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The Association for Communications
Technology Professionals in
Higher Education

November, 2003

Q&A NEWS



Jeri Semer, CAE
ACUTA Executive Director

From ACUTA Headquarters
It's November: Think August

It may be hard to believe, but preparations for the 33rd Annual ACUTA Conference are under-way. This year's conference will be held August 1-5 in Chicago, and we are excited about the theme, "Learning, Networking and All That Jazz."

This is the time to begin thinking about whether you might like to make a presentation at this annual event. The Call for Presenters has been issued, and the Program Committee is soliciting proposals for sessions in the following tracks:

- Leadership and Management
- Support and Services for the Campus Community
- Networks, Infrastructures, and Emerging Technologies
- Legislative/Regulatory and Related Topics

ACUTA members consistently rate presentations by their peers as among the most valuable at any conference. Few of us are polished public speakers, but fellow ACUTA members always appreciate case studies and examples based on your campus experiences. Even if you aren't interested in making a 60- or 90-minute solo presentation, you can submit ideas for panel discussions that would require 15-20 minutes per speaker plus a Q&A session with the participants. Members also appreciate interactive workshops and roundtable discussions.

Presenters might offer a case study, help members develop new skills, address a policy issue, or demonstrate a lesson learned. We encourage sessions that provide examples of best practices.

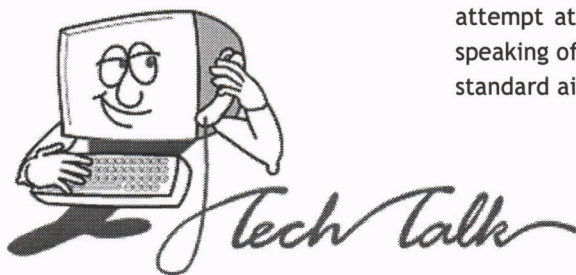
There are many personal and professional benefits to making a conference presentation, including recognition for yourself and your institution, enhancement of your professional skills, and the satisfaction of knowing that you have helped colleagues facing challenges similar to yours. With a limited commitment of time and effort, you can make a real contribution to ACUTA and other communications technology professionals. In tight budget times, having a presentation selected for the program can also help support the request for travel and registration fees.

Proposals are due by December 22, and with the holidays rapidly approaching that deadline will be here before we know it. The Call for Presenters is on the ACUTA website at <http://www.acuta.org/relation/downloadfile.cfm?docnum=821>. It contains many ideas for session topics. You may submit session ideas and proposals online. Send them to the Program Committee, via Donna Hall, ACUTA Manager of Professional Development, at dhall@acuta.org. Feel free to call Donna with your questions at (859) 278-3338, ext. 231.

This is such a dynamic time in higher education and communications technology, and our conference program will reflect the rapid developments and many changes in the field. I hope you will be a part of this exciting program, and I look forward to seeing you in Chicago.

In This Issue

- 1 From ACUTA Headquarters Jeri A. Semer, CAE, Executive Director
- 2 Tech Talk Kevin Tanzillo, Dux Public Relations
- 3 No Spam for Me, Please
- 3 VoIP Design Recommendations John Garrison, Alcatel
- 5 DC Update Whitney Johnson, Retired, Northern Michigan Univ.
- 7 Thanks to Exhibitors for '03
- 7 ACUTA Board Report Carmine Piscopo, Providence College
- 8 Welcome New Members
- 8 ACUTA: Have You Shopped the eStore Lately?



by Kevin Tanzillo
Dux Public Relations

Network Traffic Analysis: It's sFlowing in This Direction

November already. Where has the time gone this year? Perhaps, he said in a clumsy attempt at a lead-in to his topic, the time simply "went with the flow." And speaking of flow, we'd like to talk with you this month about sFlow, a new draft standard aimed at improving network monitoring and traffic analysis.

No, we don't know why it has such odd capitalization. To be honest, we're not even 100 percent sure about pronunciation. Is it S-FLOW, with two syllables, or SPHLO (which I think was the taxi driver's first name the last time I was in New York City)?

