TECHNICAL PROGRAM

Third International Conference on Access Networks
October 15-17, 2008, Las Vegas, Nevada, Canada
http://www.accessnets.org/

Sponsored by

Technical Sponsors

CREATE-NET
IEEE Las Vegas Section
MESSAGE FROM THE GENERAL CHAIR

On behalf of the organizing committee, it is my great pleasure to welcome you all to the Third International Conference on Access Networks, which will be held in Las Vegas, USA, on October 15-17, 2008.

The annual International Conference on Access Networks (AccessNets) aims at providing a forum that brings together scientists and researchers from academia as well as managers and engineers from industry and government organizations to meet and exchange their ideas and recent work on all aspects of access networks. As the third edition of this event, AccessNets’08 will present you an exciting technical program consisting of keynote speeches, invited talks, technical sessions, and panels. The keynote speeches will be delivered by Prof. Leonid G. Kazovsky, world-wide renowned research leader in the area of access networks, and Dr. Kevin Schneider, CTO of ADTRAN Inc., USA. The invited talks will be given by leading experts with different research backgrounds in the area. The technical sessions will present original research results while the panels will focus on development and application issues in this hot area.

I would like to take this opportunity to thank all the organizing committee members for their enthusiastic and great contributions to organizing this event. I am also thankful to all the ICST staff for their active support and assistance during the entire process of organizing the event. In addition, I would like to acknowledge ICST and Create-Net for their invaluable co-sponsorship for this event.

I hope that you will enjoy our technical program and the time at the conference. I also hope that you will take the advantage to visit the amazing city of Las Vegas and have a pleasant and memorable stay.

I am looking forward to welcoming you in Las Vegas.

General Chair, AccessNets 2008

Hussein T. Mouftah
University of Ottawa
KEYNOTE ADDRESS I

Future Evolution of Broadband Access: Towards Hybrid Optical/Wireless Networks

Prof. Leonid G. Kazovsky
Stanford University, USA

Abstract

Future broadband access networks are likely to be quite different from those we’re familiar with today. Most probably, they will consist of a fiber backbone and wireless “end links” to individual users. The fiber backbone is likely to be highly flexible, dynamic, adaptive to traffic, and based on both TDM and WDM technologies. The wireless “end links” are likely to be based on a derivative of Wi-Fi, Wi-Max, or 3G cellular networks. These networks can evolve through several possible avenues including carrier-based PONs or hybrid fiber/coax networks; cell telephone networks; or their combinations. This evolution will require a significant R&D effort and major intellectual and financial investment, probably more significant than the investment that went into wide-area networks. It will also require new components, architectures and algorithms. This talk will examine possible structure of future broadband access networks, likely evolution scenarios, and R&D issues that will need to addressed to make the new networks a reality.

Biography

Prof. Leonid G. Kazovsky joined Stanford University in 1990. He founded Photonics and Networking Research Laboratory (PNRL) at Stanford at that time and leads PNRL since then. Prior to joining Stanford, Prof. Kazovsky was with Bellcore (now Telcordia) doing research on WDM, high-speed and coherent optical fiber communication systems. While on Bellcore assignments or Stanford sabbaticals, Prof. Kazovsky worked at the Heinrich Hertz Institute, Berlin, Germany; Hewlett-Packard Research Laboratories, Bristol, England; Technical University of Eindhoven, the Netherland; and Scuola Superiore Sant’Anna, Pisa, Italy. Through research contracts, consulting engagements, and other arrangements, Prof. Kazovsky worked with many industrial companies and U.S. Government agencies including Sprint, DEC, GTE, AT&T, IVP, Lucent, Hitachi, KDD, Furukawa, Fujitsu, Optivision, and Perimeter on the industrial side; and NSF, DARPA, Air Force, Navy, Army, and BMDO on the government side. Prof. Kazovsky also helped to launch several start-up companies in the Silicon Valley. Prof. Kazovsky serves or served on Editorial Boards of
leading journals (IEEE Transactions on Communications, IEEE Photonics Technology Letters, Wireless Networks) and on Program Committees of leading conferences (OFC, CLEO, LEOS, SPIE, and GLOBECOM). He also served as a reviewer for various IEEE and IEE Transactions, Proceedings, and Journals; funding agencies (NSF, OFC, ERC, NRC, etc.) and publishers (Wiley, MacMillan, etc.). Prof. Kazovsky authored or co-authored two books, some 190 journal technical papers, and 265 conference papers. He is a Fellow of IEEE and a Fellow of OSA.

