

2004 Spring Conference

**END-TO-END RELIABILITY:  
HIGH AVAILABILITY**

**7x24  
Change**

The end-to-end reliability forum.

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

June 6-9, 2004 • The Ritz-Carlton Orlando, Grande Lakes • Orlando, FL

## 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, time-consuming, 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.

## 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, JUNE 6

8:00 A.M. – 4:00 P.M.

### Pre-Conference Workshop Real Availability

Did you ever want to learn about reliability and availability, but were put off by the mathematics of probability density functions, venn diagrams and boolean algebra? Few senior managers want to learn how to perform reliability and availability calculations, but many want to know how to understand, critique, and use the results. Steve Fairfax of MTechnology and Mike Golay of MIT have developed a new version of their popular Real Availability short course tailored to the schedule and interests of the busy 7x24 professional. The Real Availability course distills the key lessons and principles of quantitative risk management into only 8 hours. Attendees will learn to understand how to think about risk, how to estimate it, how to read and understand quantitative risk analyses, and how to spot errors and omissions in studies and sales literature. Attendees will come away from this course with a new way of looking at risk, one that will enable better control of the risks of downtime to the organization. The course is based on the analysis of a hypothetical data center. MTechnology performed a detailed Probabilistic Risk Assessment (PRA) study of the facility's electrical and cooling systems. The results of the study will be presented with details on how to interpret the numbers and develop plans of action based on the results.

**Stephen A. Fairfax**  
President  
MTechnology

**Michael Golay Ph.D.**  
Professor of Nuclear Engineering  
MIT Nuclear Engineering Department

There is an additional fee for this full-day, pre-conference workshop. Please register for this session and the conference using the Conference Registration Form on page 9. If you are interested in providing a pre-conference workshop for 7x24Exchange please e-mail a proposal to [tara@dolcimanagement.com](mailto:tara@dolcimanagement.com).

12:00 NOON – 10:00 P.M.

### Registration

2:30 P.M. – 4:45 P.M.

### Tutorial Session A: Fluid Mechanics 101: Fundamentals of Data Center Airflow

This tutorial session will introduce basic concepts of air velocity, airflow rate, pressure, flow resistance, and momentum balance 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 airflow coming out of each perforated tile. Such a calculation allows you to study the effect of variables such as: positions of the CRAC units and the perforated tiles, the percent open area for the perfs, the height of the raised floor, and any partitions/blockages placed under the raised floor. You can also evaluate failure scenarios, in which the modified flow distribution as a result of the failure of one or more CRAC units can be calculated. The tutorial will show how to create a computational model of a data center layout and calculate the corresponding airflow distribution.

**Suhas V. Patankar, Ph.D.**  
Professor of Mechanical Engineering  
University of Minnesota and  
President, Innovative Research, Inc.

3:30 P.M. – 3:45 P.M.

### Refreshment Break

5:00 P.M. – 10:00 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.

### Welcome Reception

Join us for a buffet reception with open bar accompanied by soft 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, JUNE 7****7:00 A.M.****Registration & Continental Breakfast****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.

**9:00 A.M.****Keynote Address: The New Network – Functions, Security and Convergence – Oh, My!**

Kevin will discuss the many challenges that arise from today's highly-convergent networks. Focusing on the availability issues associated with merging many previously separate functions, Kevin will highlight some new challenges and success stories. Some of the materials covered will include the challenges of Voice over IP, the move to providing management interfaces for all sorts of equipment over a shared IP network and the exciting but scary world of wireless technologies.

**Kevin Kealy**  
Security Architect  
AT&T Laboratories

**10:00 A.M.****Refreshment Break****10:30 A.M.****Designing and Maintaining a Reliable Fuel System while Complying with Codes and Standards**

Mission critical facilities demand a high level of reliability in the standby generator electrical system. A reliable fuel storage and distribution system for the generator is a must in order to maintain this reliability. Many federal, state, and local codes impose restrictions that make it difficult to design and install a reliable diesel fuel storage and distribution system. However, there are some code compliant strategies that can dramatically improve the reliability of the system. Additionally, regular maintenance and commissioning routines are a must to keep the system running reliably.

