



# NewsLink

The leading knowledge exchange for those who design, build, use and maintain mission-critical enterprise information infrastructures, 7x24 Exchange's goal is to improve end-to-end reliability by promoting dialogue among these groups.

## Directors & Officers

### CHAIRMAN OF THE BOARD

Robert J. Cassiliano  
Business Information Services  
(212) 232-0315

### PRESIDENT

David Sjogren  
Strategic Facilities Inc.  
(973) 875-7701

### VICE PRESIDENT-PROGRAMS

John Oyhagaray  
Western Union  
(201) 263-5653

### DIRECTOR

Roy L. Chapman  
American Express  
(602) 766-6502

### DIRECTOR

Ravi R. Mehrotra  
Federal Reserve Bank of NY  
(201) 531-3284

### CHAPTER REPRESENTATIVE

William Leedecke  
Vanguard Group  
(610) 669-5707

### ADMINISTRATIVE DIRECTOR

Kathleen A. Dolci  
(646) 486-3818 x103

### MEMBERSHIP & EDUCATION

Tara Oehlmann, Ed.M.  
(646) 486-3818 x104

### CONFERENCES

Brandon A. Dolci  
(646) 486-3818 x108

## 2003 Fall Conference, *End-to-End Reliability: Mission Critical,* Receives High Marks



*Members listen attentively to the presentations at the Fall Conference last November.*

For those of us in the Northeast, 2004 graced itself with a grand entrance that measured scintillating low temperatures with snow levels that we have not seen in many years. Fortunately, our members were still jubilantly talking about our 2003 Fall Conference held at the Westin La Cantera Resort in San Antonio, TX.

The 2003 "End to End Reliability: Mission Critical" conference itself received an overall rating of 5.92 on a scale of 1 - 7 with the highest overall rating given to Steve Fairfax's talk on the "Northeast Power Grid Outage" closely trailed by Kevin Kealy's talk on "New Technologies, New Threats". We were also able to schedule three tours at Active Power, USAA and the City Public Service facility. We thank the people behind the scenes that made this possible. And lest not we forget, the vendor sponsored "Under the Sea" evening dinner and the hospitality suites that our vendor members hosted at the conference which made for a memorable event.

The 7x24 Exchange Board Members are very

happy with the conference overall and want to thank all of the superb presenters who committed their time and energy to present in front of their peers. Just to be clear, the ratings are compiled from each attendee that submitted a conference evaluation form. We can't help ourselves but to encourage each and every one of you to fill out the conference evaluation form and get it back to us as soon as possible. 7x24Exchange is a user driven organization that acts upon what the majority of our members communicate back to us. We cherish the feedback because it takes the guess work out of what needs to be done and it gives us the opportunity to execute on what needs to be done.

Speaking of the board, there are some changes that have taken place for 2004. Mike Weinstein and Mark Dianora have decided to move on while Bob Cassiliano, Dave Sjogren, and John Oyhagaray stay on and continue their roles for 2004. We are very appreciative of all the work that both Mike and Mark have contributed to

the organization over the years. In their places, the designated primary contact for our member companies have received nomination ballots to have Roy Chapman of American Express and Ravi Mehrotra of the Federal Reserve Bank of New York each elected to the board for a one year directorship term.

We also want to thank Tom Blessing of The Federal Reserve Bank of Dallas for fulfilling his one year chapter representation on the board. William Leedecke of Vanguard Group has been nominated by the chapters to take Tom's place for 2004. We look forward to working with these professionals on the board and we thank the membership for its support in this process.

In the interim, the 7x24Exchange team has been hard at work behind the scenes getting ready for the upcoming 2004 Spring Conference to be held at the Ritz Carlton in beautiful Orlando, FL from June 6 – 9th. The theme of the conference will be "End to End Reliability: High Availability." Thanks to suggestions that you have provided, we will be doing a few things differently at this conference.

We have most of the speakers committed at this time and would like to thank all of the members who submitted presentation proposals. We are very impressed with the number and quality of the submittals and do the best that we can to select those that are aligned with our theme and are of suitable interest for our conference attendees. It is never too late to submit a proposal. Please feel free to contact Tara Oehlmann at 646.486.3818 or any board member for further information. We attribute the quality of this organization to the members who contribute significant value through sharing their knowledge with all of us. We look forward to seeing you all in Florida from June 6th – 9th.