KEYNOTE ADDRESS II

Carrier Ethernet and the Evolving Access Networks

Dr. Kevin W. Schneider
Chief Technology Officer
ADTRAN Inc., Huntsville, AL, USA

Abstract

Carrier Ethernet is an emerging service targeted at business-grade metro and wide area networking. It also has the potential to replace the time-division multiplexed PDH/SDH services that today provide access to other wide area networking services, such as frame relay and private IP services. This talk will:

- Describe Carrier Ethernet and the market and technology initiatives that are driving its adoption;
- Examine the requirements that a Carrier Ethernet service places on the access network and the technology that is being architected and deployed to meet those requirements;
- Discuss technical challenges still to be addressed.

Biography

Dr. Kevin W. Schneider is a graduate of the University of Missouri – Rolla, now Missouri University of Science and Technology. Upon completion of his Ph.D. in 1992, he joined the ADTRAN technical staff where he has been involved with DSL development, and was part of the team that developed the world’s first commercial implementation of Trellis Coded Pulse Amplitude Modulation (TC PAM), the predecessor to today’s HDSL2 and SHDSL. He was a significant contributor to the Committee T1 standards in High Bit Rate Digital Subscriber Line (HDSL2 and 4)
and Spectrum Management. He currently serves on the board of the Alliance for Telecommunications Industry Solution (ATIS) where he has chaired the ATIS TOPS Council Optical Access Networks and IPTV Focus Groups, and established ATIS' IPTV Interoperability Forum. As CTO, he leads the ADTRAN corporate technical staff, which is responsible for ADTRAN’s research activities, the creation and analysis of new technologies, and participation in industry-wide standards development organizations.
## TECHNICAL PROGRAM AT A GLANCE

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### Thursday, October 16, 2008

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TECHNICAL PROGRAM

Wednesday, October 15, 2008

Wednesday, October 15 2008 08:45am – 09:00am
Room: Santa Maria
Welcome Addresses
General Chair: Prof. Huessein T. Mouftah, University of Ottawa, Canada

Wednesday, October 15, 2008 09:00am – 10:00am
Room: Santa Maria
Keynote Talk I: Future Evolution of Broadband Access: Towards Hybrid Optical/Wireless Networks
Prof. Leonid G. Kazovsky, Stanford University, USA

10:00am – 10:30am
Coffee Break

Wednesday, October 15, 2008 10:30am – 12:15pm
Room: Santa Maria
Session 1: Hybrid Access Networks
Chair: Martin Reisslein, Arizona State University, USA

1. HOWRAN: an Hybrid Optical Wireless Radio Access Network for WiMAX Antennas Backhauling (Invited)
   Maurice Gagnaire and Tony Youssef, École Nationale Supérieure des Télécommunications, France

2. The Audacity of Fiber-Wireless (FiWi) Networks (Invited)
   Martin Maier and Navid Ghazisaidi, INRS, University of Quebec, Canada; Martin Reisslein, Arizona State University, USA

3. Wireless Channel Condition Aware Scheduling Algorithm for Hybrid Optical/Wireless Networks
   Ying Yan, Hao Yu, and Lars Dittmann, Technical University of Denmark, Denmark

4. Planning Multitechnology Access Networks with Performance Constraints
   Steven Chamberland, Ecole Polytechnique de Montréal, Canada

12:15pm – 02:00pm
Lunch Break
Room: Guadalajara

Wednesday, October 15, 2008 02:00pm – 03:45pm
Room: Santa Maria
Session 2: Passive Optical Networks
Chair: Martin Maier, University of Quebec, Canada
1. When Are Online and Offline Excess Bandwidth Distribution Useful in EPONs? (Invited)
   Martin Reisslein, Arizona State University, USA; Jason R. Ferguson, ADTRAN, USA; Michael P. McGarry, The University of Akron, USA

2. TCP Performance over Gigabit-capable Passive Optical Networks
   Julio Orozco, Orange Labs, France and David Ros, Institut Telecom/Telecom Bretagne, France

