the fire codes. It reviews challenges in depth and new design methodologies being adopted. Suggested solutions take site conditions, operating conditions, and owner's objectives into consideration.

STEVEN JOSEPH
Director of Marketing Development, Xtralis/Honeywell

LEE KAISER
VP of Engineering, Orr Protection

In keeping with its commitment to social responsibility, Chairman & CEO, Bob Cassiliano presented the Spring Conference keynote speaker, Molly Fletcher, with a $5,000 donation on her behalf to The Boys & Girls Clubs of America.

Keynote speaker Kfir Godrich of BlackRock delivers a presentation on blockchain.

2:30 P.M. – 5:00 P.M.
Fluid Mechanics 101: Fundamentals of Cooling Airflow in a Data Center

This tutorial session will introduce basic concepts of air velocity, airflow rate, pressure, and temperature distribution as applied to raised-floor data centers. You will be shown why the flow distribution through the perforated tiles is usually not uniform. It is governed by the air velocity and pressure variation *under* the raised floor. By calculating this variation, you can predict the distribution of the airflow coming out of the perforated tiles. Such a calculation allows you to study the effect of variables such as: layout of the CRAC units and the perforated tiles, the height of the raised floor, and the presence of obstructions under the raised floor. Once the flow rates through the perf tiles are determined, the next step is to calculate, in the *above-floor* space, the air velocity and temperature as the air moves through the server racks and back to the CRAC units. Many examples will be presented to develop an understanding of the physical processes and to draw practical conclusions. The tutorial will show how to create a computational model of a data center layout and calculate the corresponding airflow and temperature distribution.

SUHAS V. PATANKAR, PhD
Professor of Mechanical Engineering, University of Minnesota and President, Innovative Research, Inc.

6:00 P.M. – 9:00 P.M.
Welcome Reception
SPONSORED IN PART BY:

CATERPILLAR®   **PowerSecure**

Join us for a reception with open bar and buffet dinner 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.

MONDAY

OCTOBER 22ND

7:00 A.M. – 8:00 A.M.
Registration & Breakfast

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

8:00 A.M. – 8:30 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. – 9:30 A.M.
Conference Keynote: Technology and 2018 Turbulence

The rapid evolution of technology's four driving forces—Cloud Computing, Big Data, Artificial Intelligence, and the Internet of Things—together will upend the business landscape and destroy the old ways. These forces will create huge opportunities for new efficiencies, customer channels, speed and investments. This new, faster pace of evolution is occurring when greater political uncertainty exists in the U.S. and around the world. Political policies—tax, monetary policy, trade and regulation—will be furiously debated in the run up to the 2018 elections. How will the 2018 elections shake out? What policy changes and geo-political events will shape the landscape for business and investment? Come and hear one of the most influential and respected figures in the technology, economic and business worlds, provide advice on how to harness an organization's disruptive spirits to maximize business opportunities in the global marketplace.

RICH KARLGAARD
Forbes Publisher and Global Futurist

9:30 A.M. – 10:00 A.M.
Refreshment Break

10:00 A.M. – 10:10 A.M.
Award Presentations

Salute Mission Critical will present Bob Cassiliano and 7x24 Exchange International with the Selfless Service Award for their selfless support of veterans initiatives and support of Salute's mission, to give veterans the opportunity to work in the data center industry.

The Department of Defense will present Bob Cassiliano with the Patriot Award recognizing the continuous efforts made to support citizen warriors through a wide-range of measures. His recognition and support of the military, including veterans, active reservists and guard has inspired and set the example for others to follow.

10:10 A.M. – 11:00 A.M.
Changing Fundamentals of Business Service Delivery Metrics

IT organizations have spent the last 25 years focused on component level technology and metrics rather than looking at what it takes to actually run

Spring Conference Keynote Molly Fletcher.

the business. While IT professionals have created many kinds of low-level metrics about the discrete resources required to build and operate data centers (including power and cooling, staffing, and maintenance), what the IT Infrastructure business actually needs is a clear understanding about an organization's ability to support revenue goals, which is a function of how business processes have been transformed to be digital-centric. Companies need to know what to expect and how to measure these expectations against delivered performance. The business cares very little about the price of a kilowatt of power, instead a more important metric is to understand the business cost for every transaction completed. This cost per unit of work mentality is dramatically different from traditional metrics about square footage, kilowatts and tons. In this session, we will focus on the new era of measuring the IT function, and how to identify the key drivers and architectures that affect the bottom line.