*John Oyhagaray, on behalf of the 7x24 Exchange Board of Directors*

The Spring 2004 Conference brochure including complete session and registration details will be available online at [www.7x24exchange.org](http://www.7x24exchange.org) in April.

**Questions?**

Call 646-486-3818 x100 or e-mail [info@7x24exchange.org](mailto:info@7x24exchange.org)

**THERMAL GUIDELINES FOR DATA PROCESSING ENVIRONMENTS**

*by Donald Beaty  
President, DLB Associates*

Conditioning data centers is becoming an increasing challenge with equipment loads varying drastically from minimal wattage to over 20 kW per cabinet. On a square foot basis, the loads can vary from very low to well over 100 watts per s.f.

Although the requests for quick answers and "cookbook approaches" continue, there are simply TOO many variables to use a generic approach. Therefore, an optimized design, which balances the initial cost with both the cost of operating and future changes, is ideal for a facility owner.

This is one of the main focuses of ASHRAE (American Society of Heating Refrigeration & Air Conditioning Engineers). ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance, through research, standards writing, publishing and continuing education, the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

ASHRAE Technical Committee TC 9.9 (Titled: Mission Critical Facilities, Technology Spaces, & Electronic Equipment) is actively working on the

variation in load extremes, high density cooling, disaster recovery, reliability, and related issues. The Committee has recently published a document called "Thermal Guidelines for Data Processing Environments" and is working on updating the ASHRAE Handbook as well as preparing other technical information for the industry.

"Thermal Guidelines for Data Processing Environments" creates environmental classes and associated metrics. The guidelines include metrics for allowable and recommended temperature and humidity. Some other provisions in the guideline include:

- ◆ Critical definitions for controversial issues such as where to measure for temperatures requirements conformance. The Guideline clearly defines the temperature requirements at the equipment inlet (simple, yet removes vagueness, easy to measure).
- ◆ Definitions for measured power, nameplate rating, equipment thermal rating, room load capacity, and room theoretical capacity are included to reduce ambiguity that leads to under or over engineering and construction.
- ◆ Requirements for equipment manufacturers to list heat release values rather than just the common nameplate data which is targeted towards safety and not on accurately defining heat release or measured / demand power.



*Attendees tour City Public Service Utility in San Antonio, Texas.*

- ◆ Air flow and temperature measurement protocol which provide a standardized method for designers, facility and equipment managers to use for measuring and describing temperatures, humidity and air flows.
- ◆ The Guideline provides a logical way to establish and describe IT infrastructure layout. Aisle configuration and spacing can be critical to cooling performance regardless of whether a hot aisle / cold aisle layout is employed.

The preparation of the "Thermal Guidelines for Data Processing Environments" included active involvement by thermal engineers from IBM / HP / Sun / Intel as well as involvement from over 20 other manufacturers of computer / technology equipment, and the "Thermal Management Consortium on Data Center and Telecom Rooms".

The guideline can be purchased from the ASHRAE bookstore by visiting [www.ashrae.org](http://www.ashrae.org).

## COOLING TOMORROW'S DATACENTERS

by *Kenneth R. Baker*  
*Technologist, Hewlett Packard Company*

How many times have you heard that your datacenter will have to support electrical and thermal loads far in excess of what you have in place today? Further, how often has that prediction really come true? If you are in a position similar to most datacenter operators in North America today, the answer to both the above questions is "often" and "never". Despite this apparent reality, manufacturers continue to communicate the message that future platforms they develop will require ever increasing amounts of power and cooling resources to support.

If this message of dramatic increases in power consumption and heat generation are true, then why have your datacenters not already collapsed under the incredible burden of this increased load? How is it possible that your datacenters can continue to operate when the generation over generation load demands for any given platform is increasing at an average of 35%, which occur roughly



*7x24 Exchange Fall Conference Corporate Leadership Program Members.*

every 24 months? Is your datacenter so well built, and were you such a visionary that you properly anticipated the growth requirements successfully?