What sFlow is all about is giving network managers insight into exactly what is moving through their networks. Too often when it comes to analyzing traffic and applications, managers are reduced to guesswork. The tools at their disposal today are generally expensive and not particularly scalable.

sFlow is designed to perform these applications:

- Network problem detection, diagnosis, and repair
- Real-time congestion management
- Revealing the application mix
- Usage accounting
- Security audit trail analysis
- Route profiling and peering optimization
- Trend and capacity planning

The sFlow approach is to embed agents in network switch or router ASICs (application-specific integrated circuits). These agents proactively sample network traffic, measuring performance and the effect of everything connected to the network, including applications, users, and servers. Agents, controlled by a management information base, send their statistical packet samples to a central collection point. Perhaps most importantly, they don't add to the network traffic load, unlike many proprietary software approaches.

With sFlow, information from sampled packets is placed into a datagram, which describes the packet's trip through the network. Think of it like a detailed postcard from a friend who's traveling the world. Datagrams pour into that central data collection and analysis point, where usage statistics are compiled.

These sFlow statistics provide the kind of detailed picture of the network that managers need to analyze who is using the network, with what applications, at what capacity, etc. This is invaluable stuff if you bill usage back to specific departments or if you are deciding whether it is time to spend precious budget dollars on network upgrades.

Scalability isn't an issue, as the sFlow approach is usable in enterprise and metropolitan service provider networks as well as high-performance computing environments. Several companies are already offering this in their switches and routers.

And you know what we always say—it ain't much of a technology if it don't have its own organization. Sure enough, there is sFlow.org (<http://www.sflow.org>), and you can pick up lots of detail at the forum's website. It lists seven vendor companies as members, including HP, Hitachi, and Foundry Networks.

As always, if there are specific topics you would like to see covered in this space, please let me know via e-mail at kevin@duxpr.com.

No Spam for Me, Please

The U.S. Senate has unanimously approved the "Can Spam" bill, sponsored by Sens. Conrad Burns (R-MT) and Ron Wyden (D-OR). This bill would prohibit senders of unsolicited e-mail from using a fake return address or misleading subject line in order to conceal their purpose. Spammers would also no longer be allowed to harvest e-mail addresses off the Web in order to add them to their lists.

In addition, spammers must include a legitimate "opt out" function enabling recipients to get off lists. Sen. Charles Schumer (D-NY) proposed a provision that authorizes the FTC to establish a "do-not-spam" list, similar to the recently implemented "do-not-call" list that blocks telemarketing calls.



VoIP Design Recommendations

Many campuses are considering implementing VoIP networks. The following information is taken from a technology white paper prepared by Alcatel and available on their website at <http://www.ind.alcatel.com/acuta/>.

One of the most important recommendations that can be made is to pay close attention to the infrastructure that the VoIP network is built on. The foundation must be solid, otherwise there will be ongoing quality issues until the network design issues are resolved. The more time spent up front investigating and verifying the design of the LAN and/or WAN, the more likely it is that there will be a successful ending. Verification is critical. Although it may seem reasonable to believe that the network is new and should support QoS, it's important to check. In some cases, such as running VoIP over a WAN, an audit is a must. For example, the total end-to-end delay to support a quality voice conversation must not exceed 200 ms and can only be verified by an IP audit. Remember, the longer the delay, the worse the quality.

After a VoIP audit is performed the designer must engineer the network to support the worst-case scenario, even if it happens only 1% of the time. Engineering the network for peaks, not averages, maintains the highest quality of voice traffic while the network is performing at its maximum potential.

When designing a VoIP WAN, the designer must calculate the amount of available bandwidth for all applications required to transit the link. In most cases the link traffic is miscalculated or the IP audit is not performed prior to the installation, and the quality of the VoIP calls suffers. As previously stated, a good rule of thumb for a WAN link is to keep at least 25% of the bandwidth available for routing table and administrative updates.