**Ron Ritorto, PE**  
President  
Phoenix Professional Services

**11:15 A.M.****Improving Reliability and Reducing the Risks Associated with Maintenance by Adding Fuel Cells**

This talk will summarize the results of a substantial risk analysis study that examined the potential benefits of adding a fuel cell to the existing premium power system of a large financial institution. The fuel cell power plant is a source of electricity that is independent of both the utility and standby generator(s). The study showed that, depending on how the fuel cell was connected, the probability of losing power to the critical load could be reduced by a factor of 5 to 100 or more. The study also examined the role of human error in preventive maintenance (PM), and quantified the risks associated with performing standard PM tasks. The results showed that good maintenance practices result in very small risks from human error in basic systems, but also demonstrated that the sensitivity to human error increases when the system reliability is high. To our knowledge, this is the first public, quantitative analysis of the risks of preventive maintenance and the benefits of adding fuel cell power plants to existing 7x24 power systems.

**Stephen A. Fairfax**  
President  
MTechnology

**Lewis Milford**  
President  
Clean Energy Group

**Kenneth Dodd**  
Director, Infrastructure Technology  
Fidelity Investments

**12:15 P.M.****Buffet Lunch**

1:45 P.M.

### **Maintaining Mission Critical Design Consistency: Coordinating Enterprise Power with Thermal Management Requirements**

Design standards for Mechanical/Electrical engineers need to be updated. These standards have not kept pace with rapid deployments of medium and high density data center hardware. This presentation will summarize twelve years of research, provide specific immediate improvements to the data center Mechanical/Electrical environment and suggest revisions to specific guidelines, which will assist the mission critical design community. Information provided will be research backed by empirical testing.

**Edward C. Koplín, PE, CEM**  
**President**  
**Jack Dale Associates, PC**

2:30 P.M.

### **Make Your Own Sundae Break**

3:00 P.M.

#### **Concurrent Sessions**

### **A. The Anatomy and Resolution of a Data Center's Failure and Its Resolution**

This presentation will discuss the types of failures or business conditions that drive data center users to upgrade their facilities. We will address the failure analysis, costing/scoping, repair concepts, planning and execution of a live data center expansion and retrofit. Specific topics will include failure resolution, scope development and determining the best "bang for the buck", live/7x24/energized facility construction and project management and techniques for success in this kind of work. This syllabus is based on an anonymous project jointly delivered by the presenters.

**Bill Mazzetti**  
**President & Principal**  
**Mazzetti and Associates**

**Rudy Bergtold**  
**Senior Vice President & CTO**  
**Cupertino Electric**

### **B. People and Process and Uninterruptible Uptime**

Getting and staying reliable requires effort in three dimensions: people, process, and technology. This session introduces the IT Infrastructure Library (ITIL), which provides internationally accepted standard best practice guidance on the people and process components of highly available end-to-end services.

**David Pultorak**  
**President**  
**Fox IT LLC**

3:45 P.M.

### **The Virginia Tech Supercomputer: Meeting the Cooling Challenge of a High Heat Load Density Room**

Designing and building the world's third fastest supercomputer on a remarkably small budget, a compressed timeframe and in a limited amount of space was a real challenge for the Virginia Tech team. One of the biggest challenges was mounting the servers and getting cool air to all of the loads without creating a huge wind tunnel under the raised floor. Once solutions for the initial load and future loads were obtained, the challenge of meeting operational deadlines required a dedicated effort by all involved.

**Kevin Shinpaugh**  
**Director of Research/Cluster Computing**  
**Virginia Tech**

**Dave Kelley**  
**Manager, Environmental Application Engineering**  
**Liebert Corporation**

4:30 P.M.

### **Concurrent Tours**

Tours in the Orlando area are still being finalized. Registered attendees will be notified via e-mail with tour details at which time selections need to be made. Based on prior conference evaluations, 7x24 Exchange is making every attempt to find noteworthy facilities as close to the resort as possible. Tour attendees will return to the resort at a reasonable hour to attend the hospitality suites and enjoy the property. All tours are subject to space availability and will be assigned on a first come, first served basis.

6:00 P.M. – 10:00 P.M.