The answers to the above questions can be answered very simply. Modern datacenters were constructed to operate properly while evenly loaded. More correctly expressed, modern datacenters are designed to operate while loaded well below their design values. Take most datacenters to their theoretical maximums, and issues will emerge. This has been proven time and time again in many datacenters across North America. Datacenter operators have not reported widespread issues with heat removal issues, but rather, specific issues with individual cabinets or servers that tend to overheat. This growing problem of "spot heating" is the new datacenter challenge, and is the precursor or more important density related issues that datacenter operators will encounter in the coming 24 months.

When we examine how a datacenter is designed, we find the metrics are inevitably centered on a flat load approach, assigning an even load to each and every rack in the datacenter. The reality is, however, that loads are asymmetrical, and cannot be deployed in a manner that respects the original design criteria of the facility. Given this non linear application of load, how can

datacenter operators avoid the issues of non-linear loads impacting the operation of the facility?

The truth in the matter is that non-linear loads will be the norm, not the exception, and they must be supported. Further, in the age of density, these loads will not be pegged at the upper end of the datacenter capacity, but rather, far beyond the design values of the facility.

For example, if an IT organization within a company decides to move towards the implementation of blade servers, it would be not uncommon to see full cabinet implementations that could exceed 20KW. The common belief is that most customers will deploy limited numbers of these configurations, simply because of the uncertainty of being able to successfully cool such environments.

This is a valid deployment strategy. While it may be possible to deploy full cabinets electrically, it is not always practical from a cooling perspective. This is well understood by IT manufacturers. Once again, however, the reality is that loads are growing, and facilities must adapt. I am often asked why IT manufacturers build the dense products common to the IT industry today. The simple answer is that customers want it. Significant research occurs regularly to determine the important features customers want in their platforms, and



*Conference attendees pose with Shamu at the vendor sponsored event "Under the Sea" at Sea World San Antonio.*

density always rises to the top. So expect it to continue to exist. But do not expect an unending march towards greater and greater density. The laws of physics are starting to get in the way, and at least for now preventing further density increases beyond 2004.

Many datacenter operators will claim that it is too late. Datacenters are broken, and something must be done. I agree with this assessment. However, what must be done is where the differences emerge.

When IT manufacturers hear that datacenters are being overloaded, and they must do something to alleviate the problem, it provokes confusion. Why the confusion?

Ask yourself what a datacenter is. Is it a facility designed to house a fixed electrical and thermal load based upon a simplistic design metric expressed in Watts and BTU/Hr? Many datacenter operators believe this is so. I feel this outlook misses the point of the datacenter. A datacenter is intended to provide support and resources for IT hardware. In other words, the datacenter should support the needs of the IT platforms, not conform to the constraints of the facility.

Constraining IT proliferation is in opposition to growing one's business. While it is well understood that reprovisioning or adding capacity to the

facility is not always an option, there are options. These options require a new approach to datacenter management. Traditional datacenter management planning tends to favor floor layout that create lines of demarcation. The network folks get some space, the server folks get their space, and the backup or tape folks theirs. This approach is counter-productive given the asymmetrical nature of the electrical and thermal loading each class of hardware imposes. So it is not surprising that a flat design metric of watts per square foot does not work effectively.

After studying the effects of deploying non-linear loads in a linearly designed facility, we have determined that many of the datacenters we visit are suffering not from a lack of capacity, but instead are so poorly planned from a load point of view they are wasting much of the energy produced for cooling purposes. The need for a comprehensive planning strategy regarding IT hardware deployments, based on the thermal impact to the facility is warranted.

As I like to say, the load is the load. Get used to it.

Datacenter operators must begin to view the environment as a resource that must be managed more efficiently than it is today. If we believe the facility must realize its intended ROI (Return on Investment), then we must do everything

to ensure that realization is attainable. This means squeezing every bit of performance out of a given facility design, and once that capacity has been reached, either move or build up capacity. But the real issue is poor utilization of existing resources, coupled with a lack of planning that is driving the accelerated demise of the facility. That is also the real opportunity before us.