MARK HARRIS
Senior Vice President of Marketing, Uptime Institute

11:00 A.M. – 12:00 P.M.
Panel: Achieving High Data Center Energy Performance

Today, data centers account for roughly 2 percent of the total U.S. electricity use, and computational demand continues to accelerate. The U.S. Department of Energy's Better Buildings Initiative partners are setting aggressive energy efficiency goals and using a variety of metrics to measure success. Data center energy consumption can be reduced by 20 to 40 percent through proven, commercially available energy efficient technologies. A panel of Better Buildings partners from Digital Realty Trust, Intel, and the Lawrence Livermore, and Lawrence Berkeley National Laboratories will share their stories and lessons learned in improving efficiency and resiliency.

Moderator:
DALE SARTOR, PE
Staff Scientist, Lawrence Berkeley National Laboratory

Panelists:
AARON BINKLEY
Director of Sustainability, Digital Realty

NISSIM HAMU
Data Center Engineer, Intel

BRANDON HONG, PE
Electric Systems Engineer, Lawrence Livermore National Laboratory

12:00 P.M. – 1:30 P.M.
Lunch and Networking

12:00 P.M. – 1:30 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 in 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
President, Reset Advisors, LLC and President, 7x24 Exchange International

1:30 P.M. – 2:30 P.M.
Solving Critical Colocation Challenges at a Global Scale

As colocation providers expand their footprints into new regions around the world, a multifaceted set of challenges are encountered, including delivering standard solutions and configurations, flexibility to meet the needs of customers of all sizes, and offering predictable & economical TCO to customers. All of these challenges are then intensified by the breakneck speed of hyperscale data center deployments. This joint speaking presentation with Digital Realty and Schneider Electric will explore the challenges and solutions in deploying a globally consistent hyperscale data center architecture at hyperscale speed.

DOMENIC ALCARO
VP, Data Center Software Solutions, Schneider Electric

KEVIN DALTON
VP of Engineering, Digital Realty

2:30 P.M. – 3:00 P.M.
7x24 Exchange Traditional
Create Your Own Sundae Break

3:00 P.M. – 4:00 P.M. Concurrent Breakout Sessions
Breakout A: Financial Tools to Accomplish Data Center Energy Efficiency Projects

As a diligent data center operator, you've optimized many parts of your facility but what happens when you have worthwhile energy-efficiency projects that do not meet the financial criteria of your CFO? Many data centers have picked their low-hanging fruit and the remaining projects are still worthwhile, but their paybacks do not meet the threshold for consideration in the budgeting process. In this session, we'll explore the various financial tools available to data center operators in both private industry and the public sector which can help businesses, agencies and institutions accomplish a greater number of projects that do not meet budgeting thresholds typical of the data center & IT industries. Some of the benefits of these approaches include off balance sheet/off credit transactions, embedded Operations and Maintenance support of new equipment and the ability to fund the project from energy savings.

MILES AUVIL
Senior National Sales Manager, Data Centers, Building Technologies Division, Siemens Industry, Inc.

RICK SIEVERTSEN
Managing Director, Enterprise Accounts, Siemens USA

Breakout B: Yesterday, Today, Tomorrow: A Quantum Leap Needed

It's easy to recognize the physical changes within a data center and the evolution of client-driven demands: from yesterday's enterprise solutions to today's colocation models, to tomorrow's edge computing and hybrid cloud solutions. Yet, as the physical infrastructure and complexities of managing data continue to evolve, the industry must also recognize the quantum leap needed for those managing these rapidly changing facilities: technical qualifications and skillsets must concurrently innovate and change to meet technology advancements and demands of end users. Through case studies and key insights, this discussion aims to compare the technical qualifications once needed to manage a data center to those needed for the data centers of today, and to project the skillsets and preparation crucial for the data centers of tomorrow.

GREG YOUNG
Senior Managing Director, CBRE Data Center Solutions

Breakout C: Watts per Acre: Increasing Site Power Density with Vertical Data Centers

Data center alley is running out of land, but not a lack of interest in continuing to develop the US's largest concentration of data centers. With continued demand, developers and operators need to take to the sky, expand vertically, and start to consider "watts per acre" as a metric. A business case analysis shall be presented to encourage maximizing use of land, and power and cooling density in a smaller footprint.

