

SCANFAX

March 2006

Volume 58, Issue 3



IEEE

Chicago Section Website:
ewh.ieee.org/r4/chicago

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

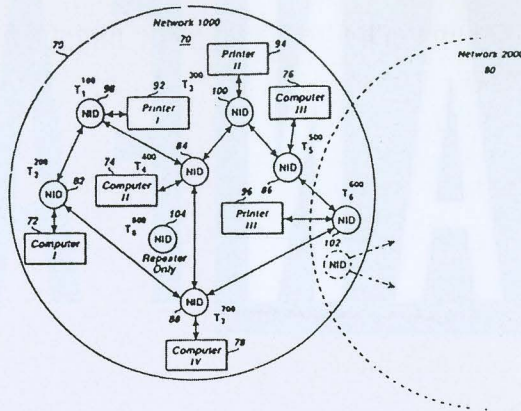
Cable Goes Broadband

U.S. POSTAGE PAID
Non-Profit ORG
Permit No. 1
Madison, Wisconsin

Representative Clients*

- Abbott Laboratories
- ABN AMRO Bank
- Atari Games Corp.
- Bally Total Fitness Corporation
- Biovail Corporation
- Blue Cross & Blue Shield Association
- B.P. Amoco Corporation
- Compass Bancshares, Inc.
- Fedders Corporation
- General Electric Company
- Hard Rock Hotel & Casino
- Intel Corporation
- Louisville Bedding Company
- Mattel, Inc.
- Monsanto
- Papst Licensing GmbH
- Rockwell International Corporation
- Samsonite Corporation
- The Scripps Research Institute
- Texas Instruments, Inc.
- Time Warner
- Ty Inc.
- The Walt Disney Company
- Xerox Corporation

* These are clients that the firm has represented.



Masters of the Intellectual Property Maze®

Attorneys concentrating in all facets of intellectual property law including litigation, licensing, negotiation, client counseling and corporate identification programs, as well as protecting rights through trade secrets, patents, trademarks and copyrights worldwide.

Welsh & Katz, Ltd.

120 S. Riverside Plaza • 22nd Floor • Chicago, Illinois 60606 • Telephone 312-655-1500 • Fax 312-655-1501

IEEE MEMBER CONTACTS: A. SIDNEY KATZ AND JAMES A. SCHEER

www.welshkatz.com

Washington Office: Crystal Plaza One • Suite 311 • 2001 Jefferson Davis Highway • Arlington, Virginia 22202-3603 • Tel: 703-415-4777



Chicago Section:
ewh.ieee.org/r4/chicago

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

Chairman
Connie Kelly
Phone: 847-297-6610
Fax: 847-298-1264
E-mail: constance.kelly@comcast.net

Editor
Gerry Ryan
Phone: 708-445-7537
Fax: 708-445-7538
E-mail: gerryr_idcs@ameritech.net

Published for IEEE by
Slack Attack Communications

Publisher
Barbara Slack

Advertising Sales
Beth Vander Grinten
Phone: 608-222-7630
E-mail: bethv@slackattack.com

Art Director
Kristin Mitchell

Printed By
Community Publications
McFarland, WI

SCANFAX (ISSN #0018-1297) is a monthly publication (except June, July and August) of the Chicago Section Institute of Electrical and Electronics Engineers, c/o Western Society of Engineers, 4513 Lincoln Avenue, Suite 213, Lisle, IL 60532, (800) 898-4333 or (630) 493-4333. It is published by Slack Attack Communications, 5113 Monona Drive, Madison, WI 53716, (608) 222-7630. Printing is by Community Publications, McFarland, WI 53558. For advertising information, contact Slack Attack Communications.

Subscriptions included in IEEE membership dues; non-member subscriptions: \$25 per year.

Address corrections should be sent to: IEEE Membership, 440 Hoes Lane, Piscataway, NJ 08854-1331 or by phone (800) 678-4333.

Meeting notices should be sent to graphics@slackattack.com.

©Copyright 2004 by the Chicago Section Institute of Electrical and Electronics Engineers. Permission to reprint must be secured in advance of publication and credit given to author and SCANFAX.

SCANFAX

March 2006

Volume 58, Issue 3

FEATURES

- 3 Next Generation Network for Cable TV Could Include Everything

UPCOMING EVENTS

- 6 Chicago Chapter of the IEEE Power Engineering Society
The Energy Policy Act of 2005
Wednesday, March 8, 2006
- 6 IEEE Communications Society, IEEE Fox Valley, IIT's Center for Professional Development-Rice Campus and UniForum
NetSecure 06 – 4th Annual Computer and Network Security Conf. & Expo.
Wednesday, March 8, 2006
- 7 IEEE Fox Valley Subsection
FPGAs: Technology and Applications
Wednesday, March 15, 2006
- 7 IEEE-IAS/IES Chicago Chapter
Fundamentals of Adjustable Speed Drives
Wednesday, March 15, 2006
- 8 IEEE EMC Society Chicago Chapter
EMC Simulation through Computer Modeling
Tuesday, March 21, 2006
- 9 IEEE Chicago/Rockford Consultants' Network
A Joint Affinity Group of the IEEE Chicago and Rock River Valley Sections
Preparing and Managing Your Consulting Practice with an Effective Business Plan
Monday, March 27, 2006

DEPARTMENTS

- 11 Advertiser Index & Professional and Business Directory

Chicago Section Executive Committee Meeting

Tuesday, March 14, 2006, 7:00 p.m.

