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IEEE

IEEE COMMUNICATIONS SOCIETY

Chairs' Welcome

Dr. Nasir Ghani, General Co-Chair
University of New Mexico

Dr. Ashwin Gumaste, General Co-Chair
IIT Bombay/MIT

We are delighted to welcome you to Rio De Janeiro, Brazil, for the fourth workshop on *High-Speed Networks*, to be held in conjunction with *IEEE INFOCOM 2009*. This workshop event brings together some of the leading minds in the high-speed networking and applications space, including those from the academic, industrial, and governmental research communities. Indeed, we are honored to have served as organizers for this year's event.

Sustained growth in application-layer demands is continuing to drive key developments in optical/electronic networking technologies. In particular, the "e-science" and grid computing communities are at the forefront of this push, with immediate needs for large tera/petabyte transfer capabilities. Hence a whole new generation of research and education (R&E) "cyber-infrastructures" are being deployed with genuine multi-terabit capabilities. As these build-outs take shape and scalabilities rise, many are starting to focus on higher layer application concerns.

Chairs' Welcome

Along these lines, this workshop focuses on the broad high-speed networking area. Traditionally held in conjunction with the *IEEE INFOCOM* conference, this year's event renews its focus on terabit-capable networking technologies as well as associated higher-layer applications. Furthermore, a very timely addition here is the topic of data center management and design. Overall, the response to our workshop call for papers was very good, and we received a total of 27 high-quality submissions from all across the world. After careful review, the technical program committee selected a total of 14 submissions for the final program, built around four key sessions. These submissions represent a true sampling of the many interesting and challenging topics within this broader area.

We would like to take this opportunity to thank all the authors who submitted their work to our call, as their contributions have helped us build this strong event. In addition we would like to thank the members of the technical program committee for their diligent and timely reviews. We are also deeply grateful to *IEEE INFOCOM 2009* organizing committee, in particular the workshop chairs Drs. Claudio Cassetti and Antonio Loureiro, for their assistance with critical planning matters. Finally, we would like to acknowledge all the student volunteers who worked many tireless hours in processing the submissions and finalizing the workshop CD and brochure.

In closing, we would like to thank all of the attendees for supporting this workshop and making it a success. We encourage everyone to interact and participate in the planned sessions and also avail the many networking opportunities. Finally, we welcome your feedback and solicit your continued support in the future years!

Dr. Chadi Assi, TPC Co-Chair
Concordia University

Dr. Yonggan Wen, TPC Co-Chair
Cisco System, Inc.

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Keynote Talk

Distributed Energy Adaptive Computing

Dr. Krishna Kant
Intel Research

Fueled by burgeoning online services, power and thermal issues are becoming a substantial issue in terms of cost and environmental impact both on the server (or data center) side and client side. In this talk, we shall motivate an approach that puts power/thermal issues at the heart of distributed computing, and strives to dynamically optimize energy use, heat dissipation and energy supply in order to deliver an acceptable user experience. The talk shall discuss how such an approach can enhance the sustainability of computing and will lay out the challenges in realizing the vision.

Speaker Bio:

Dr. Krishna Kant has been with Intel Corp since 1997 where he has worked in a variety of research areas including traffic characterization, security/robustness in the Internet, data center networking, utility computing, and power control of computer systems. He is currently on a visiting appointment with the National Science Foundation. From 1991 to 1997, he was with Telcordia Technologies (formerly Bellcore) and worked on SS7 signaling and congestion control. Prior to this, he was an Associate Professor of Computer Science at Penn State University. He is the author of the graduate text book “Introduction to Computer System Performance Modeling”, McGraw Hill 1992. He received his Ph.D. degree in Computer Science from University of Texas at Dallas in 1981.

Workshop Program

8:15 – 8:30 Chair's Opening Welcome
Nasir Ghani (General Co-Chair)

8:30 – 9:00 Keynote Speaker
Distributed Energy Adaptive Computing
Dr. Krishna Kant, National Science Foundation (USA)

9:00 – 10:00 Session 1: Access Networks

Design and Analysis of a Distributed Flow Control Scheme for Wireless Multi-rate Multicast Networks
Xiong Naixue, Xiaohua Jia, Y. Richard Yang, Yi Pan, Yingshu Li

Enhanced Signaling Scheme with Admission Control in the Hybrid Optical Wireless (HOW) Networks
Ying Yan

From Packets to XLFrames: Sand and Rocks for Transfer of Mice and Elephants
Dinil Mon Divakaran, Eitan Altman, Georg Post, Ludovic Noirie, Pascale Vicat-Blanc Primet

10:00 – 10:30 Coffee Break

Workshop Program

10:30 – 12:00 Session 2: High-Speed Networking

Dynamic Scheduling of Survivable Connections with Delay Tolerance in WDM Networks
Cicek Cavdar, Massimo Tornatore, Feza Buzluca, Biswanath Mukherjee

Alternate Multihop Routing in Limited Reconfigurable Optical Networks
Onur Turkcu, Suresh Subramaniam

QoS-Constrained Multi-path Routing for High-End Network Applications
Xiaomin Chen, Mohit Chamania, Admela Jukan, André Drummond, Nelson L. S. da Fonseca

Path Computation with Variable Bandwidth for Bulk Data Transfer in High-performance Networks
Yunyue Lin, Qishi Wu

12:00 – 13:30 Lunch

Workshop Program

13:30 - 15:00 Session 3: Optical Networks

GMPLS-based Optical Circuit Switch with Neighbor Auto-Discovery Mechanism
Kohei Shiomoto, Kaori Shimizu, Rie Hayashi, Ichiro Inoue

Application Driven Comparison of T-MPLS/MPLS-TP and PBB-TE –Driver Choices for Carrier Ethernet
Raviraj Vaishampayan, Ashwin Gumaste, Santosh Rana, Nasir Ghani

Contention Resolution Through Network Global Control in Optical Packet Switching Networks
Ming Xin, Minghua Chen, Hongwei Chen, Shizhong Xie

The Case of Prerecognition Optical Switch
Stephen Suryputra, Joe Bannister, Joe Touch

15:00 – 15:30 Coffee Break

Workshop Program

15:30 – 17:00 Session 4: Data Center & Applications

Power Control of High Speed Network Interconnects in Data Centers
Krishna Kant

Experimental Analysis of Flow Optimization and Data Compression for TCP Enhancement
Nageswara Rao, William Wing; Stephen Poole; Steven Carter

Online Job Provisioning for Large Scale Science Experiments over an Optical Grid Infrastructure
Xiang Yu, Chunming Qiao, Dantong Yu

Denial of Service Attacks in Networks with Tiny Buffers
Veria Havary-Nassab, Agop Koulakezian, Yashar Ganjali

17:00 – 17:30 IEEE TCHSN Meeting

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