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End-to-End Reliability: The Infrastructure



→ 2002 Fall Conference November 17-20, 2002 The Phoenician Scottsdale, AZ

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7x24Exchange 322 Eighth Avenue, Suite 1400 New York, NY 10001











The end-to-end reliability forum www.7x24exchange.org

End-to-End Reliability: The Infrastructure 2002 Fall Conference Highlights



"This is no time for ease and comfort. It is the time to dare and endure." -Wir

-Winston Churchill

Although 7x24Exchange's mission is to be the leading knowledge exchange forum for mission critical facilities, it is time to revisit some established concepts and question their validity. We should never become too comfortable, otherwise complacency rears its ugly mug and bites us hard. Yes, we all have a good sense as to what it takes to maintain a five nines or better uptime scorecard, but when was the last time that we took an indepth look as to whether our uptime practices still make sense? It is time to *examine* the foundation, *dare* the practices and methodologies, and to *endure* the findings.

For 7x24Exchange, the foundation has always started with the "Infrastructure". For this conference, we will grab high powered microscopes to closely examine this infrastructure and report on the findings. We will start by learning what kind of infrastructure was needed to handle the 2002 Soccer World Cup that recently took place. **Ken Kane**, the principal system designer and manager at **Avaya** for this World Cup, will tell us all about the massive undertaking that took place behind the scenes. Avaya, a recent spinoff of Lucent is primarily know for its superior communication hardware technology. A tremendous amount of technology was deployed to handle the voice and data streams of traffic as each team played. The infrastructure had to be perfect because millions of soccer fans were watching all around the world. Downtime is not an acceptable operational event for something of this magnitude – the games must go on. Fortunately for all, the games went on until a new world champion was declared – Brazil. Ken will deliver the keynote address on Monday, November 18.

Since hardware utilizes software, it would make sense to explore this dimension as well. **Bill Parsons** from **PeopleSoft** will share his views on what this means for PeopleSoft from an eCommerce point of view. PeopleSoft became famous for it's human resource software management toolkit and from there it has grown to offer more complementary tools for businesses to improve their overall operations. Bill will deliver the keynote address on Tuesday, November 19.

Bringing closure, **Elizabeth Stipnieks** from the **Edison Electric Institute** will share the latest thinking on what is going on with the electric utility industry throughout North America. Every mission critical infrastructure needs a reliable and constant source of power to seamlessly operate. Given all that has happened in the electric industry, the information presented here will be very timely in helping organizations determine what their power strategies will be for the future.

We are also honored to have some of our own 7x24 *Exchange* members share their findings for all to learn from. We have in no particular order: **Mel Foster** from **UPS**, **Donald Crandall** from **Charles Schwab**, **Edward Furlong** from **GE**, **Ken Baker** from **HP/Compaq**, **Tony TeVault & Rick Morgan** from **Holder**, **Peter Styx** from **Ellerbe Becket**, **Kevin Kealy** from **AT&T**, **Peter Curtis** from **Power Management Concepts**, **John Diamond** from **Cushman & Wakefield**, and **Mike Mosman** from **CCG**.

We are also pleased to announce that we have a number of tours scheduled for this conference: **American Express**, **Edward D. Jones, Cox Cable Communications**, the **Phoenician**, and the **SRP** utility company have graciously offered to let our members tour their facilities.

As if that wasn't enough, we will again offer two educational tracks on November 17 due to strong feedback from our attendees. Suhas Patankar has graciously offered to teach another session on Fluid Mechanics 101. The other session, Mission Critical Electrical & UPS Fundamentals will be co hosted by Ken Hilborn of Schneider Electric and Alan Katz of MGE.

Robert J. Cassiliano Chairman John Oyhagaray Program Director



What is 7x24 Exchange?

The leading knowledge exchange for those who design, build, use and maintain mission-critical enterprise information infrastructures, 7x24 *Exchange* is a not-for-profit organization seeking to improve end-to-end reliability by promoting dialogue among these groups.