DeVry DuPage, Room TBA, 1221 N. Swift Rd., Addison, IL

No Registration Needed

Statements or opinions expressed herein are those of the author's and not necessarily those of the IEEE Chicago Section, its members, officers, or staff, or the editors of this publication. Readers using any information or materials described in this publication do so at their own risk. In no event will IEEE Chicago Section, its members, officers, or staff be liable for any damages resulting from use of this material and hereby expressly disclaim such liability. The publication of any advertisement is not to be construed as an endorsement of the product or service offered unless the advertisement specifically states that there is such an endorsement or approval by the organization.

TEST LABORATORY

Elite Capabilities.

New and different products demand new and different testing capabilities—and Elite has them.

- Enhanced High-Intensity RF (HIRF) testing
600V/m-CW/AM and 2000V/m pulsed RF
- HALT/HASS accelerated life testing via rapid thermal cycling and six-axis vibration
- Computer simulation of EMI using software modeling consulting services

Visit www.elitetest.com to see how our constantly improving capabilities can meet your constantly changing testing needs.

Elite Electronic Engineering Inc.

1516 CENTRE CIRCLE, DOWNERS GROVE, IL 60515

1-800-ELITE-11 [1-800-354-8311]

www.elitetest.com

FC Canada CE

Our Constantly Improving EMC Test Capabilities

• EMC Testing Services

MILITARY AND COMMERCIAL AVIATION

600V/m-CW/AM and 2000V/m pulsed RF, Lightning Testing, Large system capabilities

AUTOMOTIVE

DaimlerChrysler and Ford Approved, GM Correlated, Nissan, Toyota, BMW, others

Whole Vehicle EMC Test Facility; Truck and Ag Equipment Specialists

European Union "e-Mark" Testing for ESA's & Whole Vehicle

FCC, CE MARK, TELECOM

Regulatory Experts; Test Experts; EMC Design Experts

FCC Telecommunication Certification Body (TCB)

European Union Conformity Assessment Body for CE Mark Approvals

• Environmental Stress Testing and Electrical Safety Services

Full Environmental Stress Test Laboratory; Temp, Humidity, Vibe, Shock, Rain, Dust, Salt Fog, and many others

• Engineering Design Consulting Services

FCC/CE Mark Regulatory Experts, EMC Design Analysis and EMI Suppression, EMI Simulation and Circuit Modeling Services

A2LA Accredited
NVLAP Accredited
ANSI Accredited
DESC Approved
NARTE Certified Engineers

Next Generation Network for Cable TV Could Include Everything

By Paul Zukowski

The cable television industry has undergone a vast change in the last 10 years. It began by launching digital broadcasts and went on to incorporate such advances as cable modems for high-speed Internet, on-demand TV, IP telephony, wireless and more.

Today cable is vying to become the one pipe that will provide all of the communications services that households and businesses need and want.

A recent review of the state of the industry by the chair of the Society of Cable Telecommunications Engineers, Yvette Gordon-Kanouff, provides a framework for understanding the key initiatives for setting standards that will define tomorrow's networks.

Gordon-Kanouff said in a recent article in Communications Technology magazine that the initiatives are under the general heading of bandwidth efficiency in terms of data capacity or throughput. They also stress flexibility, interoperability and scalability.

There are three main efforts. The entire cable industry is behind the Next Generation Network Architecture (NGNA) effort, while Time Warner is leading the Interactive Services Architecture (ISA) project, and Comcast is leading an effort called Next Generation On Demand (NGOD).

These and other initiatives all seek to make better use of existing bandwidth. One way to significantly increase bandwidth efficiency is to remove the analog signals from cable transmissions altogether and deliver all-digital channels to subscribers. Each 6 MHz of cable bandwidth can carry only a single analog channel, but could carry 10 or more digital channels.

Converting cable networks to all digital faces technical, cost, and customer acceptance challenges. The transition stage now underway sends the digital simulcast along with the analog channels even though this requires more bandwidth in the interim.

Of course, once the transmissions are digital, there is no longer a need to separate them into the traditional concept of channels. They could be managed as part of an all-inclusive, intelligent Internet protocol (IP) network. That way there could be common management across applications.

The point where cable networks connect to other systems is called the edge. These remote hubs typically house quadrature amplitude modulation modulators and upconverters, and could become consistent across services, with everything upstream becoming a smart network managed by switches and software.

Services that are separated today will share backbone transport and traditional channel bandwidth to the home. A more unified network management also allows for the use of system bandwidth only for what is actually being viewed.