BILL MCCARTHY
VP, CallisonRTKL

CHRISTOPHER MCLEAN
Director, Mission Critical Services, M.C. Dean

TOM SANDLIN, JR.
Principal, Avison Young

4:00 P.M. – 5:30 P.M.
Building Your Personal Brand and Maximizing Conference Attendance via Social Media

Social media has become a powerful marketing and communication tool in today's society. Building your personal brand and creating a strong community can be a challenge. This workshop session is designed to help you learn the steps needed to build your own personal brand on social media and provide pointers on how to set up your profile and maximize your presence. Additionally, this session will provide ideas on what to do before, during and after the conference, to maximize your attendance. Boost your career, your business, and your community while improving your digital and social media skills.

Organized by the Women in Mission Critical Operations® (WiMCO®) Committee

JULI IERULLI
Marketing Communications Manager, Large Power Systems – Industry Solutions, Caterpillar, and
Marketing Director, Vendor Representative, 7x24 Exchange International

LILLIAN RIVERA
Director of Marketing, Primary Integration

DENMAN WALL
Sr. Director of Interactive Services, Dolci Interactive

BACK TO THE 80s

MARQUIS PLUS+ PARTNER SHOWCASE

Special thanks to our Marquis Plus+ Partners as this event would not be possible without their support.

ABB   **ANORD MARDIX**   **CATERPILLAR®**   **EASTPENN**

mtu onsite energy   **PDI**   **S&C**   **SIEMENS** *Ingenuity for life*   **STACO ENERGY PRODUCTS CO.**

Join 7x24 Exchange and our Marquis Plus+ Partners as we go way back... **back to the 80s! A totally radical decade where shoulder pads, parachute pants and fanny packs were all the rage...** See if you've still got what it takes at the classic Pacman or Donkey Kong game, while listening to the best 80s jams! But that's not all – look out for that famous silver DeLorean and you might just catch a glimpse of Marty and Doc.

MONDAY
6:30 P.M. – 9:30 P.M.

This premier one of a kind exposition will allow attendees the opportunity to network and view the latest and greatest equipment, products and services available to assist you in your day-to-day data center operational needs.

TUESDAY
OCTOBER 23RD

7:00 A.M. – 8:30 A.M.
Breakfast & Registration

8:30 A.M. – 9:00 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. – 10:00 A.M.
Keynote: Unleashing the Metrics of Cost and Performance

Many billions of dollars a year are spent in the design, construction and operation of mission critical data centers. For an industry that supports the core of the global business economy and impacts the lives of virtually everyone on the planet, it is hard to believe that so little of what we do is driven by a common set of measurable metrics. The introduction of the PUE metric in 2006 was a major leap in beginning to define performance but it only addresses one slice of a very large pie. Numerous metrics have followed but none have achieved the same almost universal acceptance. In this presentation, David will discuss some of the historical challenges to metrics adoption and will take a deeper dive into the measurement of cost and performance and the tools that leading edge firms use to validate their performance.

DAVID SCHIRMACHER
President, Reset Advisors, LLC and President, 7x24 Exchange International

10:00 A.M. – 10:30 A.M.
Refreshment Break

10:30 A.M. – 11:30 A.M.
Panel: Leveraging Technology & Metrics for Smarter, Safer Jobsites

See. Mitigate. Manage. Three simple words that—paired with the right technology—keep your workers safer. All companies focus on safety hazards on the jobsites, so how can technology help you work both smarter and safer? Google, along with their contractors and vendors, is exploring a number of initiatives using technology to identify risks before and during work. Using personalized metrics, teams can now mitigate hazards before they put people at risk. From fatigue monitors and other wearable technology to virtual reality "walk throughs," the metrics provided offer innovative, process-changing insight, arming companies with the knowledge to make better decisions from project kickoff to completion.

Moderator:
DOUG O'NEILL
Senior Vice President, Mission Critical Leader, JE Dunn Construction

Panelists:
ERIC HANSON, CSP
Director, Environmental Health and Safety, The Whiting-Turner Contracting Company

ANITA TARAB
Global Director for Sustainability, Environment, Health and Safety, Google Data Centers

CHRIS TEDDY
Vice President, Mission Critical, JE Dunn Construction

ERIC ZUHLKE
National Safety Director, JE Dunn Construction

11:30 A.M. – 12:30 P.M.
Panel: Battery Technology

This panel discussion will present available UPS chemical battery technologies including the latest innovations in Lead Acid Valve Regulated and Flooded Cells as well as Lithium Ion and future battery technologies. Reuse of electric vehicle batteries, battery recycling technology and the future of battery ecology will be discussed. We will review the pros and cons of each technology, application of the tech as well as review total cost of ownership case studies for the various technologies. Panelists have extensive experience in the design, application and ongoing use of batteries for UPS support. Each panelist will provide a short presentation on the technology, case studies and TCOs will be reviewed and then the floor will be open to questions.