Founded on the assumption that often professionals involved with data center uptime issues work in isolation when dealing with technical, budget, political, and career issues. As a result of expensive, timeconsuming and sometimes painful trial and error processes, innovative practitioners evolved unique and creative ways of solving problems and building the organizational support needed for their implementation. However, many have been stymied because they did not have access or know how to communicate potential risks to senior management to avoid a downtime disaster occurrence.

7x24 *Exchange* members work together to advance the state-of-the-art in infrastructure reliability. By collecting and disseminating data on safeguarding information systems and alerting top management to the importance of proactive measures, members can protect their companies' information lifelines.

The Goal of 7x24 Exchange Conferences

The field of uninterrupted uptime has no textbooks. Before its founding in 1989 as the *Uninterruptible Uptime Users Group*, learning how to deal with uptime issues largely resulted from individual trial and error. Continuing this random rate of reliability improvement would increasingly restrict the potential productivity of the large, growing investment in computer and communication hardware and systems. It also would interfere with the increasingly critical dependence on information accessible through computers.

With 7x24 operations now common, how much higher will availability requirements be in five years? How can cost-effective, reliable responses be assured? When is a centralized application site requiring ultra-high availability viable? 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 and tools. Open dialogue between attendees and presenters is encouraged throughout. Further, by involving the many specialists from user and supplier/service organizations with formal and informal sessions, the experience is rewarding and enjoyable for all.

Schedule At-A-Glance

Who Should Attend and Why

This conference is designed for anyone involved with 7x24 infrastructures — IS, 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 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. Team members also were able to cover 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. First-time attendees often discover that many companies face similar, if not identical, technical and organizational problems in their quest for higher availability levels. Those still unaware of this often view their situations as unique. However, they learn there are many common downtime risks and failure modes with solutions clustering around universal ideas and attitudes. 7x24*Exchange* conferences provide insights into what is being planned and done 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 arguments that have been successful elsewhere.

Sunday, November 17

12:00 noon Registration

1:00 p.m. – 4:00 p.m. Concurrent Tutorials *A. Mission Critical Electrical & UPS Fundamentals 101 B. Fluid Mechanics 101*

2:30 p.m. Refreshment Break

5:00 p.m. Registration (continued)

6:00 p.m. Reception/Ice-Breaker

Monday	. Nove	mber 1	8

6:30 a.m. Registration & Continental Breakfast

8:00 a.m. Welcome and Opening Remarks

8:15 a.m. Keynote Address: The World Cup Infrastructure

9:15 a.m. Refreshment Break

9:45 a.m. Modeling & Analysis of High Reliability Systems

10:45 a.m. Case Study: Challenge's of Mission Critical Design & Construction in South America

11:45 a.m. Buffet Lunch

1:15 p.m. Meet the Media

2:15 p.m.

- A. People & Process: The Other Side of Data Centers
- B. Business Case Analysis: The Keys to Achieving Continuous Availability & Service Excellence While Minimizing Costs

3:00 p.m. Make Your Own Sundae Break

3:30 p.m. Proactive & Automated Management of Distributed Systems

4:15 p.m.

A. Alternative Power for Mission Critical FacilitiesB. Business Case Analysis: Data Center

Bypass Study

5:30 p.m. Concurrent Tours

6:00 p.m. Hospitality Suites

Tuesday, Nov

7:00 a.m. Continental Break 8:30 a.m. Opening Remark

8:45 a.m. Keynote Address

9:45 a.m. Refreshment Bre

10:15 a.m. Case Study; Incr Maximizing Corp

11:15 a.m. IT Security – The

12:15 p.m. Buffet Lunch

1:45 p.m. A. Alternate C Density Da B. Extracting I Networked

2:30 p.m.

A. Case Study Standards B. Alternate C Uptime Cor

3:15 p.m. Refreshment Bre

Distributi

3:45 p.m. Server Cooling T Datacenter Ther

4:30 p.m.