Another way to achieve bandwidth efficiency is statistical multiplexing. Many advanced QAM modulator products not only modulate, but also have the additional capability to manipulate the various input streams. Video streams often have different characteristics at any point in time, so more bandwidth can be allocated to those streams with high scene changes vs. those that have little change descriptions in the MPEG stream. Typically, stat-muxing will increase bandwidth efficiency by 20-60 percent.

Developed by CableLabs and approved by the ITU in March 1998, the Data Over Cable Service Interface Specification defines interface standards for cable modems and supporting equipment. As a part of the CableLabs NGNA effort, DOCSIS 3.0 will allow not only transport efficiency, but also more data throughput. Although the ability exists to go to hundreds of megabits per second, current thoughts are that DOCSIS 3.0 modems will be between 50 and 100 Mbps.

Another major benefit is that DOCSIS 3.0 will support IPv6, which supports more IP

addresses than today's IPv4 and will enable networks to grow to include new set-top gateways and other IP addresses.

Gordon-Kanouff added that any discussion of next-generation network plans must include a focus on standards, interoperability and scalability. Standards and specifications are key to future scalability, and allow various manufacturers to interoperate with common connections and functions.

CableLabs is the industry's forum for specifications, with DOCSIS being the premier success. Other projects such as CableHome, PacketCable, OpenCable and Metadata continue to ensure that industry-wide specifications are enhanced and maintained. The Society of Cable Telecommunications Engineers is the industry's forum for standards, with more than 100 American National Standards Institute approved standards in place.

Time Warner Cable was a pioneer of interactive TV and video on demand in 1994, and created specifications that would enable it to launch digital and VOD with

common software and platforms. Time Warner called the specification effort Interactive Services Architecture (ISA). Many of the ISA interfaces have been adopted wide-scale. The set-top signaling interfaces, for example, are used by most cable industry implementations across North America.

More recently, Comcast has taken a lead in defining interface definitions, as well. Comcast has named the effort Next Generation On Demand (NGOD). The goal of NGOD is to enable Comcast networks to scale easily. Many next-generation network goals require various network components to talk to each other in one consistent manner. If each component has the same physical and logical interface to control and access a QAM modulator, for example, then Comcast can easily launch new services that need to access QAM modulators.

A bit more complex is the management of all of the applications and network components. Therefore, NGOD also describes components that will manage data capac-

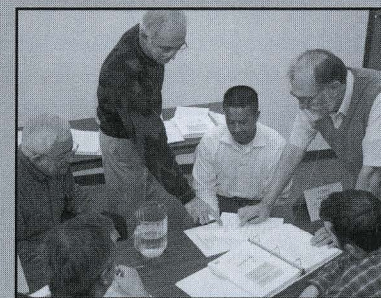
ity, entitlements, advertising management and more.

The popularity of services such as video on demand is indicated by recent figures from Comcast (Oct. 05) indicating the firm had 150 million VOD streams, of which 30 million were launched via clicks on their portal application. Having one set-top box to manage multiple services as a centralized home gateway or media center is another major goal of the cable industry.

The future also rests upon consumer demand for the communication industry's four core businesses: video, data, voice and wireless. A Sprint Nextel joint venture with a consortium of cable operators shows that the industry is making moves to become a genuine quadruple-play service provider. How to manage the handoffs between cable and wireless infrastructures is yet another technical work in progress. ■

Eliminate the Guesswork!

- *Gain knowledge in all EMC design aspects.
- *Put what you learn to immediate use.



Don Sweeney & Roger Swanberg
leading a workshop

To register call Carol at
847-537-6400 or email her
at cgorowski@dlsemc.com.
For more information click
on www.dlsemc.com.



Tired of taking classes that don't give you real world applications and hands-on opportunities to use what you learn?

Here's what students have said about DLS's new EMC seminar/workshop:

- "Best program I've seen. Software provided is worth the price of the seminar." Scott D.
- "This course would be helpful for any design engineer." Shane S.
- "Good information, presented well, extremely relevant." Bryan P.
- "It satisfied my requirements - practical application & problem solving." Jack R.

This seminar/workshop is taught by EMC engineers with 75 years combined experience in real world engineering. Spend three days learning EMC requirements and design techniques and a fourth day designing a real life product. Take home the computer program designed by the instructors. As an added extra value with no additional charge, apply what you have learned in an optional 45-minute design review of your own product following the workshop.

**EMC Practical Applications
Seminar/Workshop
Northbrook, Illinois
April 27-28 and May 1-2, 2006**

**\$300 discount if you
register by March 27th.**

Dinner Meeting

Chicago Chapter of the IEEE Power Engineering Society

The Energy Policy Act of 2005

Wednesday, March 8, 2006

Fernando L. Alvarado
Professor Emeritus, Univ. of Wisconsin

About the Topic:

Fernando will present an overview of the Energy Policy Act of 2005, highlighting its expected impact on reliability of electricity. He will also discuss the impact of the act on the functioning of NERC, as well as the effect that it may have on markets and market design. He will share his experiences as a member of the IEEE Energy Policy Committee and discuss with the audience means by which engineers can best influence energy policy.