As in most architectures, the more redundancy and availability options designed into the network, the better the odds are for a successful installation. The designer must also understand that engineering all of the redundancy options available into the system could adversely affect the performance of the network. For example, adding IP redundancy into the network could increase the jitter because the VoIP packets might take multiple paths to reach the end point. This is not a major concern, but it must be evaluated prior to deploying the VoIP network.

Redundancy features cost real money, so the main task of the design engineer is to make sure the product meets the customer's requirements and at the same time keeps the proposal price competitive. In some cases, this could be the difference between winning and losing the opportunity.

The following is a list of questions and recommendations that should be considered when designing a VoIP network. It is unlikely that a network configuration will implement every feature on this list, but it's a good checklist to review prior to completing the final design.

continued on page 4

VoIP Design...

continued from page 3

VoIP Design Guide Checklist

I. Is the LAN equipment designed to support 99.999% availability?

- A. Is the LAN configured with the following redundancy options?
1. Management modules
 2. Links
 3. Protocols (i.e., Fast Spanning Tree)
 4. Power supplies
 5. UPS system in wiring closet (in the event of a power outage)

B. How are the IP phones going to be powered?

1. Does the LAN switch support in-line power (802.3af)?
 - a. Is it connected to a UPS system?
 - b. Does the IP phone model support in-line power?
2. Is an external power patch panel required?
Is it connected to a UPS system?
3. Are you using local power?
 - a. Is it connected to a UPS system?
 - b. What is the ratio of IP phones with UPS to IP phones without UPS?
 - c. Are digital/analog terminals intermixed with the IP phones in geographic layout to provide for "emergency dialing" in the event of a network outage?

C. Is the PBX configured with the following redundancy options?

1. Management modules
2. Redundant IP modules
3. Are the VoIP links connected to multiple LAN switches?
4. Is there a backup signaling path configured for all networked sites?

II. Does the installed LAN equipment support QoS?

- A. Do you know the speed and performance of the installed equipment?
1. Manufacturer
 2. Product type
 3. Link speeds and WAN protocols
 4. Routing protocols

B. What is the QoS design strategy?

1. 802.1p/Q
2. DiffServ
3. Is the priority set and respected on every LAN switch in the network?

C. ToS (type of service) or CoS (class of service) for the WAN

D. Do you have a current LAN diagram? This is a must.

1. When was the network diagram last updated? If it's older than 45 days, ask for an up-to-date diagram.
2. Has the cable plant been verified to support 100 Mbps Ethernet (i.e., Cat 5 cable)?

III. Isolation

A. Do you have an isolated VLAN configured just for VoIP phones?

B. Has the excess broadcast traffic been removed from VoIP VLAN?

C. Is IP multicast support enabled on the LAN?

IV. Does the installed WAN support QoS?

A. Do you have a current WAN diagram? This is a must.

B. Has the packet forwarding latency and jitter been verified not to exceed the maximum tolerance of the 200 ms? An IP audit is a requirement for all WAN connections.

C. Are guaranteed bandwidth, packet forwarding rate, and capacity specified for all WAN links? A good rule of thumb is to have 25% available for overhead and routing table updates. Here's a simple calculation using the 25% rules, using a T1 (1.536 Mbps) as the line speed.

$1.536 \text{ Mbps} - 25\% = 1.152 \text{ Mbps}$, so this means that both voice and data must share the available bandwidth.

Is a bandwidth manager required?

Thanks to Alcatel for permission to reprint this excerpt from their technical paper. The paper, authored by Alcatel's John Garrison (Director, Systems Engineering, North America), may be accessed at no cost as a technology white paper at <http://www.ind.alcatel.com/acuta/>.