3. Fragmentation in a Novel Implementation of Slotted GPON Segmentation and Reassembly
   Yixuan Qin, Martin Reed, Zheng Lu, David Hunter, Albert Rafel, and Justin Kang, University of Essex, UK

4. Case for Dynamic Reconfigurability in Access Networks
   Rajeev Roy and Wim van Etten, University of Twente, Netherlands

03:45pm – 04:15pm
Coffee Break

Wednesday, October 15, 2008 04:15pm – 05:45pm
Room: Santa Maria
**Panel Session I: Fiber Assisted Wireless for Broadband Access Networks**

Panel Organizers:
- Neo Antoniades, College of Staten Island, The City University of New York, USA
- Nicholas Madamopoulos, City College, The City University of New York, USA

Panelists:
- Anthony Ng'Oma, Corning, Inc., USA
- Jianjun Yu, NEC Laboratories America, Inc., USA
- Mohsen Sarraf, Telcordia Technologies, Inc., USA
- Ashwin Gumaste, India Institute of Technology Bombay, India

**Thursday, October 16, 2008**

Thursday, October 16, 2008 09:00am – 10:00am
Room: Santa Maria
**Keynote Talk II: Carrier Ethernet and the Evolving Access Networks**
Dr. Kevin Schneider, CTO of ADTRAN Inc., USA

10:00am – 10:30am
Coffee Break

Thursday, October 16, 2008 10:30am – 12:15pm
Room: Santa Maria
**Session 4: Wireless Access Networks**
Chair: Maurice Gagnaire, École Nationale Supérieure des Télécommunications, France

1. Cost-performance planning of municipal wireless access networks (Invited)
   Paolo Giacomazzi, and Alessandro Poli, Politecnico di Milano, Italy
2. Supporting session and access point mobility in a large multi-provider multi-vendor municipal WiFi network
   Timo Ojala, Toni Hakanen, Ossi Salmi, Mikko Kenttälä and Juha Tiensyrjä, University of Oulu, Finland

3. A fast MAC-layer handover for an IEEE 802.16e-based WMAN
   Sayan Ray, Krzysztof Pawlikowski, and Harsha Sirisena, University of Canterbury, New Zealand

4. A Conflict-Free Low-Jitter Guaranteed-Rate MAC Protocol for Base-Station Communications in a Wireless Mesh Network
   Ted H. Szymanski, McMaster University, Canada

5. Coexistence of collocated IEEE 802.11 and BT technologies in 2.4 GHz ISM band
   Ariton xhafa, Xiaolin Lu, and Donald P. Shaver, Texas Instruments, Inc., USA

12:15pm – 02:00pm
Lunch Break
Room: Guadalajara

Thursday, October 16, 2008 02:00pm – 03:45pm
Room: Santa Maria
Session 5: DSL Networks
Chair: John M. Cioffi, Stanford University, USA

1. Greener Copper with Dynamic Spectrum Management (Invited)
   John M Cioffi, S. Jagannathan, W. Lee, H. Zou1, and A. Chowdhery, Stanford University; W. Rhee, G. Ginis, and P. Silverman, ASSIA, Inc., USA

2. Statistical Relation between Loop Attenuation and Data Bit Rate for ADSL
   Jerzy Siuzdak and Tomasz Czamecki, Instytut Telekomunikacji Politechnika Warszawska, Poland

   Carine Neus, Wim Foubert, and Leo Van Biesen, Vrije Universiteit Brussel, Belgium

   Alastair McKinley and Alan Marshall, Queens University Belfast, UK

5. Topology Design of Hierarchical Hybrid Fiber-VDSL Access Networks with Enhanced Discrete Binary PSO
   Rong Zhao, Ralf Lehnert, and Yi Zhang, Dresden University of Technology, Germany

03:45pm – 04:15pm
Coffee Break

Thursday, October 16, 2008 04:15pm – 05:45pm
Room: Santa Maria
Panel Session II: Dynamic Spectrum Management (DSM) Successes
Panel Organizer:
  John M. Cioffi     Stanford University, USA