Moderator:
STEVEN SHAPIRO, PE, ATD
Partner, EYP Mission Critical Facilities, Inc.

Panelists:
BRUCE COLE
Sr. VP of Sales, East Penn Manufacturing Co.

JAY FRANKHOUSER
Director, Reserve Power Business Development & Marketing, EnerSys

JERRY HOFFMAN
President, LiiON Corp.

NICK SHANLEY
Sales Manager – Data Centers, Saft America, Inc.

Spring Conference attendees networking.

12:30 P.M. – 2:00 P.M.
Lunch and Networking

2:00 P.M. – 3:00 P.M.
The Silicon-Carbide Revolution and Data Centers

Equipment being used for power distribution in data centers is witnessing a major revolution in their power electronics that will improve their efficiency, size and heat dissipation metrics. This includes transformers, UPS, circuit breakers, panelboards, switchboards and lighting. Power electronics (diodes, MOSFETs, IGBTs, converters, inverters) are conducting electricity with a better material than Silicon. Because Silicon based devices are so mature and inexpensive, it might be hard to believe that any material could replace it. But Silicon Carbide (SiC) is doing it! The US Department of Energy says that Wide Bandgap SiC semiconductors will transform multiple industries resulting in billions of dollars in savings. This includes data centers!

RYAN KENNEDY
CEO, Atom Power

ANTHONY PINKEY
Business Development Manager, Mitsubishi Electric Power Products, Inc. (MEPPI)

ROB ZACCARO
Manager, Implementation Engineering, Verizon Wireless

3:00 P.M. – 3:30 P.M.
Refreshment Break

3:30 P.M. – 4:30 P.M. Concurrent Breakout Sessions
Breakout A: Why Does it Cost So Much to Retro-Fit?!

How many times has a data center owner/developer proclaimed, "I could have built a brand-new data center for the same price as this retro-fit"? When the need to diversify one's data center portfolio by building a new facility in an area with little to no undeveloped land occurs, how does one identify a good property? When is it advantageous to upgrade or retro-fit an existing structure when an undeveloped or greenfield site is not available? When does speed to market outperform the price premiums associated with retro-fitting? DPR Construction's data center experts, Mark Thompson and Mark Whelpley, will guide the audience through various case study examples of when data center retro-fits ended up saving time and money, and when they did not. They will also provide rules of thumb for space and programming ratios, which are key when considering a site and existing facility for retro-fit.

MARK THOMPSON
Advanced Tech Core Market Leader, DPR Construction

MARK WHELPLEY
Advanced Tech Preconstruction Leader, DPR Construction

Breakout B: Powering Data Centers through Customization

The presentation will explore installations done in three mission-critical facilities: enterprise data centers, colocation data centers and healthcare data centers. Challenges MTU Onsite Energy faced and remedied in designing, delivering and installing systems at these facilities will be addressed. Customizing units, meeting government regulations and installing systems in remote locations will be highlighted. Attendees will be able to walk away equipped to accommodate any data center design concerns and installation considerations they may face in the future.

NICHOLAS PAOLO
Business Development Manager, MTU

Breakout C: Cyber Resiliency of Mission Critical Automation Systems

In depth review of why/how building automation and electrical control systems have become vulnerable over time as the Internet of Things (IoT) has become more integrated. As IoT converged networks have become more integrated their cyber security vulnerabilities have had consequences effecting operations and uptime availability. This presentation will highlight these vulnerabilities, why they are vulnerable and ideas on how to enable resilience through cyber security best practices. The best practices would focus on organizational leadership recommendations, technology enablers to create scale, and processes that shift risk of down time operations for critical assets.

JOHN COLLINS
Senior Account Executive, FoxGuard Solutions
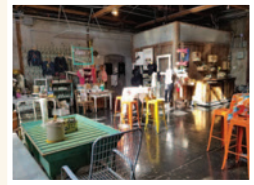
AN EVENING AT the duce

SPONSORED EVENT

TUESDAY
OCTOBER 23RD
6:30 P.M. - 9:30 P.M.