We are discovering that significant improvements in resource utilization can be realized by addressing the datacenter layout as a function of load localization, not gross capacity over gross area.

What is the impact to an in-place datacenter? It may be as negligible as moving tiles, or as serious as a floor re-layout.

It does involve the localization of high density loads so they can be provisioned independently from the gross floor area. By centralizing high density loads, we can more accurately predict thermal behaviors, concentrate cooling resources, and ensure the generated heat is contained within a confined area where it can be more accurately removed before it has a chance to become re-entrained into the cooled mass of the entire floor. Think of it this way. If the entire datacenter is subject to high asymmetrical spot loads, then the entire datacenter must be evenly provisioned to support the chance those loads will show up in any given spot. This is a poor application of limited resources. It makes sense to enable delivery of these resources where it does the most good; to a limited area, focused on the highest loads.

In support of this concept, we have begun developing thermal models to test the idea of localized high density areas within a typical datacenter. This modeling should be completed sometime in the summer of 2004.

One message is clear. Today's modern datacenters have a significant opportunity for performance improvement through better planning and by modifying the influences that drive hardware deployment practices. Embracing the idea that load should be the primary factor in datacenter layout and deployment will significantly improve the utilization of existing resources within the facility.

FALL 2003 CONFERENCE ATTENDEES

**7x24 Exchange  
Dolci Management Services**

Tina DiMichele  
Brandon A. Dolci  
Joel A. Dolci  
Jeremy O'Rourke  
Tara Oehlmann

**Active Power**

John R. Sears  
Sriram Sivaram  
Bradley S. Walter

**Aetna Inc.**

Paul Close  
Joseph Todaro

**AFCO Systems**

John Consoli  
Michael Mallia

**Affiliated Engineers, Inc.**

Steve C. Evers

**Alcoa**

Richard A. Schlegel

**American Express**

Tom Bowman  
Roy L. Chapman  
John S. Jackson  
Beverly L. Nicholas  
Bob Schwandt

**American Power Conversion**

Domenic J. Alcaro  
Rodger B. Dowdell  
Jim Fink  
Henry C. Lengefeld  
Richard Sawyer  
Ronald Seftick  
Dwight Sperry

**AmSouth Bank**

Alan Hite  
Paul Newman

**Archon Group / GENISUS**

Prudence P. Lidbury

**ASCO Power Technologies**

Don Bachman  
Chris McAnulty  
Brian Phelan  
Douglas H. Sandberg  
Jerry Sawczak  
Daniel S. Sylvester

