

SCANFAX

December 1999

Volume 51, Issue 10



IEEE

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A publication of the
Institute of Electrical & Electronics Engineers
— Chicago Section —

Teleco's:

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generation of integrated enhanced
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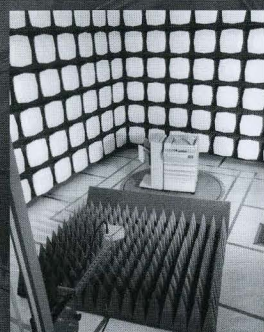
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Tuesday, December 14, 7:15 pm

DeVry, 1221 N. Swift Rd., Addison, IL

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Chairman's Message

The IEEE Sections Congress '99 was held October 8-11, 1999 in Minneapolis, Minnesota. Pat Murphy (Section Vice Chairman/Treasurer) and I represented the Chicago Section at the Congress. This triennial event provides Section leadership from around the world a forum to learn about IEEE and its many membership benefits, as well as to network with other IEEE volunteers to share ideas, concerns, and accomplishments about local activities. Additionally, Congress delegates are given an opportunity to make recommendations for submission to IEEE, which will be used to steer the Institute into the future.

The theme of the Congress this year was "Designing the Next Century." The presentations provided the attendees with a vision of technology, their profession, and the IEEE in the next millennium. The program was divided into three tracks with each track consisting of multiple sessions. Track themes were "Growing Membership," "Successful

Sections and Chapters," and "Serving Professional Needs." In total there were 96 sessions covering 84 topics.

High points of the Congress were the welcome letter from Gov. Jesse Ventura, the presentations at the opening and closing ceremonies, and the plenary sessions.

Dr. Frank B. Cerra, Senior Vice-President of Health Science at the University of Minnesota, opened the Congress with an inspirational and forward-looking presentation on "Designing Engineering Applications for Medicine in the Next Century." In his vision of what lies ahead, he stated that it is now realistic to talk about the possibilities for organ and limb regrowth. He maintains that progress will be based on intellectual creativity and innovation, particularly in the areas of genomics and the various disciplines of engineering. What we accomplish in the 21st Century resides in the visions of our mind and our ability to work together to achieve those visions.

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The success of a Sections Congress is measured by what is accomplished in the years that follow. At the first plenary session, Mr. Daniel R. Benigni, Vice-President of Regional Activities, recapped the "Recommendations to IEEE" that were generated by the 1996 Sections Congress and reported on their progress. Many of the achievements are evident to IEEE members. For example some of the recommendations that have been implemented include: 1) improving the speed with which publications are delivered, 2) hosting section web pages, 3) member e-mail services, and 4) leadership development programs.

At the second plenary session, Dr. Kenneth R. Laker, IEEE President, spoke on the subject of "The IEEE in the Next Century." He provided an IEEE President's vision of the future IEEE, using as context, the Institute's historical heritage, the changing externalities that affect the IEEE and its members, and data from constituent surveys and focus groups regarding the IEEE's image.

The Closing Ceremony speaker, Dr. Julie A. Shimer, Corporate Vice-President and General Manager at Motorola, addressed the delegates on the subject of "The Engineering Profession in the Next Century." By reviewing how two factors - shifting demographics and technology trends - affected changes in the profession the last half of the 20th century, she projected the evolution of the profession into the first half of the 21st century. She stated that accelerating change would provide new challenges and opportunities for practicing engineers and those entering the field. Understanding those changes will help engineers meet the challenges of the 21st century and take advantage of the opportunities offered.

Dr. Laker ended the Congress with final words of inspiration and an invitation to attend Sections Congress 2002 in Washington D.C.

Members of the Chicago Section are encouraged to take on leadership roles in their society chapters and plan on attending Sections Congress 2002.

Mr. Bob Pierce has stepped down as Chairman of the Northwest Subsection

Continued on page 9.

Teleco's: the next generation



By Terri Biloff

While many customers eagerly await the coming of integrated enhanced communication services from phone carriers, most companies haven't done much in the way of providing tangible alternative solutions to common communication problems for customers.

Most local carriers either resell traditional phone services or provide digital subscriber lines (DSL) or cable internet services. Unfortunately most local carriers don't have the infrastructure or financial backing to offer multi-source communication under one roof at a reasonable price.

That leaves the door wide open for the next generation of teleco's. Teleco's are the guys scrambling to develop seamless alternatives to multi-carrier communication needs.

This next generation of teleco's will be looking to offer integrated voice, data, video fax and even PC based phone calls over the internet. But even after next generation teleco's start offering such services, it will be quite some time before people feel comfortable with them.