Join 7x24 Exchange at one of Phoenix's legendary venues where pretty meets gritty and produce meets prohibition...for the fall conference's final networking opportunity!

What's the Duce?...it *is* what it *was*...a 1928 warehouse that once anchored a bustling produce district by day...and *the notorious "deuce" by night*...dice, vice, jazz and other not so good clean fun.

Same corner, about *a century later*. Slide open the vintage steel doors and you'll ask yourself, *"Where the heck am I?"* Belly up to Chicago's original **Black Orchid Jazz Club** bar and rest your elbows where d' boys once did...Old Blue Eyes, Sammy & Dean. **Come and Get it**...Trailer made forgotten but unforgettable dishes reminiscent of mom's 1960s kitchen...all made from scratch in "DUCHESS"...their 1968 streamline camper using fresh, local & organic ingredients. Shake it up baby at the 1915 Chicago drug store soda fountain...all mixed up by "Pops," downtown's coolest jerk.

SPECIAL THANKS TO OUR PARTNERS THAT MADE THIS EVENT POSSIBLE

WEDNESDAY
OCTOBER 24TH

8:30 A.M. – 8:45 A.M.
Opening Remarks

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

8:45 A.M. – 9:45 A.M.
Keynote: Hyperscale Computing – An Inflection Point for Data Centers

We are going to need new data architectures that can scale to meet the demands of a range of data analytics workloads while accelerating the development of the data models that will drive these new applications. In this new role, data centers will become teachers for factories of robots, fleets of autonomous vehicles, and new Bio/IT labs all performing feats that were recently considered science fiction; to turn unprecedented quantities of data into real-time decision making.

JOHN V. HEALY
Vice President, Data Center Group,
General Manager of the Software Defined Datacenter
Solutions Group
Intel Corporation

9:45 A.M. – 10:15 A.M.
Refreshment Break

10:15 A.M. – 11:15 A.M.
Did the Bot Shutdown the Data Center?

As we continually seek to reduce costs and improve efficiency, robotic process automation (RPA), chatbots, drones and land-roving robots are being adopted at multiple companies. The focus of this presentation will be the application of Robotic Process Automation to reduce human work, improve efficiency and quality, as well as scale human work in data centers. The presentation will discuss the evolving landscape of infrastructure operations, potential improvements as well as downsides of applying robotic process automation to data center/technology operations. We will provide details on how to measure the impact of bots, potential ratios of bots vs. people required for management, and other new metrics required in management of robotics.

AMAYA SOUAREZ
Vice President, Global Infrastructure Software & Automation,
First Data

MANAVPREET THIARA
Director, Data Engineering, First Data

WiMCO® committee members enjoying the networking reception.

11:15 A.M. – 12:15 P.M.
ASHRAE 90.4 – Energy Standard for Data Centers

When ASHRAE 90.4 was first published in 2016 there were concerns voiced as to why an energy standard was needed for data centers. The first part of this presentation will explain what ASHRAE 90.4 is and why it is needed. It will explain the reasons for the new metrics and how this works in conjunction with ASHRAE 90.1. The second part will be a demonstration of the calculations required to show compliance with the standard.

DAVE KELLEY
Member, ASHRAE TC9.9 – Mission Critical Facilities, Data Centers,
Technology Spaces and Electronic Equipment and
Member, ASHRAE SSPC 90.4 – Energy Standard for Data Centers

VALI SORELL
President, Sorell Engineering

12:15 P.M.
Conference Adjourns

Next Generation of Talent Panel at the Spring Conference.

1. Conference Registration

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

7x24 Exchange International

322 Eighth Ave., Suite 702, New York, NY 10001
Phone: 646-486-3818 | Fax: 212-645-1147
www.7x24exchange.org

To guarantee early bird rate, registrations must be received by **September 28th**.

2. Hotel Reservations

JW MARRIOTT
DESERT RIDGE
RESORT & SPA

**5350 East Marriott Dr.
Phoenix, AZ 85054**

To take advantage of 7x24 Exchange's special rates at the **JW Marriott Desert Ridge Resort & Spa** you can visit the conference website at www.7x24exchange.org to make an online reservation, or call **JW Marriott Desert Ridge Resort & Spa Hotel directly at 1-800-835-6206 and ask for the 7x24 Exchange Conference room rate of $279/night for a single or double plus tax.**

Please refer to **7x24 Exchange 2018 Fall Conference** when calling.