### **Hospitality Suites**

**TUESDAY, JUNE 8****7:00 A.M.****Continental Breakfast****8:30 A.M.****Opening Remarks Day 2**

Bob Cassiliano will review day one highlights and provide an update on current 7x24 Exchange activities and plans and address housekeeping items of interest. Corporate Leadership Program sponsors will also be recognized at this time.

**9:15 A.M.**
**Keynote Address:  
Data Center Heat Loading: How Much is Too Much?**

Never before has cooling been more critical in data center operations. Hewlett Packard recently commissioned a study of the impact of high spot loads in data centers using thermal modeling software applications. This presentation will demonstrate the impact of high density loading on a facility and what today's facilities can reasonably be expected to support.

**Ken Baker**  
Blade Server Infrastructure Technologist  
Hewlett Packard Company

**10:15 A.M.****Refreshment Break****10:45 A.M.**
**Integrating Building Automation Systems  
(BAS) with Other Enterprise Applications**

There has been much attention paid to the merits of various protocols in the Building Automation industry. The key to successful integration of the BAS with other enterprise applications lies not in the protocol used, but in the information model that it represents.

**John Ciccone**  
Director of Critical Systems  
Automated Logic Contracting Services

**11:30 A.M.**
**Mission Critical Facilities, Technology Spaces  
& Electronic Equipment**

Don will introduce attendees to the ASHRAE Committee's work in cooling high-density loads in datacom facilities. The committee, which includes representation from the major electronics/computer manufacturers, was created to achieve "Facility Thermal Performance" that optimally meets the "Equipment Thermal Requirements" it supports. The committee recently published a guideline, titled "Thermal Guidelines for Data Processing Environments".

**Don Beaty**  
President  
DLB Associates Consulting Engineers &  
Chair of ASHRAE Committee TC 9.9

**12:15 P.M.****Buffet Lunch****1:30 P.M.**
**Critical Success Factors for Data Center  
Moves and Consolidations**

Organizations that have undertaken successful data center moves and consolidations have managed to avoid the most common pitfalls and have gone on to achieve significant cost savings and efficiency improvements. To help organizations achieve success, this session will identify and discuss the critical success factors that need to be considered when planning and executing a data center move or consolidation. Each critical success factor will be discussed in detail with supporting real-world examples with the goal of providing a blueprint for successful projects.

**Jerry Becker**  
Managing Director, Services  
Aperture Technologies

**2:30 P.M.****Refreshment Break****3:00 P.M.**
**Reducing Bypass Airflow is Essential for  
Eliminating Computer Room Hot Spots**

The presentation will focus on the results of a multi-year study by the Uptime Institute® (sponsored by Triton) on

current industry raised-floor planning and computer room operating practices related to cooling delivery at the air intake of computer room equipment. The results reveal cooling alone is insufficient in solving difficult thermal anomalies, particularly with the current trend in new high density racks and increased heat densities. A new hypothesis will be introduced regarding the relationship between equipment failure and unreliability due to electrostatic discharge (ESD) as well as discussion of the new ASHRAE standardized guideline, *Thermal Guidelines for Data Processing Environments*.

**Robert F. Sullivan, Ph.D.**  
**Senior Consultant**  
**Triton Technology Systems, Inc.**

**3:45 P.M.**

### Pass the Mike Session

This session will address questions previously submitted on registration forms and those which surfaced during the conference. 7x24 Exchange encourages all attendees to step up to the microphone and state their case. Attendee participation and open dialogue has made this a valuable session over the years.

**Dennis Cronin**  
**President**  
**Resilient Solutions**

**6:00 P.M.**

### Vendor Sponsored Event

7x24 Exchange guests will be transported back through time to the dawn of the space race and man's first steps on the moon as we visit the Kennedy Space Center Visitor Complex.

At our final destination, the Apollo/Saturn V Complex, we will enter the Firing Room Theater and see the Actual Launch Control Consoles and experience the sights and sounds from the final minutes of Jim Lovell's historic Apollo 8 Launch, which sent man into the heavens to be the first humans to pass the far side of the moon.

As the windows rattle and a bright fiery glow overtakes the room, the theater doors dramatically swing open to the sight of five gigantic rocket boosters to a 363-foot Saturn V rocket, one of only three left in existence and painstakingly restored to Smithsonian standards. During dinner, you will be overwhelmed and humbled by its awesome size and mystifying beauty.