Pass the Mike So 6:00 p.m. Vendor Sponsore

2 2002 Fall Conference

vember 19	Wednesday, November 20
eakfast	7:00 a.m. Continental Breakfast
irks Day 2	8:30 a.m. Opening Remarks and 7x24Exchange Updates
ss: Impacts to eCommerce Break	8:45 a.m. Keynote Address: Electric Industry Restructuring
creasing Reliability &	9:45 a.m. <mark>Break</mark>
prporate Intellectual Property	10:15 a.m. <i>A. Commissioning in a Phased Project</i> <i>B. Infrastructure Designed for Effective</i>
he Weakest Link?	B. Infrastructure Designed for Effective Water Treatment
	11:00 a.m. Is 5 Nine's Reliability Enough From Your Power Company?
<i>Cooling Strategies For High</i> <i>Data Processing Sites</i> <i>g Intelligence from a Globally</i> <i>ed "Zero Layer"</i>	12:00 p.m. Conference Adjourns
dy: European Emission ls for Standby Generators cooling Strategies for High computer Room Power ion	
Break	
J Technology & The Future of ermal Management	
Session	
pred Event	



Sunday, November 17

12:00 noon Registration

1:00 p.m. – 4:00 p.m. Concurrent Tutorials

A. Mission Critical Electrical & UPS Fundamentals 101

Ken Hilborn of Schneider Electric and Alan Katz of MGE will give an in-depth overview of all the power distribution systems typically found in a data center. This session builds upon the previous session on Power Fundamentals presented by **Ross Ignall** of Dranetz-BMI at the Spring 2002 conference. By mastering those concepts, the next logical progression is to understand how the power system is configured in a typical data center. Without power, no facility can operate. This session will cover the power concepts pertaining to a data center and include UPS fundamentals as well. It will provide a solid foundation for those with a nontechnical background in electrical engineering to build upon, as the conference topics will utilize many of these concepts. We strongly encourage you to attend if this area is foreign to you or if you simply would like a refresher.

B. Fluid Mechanics 101

Suhas Patankar, Ph.D., Professor of Mechanical Engineering at the University of Minnesota and President of Innovative Research, Inc will host this session. This session will introduce basic concepts of air velocity, laminar and turbulent airflow, pressure, and momentum balance that are part of the heat transfer characteristics typically found in data centers. The material presented at this session can be used to study the effects of variables, such as the positions of CRAC units and perforated tiles; the percent open area of the perfs, raised floor height, and any under floor partitions/blockages. The analysis can then be used to show the simulation of failure scenarios in which the modified flow distribution resulting from failure of one or more CRAC units can be calculated. The tutorial will include a hands-on session on laptop computers where participants can set up data center layouts and calculate flow distribution as one example. Please bring a laptop that runs one of the following Windows operating systems - 95/98/Me/NT/2000/Xp.

2:30 p.m. Refreshment Break

5:00 p.m.

Registration (continued) Pick up conference materials and name badges to help reduce Monday morning congestion

6:00 p.m. – 10:00 p.m.

Reception/lce-Breaker Please join us for a buffet supper and open bar accompanied by soft piano music. This is an excellent opportunity to dialogue with conference presenters, meet new people, network, renew old acquaintances, and meet the board members. *7x24Exchange* Board members **Bob Cassiliano** and **Dave Sjogren** will moderate an icebreaker session designed to welcome first timers and open dialogue on *7x24Exchange* and uptime issues and experiences.

Monday, November 18

6:30 a.m. Registration & Continental Breakfast

8:00 a.m.

Welcome and Opening Remarks

Bob Cassiliano, 7x24Exchange chairman will open the formal agenda, provide a conference overview and review meeting logistics and general housekeeping items.

8:15 a.m.

Keynote Address: The World Cup Infrastructure Ken Kane, Principal System Designer and Manager for Avaya, will tell us about the massive infrastructure that was built to handle the voice and data traffic stream for the World Cup. Ken will share some insights learned from the event.

9:15 a.m. Refreshment Break

9:45 a.m.

Modeling & Analysis of High Reliability Systems Dr. Ted Furlong from General Electric will talk about the complex systems that are being built to handle customer's ever increasing reliability demands. Behind the scenes, there has to be a highly sophisticated control system to meet the high availability demands for the data center. How does one measure systems of this complexity with accuracy?

10:45 a.m.

Case Study: Challenge's of Mission Critical Design & Construction in South America.