About the Speaker:

Fernando L. Alvarado is a Professor Emeritus of Electrical and Computer Engineering at the University of Wisconsin and a Senior Consultant at Christensen Associates. He earned a Ph.D. in Electrical and Computer Engineering from the University of Michigan in 1972, a Masters from Clarkson University in 1969 and a PE and BEE degree from the National University of Engineering in Lima, Peru.

He is a fellow of IEEE and is the Chairman of the IEEE Energy Policy Committee. He has served as a member on a panel of experts for the study of a National Interest Transmission Grid for the US and on a Presidential Task Force on Critical Infrastructures.

Location:

ComEd Commercial Center, 1919 Swift Drive, Oak Brook, IL (near the I-290 and I-294 interchange)

Time:

5:30 Social
6:00 Dinner (optional)
6:45 Presentation
8:00 Adjourn

Continuing Education:

IEEE technical meetings may be acceptable as continuing education.

Reservations:

Call the IEEE Business Office by noon on March 6, 2006 at (630)493-4333 or (800) 898-IEEE, or use the Online Reservation Form.

Cost:

The cost of the optional box-lunch style dinner is \$15 for IEEE members, \$20 for non-members, payable at the event. Sorry, we are unable to process credit cards. Checks payable to "IEEE-PES Chicago Chapter" and cash are accepted, and receipts will be provided. Sorry, no credit cards.

For more information:

For more information, including the Online Reservation Form, please visit the IEEE PES Chicago Chapter web site: <http://peschicago.org>

Conference

IEEE Communications Society,
IEEE Fox Valley,
IIT's Center for Professional Development-
Rice Campus and UniForum

NetSecure 06 – 4th Annual Computer and Network Security Conf. & Expo.

Wednesday, March 8, 2006

About the Conference:

The conference will bring together knowledgeable security practitioners and responsible executives from many organizations. Subject matter experts will offer technical sessions, tutorials and vendor sessions. Businesses will have the opportunity to exhibit. The event is open to the public. Advance registration is required and can be completed online at <http://cpd.iit.edu/netsecure06/>.

This year features an added focus on digital forensics. Other topic areas include but are not limited to computer and network security including spam & phishing prevention, privacy, regulations (e.g., HIPAA and Sarbaines-Oxley), computer and network crime investigation and forensics including chain of evidence, steganography, criminal and civil concerns.

Location:

IIT's Rice Campus, 201 East Loop Road, Wheaton, Illinois.

Take Rt.56/Butterfield Rd. to first stoplight east of intersection of Butterfield & Naperville roads. Turn north onto East Loop Road, the campus will be on your right about a block north of Butterfield Road.

More detailed directions and a map are available at www.rice.iit.edu/directions.html.

Time:

7:30–8:30 a.m. Registration and Networking
8:30 a.m. Conference and Expo
5:00–6:00 p.m. Wine and Cheese Social Hour

Registration:

Advance registration is required and is available at www.cpd.iit.edu/netsecure06/.

Sponsorship:

IEEE Communications Society, IEEE Fox Valley, Illinois Institute of Technology's Center for Professional Development (Rice Campus) and UniForum.

Evening Meeting

IEEE Fox Valley Subsection

FPGAs: Technology and Applications Wednesday, March 15, 2006

Reza Hashemian
Northern Illinois University

About the Topic:

Field Programmable Gate Arrays are digital ICs providing a fixed Sea-of-Gates fabric with electrically programmable architecture. FPGAs were mainly developed for rapid prototyping, but they have grown into production and competing with ASICs in certain circumstances. FPGAs have applications in all areas of digital electronics including communications, control, computing, imbedded systems and DSPs. This talk will review some of the main features of FPGAs and its growth in recent years. It concentrates on recent FPGAs applications particularly on digital filters and image compressions.

About the Speaker:

Reza Hashemian is a Professor in the Department of Electrical Engineering at Northern Illinois University, where he teaches and does research on analog and digital VLSI designs, programmable logic devices (FPGAs), image compression techniques, and computer algorithms. He has served in the industry, business including Signetics (Phillips), Inc., and Texas Instruments, Inc., working on device modeling, semi-custom ICs, and acoustic noise cancellation using FPGAs. He has served as the director of research in Sharif University of Technology, and has been the director of Materials and Energy Research Center in Tehran, Iran.

Location:

Room 166, IIT's Rice Campus, 201 East Loop Road, Wheaton, Illinois. Take Rt.56/Butterfield Rd. to first stoplight east of intersection of Butterfield & Naperville roads. Turn north onto East Loop Road. More detailed directions and a map are available at www.rice.iit.edu/directions.html

Time:

6:00 p.m. Networking time
7:00 p.m. Presentation

Reservations are not required.