The telecommunications industry is a very competitive one, making most businesses skittish about shifting gears too quickly before next generation teleco's have gotten enough time and service issues under their belts.

Quality/Reliability

Certainly reliability becomes a huge

issue when you're talking about communication delivery options over the internet. "It's not good enough to offer a 99 percent guarantee," says one business owner. "We need a 99.999 percent guarantee before we'll even consider changing communication carriers, even if the rates are lower."

And because internet communication hasn't proven 100 percent reliable, carriers offering voice over IP will not be able to offer a 100 percent reliability guarantee for quite some time. "It seems the better the guarantee the higher the cost of service," one source says.

"And that's not a cost I can pass on to my customers and expect to stay in business."

True better guarantees do traditionally mean higher costs for services, but I also suspect new alternative teleco's coming into the market will help level the playing field while driving the cost down as competition increases.

But the problems go beyond just the carriers' inability to offer such integrated services. IP backbone companies haven't caught up with the technology needed to support these new services. Telephony companies whose IP networks are managed by a single IP provider usually will be more reliable, but even the managed networks are limited in their reach, therefore limiting voice services to intra-company or lata calls only.

Standardization

Although the International Telecommunication Union (ITU) standards specify IP telephony standards, equipment manufacturers have the flexibility to create their products using any standards. This is proving to be a problem since many of today's products are using different standards and versions than those being developed.

Eventually this means that outdated telephony equipment will need to be replaced with the new models, thus making it similar to the computer upgrade race many of us play to keep up with computer technology.

With no standardization there lies a potential problem with the inability to integrate different manufacturers' products because they prohibit interoperability between IP telephony platforms.

Having said that, there are telecommunication consortiums working on these standardization, pricing and fair competition issues. These consortiums are made up of not only representatives from the computer industry, but experts from the telecommunications community.

Unified messaging

What is it? How does it work? Basically a unified message is the ability to access voice, fax and e-mail messages through one single user interface. This can be achieved either by a PC or telephone interface.

With a PC interface, phone and fax messages can be viewed on screen while voice messages can either be played via a PC sound card or accessed via standard phone protocols.

With a telephone interface, voice messages are accessed as normal, faxes can be directed to a fax machine via a IVR system, or transferred to e-mail, while e-mails can be played back by way of "text to speech" methods.

Unified messaging can be managed either via server based or desktop based, but should be chosen based on the organization's messaging needs and current technical infrastructure.

For most companies the assessment as to whether a unified messaging service (UMS) makes good business sense in the first place is the first step that needs to be taken. Companies are looking to improve productivity while addressing mobility and single platform issues, making the decision about whether to pursue server based or PC based management a secondary concern.

Server based messaging

This approach to unified messaging is far more technical and usually costs more to implement and maintain, but is more reliable and expandable.

With the server approach, a single database stores and manages all message types and the client interface accesses the database and provides unified messaging via all interfaces. It's configured so voice and fax messages are generated by different services but transported and stored in the single server database.

Continued on page 6.

Desktop based messaging

With the desktop approach, all message types are unified within the client mail application while maintaining separate servers for each message type.

E-mail messages are stored in the e-mail server, while voice resides on a voice mail server and fax messages are stored on a fax server.

One big advantage of the desktop based unified messaging is that traffic is split between multiple servers, keeping

traffic and redundancy problems to a minimum.

IP Fax Services

A natural telephony application for these next generation teleco's is IP faxing. After all, the type of network connectivity is basically the same as voice. The only difference is that the phone call (which is launched from a PC application or directly from a fax machine) will connect through a local connection to the nearest Point Of Presence (POP) to the destination device.

Expect to see fax and e-mail boxes unified into one service in the near

future. A fax will be able to reach someone's e-mail in box just by clicking a "fax to" button. This will make it easier and more cost effective to send faxes via e-mail over the internet using standard e-mail programs.

Call Centers

Following closely behind IP faxing is the expanding call center market. Call centers are well on their way to spawning new customer relations and with that a growth in the employment industry.

Estimates show that by the year 2001 one out of fifty jobs in the country will involve some sort of call center services. Many call centers are moving away from the traditional methods of pooling calls, to enhanced voice and data networking services using integrated IP telephony technologies.

Call center operators are pushing for these integrated services to include video applications. Their goal is to offer comprehensive customer service through a single point of contact.

Virtually managed call traffic and remove server agents will help decentralize current call center business models. "Centralization makes you very vulnerable and susceptible to things like staff turnover and natural disasters," one call center operator notes. "We're starting to see computer telephone technologies as an alternative and opportunity to overcome physical and technical limitations."