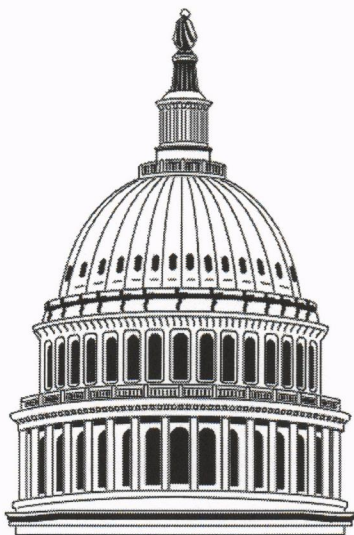
ACUTA Events Calendar

2004

Winter Seminars	January 11-14, 2004	New Orleans, LA	Sheraton New Orleans
Spring Seminars	April 18-21, 2004	Miami Beach, FL	Wyndham Resort
Annual Conference	August 1-5, 2004	Chicago, IL	Sheraton Hotel & Towers
Fall Seminars	October 24-27, 2004	St. Louis, MO	Hyatt Regency

2005

Winter Seminars	Jan. 30-Feb. 2, 2005	San Antonio, TX	Hyatt Regency
Spring Seminars	April 3-6, 2005	Philadelphia, PA	Wyndham
34th Annual Conference	July 17-21, 2005	Kissimmee, FL	Gaylord Palms Resort



D C Update

Whitney Johnson
Northern Michigan University
(Retired)

For More In-Depth Coverage of Legislative & Regulatory Issues:

ACUTA members may read about the latest developments in telecommunications and Internet-related issues in the most recent **Legislative and Regulatory Update**, an electronic newsletter prepared monthly by Wiley, Rein & Fielding. Access this newsletter at <http://www.acuta.org/relation DownloadFile.cfm?docNum=309>

Triennial Review

The title of an article in *Telecommunications Reports* (TR 9/15/03) seems to tell the story: "Line-Sharing, UNE Switching Top Battlegrounds as Multifaceted 'Triennial Review' Fight Begins." Three of the ILECs along with the U. S. Telecom Association (USTA) have asked the D. C. Circuit Court of Appeals to issue a *writ of mandamus* compelling the FCC to eliminate availability of the unbundled network element platform (UNE-P), which the Commission declined to do in the triennial review order (TRO).

In 2002 the USTA filed a case in the court and as a result the court had vacated the FCC's earlier unbundling rules. This new court action indicates that the triennial review order—and specifically, its scheme allowing UNE-P to remain in place pending further consideration by state regulators—violates the court's earlier mandate.

Some sources have indicated that the main goal of the mandamus filings may be to keep the UNE issue in the hands of the D. C. Circuit. The ILECs prefer the D. C. Circuit due to the favorable ruling in the earlier case filed by USTA.

Other cases have been filed by CLECs in other court areas including the Second Circuit in New York, the Fourth Circuit in Richmond, and the Ninth Circuit in San Francisco. The October 1 issue of *Telecommunications Reports* indicated that the cases had been transferred to the Eighth Circuit in St. Louis. Then the October 6 issue of *The Telecom Manager's Voice Report* (VR) reported that the U. S. Court of Appeals for the Eighth Circuit in St. Louis agreed to transfer the appeal to the U. S. Court of Appeals for the District of Columbia.

The line-sharing issue is also becoming a battleground as CLECs are seeking a stay of the TROs provisions.

These issues will likely be in the courts for some time.

Cost Cuts

Sprint Corporation President has announced that the company plans to trim \$1 billion in expenses annually over the next three years. The company laid out in broad terms an outline of its expense reduction and accompanying revenue growth plans, but did not say whether those measures would include workforce reductions. Expense savings will come from broad categories including system consolidation, elimination of redundancies, automation, process re-engineering, and organizational redesign. They hope to reduce operating expenses by 5 to 7% during the three-year time period. (TR 10/1/03)

AT&T has also indicated that they will continue to cut costs while investing in technology. A company representative told a Goldman Sachs conference the carrier is investing \$700 million "to drive costs out of its business." (VR 10/6/03)

Industry Recovery

According to a study done by Criterion Economics for the New Millennium Research Council (NMRC), "'widespread adoption' of advanced broadband technology, some of which are still in development, could lead to a restoration of the more than 250,000 telecommunications service and equipment sector jobs lost over the last three years." However, the report contends that growth will come only if all remaining regulations are lifted on broadband services. An official of Criterion remarked, "[T]his study documents quantitatively what many others have only hinted at qualitatively. The 1.2 million jobs reflect the economy-wide stimulus that results from telephone and cable industries competing to roll out [digital subscriber

continued on page 6

DC Update...

continued from page 5

line] and cable modem service, and gradually to roll out advanced broadband service to residential and small, business customers, assuming they were constrained only by consumer demand and underlying costs.”