**AT&T Solutions**

Kevin Kealy  
Michael Weinstein

**Austin Generator Service**

Kurtiss E. Summers

**Automated Logic -  
Critical Systems**

John Ciccone

**Automatic Data Processing**

Alan Freedman

**Bala Consulting Engineers**

Thomas M. Reusche

**Bank of America**

David A. Clary  
Lawrence H. Larson  
Earl Strickland

**Bank One**

Gary W. Aron  
Edward Donahue  
Tim A. Richards

**Baptist Healthcare System, Inc.**

Donald E. Staley

**BayTech**

Alex J. North

**BECK**

Michael L. Hildebrand

**The Bick Group**

William J. Bick  
John Jonz

**Black & Veatch**

Bruce Bleser  
William P. Fredrickson

**BRUNS-PAK**

Thomas G. Miller  
Warren Widawsky

**Business Information Services**

Robert J. Cassiliano

**C&D Technologies**

Mike R. Czarnecki  
Harold W. Smith

**Cable & Wireless**

Terry Vergon

**California State HHSDC**

Rainer M. Schwertschcow

**Callison Architecture**

Eric B. Foulke  
Leonard A. Ruff, AIA

**Carter & Burgess**

Bryan Floth  
Scott O. Jones

**CB Richard Ellis**

Neil Canady  
Terry Gurganus

**CCG Facilities Integration**

Michael J. Mosman, PE

**Cendant Corp**

Mark Hample

**Charles Schwab**

Mark J. Duplessie  
Stephen P. Mathis

**CheckFree Corporation**

Charles D. Phelts

**ComRent International LLC**

Greg Robins

**Consolidated Engineering Svcs**

Dennis Mulgrew

**Corgan Associates Inc.**

James M. Cober

**CSI Engineering PC**

Julie Hughes

**Cupertino Electric, Inc.**

Rudy G. Bergthold

**Cushman & Wakefield**

John Diamond  
Roger E. Gonzalez  
John McGarry

**Danaher Power Solutions**

Neville B. Carmichael  
Michael E. Cummings  
David W. Skeans

**Data Aire Inc.**

Jeff P. Trower

**Data Center Resources, LLC**

Justin C. Tocco

**Data Power Monitoring Corporation**

Steve D. Cotton  
Michael Jump

**Data Site**

Robert B. Sayer

**Data Support Associates**

Frank Catapano  
Ronald Croce  
Raymond Goskowski  
Terri Winchell

**DFW Consulting Group**

Julian Y. Rachman

**DLB Assoc. Consulting Engineers PC**

Donald Beaty

**DoubleClick**

Charles J. Corcoran

**dRay Tech, Inc.**

Derrick McKaughan

**Dunham Associates**

Lee Offerdahl

**DVL, Inc.**

Michael P. Murphy  
Russ Mykytyn

**Dynamic City**

Jeff Fishburn

**E5 Group, Inc.**

Rob Manton  
Eli Yitzhaky

**East Penn Manufacturing Company**

Doug Dethmers

**Eaton Electrical**

Daniel Carnovale  
Lee Crabb  
Timothy E. Martinson

**EDI, Ltd Consulting Engineers**

Jan Stuchlik

**EDS**

Robert S. Seese

**Ellerbe Becket**

Allan J. Wenzel

**EMCOR Facilities Services**

Michael T. McDonald

**Emerson Network**

**Power Liebert**  
David Kelley  
Robert J. Miller  
Craig J. Rutter  
Fred Stack  
C. Mayo Tabb, Jr.  
Oliver A. Ulibas  
Martin L. Walsh

**Energy User News**

Kevin Heslin

**EnerSys Inc.**

Lawrence W. Bennett  
James W. Blankley  
Robert J. Peifer  
Stephen L. Vechy

**Environmental Systems Design**

Joseph D. DuTemple  
Mike Kuppinger

**Equinix**

Michael Poleshuk

**Excelon Corp.**

Paul Gregory

**EYP Mission Critical Facilities**

Peter Gross  
Bruce C. Myatt

**Facilities Engineering Assoc.**

Suresh Packiriswamy  
Leo Soucy

**Fannie Mae**

Richard Heckhaus

**Federal Reserve Bank of Dallas**

Thomas H. Blessing

**Federal Reserve Bank of NY**

Ravi R. Mehrotra

**Fidelity Investments**

Jay Forester  
Peter Manzoni  
James Palmieri  
Vincent Rothemich

**First Data Corp/Western Union**

John Oyhagaray

**General Electric**

Timothy J. Crader  
Thomas P. Duffy  
Patrick Gannon  
Ed Miller  
Justin Minchey  
Al Reeves  
Bouke Siebenga  
Bradley Thrash  
James W. Trudeau