Just outside the complex, we will be able to view the two historic Space Shuttle launch pads and wildlife of the Banana River. While inside, we will be surrounded by extraordinary lunar equipment such as a lander and rover, an Apollo capsule, interactive displays and be able to touch an actual moon rock.

As the event comes to a close, we will enter the Lunar Landing Theater where Neil Armstrong's historic moon landing and walk are recreated. Live the moment where the world held their breath and united to hear Neil's immortal words, "That's one small step for man, and one giant leap for mankind".

With awe-inspiring feelings of one of man's greatest accomplishments, we will board NASA busses to the Visitor's Complex to end the evening and depart with thrilling memories of this truly historic event!

## WEDNESDAY, JUNE 9

**7:00 A.M.**

### Continental Breakfast

**8:30 A.M.**

### Opening Remarks - Day 3

Bob Cassiliano will review highlights from days one and two and provide an overview of upcoming 7x24 Exchange events.

**8:45 A.M.**

### Keynote Address: UPS Ratings and Leading Power Factor

This session will provide an overview of the important and recent trend in the power requirements of the latest enterprise class servers with power factor corrected power supplies. Aggregated loads on UPS systems supplying these servers have a leading power factor which limits UPS capability to less than 100% of power rating. The impact on UPS sizing with a leading power factor load will be explained including the different capabilities and limitations of various UPS technologies.

**Kevin G. Collins, P.E.**  
**Vice President - Technology**  
**Piller, Inc.**

9:45 A.M.

**Refreshment Break**

10:15 A.M.

**Integrated Design Build for Mission Critical**

Traditional design, then build methods have proven to be inadequate to address the challenges facing mission critical projects. An Integrated Design Build Team Strategy offers increased efficiencies across the many facets of mission critical projects and presents opportunities to increase constructability and innovation, reduce claims, establish early costs and schedules, reduce overall costs, and decrease the time required for design and construction. Please join us for an informative and innovative discussion.

**Leonard A. Ruff, AIA**  
Associate Principal  
Callison Architecture

**Jim Gylling**  
MEP Coordinator  
Howard S. Wright Construction Company

**Greg Bogard**  
Project Manager  
Howard S. Wright Construction Company

11:00 A.M.

**On Site Generation for 7X24 Facilities**

Learn how to increase electric reliability, lower operating costs, and improve revenues and margins by installing on site generation. Find out how owners of 7x24 facilities are implementing on site generation with no out of pocket costs and enjoy positive cash flows the day their project begins operation. This presentation is targeted for Chief Financial Officers and Executive level decision makers and outlines the business and environmental benefits of on site generation, shows the actual project economics for a 7x24 data center and outlines how the project improved the operator's competitive position.

**Larry Baebler**  
Director of Onsite Generation  
Chevron Texaco

11:45 P.M.

**Conference Wrap-Up & Raffle**

12:00 NOON

**Conference Adjourns****TWO QUICK STEPS TO REGISTRATION:****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 9 to:

**7x24 Exchange**

322 Eighth Avenue, Suite 1400  
New York, NY 10001

**Phone:** 646-486-3818

**Fax:** 212-645-1147

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

To ensure space availability, registrations must be received by May 28th.

**2. Hotel Reservations**

To take advantage of 7x24 Exchange's special rates at the Ritz-Carlton Orlando Grande Lakes, complete the Hotel Reservation Form on page 10. The room rate is \$205.00 for single and double occupancy. Conference rates are available from Friday, June 4th through Thursday, June 10th. To ensure space availability, reservations must be received by May 20th. After May 20th rooms are subject to space availability.







### Hotel Reservation Form 7x24 Exchange • June 6 – 9, 2004

There are a limited number of rooms at the group rate. All reservations must be received by Thursday, May 20, 2004. After this date, reservations will be accepted on a space available basis at the prevailing hotel rates. All rates are based upon the European Plan and are per night. An 11.5% resort tax will be added to the rates shown below, per night.