Continuing Education:

Professional Engineers: this meeting qualifies for Professional Development Hours

For more information: The Fox Valley subsection web page is at www.ieee.org/foxvalley/

Dinner Presentation

IEEE-IAS/IES Chicago Chapter

Fundamentals of Adjustable Speed Drives Wednesday, March 15, 2006

Ram Bhatia
President, BENCO, USA

About the Topic:

Present day technology and the economic advantages of Adjustable Speed Drive (ASD) systems lend them to offer significant operational and maintenance savings over alternate drive trains methods. Whereas ASD technology has matured, and almost all major manufacturers are marketing their drives with over 99% availability / reliability, the concepts behind the ASD technology still elude many engineers, especially those not involved in day to day power electronics.

The presentation describes the fundamentals of Adjustable Speed Drive (ASD) technology, with special emphasis on the Medium Voltage Drives (MVD). Rationale and underlying principles behind various designs and topologies, as well as their advantages and relative merits are discussed. The presentation will also cover various speed control methods, and how the ASD systems offer significant energy savings over alternate methods.

About the Speaker:

Ram P. Bhatia received his BSEE, M.Sc, M.A.Sc, and MBA degrees from Banaras Hindu University, India, University of Aston in Birmingham, U.K., University of Toronto, Canada, and University of Wisconsin-Parkside, USA.

Since 1980, he has been working in the field of large adjustable speed drives, as project manager, and sales manager. Recently he was Director of Medium Voltage Drives, ABB, Inc., responsible for the US market.

Currently, he is helping his clients in specifying, procuring, and management of medium voltage drives projects.

Location:

COSTA'S (GREEKTOWN) • 340 S Halsted St. • Chicago, Illinois
Costa's is located in Greektown on the corner of Van Buren and Halsted.

Time:

Social 5:30 p.m.
Dinner 6:00 p.m.
Presentation 7:00 p.m.

Reservations:

Call the IEEE Business Office at (800) 898-IEEE or (630) 493-4333 with your reservation and any special meal requests.

Cost:

Your cost includes the presentation and a four-course dinner with a choice of the main entry - Roast lamb, Chicken, or Fish. (Vegetarian or special dietary meals available upon request). Cost is \$25 IEEE Member and \$30 non-member. Valet parking is included with your meal.

Continuing Education:

Attendance at IEEE Technical Meetings is acceptable as one Professional Development Hour (PDH) per meeting.

Evening Meeting

IEEE EMC Society Chicago Chapter

EMC Simulation through Computer Modeling

Tuesday, March 21, 2006

Roy Leventhal
Leventhal Design & Communications

About the Topic:

A large percentage of simulation models used for high-speed digital networks are SPICE transistor level physical models. However, SPICE models can be a computation burden. IBIS models are also used for component level simulation and offer the advantage of speed and simplicity, but they are not meeting current needs for modeling complex I/O buffers. To expand the capabilities of the IBIS models, experts in the field of computational electromagnetics are relying on macromodeling, AMS modeling and additions aimed at Power Integrity analysis. IBIS models are being structured with more analysis capacity so that I/Os with adaptable, adjustable drive levels and other refinements can be simulated without including excessive detail.

The paper will present a step-by-step review of how various levels of simplification (abstraction) are applied to transistor

level physical models resulting in behavioral models, macromodels, and equation-based models. Participants will see how to achieve the best speed versus accuracy trade-off of simplicity versus detail that is balanced to their needs. The session concludes with a brief introduction to Cadence Design Systems, Inc., macro-modeling templates.

About the Speaker:

Roy Leventhal is an independent trainer and contractor with 45 years of engineering experience specializing in EDA modeling and simulation for signal integrity, power integrity, and EMI. Roy has a background in RF circuit design, IBIS, SPICE and Scattering-Parameter semiconductor modeling, device physics, component reliability, and failure analysis. He earned his BSEE/MSEE at Illinois Institute of Technology. More recently, Roy took additional post-graduate courses at the University of Wisconsin - Milwaukee, concentrating on RF and microwave subjects.

Location:

Elite Electronic Engineering, Inc.
1516 Centre Circle
Downers Grove, IL 60515

Time:

6:30 p.m. Social Hour
7:00 p.m. Meeting Start

Reservations:

Steve Laya
Phone: 630-495-9770 x 119

For more information:

IEEE EMC Society
www.ewh.ieee.org/soc/emcs/chicago/

Other Important Meeting Dates for the IEEE EMC Society Chicago Chapter:

Wed. Apr. 19, 2006
DLS • Broadband Over Power Lines

Tues. May 16, 2006
Itasca Holiday Inn,
EMC Mini-Symposium 2006

Applications Engineer

HD Electric Company seeks to fill a full time staff position dealing with the application, sales, support, and business development of products used to control and manage electrical distribution systems. In addition to application support, the position will also include new and existing product design.

BS in electrical or electronic engineering required with knowledge and understanding of high voltage electrical power systems preferred.

Located in the northern metro area of Chicago, HD Electric Company is a leader in providing test, measurement, and safety products for the electrical power industry worldwide. Visit HD at www.HDElectricCompany.com

Resumes and cover letter sent electronically to jobs05@HDElectricCompany.com - no calls please.