**George Butler Associates, Inc.**

Kent T. Davidson

**GHT Limited**

Robert M. Menuet

**Gilbane Building Company**

John D. Castilla  
William Choquette  
Scott Good  
Wayne O'Neill

**Glumac International**

Michael L. Steinmann

**Goldman Sachs & Co**

Kenneth J. Muller  
Michael J. Butkiewicz, PE  
David Schirmacher

**Grubb & Ellis**

Mike Edwards  
Jeffery Wyant

**GT Facility Services, Inc.**  
Deborah L. Fulwiler

**H&R Property Management Ltd.**  
Elmar Janssen  
Angelo Paone

**H.F. Lenz Co.**  
Richard A. Madzar

**Hewlett Packard Company**  
Kenneth R. Baker  
Larry D. Rushing

**Hitec Power Protection, Inc.**  
Frank Feeney  
Robert Suchon

**HMA Consulting, Inc.**  
John H. Hatcher

**Holder Construction Company**  
Michael E. Kenig  
Richard W. Morgan  
Tony TeVault

**Hood-Patterson & Dewar, Inc.**  
Donald H. Barnwell

**Inglett & Stubbs**  
Richard L. Phillips

**Innovative Research**  
Suhav V. Patankar

**Intel Corporation**  
Devadatta Bodas

**Intervoice Incorporated**  
Michael A. Segura

**ISO**  
Frank B. Gialanella

**Jack Dale Associates, PC**  
Edward C. Koplin

**James Johnston & Associates**  
George Laity

**JDC Power Systems, Inc.**  
Richard L. Corbin  
Joseph D. Mastromonaco

**JE Dunn Construction Company**  
Jeffrey A. Campbell  
John VanAsdale

**Johnson Controls, Inc.**  
Michael Loth  
Patricia S. Melton  
Glen P. Neville  
Deborah Roberts  
John W. Sawyer

**Jones Lang LaSalle**  
Eric Adrian

**JP Morgan Chase**  
Steven Done

**Kling**  
Gerard Murray  
Thomas E. Reed, PE

**L3 Communications/SPDT**  
Bruce Brady  
Saeed Mahramnia  
Fred Tamjidi

**LayerZero Power Systems, Inc.**  
Milind Bhanoo  
James M. Galm  
Anthony Pinkey

**Lee Technologies Group**  
Michael Hagan  
Ross Rebraca

**Level 3 Communications**  
Travis T. Golliver  
Jeffery Moore  
Nat Tafuri  
Ron Vidal

**Madison Communications**  
Christopher S. James

**Manomet Solutions**  
Robert L. Talbot

**Mark G. Anderson Consulting**  
Dermot Ryan  
Kenneth Stipcak

**Master Card International**  
Frantz Vincent

**Mazzetti & Associates**  
Timothy Dueck  
William P. Mazzetti, Jr.

**McCracken & Lopez PA**  
Kim Reitterer

**Medco Health Solutions**  
Alex Krynicki

**MGE UPS Systems**  
Kevin P. Burke  
Michael A. Chmura  
Kevin M. Dalton  
Raymond J. Prince

**Michaud Cooley Erickson**  
Guy C. Herr  
Dean Rafferty

**MIT**  
Michael W. Golay

**Mitsubishi Electronics**  
Denzil Merrill

**Morgan Stanley**  
Rupa Dharia  
James P. McAleer  
Rome Messore  
Philip Meyers

**MTechnology, Inc.**  
Stephen A. Fairfax

**NASDAQ**  
James J. Kaminski, PE

**N'compass Solutions**  
Chris Flaherty  
Keith Meierhofer

**NER Data Products**  
Robert D. Huttemann  
Scott Steele

**Orr Protection Systems, Inc.**  
Brian K. Fabel

**Pacific Gas & Electric**  
Kenneth K. Wong

**Parsons Communications Group, Inc.**  
Chet L. Longenecker  
Wesley D. Nottingham

**Pentadyne Power Corporation**  
John R. Gonzales

**PermAlert ESP Inc.**  
Donald J. Bendery  
Arthur L. Giesler

**Piller, Inc.**  
Robert Hall  
Elbert L. McDaniel  
Gary Rackow

**Power Concepts LLC**  
John D. Mezik, PE

**Power Distribution, Inc.**  
Richard A. Combs  
John C. Day  
David B. Mulholland

**Power Management Concepts**  
Peter M. Curtis

**Power Measurement**  
Steve Kuperman  
Bill Westbrook

**Powerware Corporation**  
James R. Davis  
Kenneth Forward  
Jack C. Gamble  
Rod K. Grindle  
Chris A. Loeffler  
John D. Mock, Jr.