Print or Type. Please reserve accommodations for:

Name	Company	
(Last)	(First)	
Address		
City	State	Zip
Phone Number	Fax Number	
E-MAIL Address (Required to receive confirmation number)		
Arrival Date	at	(am/pm) No. of adults
(Check-in time is after 3:00pm)		
Departure Date	at	(am/pm) No. of adults
(Check-out time is before 11:00am)		

There will be an additional charge of \$20.00 per day for each additional person over age 18 and/or over two people in a guest room. The maximum number of people per guest room is four (4). A maximum of two (2) children under the age of eighteen per room are complimentary. Charges for roll-a-ways and cribs may apply

### ADVANCE DEPOSIT IS REQUIRED TO CONFIRM RESERVATIONS

A first and last nights deposit is required to confirm a reservation. A deposit will be refunded if cancellation of reservations is received 5 business days prior to arrival date. In the event of an early departure, the deposit is non-refundable unless the hotel is notified 5 business days in advance. Rooms will be held for the 7x24 Exchange until Thursday, May 20, 2004 or until room block is met.

**METHOD OF PAYMENT:**  American Express  MasterCard  Visa  Diners Club  Carte Blanche  Check Enclosed

Credit Card Number	Expiration Date
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Deposits will be recorded at the time the reservation is made. All rates are subject to applicable taxes.

**ROOM REQUEST:**  Deluxe - \$205.00  Smoking  Non-smoking  King Bed  Double Beds

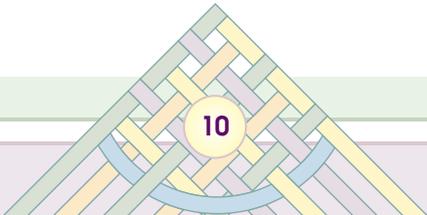
Special Request

FOR THE RITZ-CARLTON CLUB AND SUITES, PLEASE CONTACT THE HOTEL DIRECTLY AT (800) 576-5750

Signature Request \_\_\_\_\_ Date \_\_\_\_\_

### PLEASE MAIL OR FAX YOUR RESERVATION TO:

The Ritz-Carlton Orlando, Grande Lakes Resort, 4000 Central Florida Parkway, Orlando, FL 32837  
TELEPHONE NUMBER: (407) 206-2400, FAX: (407) 393-4001 or Central Reservations (800) 576-5760





## WHAT MEMBERS ARE SAYING

***“Exceptional!”***

***“Fascinating new information from high level speakers”***

***“Great job maintaining the current high standard”***

***“Good topics & presentations, great balance!”***

***“Conference delivered practical applications and real experiences of value”***

***“Conference was well run. Everything was great!”***

***“First time I attended – great conference – I’ll be back!”***

## VENDOR/CONSULTANT POLICIES & PROCEDURES

### Information Tables and Pop-Up Displays

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. Overt selling at *7x24 Exchange* meetings and the use of *7x24 Exchange* membership lists for direct selling are prohibited.

Conference sponsors will be permitted to occupy one full six foot table for literature and/or a pop up display at no cost. Non sponsoring companies can set up pop up displays at a cost of \$500 per table for members and \$750 per table for non-members. Any additional costs such as electric, shipping etc. are the responsibility of the vendor.

*7x24 Exchange* and the Ritz-Carlton Orlando, Grande Lakes are not responsible for the theft, loss or any damage incurred to any vendor materials. If you wish to coordinate a display please contact Tina DiMichele at 646-486-3818 x100. All displays MUST be registered with *7x24 Exchange* by May 26th accompanied by one full conference registration by a representative of the company.

### Hospitality Suites

Hospitality suites/demo rooms are permitted on Monday, June 7th, 2004 between the hours of 6PM and 11PM. All hospitality suite hosts must be a Key member of the *7x24 Exchange* Corporate Leadership Program (CLP). In order to be recognized by *7x24 Exchange* vendors must complete a suite registration form.

As always, hosting a hospitality suite gives vendors, direct access to the conference attendees and provides the opportunity to promote products and services in an enjoyable relaxed environment.

If you are interested in hosting a suite on Monday, June 7th, please contact Brandon Dolci at 646-486-3818 x108 before May 10th.



## 2004 SPRING CONFERENCE CORPORATE LEADERSHIP PROGRAM MEMBERS (at press time)

### Silver Members



### Key Members



Electrical



### Contributor Members



## DIRECTORS AND OFFICERS

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(646) 486-3818 x108

Register online today @ [www.7x24exchange.org](http://www.7x24exchange.org)

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



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