Optiglobe, an Internet service provider wanted to be the first on the market for South America. They needed to build three world class data centers in record time in three different countries - Buenos Aires (Argentina), Rio de Janiero and Sao Paulo (Brazil). **Alister McPhail** of Optiglobe, **Tony TeVault & Rick Morgan** from Holder along with Peter Styx of Ellerbe Becket will present the fast track details that went into making this project an overwhelming success despite all of the obstacles that were faced and overcome.

11:45 a.m. Buffet Lunch

1:15 p.m. Meet the Media

Eileen Wixted, a former television news reporter and noted consultant to Fortune 500 companies, will offer insight to what we all need to know about the power of the media beforehand. If a major crisis impacts your facility, what should you do and not do when the media suddenly shows up and decides to report on your misfortune. Say the wrong thing and you and your company's image can be negatively impacted. Despite the best laid plans, things do go wrong and this information will be invaluable in the event the media approaches your company for a story to report upon.

2:15 p.m.

A. People & Process: The Other Side of Data Centers

Donald Crandall of Charles Schwab will talk about the importance of the people and processes that are so critical to maintaining high levels of availability. This is an often neglected topic that is swept under the rug for whatever reason. Donald will present a list of must do items so that neither the people or processes behind the scenes lead to downtime in data centers.

B. Business Case Analysis: The Keys to Achieving Continuous Availability & Service Excellence while Minimizing Costs

Steven Yellen of Aperture Technologies will discuss the best practices that are being used in the industry to minimize downtime. The focus of this presentation will be on optimizing key processes for maximum availability while also reducing costs in the midst of unrelenting numbers of hardware, software, and networking changes that take place.

3:00 p.m. Make your own Sundae Break



3:30 p.m. Proactive & Automated Management of Distributed Systems

Harold Cartmill & Bob Bogowitz of Intel will talk about new and better ways of using innovative software tools to better manage mission critical facilities. It is far better to have predicative pro active monitoring systems that can identify a potential problem before it escalates into one that causes an outage. The methodologies that will be presented are ones that are currently being used by Intel in their efforts to minimize outages of any kind.

4:15 p.m.

A. Alternative Power for Mission Critical Facilities

Christian Lagier of Northern Power Systems will discuss how datacenter power supply is increasingly challenged by decreasing power reliability and power quality supplied by the local utility. Back up diesel generators and battery-based UPSs have long been the standard solutions for utility customers seeking added reliability and quality. Unfortunately, these solutions introduce a number of additional problems, from high cost to poor environmental performance to high maintenance. A number of other on-site generation solutions have emerged that overcome these shortcomings and offer increased benefits over traditional solutions. In this presentation, we will describe some of these new solutions and share case studies that highlight their benefits relative to traditional solutions.

B. Business Case Analysis: Data Center Bypass Study

Dan Gollahon of Triton Technology will address how openings in the data center can cause all sorts of interesting headaches and problems such as hot spots. Dan will provide a solution tool along with financial metrics in helping evaluate what actions should be taken in a data center. Dan will provide first hand data to support the metrics presented that can be applied to your own facility.

5:30 p.m.

Concurrent Tours

Tours will leave at 5:30 pm and return to the hotel by 8 pm. Due to the events of 9/11 facilities have heightened restrictions on tours. All tours are subject to space availability and will be assigned on a first come, first served basis. Therefore, please indicate your 1st, 2nd and 3rd tour preferences on the conference registration form.

- Tour A. American Express (American Express Restrictions: Individuals representing credit card companies or financial institutions will not be permitted to tour this facility.)
- Tour B. Edward D. Jones
- Tour C. Cox Cable Communications
- **Tour D.** SRP Utility Company
- Tour E. Phoenician Power Plant

6:00 p.m. – 10:00p.m. Hospitality Suites

Tuesday, November 19

7:00 a.m. Continental Breakfast

8:30 a.m.Opening Remarks Day 2Bob Cassiliano will review Day one highlights and provide an overview of upcoming events and housekeeping items of interest.

8:45 a.m.