He also suggested that if the FCC were to release broadband services without all of the regulations, the effect would be to stimulate investment. The emphasis in investment would be changing as time goes on. Major factors listed were fiber-optic cable installed in the last mile which may eventually replace over a third of today's broadband technology. It is interesting to note that one CLEC source questioned the statistics and called the report nothing more than “Bell company propaganda.” (TR 10/1/03)

Time to Change the Telecom Act of 1996?

A September 9 lunch meeting of the Republican Main Street Partnership was attended by several members of Congress and numerous lobbyists. FCC Chairman Powell, a speaker at the luncheon, indicated that he would not recommend any particular legislation but advised that the FCC needed more flexibility to address the problems of the evolving industry and that changes to the Telecommunications Act of 1996 might prove necessary. Thoughtful discussions about telecom legislation, he said, are probably overdue on Capitol Hill.

He also warned that the telecom industry could suffer from some of the same type of failures that caused the power blackout that occurred a few months ago. He warned of the “deep and foreboding” problems faced by telecom companies today, in particular how “a lack of capital could hurt the ‘crown jewels’ of the telecom industry.” Also he said “if we lose industries and fiber [optic cable] is made in Japan, we are going to have a long-lasting problem on our hands.” (TR 9/15/03)

Not much seems to be coming from Congress relative to the needs of the FCC and the industry. Things seem to be at a standstill these days.

In-region InterLATA

The Department of Justice filed comments with the FCC on 8/26/03 that they did not support the SBC multistate application—including Illinois, Indiana, Ohio, and Wisconsin—to provide long-distance service in the area. (TR 9/15/03) SBC has, more recently, been approved by the FCC and can now offer long distance in all of the 13 states in its area of operation. (VR 10/22/03)

In July the DoJ denied the SBC application for Michigan and later the FCC acted in favor of the SBC request and granted long distance service in the state. (VR 9-22)

Qwest has filed with the FCC a request to offer long distance service in Arizona—the only state in the Qwest area that has not yet been approved. On this request the DoJ evaluation was due by 10/9/03 and the FCC must render its decision by 12/3/03. (TR 9/15/03)

A City Close to Offering Telecom Service

The city of Manassas, Virginia, has the support of the staff of the Virginia State Corporation Commission for its bid to become a local-exchange telecom provider. The staff indicated that the city has the financial, managerial, and technical ability to render telecommunications services required by SCC rules. Manassas has had a fiber network installed since 1996 to monitor electric substations, its water system, and traffic signal control. The same network allowed the delivery of voice and data services for city government, public schools, and fire and police departments. In addition they conducted a trial last year of the city's broadband-over-power-line technology that was successful. The city wants to begin providing high-speed broadband Internet access to residents and businesses throughout the entire Prince William County. (TR 9/15/03)

It will be interesting to follow this plan and see how many other cities across the country try to offer the same type of service over their power lines, and is it not possible for colleges and universities to offer the same type of service over the power lines on campus?

Thanks to Exhibitors for '03

ACUTA appreciates the support of the companies who exhibited at our events in 2003. In addition to providing attendees with the latest information on products and services, the exhibit hall generates revenue which helps keep registration fees low. As you choose the companies with whom you do business, we hope you remember these ACUTA supporters.

FOUR EVENTS

3Com Corporation
Amcom Software Inc.
AT&T
Bitek, Inc.
Compco, Inc.

eMeritus Comm./VarTec Telecom
MiCTA
PAETEC Communications
Phonetic Systems
Professional Computing Resources, Inc.