HD Electric Company is an equal opportunity employer

IMAGINE YOUR AD HERE

THINK OF THE IMPACT
WHEN YOU REACH 7,000
PROFESSIONALS OF THE
IEEE CHICAGO SECTION

CONTACT BETH VANDER GRINTEN
at 608.222.7630 or
bethv@slackattack.com

Evening Meeting

IEEE Chicago/Rockford Consultants' Network

A Joint Affinity Group of the IEEE Chicago and Rock River Valley Sections

Preparing and Managing Your Consulting Practice with an Effective Business Plan

Monday, March 27, 2006

Joseph A. Auer

About the Topic:

The Network will be holding its next bi-monthly meeting on Monday March 27, 2006 from 7:30 PM to 9:15 PM at the Palatine Public Library. Having taken stock of our consulting practices at our January meeting and finding that many of us need to do much more, we now move into the realm of issues such as growth, market share, competition, profitability and vision. A business plan can be an invaluable management tool to address these issues for existing practices, if it is well prepared, reviewed and updated on a regular basis. It is an essential tool for the emerging or startup practice to help insure that one has a reasonable chance of establishing and maintaining a successful practice. Finally, a comprehensive and effective business plan is an absolute requirement for those practices that seek outside investments in order to win over potential investors.

This session will provide information on the concepts of good business planning and recommended and essential content of a business plan in order to make it an effective management tool. Business plans are typically thought of as a requirement for product development startups. However, through presentation and facilitated discussion, we will find out how to adapt this powerful tool for the service industry. Finally, we will take a hard look at the fundamentals of business financial planning and projection as a core element of your overall plan.

About the Speaker/Facilitator:

Joseph A. Auer, Jr. is a Director and Secretary / Treasurer of the IEEE Chicago / Rockford Consultants' Network. He has over 35 years of progressively challenging high technology management roles, with expertise in program and engineering project (including software) management, business planning, systems engineering, proposal development and process improvement. He has extensive experience in industry, military, academic and not-for-profit environments. Joe's sole proprietor consulting practice, JAuer Consulting Enterprises, provides timely, world class solutions for program management, engineering management and business planning requirements. His academic credentials include a Bachelor of Science in Earth and Planetary Science from the Massachusetts Institute of Technology, and a Master of Science in Physics from the University of Alabama in Huntsville. Joe has taught physics and astronomy at local community colleges and is also serving as Chairman of the Board of the Planetary Studies Foundation, a science education not-for-profit organization.

Members and non-members are invited to both the meeting and the optional dinner. (Reservations are NOT required).

Meeting Location:

Palatine Public Library
700 North Court
Palatine, IL
847-358-1216

Dinner Location:

Bakers Square
270 E. Northwest Highway (at the corner of North Court St.), just south of the library

Time:

6:15 p.m.
Optional Group Dinner at Bakers Square (Order off the menu - reservations not required)
7:30 p.m. Meeting - Discussion
9:15 p.m. Adjourn

Continuing Education:

Attendance at this meeting will earn 1.0 PDH.

For more information:

Information about the network can be obtained by e-mail to either consult-net@bmillerengineering.com or JAuerConsulting@worldnet.att.net, or visit our web site at www.drblank.com/coaction.htm

See you on March 27, 2006, and bring consultants and those who aspire to be consultants for a pleasant and informative evening of networking.

Meetings are usually held on the last Monday of odd-numbered months.

Employment Opportunities

Apertio is the world leader in open software mobility solutions for the telecom industry. We are revolutionizing the market for the evolution of core network systems, management of subscriber growth, new service deployment, and the migration to IP mobility networks. With growth of over 400% last year, we are looking for enthusiastic, energetic individuals to contribute to our ongoing expansion and development.

Apertio offers competitive compensation and benefits package

Positions Available

Solution Architects/Service Designers/System Engineers are responsible for interfacing with customers and partners to formulate appropriate technical and product responses, compare current and future Apertio products to competitive solutions and drive Apertio product road maps and plans based market information and customer/partner feedback.

- Experience with GSM core network infrastructure (HLR, HSS, Prepaid, MSCs, CAMEL SCPs, and Short Message Service Centers) in mobile networks and experienced with IP Multimedia Systems.
- Software architecture experience in conceptualization, definition and development of telecommunications based products and services.
- Ability to lead and influence others to achieve corporate objectives
- BS in Engineering, computer science or appropriate related experience.

Integration/Support Engineers are responsible for preparing and testing strategies and test plans, run internal system test and

external acceptance tests at customer sites and provide primary technical interface between Apertio and its customers for test and installation of software, and resolution of technical queries and faults.

- Experience in testing and deploying core network infrastructure such as HLRs, SMSCs, Prepaid or Voicemail into mobile networks, with strong preference toward experience with GSM mobile environments.
- Systematic, precise and well organized working style within a "hands-on team environment."
- Excellent written and verbal communication skills.
- BS in Engineering, computer science or appropriate related experience

Project Managers are responsible for planning, coordinating and monitoring the implementation of software products and services to our customers according to project life-cycle deadlines.