Keynote Address: Impacts to eCommerce Bill Parsons of Peoplesoft has major responsibilities for the Customer Relationship Management product division and the eCommerce group that acts as an Application Service Provider (ASP). Bill will discuss the tactical, short term impacts and strategic, long term impacts that they have experienced and what this may mean for the rest of us in the industry from an IT point of view. Bill brings a broad background from the mainframe, midrange, and client server environment from previous positions in the IT industry, so he will have unique insights to share with us.

9:45 a.m. Refreshment Break

10:15 a.m.

Case Study; Increasing Reliability & Maximizing Corporate Intellectual Property.

Despite all the efforts to improve uptime reliability, very little attention has been given to the intellectual property of a company's infrastructure and how to improve the human factors involved in interacting with mission critical systems. This presentation will describe a solution that was implemented for a client that was grappling with this issue.

11:15 a.m.

IT Security – The Weakest Link?

Kevin Kealy, IT Security Technology Leader, AT&T Professional Services, will discuss IT security and how it impacts network and system uptime. This session will discuss the tactics and techniques of hackers and how they can affect system and network reliability and uptime. Kevin will relate real world case studies of both ethical and unethical hacks and intrusions, their consequences and the subsequent clean up. You will also learn measures that you can take to keep hackers out and prevent security problems from happening in the first place.

12:15 p.m. Buffet Lunch

1:45 p.m.

A. Alternate Cooling Strategies For High Density Data Processing Sites

With the release of Mid-Range Servers, computer manufacturers began installing face mounted cooling fans in rack-mounted products. Faster processing chips and greater input power in smaller chassis than earlier systems required that cooling air be drawn through, rather than around the Server. Design modifications to enclosures were made to provide increased airflow through doors to accommodate repositioned Server cooling fans. **Tony Sharp** of Sanmina-SCI will present an alternate strategy for Data Room Cooling based upon using Process Chilling Equipment and Closed Loop Chilled Water Heat Transfer technology. The challenges, obstacles and potential benefits of this technology are explored.

B. Extracting Intelligence from a Globally Networked "Zero Layer"

More corporations today are beginning to manage their critical facilities as one unified network, in the same way that they have integrated their corporate data networks in the 1990s. **Johnathan Buckley** of Netbrowser will present a scalable, reliable, secure webbased monitoring technology and architecture that allow companies to quickly interconnect the disparate facilities assets together.

2:30 p.m.

A. Case Study: European Emission Standards for Standby Generators

Geissler Rudolf and **Amstein Walthert** from Switzerland will discuss what the European standards led to concessions for a recent project for Colt Telecomm, a major communications company operating in 32 countries throughout Europe. In Zurich for example, the law states: "For new plants with achievements over 1 MW the product of measured NOx emission and annual actual working time may not exceed the value of 50'000." This means that emergency





power generators may not operate more than 25 hours per year. How does one then certify that the backup generator will work?

B. Alternate Cooling Strategies for High Uptime **Computer Room Power Distribution**

Today's high reliability environments need a fresh look at how to solve the ineffable conflict of coordinating circuit breakers for short circuit events. Typically, distribution that is done via 42 circuit panel boards cause the main breaker to trip resulting in an outage to all 42 lines and everything powered by it downstream. Mark Welte of EYP will deliver new products and techniques to mitigate outages of this nature.

3:15 p.m. **Refreshment Break**

3:45 p.m.

Server Cooling Technology & The Future of **Datacenter Thermal Management**

Ken Baker of Hewlett Packard/Compaq will present the latest findings and technology solutions that HP found through their own research labs. The problem will be attacked at the chip level and then expanded onward to the thermal problems encountered in high density data centers.

4:30 p.m.

Pass the Mike Session

This highly rated session will continue as an open floor discussion. Moderator Steve Fairfax will address questions submitted on registration forms and those which surfaced during the conference presentations. This session presents an opportunity to address timely issues with in-house experts and audience members. Discussion will include dialogue on September's attacks and their impact on infrastructures going forward.

6:00 p.m.

Vendor Sponsored Event

Details will be given at the conference. We are in the process of finalizing the event and promise it will be memorable.

7:00 a.m. **Continental Breakfast**

8:30 a.m.