**Prince William County Econ. Dev.**  
David A. Colvin

**Rittal Corporation**  
Phillip R. Dunn

**RLE Technologies**  
Cam Rogers

**Ruselectric, Inc.**  
Dennis Don  
Steve M. McQuaid  
John A. Meuleman  
M. Barry Portnoy  
George J. Whittaker

**S&C Electric Co. -  
Power Electronics Div**  
Matt O'Kane

**Salomon Smith Barney**  
Vincent Raniolo

**Sanmina - SCI**  
Peter E. Jeffery  
Anthony C. Sharp  
O. Ray Strickland

**The Schwan Food Company**  
Barry Andres

**Sealco**  
Ron Miglini

**Shaw Communications**  
John Milino

**Siemens**  
Iliya A. Arsenovic  
Karl R. Bateson  
Lamar Cantrell  
Daniel H. Laurent  
William F. Reid

**Sigma 7 design group**  
Ron Gupta

**Solow Realty and Development**  
Dennis D. Cronin

**Sparling, Inc.**  
Timothy L. Janof

**Sprint Hosting Solutions**  
James J. Skokowski

**Square D Company**  
Mark C. Bidinger  
Joseph C. Defelice  
Bradley Keene  
Frank J. Nash  
Mike Selleck  
Reza Tajali  
Gregory H. Wessels

**Square One Consultants, Inc.**  
Kevin Fleming

**St. Johns Consulting Group**  
Philip S. Michel

**State Street Corporation**  
David E. Mahoney

**Strategic Facilities, Inc.**  
David M. DiQuinzio  
David Sjogren

**Structuretone, Inc.**  
Jim Salvino

**Stulz Air Technology Systems, Inc.**  
Kevin J. Cole

**Swanson Rink**  
Robert J. Yester

**Syska Hennessy Group**  
Gary A. Brennen  
Joseph F. Desiderio  
Brittany Dianat  
Michael Fluegeman, P.E.  
Cyrus Izzo, PE  
Daniel B. McNary  
James Szel

**Telpro, Inc.**  
Larry F. Graf  
Robert O. Smith

**Thomson Legal & Regulatory**  
Ken Koty

**Tishman Technologies Corporation**  
Joseph B. Ryan, Jr.

**Toshiba International  
Corporation/UPS**  
Jeffrey I. Smith

**Trammell Crow Company**  
Paula Kelly  
Dave Soldat

**Trizec Properties Inc.**  
Doug C. Riches

**Tyco Electronics**  
Robert D. Sawicki

**University of Alaska**  
David A. Rohwer

**The Uptime Institute**  
Curtis L. Powell

**Uptronix, Inc.**  
Paul Gommo  
David Overdorf

**Vanderbilt University Medical  
Center**  
David C. Ellis

**The Vanguard Group**  
William Leedecke

**Visa USA**  
David J. McDonald  
Lorrie R. Pickinpaugh

**Vision Systems - Fire and Security**  
Gerard Miller

**Wachovia Corporation**  
Tommy G. Nickolopoulos  
Tony Evans

**The Whiting-Turner Contracting Co.**  
Bob St. John  
Kellie D. Montgomery

**Zachry Construction**  
Richard Norton

**CORPORATE LEADERSHIP PROGRAM SPONSORS**

**FALL CONFERENCE 2003**  
*End to End Reliability: **Mission Critical***

**Silver Members**



**Key Members**



**Contributor Member**



**S A V E T H E D A T E S !**

## **SPRING CONFERENCE 2004**

*June 6-9, 2004*

**Ritz-Carlton Orlando, Grande Lakes  
Orlando, FL**

*End-To-End Reliability: **High Availability***

---

## **FALL CONFERENCE 2004**

*October 17-20, 2004*

**Hyatt Regency Scottsdale at Gainey Ranch  
Scottsdale, AZ**

*Theme TBD*

---

## **CALL FOR PRESENTATIONS**

7x24Exchange is seeking Fall Conference Presentations. For additional information please contact Tara Oehlmann, via e-mail at [tara@dolcimanagement.com](mailto:tara@dolcimanagement.com) or via phone at 646-486-3818 x104.

## **CALL FOR ARTICLES**

7x24Exchange is presently seeking articles for the Fall Newsletter. For further information please contact Tara Oehlmann, via e-mail at [tara@dolcimanagement.com](mailto:tara@dolcimanagement.com) or via phone at 646-486-3818 x104.

**Visit [www.7x24exchange.org](http://www.7x24exchange.org) in April for Spring Conference program details and to register.**



322 8th Avenue, Suite 1400  
New York, NY 10001

FIRST_CLASS MAIL U.S. POSTAGE PAID NEW YORK, NY PERMIT NO.4814
--