Please Note: Room reservations are available on a first come, space-available basis. Space permitting, this block will be available until September 24th. Register for the conference and make your hotel reservations early, as the block 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 success of the Marquis Plus+ Partner Showcase, hospitality events will not be permitted at this conference. All are invited to join us on Monday, October 22nd for another spectacular event.

Vendor/Consultant Policies & Procedures

Information Tables

All vendors and consultants are encouraged to participate in 7x24 Exchange.

However, the group is primarily driven by user interest. Tables are provided at the conference for the distribution of product literature, educational material and other useful information at no cost. Display signs are not permitted on literature tables. Overt selling at 7x24 Exchange meetings and the use of 7x24 Exchange membership lists for direct selling are prohibited.

Guest/Spouse Shopping Shuttle

MONDAY, OCTOBER 22ND

10:00 A.M. – 4:00 P.M.

Enjoy a day of leisure at some of Scottsdale's finest shopping malls.

Name

(Informal Name/Nickname for badge)

Position/Title

Company

Address

City   State   Zip

Phone   Fax

E-mail

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, Spouse/Guest Shuttle, Marquis Plus+ Partner Showcase, Tuesday Sponsored Event and Wednesday Morning Breakfast.

CONFERENCE FEES:

	Early Bird Discount through September 28th	After September 28th
VENDOR		
Member:	$1,900	$2,200
Non-member:	$2,200	$2,500
An individual that sells or distributes products and/or services.		
CONSULTANT		
Member:	$1,700	$2,000
Non-member:	$2,000	$2,300
An individual that provides professional advice or consulting services for a fee.		
END USER		
Member:	$1,400	$1,600
Non-member:	$1,600	$1,900

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**.

We reserve the right to modify the registration fee without notice if incorrect fee is selected.

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 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 September 28th.

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 Mobile App

PAYMENT METHOD:

☐ Check enclosed

Charge (check one)
☐ American Express   ☐ Visa   ☐ MasterCard   ☐ Discover

Card Number: Exp. Date:

Name (as it appears on the card)

Signature

Promotion Code:

Please return this form to: **7x24 Exchange International**
322 Eighth Avenue, Suite 702, New York, NY 10001
Phone 646-486-3818   I   Fax 212-645-1147
Email conferences@7x24exchange.org
Register online at **www.7x24exchange.org**

DO YOU PLAN TO ATTEND?

SUNDAY 1:00 P.M. – 2:00 P.M.
Emerging Air Sampling Fire Detection in HVAC Design Models   ☐ Yes ☐ No

SUNDAY 2:30 P.M. – 5:00 P.M.
Fluid Mechanics 101: Fundamentals of Cooling Airflow
in a Data Center   ☐ 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

MONDAY 10:00 A.M. – 4:00 P.M.
Guest/Spouse Shopping Shuttle   ☐ Yes ☐ No

MONDAY 3:00 P.M. **CONCURRENT BREAKOUT SESSIONS**
A: Financial Tools to Accomplish
Data Center Energy Efficiency Projects   ☐ Yes ☐ No
B: Yesterday, Today, Tomorrow: A Quantum Leap Needed   ☐ Yes ☐ No
C: Watts per Acre: Increasing Site Power Density
with Vertical Data Centers   ☐ Yes ☐ No

MONDAY 6:30 P.M. – 9:30 P.M.
Marquis Plus+ Partner Showcase: Back to the 80s   ☐ Yes ☐ No
If yes, do you plan to bring a guest?   ☐ Yes ☐ No

TUESDAY 3:30 P.M. **CONCURRENT BREAKOUT SESSIONS**
A: Why Does it Cost So Much to Retro-Fit?!   ☐ Yes ☐ No
B: Powering Data Centers through Customization   ☐ Yes ☐ No
C: Cyber Resiliency of Mission Critical Automation Systems   ☐ Yes ☐ No

TUESDAY 6:30 P.M. – 9:30 P.M.
Sponsored Event: An Evening at "The Duce"   ☐ Yes ☐ No
If yes, do you plan to bring a guest?   ☐ Yes ☐ No

☐ I would like to continue receiving promotional e-mails for 7x24
Exchange about membership, upcoming events and services

The conference registration fee covers conference sessions and activities, handout materials and/or mobile app, Welcome Reception, Marquis Plus+ Partner Showcase, Sponsored Event, 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 September 28th will be refunded, less a $200 handling fee. There will be no refunds after September 28th. 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.

REGISTRATION FORM