Opening Remarks and 7x24Exchange Updates Bob Cassiliano will review highlights from days one and two and provide an update on current 7x24Exchange activities and plans.

8:45 a.m.

Keynote Address: Electric Industry Restructuring

Elizabeth Stipnieks from the Edison Electric Institute will give an overview as to what is happening with the electric utility industry given all the recent events. She will present the latest trends and current insight as to what can be expected in the foreseeable future. The generation, transmission, and distribution aspects for power will be covered.

9:45 a.m. Break

10:15 a.m.

A. Commissioning in a Phased Project

John Pratt, Facility Manager at the CSC Newark Data Center and Mike Mosman P.E., Vice President of CCG will show how planning for new systems commissioning in a phased project started during the programming segment of the project and affected the design segment as well. Special problems with the existing configuration of the critical distribution system made the phasing a challenge. Certain pieces of equipment could not be de-energized and moved until

other systems were installed, commissioned and placed in operation.

B. Infrastructure Designed for Effective Water Treatment

Mel Foster of UPS will deliver perspectives from the Engineering, Owner, and Water Treatment Consultant to show some of the pitfalls and challenges confronted by managing large water systems, especially when they are redundant. This session will possibly include a nationally known water treatment consulting company representative and a representative from our water treatment vendor.

11:00 a.m.

Is 5 Nine's Reliability Enough From Your Power Company? Sue Warren & Warren Scrivani of Progress Energy will discuss how datacenters require optimum power service and how this imposes high demands on local utilities to provide this high level of service. Sue & Warren will discuss what this means from a utility point of view by covering what constitutes high reliability, power quality and reliability, and key factors to consider for your data center.

12:00 p.m. **Conference Adjourns**





1.Conference Registration

Complete a Conference Registration Form for each participant on-line or mail or fax a copy of the Conference Registration Form on page 12 to:

> 7x24 Exchange 322 Eighth Avenue, Suite 1400 New York, NY 10001

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

www.7x24exchange.org

To ensure space availability, registrations must be received by November 6, 2002.

2.Hotel Reservations

If you wish to stay at The Phoenician Resort and Spa and take advantage of 7x24 Exchange's special rates, complete the Resort Registration Form on page 11 and fax a copy to the Phoenician at (480) 947-4311:

To ensure space availability, reservations must be received by October 3, 2002. After October 3rd rooms are subject to space availability.

Vendor/Consultant Participation

Vendors and consultants are encouraged to participate in *7x24Exchange*. 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. Overt selling at 7x24 Exchange meetings and the use of 7x24 Exchange membership lists for direct selling are prohibited.

Special Interest Groups (SIGs) and Chapters

To better serve users and provide a means for ongoing technical interchange between semi-annual conferences, 7x24 Exchange encourages and supports the formation of local 7x24 Exchange Chapters and Special Interest Groups (SIGs). Monthly or bi-monthly chapter meetings help assure continued dialogue between members in a given geographic area. SIG's provide an opportunity for members to explore specific 7x24 issues/problems in depth.

7x24 Exchange's Board of Directors will authorize Chapters and SIGs based on availability of a president/chairperson, a clear program plan and, if needed, a budget. Chairpersons are responsible for gathering a working group and achieving approved plan objectives.

Any member interested in forming a Chapter or SIG should contact 7x24 Exchange headquarters at (646) 486-3818.

Resort Registration Form

Each attendee is responsible for his/her own hotel accommodations. To take advantage of 7x24Exchange special rates, attendees must register with The Phoenician by October 3. Rooms are subject to space availability after October 3.

Resort Registration Form to:

The Phoenician Resort & Spa 6000 East Camelback Road Scottsdale, AZ 85251 Phone: 480-941-8200 Fax: 480-947-4311 www.thephoenician.com

Please type or print clearly

Full name_	
Company_	
Address _	
City	
Phone	

_____ State _____ Zip____ Fax Payment Method Charge (check one):
Amex Diners Discover MasterCard Visa Card Number Expiration Date Signature Arrival date: _____ Departure date:_____ □ Smoking □ Non-Smoking

7x24Exchange Room Rate is \$241/night, plus room tax.

