

# **GLOBECOM 2010**

## **Next-Generation Networking (NGN) Symposium**

### **Symposium Chairs**

Yan Chen, Northwestern University ([ychen@northwestern.edu](mailto:ychen@northwestern.edu))

Zhenhai Duan, Florida State University ([duan@cs.fsu.edu](mailto:duan@cs.fsu.edu))

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### **Sponsoring Technical Committees (Tentative)**

High Speed Networks (HSN), Internet (ITC), Communications Switching and Routing (CSR)

### **Scope & Motivation**

Networking technologies have experienced profound levels of advancement over the last three decades. These evolutions have come about as a result of relentless research and development efforts across all layers of the network hierarchy. As these advances continue to transform our everyday lives, many new challenges and opportunities are emerging in the broader area of “next-generation networking”. In particular, some of the key focus areas include network heterogeneity, scalability, virtualization, services and applications, security, manageability, dependability, and performance predictability. Moreover, the next-generation wireless networks are introducing even more niche problems in mobility management, content distribution, and self-organization.

Along these lines, the planned *Next-Generation Networking (NGN) Symposium at IEEE GLOBECOM 2010* will hope to address many of these exciting new focus areas. This symposium will solicit participation from both academic and industry researchers working in the area of next-generation networking technologies, services, architectures, and protocols. The overall goal here will be to present a latest snapshot of the ongoing work as well as to shed further light on future directions in this space. The symposium will encourage the submission of novel technical studies as well as broader position and vision papers comprising hypothetical/speculative scenarios.

### **Topics of Interest**

The planned symposium topics of interest include, but are not limited to, the following:

- Future Internet and next-generation networking architectures
- Heterogeneous multi-layer and multi-domain networks, wireless-wireline internetworking
- Overlay networks and peer-to-peer networking
- Network virtualization, virtual private networks (VPN), and services
- Provisioning, monitoring, and management of IP services: traffic engineering, mobility support, etc.
- Flow management: resource sharing, congestion control, etc.
- Routing: unicast, multicast, anycast, etc (wireless, wireline)
- Multihoming, network planning and optimization
- Addressing and naming, especially in the presence of mobility and portability
- Operational and research issues with IPv6
- VoIP protocols and services

- Self-protecting networking
- Switch and router architectures, performance, control, buffer management, packet scheduling
- Network management methodologies and control plane design
- Internet survivability and network resilience strategies
- Mechanisms for self-organisation and autonomous networking
- Traffic measurement, analysis, modelling, visualization, and engineering
- Anomaly, intrusion, and attack detection/prevention
- Policy based mechanisms and high-speed firewall technology
- Packet classification and forwarding mechanisms at ultra-high link rates (terabits)
- High speed and parallel processing architectures for next generation routers
- Connecting mobile/wireless devices to the Internet
- Converged networks and applications, including NGN telecom networks
- Content-based networking: caching, distribution, load balancing, resiliency
- Mobile/wireless content distribution
- Internet applications including interactive media, voice and video, games, immersive applications
- Internet signalling and service enabling protocols, including SIP, NSIS, HTTP, RTSP/RTP, etc
- Privacy and/or security issues and intrusion detection/prevention in the Internet
- Design methodologies for Internet services
- Internet economics, pricing models, accounting, Internet growth modelling
- IP multimedia subsystem: architecture and design
- Next-Generation access networking

## **Technical Program Committee**

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## **Co-Chair Biographies**

**Yan Chen** is an Assistant Professor and the Director of the Lab for Internet and Security Technology (LIST) in the Department of Electrical Engineering and Computer Science at Northwestern University. He got his Ph.D. in Computer Science at University of California at Berkeley in 2003. His research interests include network security, network measurement and diagnosis, for both wired and wireless networks. Prof. Chen is the organization and TPC co-chair for the 15th IEEE International Workshop on Quality of Service (IWQoS) 2007, and the TPC co-chair for the 5th International Conference on Security and Privacy on Communication Networks (SecureComm) 2009. He also served on the technical program committee (TPC) of several major networking conferences, including ACM MobiCom, IEEE INFOCOM, IEEE ICNP, IEEE ICDCS, etc. Prof. Chen won the Department of Energy (DOE) Early CAREER award in 2005, the Department of Defense (DoD) Young Investigator Award in 2007, and the Microsoft Trustworthy Computing Awards in 2004 and 2005 with his colleagues. He has collaborated with both industry and academia researchers on numerous projects with about 50 publications in ACM SIGCOMM, ACM/IEEE Transaction on Networking (ToN), IEEE Symposium on Security and Privacy, IEEE INFOCOM, SIGCOMM IMC, IEEE ICNP, DSN, etc.