Qwest Communications
System Development Co of NH Inc.
Telispire PCS
T-Metrics, Inc.
WTC

THREE EVENTS

1 Nation Technology
CampusCell
FASTNET
Interactive Intelligence, Inc.
Mitel Networks
PowerDsine Inc.
Startel Corporation

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Bluesocket, Inc.
CCG Consulting, Inc.
Gilford Corp.
Lightspeed Systems
MobileAccess Networks
Next Level Communications

The Siemon Company
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Spectrum Industries
Sprint
STC Services
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ONE EVENT

1Call/AMTELCO
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ACE*COMM
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Campus TeleVideo
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Coyote Point Systems, Inc.
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Nextel Communications, Inc.
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Panduit Corporation
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Talk-A-Phone Co.
TeleMatrix
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Teltronics
TippingPoint Technologies
Touchpaper Corporation
TVC Communications
Unimax Systems Corp.
Vernier Networks, Inc.
Viadux
Vibes Technologies
The Whitlock Group
WiFi-USA
WISOR Telecom
XTEND Communications Corp.

Board Report October

The ACUTA Board of Directors met Saturday, October 18, at the Fall Seminars in San Diego, CA. After approving the consent agenda, the Board heard committee reports, including proposals for the Annual Conference theme and tracks from the Program Committee. The theme will be "Learning, Networking, and All That Jazz."

We discussed a proposed IT Privacy and Security Statement submitted by the Web Portal Advisory Committee, and then considered some proposed changes to ACUTA's Strategic Plan.

- The issue was raised as to whether ACUTA should pursue a more collaborative relationship with certain other CHEMA organizations.

- Jeri Semer reported on the status of the business manager recruitment process which is in its final stages.

- As we discussed proposed 2003-04 goals, it was suggested that the *Chair in Training* concept currently deployed

by the Program Committee be adopted for all standing committees.

- Another topic of discussion was the concept of a *Press Room* on the ACUTA website. A decision was made to include it with all corporate affiliate membership levels for the present time.

- The Finance Committee presented a progress report on the issue of membership dues. We discussed private vs. public resources on the ACUTA website.

Respectfully submitted,

Carmine Piscopo, Providence College
ACUTA Secretary/Treasurer

ACUTA NEWS, Vol. 32, No. 11

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Share the details
of your latest project
with your peers:

Be a presenter in Chicago!

Proposals are due no later than
December 22.

For more details,
visit the ACUTA website at
<http://www.acuta.org>.

Welcome New Members

Institutional Members

California College of the Arts, Oakland, CA. T1

<http://www.cca.edu>

Dan Shapin, Director of Networking, 510/594-3743

Simmons College, Boston, MA. T2

<http://www.simmons.edu>

Jay Ramey, Telecommunications Manager, 617/521-2188

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Ben Crown, President, 847/781-2387

Mutare Software is a leading developer of OctelDesigner solutions with over 800 successfully deployed applications. Let us demonstrate how Mutare's unparalleled service and support is delivering improved customer service and employee productivity applications to hundreds of companies throughout the world.

OOPS!

Apologies to NorthStar Communications Group., Inc., in Birmingham, AL. They joined as a Bronze member, and were inadvertently introduced as a Copper member last month.

Have You Shopped at the ACUTA eStore Lately?

From seminar tapes to the *ACUTA Journal* to branded merchandise, useful and educational products are available from the ACUTA website. A sample of what you will find online is listed below. To visit the ACUTA eStore, go to <http://www.acuta.org>, then click on Member Services on the menu bar.

Publications

Whatever challenge you face on your campus, someone else has probably "been there & done that." Build your own ACUTA publications library—including the *Journal*, newsletters, and books—and meet those challenges head-on.

ACUTA Merchandise

A variety of products bearing ACUTA's logo are available for purchase.

2003 Annual Conference Book & CD-ROM

2003 Web Seminar CD-ROM "Wireless Hot Topics" (6/24/03)

Audio Seminar Tapes (More titles available online)

- The Current State of the Telecom Industry (5/6/03)
- Network Security Issues (3/19/03)
- Wireless Business and Regulatory Trends (3/4/03)
- Design & Service Impact of Putting Voice Traffic on a Converged Network (2/11/03)
- Do Not Call/Do Not Fax: How New FTC & FCC Rules Will Affect Your Campus (9/23/03)