Panelists:
  George Ginis,       Assia, Inc., USA
  Raj Savoor        AT&T, USA
  Lukasz Mikochi    Telecom Poland, Poland
  Robert Staniszewski  Telecom Poland, Poland
  Hao Zou           Stanford University, USA
  Louis Scalzo      Vector Silicon, Inc., USA

Break

07:00pm – 09:00pm
Banquet Dinner
Room: Pinta

Friday, October 17, 2008

Friday, October 17, 2008 09:00am – 10:30am
Room: Santa Maria
**Section 5: PLC and DSL Networks**
Chair: Djamel Sadok, Federal University of Pernambuco (UFPE), Brazil

1. **Modeling of Channel Allocation in Broadband Power Line Communications Access Networks and a Multi-Criteria Optimization Problem**
   Abdelfatteh Haidine and Ralf Lehnert, Dresden University of Technology, Germany

2. **Placement of Base Stations in Broadband Power Line Communications Access Networks by Means of Multi-Criteria Optimization**
   Abdelfatteh Haidine and Ralf Lehnert, Dresden University of Technology, Germany

3. **A Simulator of Periodically Switching Channels for Power Line Communications**
   Taro Hayasaki, Daisuke Umehara, Satoshi Denno, and Masahiro Morikura, Kyoto University, Japan

4. **Estimating Video Quality over ADSL2+ under Impulsive Line Disturbance**
   Glauco Gonçalves, Ramide Dantas, André Palhares, Judith Kelner, Joseane, Fidalgo, Djamel Sadok, Federal University of Pernambuco (UFPE), Brazil ; Henrik Almeida, Miguel Berg, Daniel Cederholm, Ericsson Research, Sweden

5. **Performance Evaluation of the Cable Bundle Unique Power Back-Off Algorithm**
   Driton Statovci and Tomas Nordström, Telecommunications Research Center Vienna, Austria

10:30am – 11:00am
Coffee Break

Friday, October 17, 2008 11:00am – 12:30pm
Room: Santa Maria
Session 6: Access Network Performance
Chair: Krzysztof Pawlikowski, University of Canterbury, New Zealand

1. Enabling Broadband as Commodity within Access Networks: a QoS recipe
   Enrique Areizaga, Robotiker-tecnalia, Spain; Andreas Foglar, Infineon Technologies, Germany;
   Antonio J. Elizondo, Telefonica I+D, Spain; Frank Geilhardt, T-Systems, Germany

2. Robust Coverage and Performance Testing for Large-Area Wireless Networks
   Caleb Phillips, Russell Senior, Douglas Sicker, and Dirk Grunwald, University of Colorado, USA

3. Performance Analysis of Multi-Format WDM-RoF Links based on Low Cost Laser and SOA
   Carlos Almeida, António Teixeira, Mário Lima, University of Aveiro, Portugal

   Elie Inaty, University of Balamand, Lebanon

5. Performance Comparison of Orthogonal and Quasi-orthogonal Codes In Quasi-Synchronous Cellular CDMA Communication
   Sujit Jos, Preetam Kumar, and Saswat Chakrabarti, IIT Kharagpur, India

12:30pm – 02:00pm
Lunch Break
Room: Guadalajara

Friday, October 17, 2008 02:00pm – 04:00pm
Room: Santa Maria
Session 7: Access Networks (work in progress)
Chair: Jun Zheng, University of Ottawa, Canada

1. A Fast Channel Switching method in EPON system for IPTV service
   Yaling Nie and Hideya Yoshiuchi, HITACHI Research & Development Corp., China

2. WDM Dynamic Bandwidth Allocation Schemes for Ethernet PONs
   Kae Hsiang Kwong, Hammad Yaqoob, Craig Michie, Ivan Andonovic, University of Strathclyde, UK

3. VoIP Performance of WiMAX Downlink
   Xiangning Fan and Zhu Dengkui, Southeast University, China

   Xiangning Fan and Chu Jintao, Southeast University, China

5. Proportional Increase Multiplicative Decrease (PIMD) Wireless Scheduler
   Arshad Hussain and Shaban Qaiser, National University of Computer & Emerging Sciences, Pakistan

6. Appropriate Templates for Broadband Access in Non-developed and Developing Countries
   Morteza Haddadzadeh, Iran Telecommunication Research Center (ITRC), Iran