Satellite centers, web enabled agents from arbitrary locations using IP protocols and virtual automatic call distribution (ACD) are just a few technologies on the horizon.

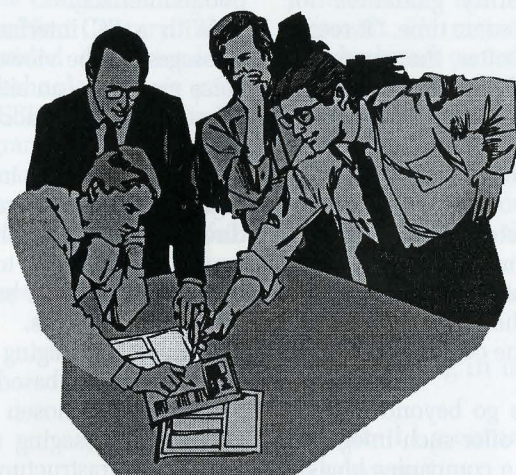
Commvergence

As the computer telephony industry grows, the commvergence of all communication forms into one unified application is the next stage of development in computer telephony integration (CTI).

Desktop PC's ready to integrate voice, data and fax are being shipped everyday. Sound cards, microphones and audio speakers are now standard on most PC's. And with Windows 98 expansion of multimedia applications, the computer industry is gearing up for new integrated solutions.

As we step into the new millennium, the computer telephony industry (with the help of next generation teleco's) will have a unique opportunity to transition current circuit switched voice platforms to single source integrated voice networks.

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IEEE PES CHICAGO CHAPTER

Substation Grounding Refresher

**Wednesday,
December 8, 1999**

Frank C. Shainauskas, Project Manager, Sargent & Lundy, LLC

About the Speaker:

Mr. Shainauskas received his BSEE degree from the Illinois Institute of Technology and is a Registered Professional Engineer. He spent 1-1/2 years with the Wisconsin Steel Division of International Harvester, and then went to work for Sargent & Lundy. He has been with Sargent & Lundy in the Transmission and Substation Department for 29 years and has been involved in all facets of the design of air insulated substations (AIS) ranging in voltage from 4.16kV up to 765kV, and gas insulated substations (GIS) at 220 and 500kV.

About the topic:

The talk will review the need for and elements of grounding systems in medium voltage, high voltage and extra high voltage electric substations.

LUNCH MEETING

Location:

Chicago Bar Association, 321 South Plymouth Court (Near Jackson & Dearborn), Chicago, IL 60604.

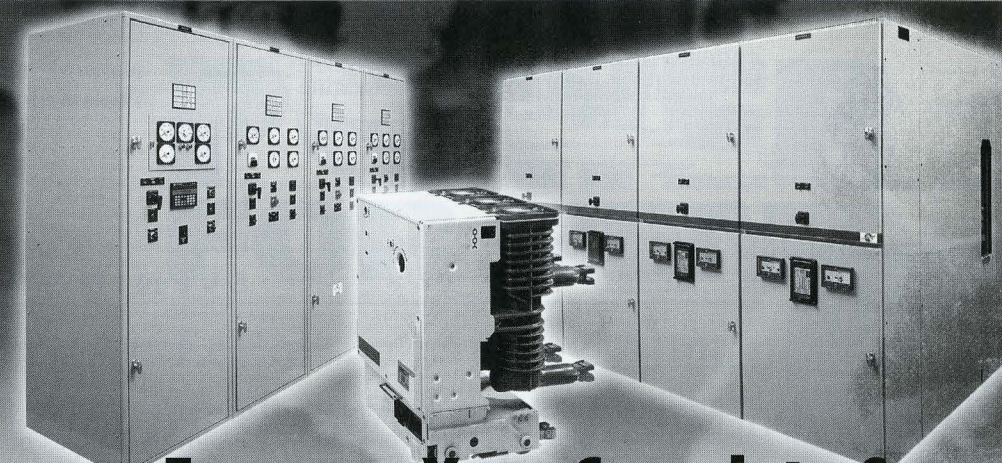
Time:

Social: 11:30 am.
Lunch: 12:00 pm.
Presentation: 12:15 pm.
Adjourn: 1:00 pm.

Reservations:

Lunch tickets can be purchased in the lobby bookstore (\$10.50). Please call the IEEE Business Office at (800) 898-IEEE to make your reservation.