- Project management experience in leading core network software and system integration projects either working for a supplier or with mobile network operators
- Manage multiple concurrent projects in changing technology environment
- Excellent supervisory, planning, interpersonal and leadership skills.
- BS in Engineering, computer science or appropriate related experience.

Please submit cover letter and resume to:

Sudie M. Seed • Apertio USA • 800 E Northwest Hwy • Suite 620
Palatine, IL 60074

Email: usa.staffing@apertio.com



Professional AND Business Directory

Transportation Engineering • Water Resources Engineering

CTE ENGINEERS
CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.
303 East Wacker Drive, Suite 600, Chicago, Illinois 60601
(312) 938-0300 www.cte-eng.com

ELECTRONIC INSTRUMENT ASSOCIATES
<http://www.electronicinstrument.com>
Manufacturer's Representative - Main office: 630.924.1600
Electromagnetic Compatibility
Power Amplifiers, Transient Generation Equipment, RF Shielded, Anechoic, and Sound Rooms, EMC Antennas, Turntables, Antennas
Electrical Parameter Measurement
Current Voltage, Watt, VAR, etc. Transducers & Sensors, Energy Management, Demand metering, Signal Conditioning, Submetering

PANATROL
Automation and Controls
www.panatrol.com
info@panatrol.com
7481 S. Sayre Ave. • Bedford Park, Illinois
Phone: (708) 496-3080 • Fax: (708) 496-0426
• Engineered Factory Automation
• PLC and Computer Programming
• Electrical Design and Drawings
• Custom Control Panels
• Motor Controls
U/L Listed
CSA Certified

Joseph L. Bolsinger
Territory Manager

S&C ELECTRIC COMPANY
Specialists in Electric Power Switching and Protection

Chicago Sales Office
(630) 516-9076
Fax: (773) 381-4849
E-mail: jlbolsinger@sandc.com
Web: www.sandc.com

S&C Inside Sales
6601 North Ridge Boulevard
Chicago, Illinois 60626-3997
(888) 762-7700
Fax: (773) 381-4893

T&D Products, Inc.

Manufacturers Representatives - Transmission & Distribution Electrical Equipment

1979 N. Mill Street Suite 103
Naperville, IL 60563
Web: www.tdproducts.com

Phone: (630) 305-9704
Fax: (630) 305-9708
email: info@tdproducts.com

**Transformers, Switchgear, Breakers, Relays, Capacitors, Harmonic Filters
Electrical Buildings, Resistors, Non-Seg Bus, Iso Phase Bus, Batteries,
Chargers, UPS Systems, Substation Design and Supply, TVSS**

ABB, Alpha, Atkinson/EPRI, Calvert, Carter & Crawley, Central Electric, CGIT, Colt Atlantic, Danaher, GE-TVSS, Hamby Young, Post Glover, Phoenix Electric, Power Assets Recovery, Southwest Electric, Tierney

Advertiser Index

DLS Electronic Systems	5
Elite Electronic Engineering Inc	IFC
Elmhurst College	BC
Illinois Institute of Technology	10
Midwest EMI Associates	11
Welsh & Katz, Ltd	IFC

ACCELERATE YOUR ENGINEERING CAREER WITH A DEGREE FROM IIT



Be a part of our tradition of excellence in education and research.

visit | www.grad.iit.edu
call | 312.567.3043
email | inquiry.grad@iit.edu

» Programs tailored to your needs
Traditional Ph.D. & M.S. degrees
Professional Master's & Certificates
Full-, part-time, & internet options

Illinois Institute of Technology has more than a century of experience in training engineers. From creating the cell phone 30 years ago to currently developing sustainable hybrid electric vehicles, IIT people are Transforming Lives and Inventing the Future.

Electrical Engineering Concentrations

- Communication Theory & Signal Processing
- Networks, Electronics, & Electromagnetics
- Power & Control Systems
- Computer Engineering

Computer Engineering Concentrations

- Computer Hardware Design
- Computer Systems Software
- Networks & Telecommunications