**Zhenhai Duan** is currently an Assistant Professor in the Computer Science Department at the Florida State University. His research interests lie broadly in computer networks and distributed systems, in particular, Internet routing protocols and service architectures, scalable network resource control and management, and network security. Dr. Duan is a co-recipient of the 2002 IEEE ICNP Best Paper Award, the 2006 IEEE ICCCN Best Paper Award, and the 2008 IEEE GLOBECOM Best Paper Award. Dr. Duan is on the editorial board of Journal of Communications, and served as a Co-Chair for the Network Algorithms and Performance Evaluation track, IEEE ICCCN 2007 and 2008. He has also served as TPC member for numerous international conferences including IEEE INFOCOM, GLOBECOM, and IWQoS. He received the B.S. degree from Shandong University, China, in 1994, the M.S. degree from Beijing University, China, in 1997, and the Ph.D. degree from the University of Minnesota in 2003, all in Computer Science.

**Nasir Ghani** has gained a wide range of industrial and academic experience in the telecommunications area and in the past has held senior positions at Nokia, IBM, Motorola, Sorrento Networks, and Tennessee Tech University. Currently he is an Associate Professor in the Department of Electrical and Computer Engineering at the University of New Mexico, where he is actively involved in a wide range of funded research projects in the area of optical networks and cyber-infrastructures. Dr. Ghani has published over 100 journal and conference papers, several book chapters, various standardization proposals, and has two patents granted. He has served as a co-chair for the optical networking symposia for *IEEE ICC 2006* and *IEEE GLOBECOM 2006* and more recently the Next-Generation Networking and Internet Symposium for *IEEE GLOBECOM 2009*. In addition, he has also been a program committee member for *OFC 2007* and *OFC 2008* as well as numerous IEEE, SPIE, ACM, and IEC conferences.

He is an associate editor of the *IEEE Communications Letters* journal and has guest-edited special issues of *IEEE Network*, *IEEE Communications Magazine*, and *Cluster Computing*. Dr. Ghani is a recipient of the prestigious NSF CAREER Award and is a Senior Member of the IEEE. He received the Bachelors degree in computer engineering from the University of Waterloo, Canada, in 1991, the Masters degree in electrical engineering from McMaster University, Canada, in 1992, and the Ph.D. degree in electrical and computer engineering from the University of Waterloo, Canada, in 1997.

**Wojciech Kabacinski** is a Professor at Poznan University of Technology, Poland. He graduated in Telecommunications in 1983 (with honour) from Poznan University of Technology (PUT). In 1988 he received a PhD degree (his thesis was awarded by the Ministry of National Education), in 1999 he received the Doctor Habilitus degree, both from PUT, and in 2006 he became a full professor. Since 1983 he has been working in the Institute of Electronics and Telecommunications, Poznan University of Technology, where he currently is a Full Professor. He worked also as a consultant for telecom industry. He is also a professor of College of Communications and Management. He is the author of the book *Non-blocking Electronic and Photonic Switching Fabrics*, Springer, 2005, another five books published in Polish, over 100 papers and has 10 patents. His main research interests include: digital switching systems, photonic switching networks and systems, switching network architectures. He served as a reviewer for *IEEE Transactions on Communications*, *IEEE Communications Magazine*, *IEEE Journal on Selected Areas in Communications*, *IEEE/ACM Transactions on Networking*, *IEEE Journal of Lightwave Technology*, *IEEE Photonics Technology Letter*, and *Performance Evaluations*. He was also one of the Guest Editors of Feature Topic in *IEEE Communications Magazine* concerning Clos switching networks. He is the associated technical editor of *IEEE Communications Magazine* and the editor of *IEEE Communications Survey and Tutorials*. He was or currently is a member of technical program committees of international and national conferences and symposia including: *IEEE International Conference on Communications* 2002, 2004, 2006, *IEEE Globecom* 2004, 2006, *International Conference on Telecommunications* (2000, 2001, 2002, 2003, 2004, 2005, and 2006), *Polish-German Teletraffic Seminar* (2000, 2002, 2004, and 2006), and *Conference on Next Generation Internet Design and Engineering NGI* 2005 and 2006. He was also the Technical Program Vice-Chair of 2005 Workshop on High Performance Switching and Routing (HPSR 2005), and the General Chair of HPSR 2006. Professor Kabacinski is the senior member of *IEEE Communications Society* and *Association of Polish Electrical Engineers (SEP)*. He currently serves as the chair of *Communications Switching and Routing Technical Committee of Communications Society* (earlier he was the secretary and the vice-chair of this Committee). He was also the chair of *IEEE Polish Section Chapter Communications Poznan*.