For more information, please visit the Chicago Chapter IEEE PES web site: www.ece.iit.edu/~flueck/chicago_pes/



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IEEE PRESENTATION

Chuck Byers, Technical Staff, Lucent Technologies

About the topic: There are many considerations and tradeoffs needed to design and deploy a successful converged network. Important attributes of any well-designed next generation network include:

- (1) Narrowband and broadband access
- (2) High performance core network switching
- (3) Broadband optical transport
- (4) Applications servers and feature engines
- (5) Advanced OAM&P

This talk will survey these five attributes in the converged network context, and analyze some of the choices and tradeoffs faced by the builders of these networks.

About the speaker: We welcome back one of our favorite speakers, Chuck Byers, who has provided insights into the development of converged telephony and data networks.

Chuck Byers is a Distinguished Member of Technical Staff at Lucent Technologies Bell Laboratories in Naperville, Illinois. During his thirteen year career with Bell Labs, he has been involved in electronic design at the chip, board and system level, as well as system architecture and marketing. He is currently working on network vision and advanced Internet access and switching products.

Chuck has a BS in Electrical and Computer Engineering, and a MS of Electrical Engineering, both from the University of Wisconsin at Madison. He holds twelve US, and six European patents.

Location:

Place: Lucent Technologies
Indian Hill South, Conference Dining Room, 1200 E. Warrenville Rd., Naperville, IL 60566

Directions

Lucent Technologies Indian Hill South is located at the southwest side of Warrenville and Naperville Roads. From I-88, take the Naperville exit.

Turn north onto Naperville Rd, then turn left (west) at the first stoplight onto Warrenville Rd. At the second stoplight, turn left at Indian Hill South.

The building entrance is in the rear facing the I88 Tollway. When you enter the building, you will be issued a visitor badge, given directions to the conference room.

To register or for more information contact Adrienne Novick at 630-713-4362.

As always, the public is invited.

Time: Networking/Social: 7:00pm.
Presentation: 7:30pm.

EVENING MEETING

All members of EMB who desire to seek office for the coming year should prepare a statement outlining their qualifications and proposals for EMB and submit them to Connie Kelly ckelly@megsinet.net or fax 847-298-1264. Elections will be held December 13.

Location:

Addison Campus of DeVry, Room 128 unless otherwise posted on the door.

Time: 7:00 pm to 9 pm.

IEEE FOX VALLEY SUBSECTION

AND

IEEE CHICAGO SECTION COMPUTER SOCIETY CHAPTER

Next Generation Network Design

**Wednesday,
December 8, 1999**

ELECTRONICS IN MEDICINE AND BIOLOGY

Elections, Pre-Y2K Celebration and Review of Last Minute Plans

**Monday,
December 13, 1999**

CHAIRMAN'S MESSAGE

Continued from page 4

because of personal reasons. We thank Bob for his efforts during his tenure as chairman. Unfortunately, there is now a subsection without a leader. Historically, the Northwest Subsection had been very active. It would be desirable to fill that chairmanship with someone who would revitalize the subsection and restore it to its original state. Anyone interested in taking on the role as Chairman of the Northwest Subsection is asked to either contact me directly or leave your name and phone number with the Chicago Section office (630-493-4333).

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In closing, I wish all the members of the IEEE Chicago Section a very Merry Christmas, and a happy and healthy New Year. ■

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INSTRUCTIONS

MEETING NOTICES, SCHEDULES

Step 1 Submit copy via e-mail to:
scanfax@ieee.fnal.gov. Text should be sent
in the body of the e-mail not as an attached
file. Please include "notice" in the e-mail
subject line.

Step 2 Fax a confirming hardcopy of the
notice to: 608-222-0262.

If e-mail is not an option, contact Nancy Lee
or Julie Redders at Slack Attack Advertising,
608-222-7630.

DEADLINES

January Issue November 25
February Issue December 25
March Issue January 25
April Issue February 25
May Issue March 25
June Issue April 25
September Issue July 25
October Issue August 25
November Issue September 25
December Issue October 25

Employment Opportunities

Nationwide engineering firm is expanding its
Chicago office. We are seeking both entry level and
experienced **ELECTRICAL ENGINEERS** to assist us in
our growth. Must have BSEE and excellent communica-
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background in 480-volt power distribution for motors,
equipment, and lighting systems integral to water,
wastewater, commercial, and transportation projects.
Experience in SCADA controls and instrumentation sys-
tems is helpful.

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potential, immediate ESOP eligibility, no-interest com-
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Consoer Townsend Envirodyne Engineers, Inc.

303 E. Wacker Drive, Ste. 600
Chicago, IL 60601

Attn: Human Resources, Dept. S.A.

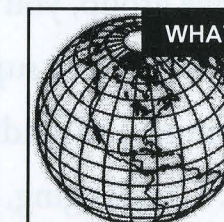
Or fax to: (312) 938-1109

EOE

M/F/D/V

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