The above rates are available to 7x24Exchange attendees from November 14 through November 22, 2002.

Things to remember

- Check-in time is 3:00 p.m.
- Checkout time is 12:00 noon.

To reserve a room, complete and fax or mail a copy of this

• Reservations are held until 4:00 p.m. unless guaranteed late arrival. A no-show will be charged as a one-night stay.

Conference Registration Form

Please type or print clearly

Full name			
(Informal name/nickname for bad	ges)		
Position/Title			
Company			
Address			
City	State	Zip	
Phone ()	Fax ()		
E-mail			
Fees	Through October 11	After October 11	
Member	\$1,200	\$1,500	

Payment Method

Non-member

Check enclosed

Charge (check one):

🗅 American Express, 🗅 Discover, 🗅 MasterCard, 🗅 Visa

\$1,500

Card Number

Expiration Date

\$1,800

Company problem/issue/case study

An important part of 7x24Exchange conferences is the discussion of real world uptime issues, problems and solutions. Each attending organization is requested to provide a short write-up of a recent experience, major question, problem or issue which might be of interest to conference attendees:

(include additional sheets if necessary)

May we identify your company as submitting this information? Yes No

These write-ups will be reviewed by the 7x24Exchange Board of Directors and provided to appropriate presenters and moderators for possible inclusion in their sessions.

Other comments, suggestions:

Do you wish to receive membership information? 🖵 Yes 🖵 No

Return this form to:

7x24Exchange. 322 8th Ave, Suite 1400 New York, NY 10001 Phone: 646-486-3818 Fax: 212-645-1147 www.7x24exchange.org

Do you plan to attend?

Sunday's Tutorial Sessions 1:00 p.m. - 4:00 p.m. A. Mission Critical Electrical & UPS Fundamentals 101 B. Fluid Mechanics 101 🖵 No

Sunday Evenings' Buffet Reception

Yes No If yes, do you plan to bring a guest? 🖵 Yes 🛛 No Name of guest:

Monday Evening's Tours

(please indicate your 1st, 2nd and 3rd preference) Tours have limited availability and will be assigned on a first come first served basis. Due to the events of 9/11 facilities have issued new restrictions which may result in inaccessibility to specific attendees. Tour A. American Express (Individuals representing credit card companies or financial institutions will not be permitted to tour this facility) ____ Tour B. Edward D. Jones

- ____ Tour C. Cox Cable Communications
- ____ Tour D. SRP Utility
- ____ Tour E. Phoenician Power Plant

Breakout sessions (please choose only one)

Monday 2:15 p.m.

- A. People & Process B. Keys to Achieving Continuous Availability...
- C. None

Monday 4:15 p.m.

- A. Alternative Power for Mission Critical Facilities
- B. Data Center Bypass Study
- C. None

Tuesday 1:45 p.m.

- □ A. Alternate Cooling Strategies...
- B. Extracting Intelligence
- C. None

Tuesday 2:30 p.m.

- A. European Emission Standards ...
- □ B. Alternate Cooling Strategies ...
- C. None

Wednesday 10:15 a.m.

- A. Commissioning in a Phased Project
- □ B. Infrastructure for Effective Water Treatment
- C. None

Vendor Sponsored Evening

🗆 Yes 🗀 No If yes, do you plan to bring a guest? Yes No Name of guest:

The registration fee covers all sessions and activities, handout materials, Sunday's reception, lunches, breakfasts on Monday, Tuesday and Wednesday and field trip transportation. Participants are responsible for all other expenses, including transportation and hotel accommodations. The dress code is business casual. Cancellations received by November 6, 2002 will be refunded, less a \$75 handling fee. There will be no refunds after November 6. However, substitutions of company participants may be made at any time.



"Excellent overall."

"Great conference with a wealth of information sharing."

"Great tropics! Like this venue!."

"Thanks to the companies and individuals who made it possible!"

What Members Are Saying

"Great forum for dialogue exchange with peers."

"As a first time attendee, I found fellow attendees very approachable and welcoming."

"Best conference yet. High quality presentations."

"In addition to the several great presentations – the organization of the meeting was excellent."