ILLINOIS INSTITUTE
OF TECHNOLOGY



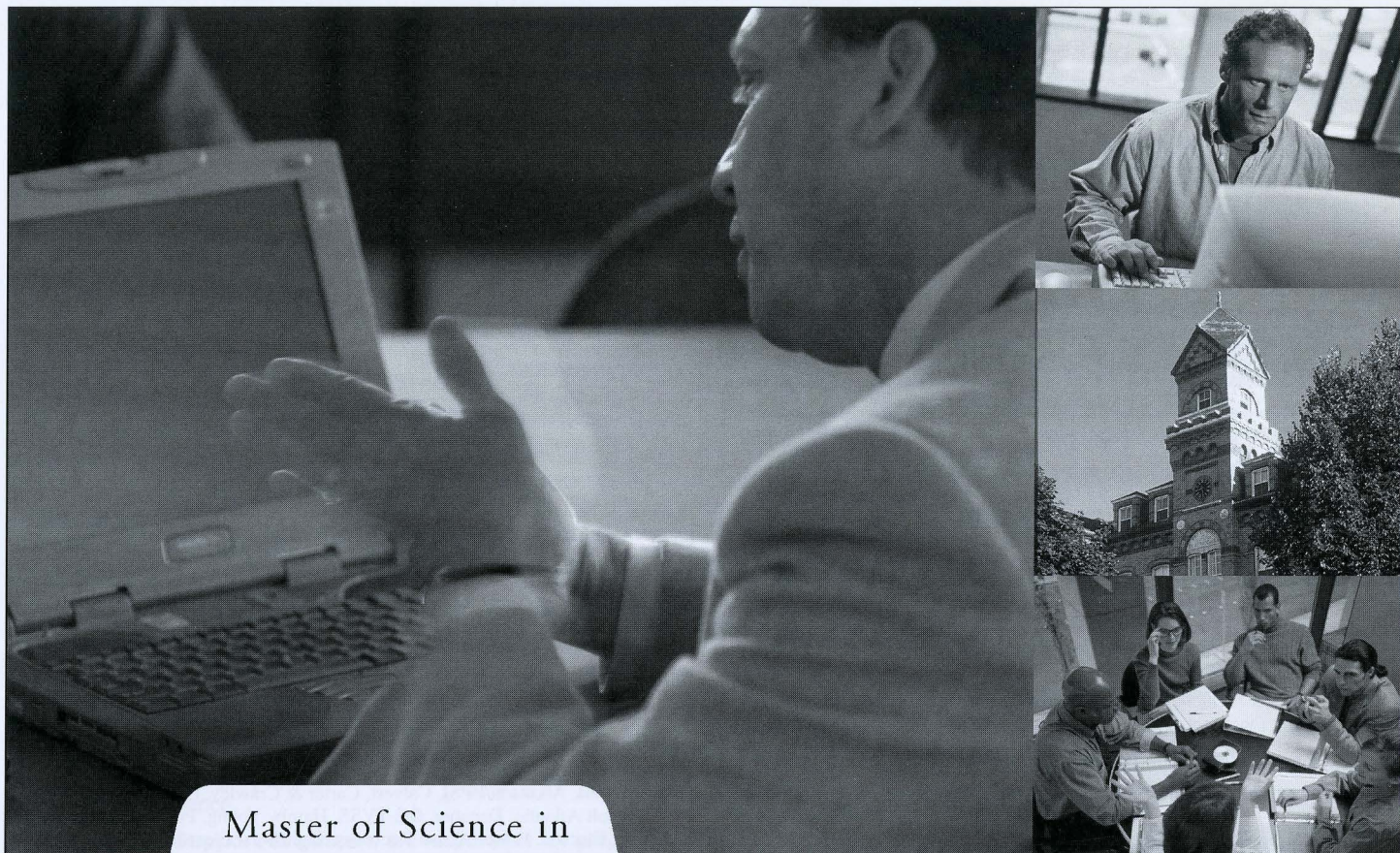
Midwest EMI Associates
21234 West Commercial Drive
Mundelein, Illinois 60060
(847)-918-9886
Fax: (847)-918-9719
Web: www.midemi.com

Your Key to the CE Mark

Seeking Help with Medical, Low Voltage or Machinery Directives?

- Capabilities - CE Mark, EN 61000-4-2, 3, 4, 5, 6, 8, 11, 13, 14
- Military Standard 461, ETSI, Flicker, Harmonics, Bluetooth, WiFi
FCC Certified 10/30 Meter OATS Site, Indoor 3 & 5 Meter
Nate Certified Engineer, NIST qualified equipment
Safety Equipment available, 2500 square foot modern facility
- Midwest EMI specializes in IEC 60601-1-2 Medical and
EN 61326 Laboratory Equipment Test Regimens Offering a
Competitive Alternative to OEMs with Wide Product Lines
- Dedicated Workstations, Automated Antenna Mast and Turntable
- Expert Advice, Diagnostics and Prequalification Testing Available
- Audio Noise and Component Measurements, fully networked office
- Single and Three Phase Power Available, 40-500 Hz, 5000 watts
- Customized Care for Professional Engineers, IEEE Supporter/Member
- Our 15th Year of Service to Medical and Commercial OEMs
- Measurements Range, DC-60 Ghz, Dual Screen Rooms





Master of Science in

Computer Network Systems

ATTAIN TECHNICAL MASTERY—AND SO MUCH MORE

- Learn WANs, LANs, JAVA programming and more
- Develop your understanding of management fundamentals
- Analyze—and meet—the technical needs of organizations
- Master the theory and practice of team building
- Enhance your critical thinking and communication skills
- Complete your master's degree in two years—in evening classes—on a beautiful, easy-to-access suburban campus

Learn more about Elmhurst College:
The School for Advanced Learning
190 Prospect Avenue, Elmhurst, IL 60126
(630) 617-3300 or (800) 581-4723
sal@elmhurst.edu www.elmhurst.edu

