IEEE Computer Society Technical Committee on Computer Communications

TCCC

Newsletter to the TCCC Membership

March 2005

Welcome from the Chair – Joe Bumblis

Welcome to the first TCCC newsletter of 2005. There are many exciting events to share with you - the TCCC membership. First, Sanjay Jha submitted a conference report detailing the November 2004 Conference on Local Computer Networks (LCN - http://www.ieeelcn.org). The text-only version is included in this newsletter for your review. An HTML version will be available on the TCCC web page (http://tab.computer.org/tccc) in the next few days.

Second, there are several conferences sponsored by the TCCC that are either in their "Call for Papers" phase, or in their "Call for Participation" phase. These conferences and their call dates are included below.

I invite all of you to visit the TCCC web page and review the information currently available. As we progress through 2005, many additional offerings will appear for your educational and enlightenment activities.

Local Computer Network (LCN) Conference Report

The 29th IEEE Local Computer Networks (LCN) conference was held in Tampa Florida between 16-18th November, 2004. LCN continued to attract good papers from both academia and industry. This year, LCN received 142 papers submissions from 29 countries. Papers with new ideas were given preference to stimulate discussions during the conference with overall acceptance rate of around 30%. Papers were organized in three parallel sessions on areas such as peer to peer networks, *ad-hoc* networks, wireless networks, network security, network management, and high-speed networks. Due to timing constraints for oral presentations, we accepted 25 good quality papers as short papers to be presented during poster sessions. The poster sessions provided good opportunity for students and young researchers to interact with conference attendees in an informal setting. This year, LCN also attracted two high profile keynote speakers, Prof Hari Balakrishnan from MIT and Prof Raj Jain from Nayna Networks (formerly at Ohio State University). LCN 2004 provided unique opportunity to students belonging to minority groups via NSF travel grant.

In addition to the LCN conference, three focused workshops were also organized one day prior to the main conference. The First IEEE Workshop on Embedded Networked Sensors (EmNetS-I) was a big success. The EmNetS workshop specifically promoted community-wide discussion of how practical considerations, novel applications and real-world experience should shape the design of sensor networks. Professor Daniela Rus provided a thought provoking keynote speech. EmNetS topics of interest included:

- Validation or new architectural approaches for sensor networks
- Tradeoffs between application specific, and modular approaches based on prototyping and implementation
- Software and architectures for sensor network programmability
- Approaches to ease deployment and improve manageability of embedded and sensor networks
- Experimental and measurement tools for sensor networks
- Reliability and fault-tolerance, debugging and troubleshooting for sensor networks
- Novel applications for embedded and sensor networks
- Sensor network security, vulnerabilities and defenses
- Algorithms, protocols and systems for communication, coordination, data dissemination and storage, sensor tasking and control/actuation
- Operational experiences from deployed sensor networks and prototypes

The 4th International Workshop on Wireless Local Networks (WLN) continued this year with very good quality papers. Prof. Dr. Elizabeth M. Belding-Royer from UC Santa Barbara gave a keynote presentation at WLN 2004 in the area of "wireless ad hoc networks". WLN Topics of interest included:

- Wireless LAN and PAN media access techniques and protocols
- Energy efficiency in protocol and systems design
- Mobility management in wireless networks
- User mobility models and workloads
- Wireless environment simulation modeling
- Location dependant/personalized wireless applications
- Security issues in WLANs/WPANs
- Ad hoc networking
- Ad hoc routing protocols and algorithms
- Transport protocols for ad hoc networks
- Self configuration for ad hoc networks
- Mobile ad hoc computing platforms and test beds
- Wireless ad-hoc network simulation techniques
- Interoperability issues between wireless standards/protocols and the Internet
- Performance of Bluetooth and IEEE 802.11 networks
- Multiple wireless protocol coexistence issues
- Quality of Service issues in local wireless networks
- Wireless multimedia network architectures and protocols
- Resource allocation in wireless LANs

The third annual meeting of the IEEE Workshop on High-Speed Local Networks (HSLN) in Tampa, Florida. Dr. Joseph Hellerstein from IBM Research delivered the keynote speech about autonomic computing and research in network management. HSLN topics of interest included:

• High-speed LANs (e.g. Gigabit Ethernet, 10 Gigabit Ethernet)
• System-area networks (e.g. InfiniBand, Myrinet, SCI)
• Storage-area networks (e.g. Fibre Channel) and I/O interconnects
• High-speed networks in embedded systems (e.g. avionics, space systems)
• Protocols, services, and topologies for high-speed local networks
• Routing and switch architectures for high-speed local networks
• Quality of Service (QoS) in high-speed local networks
• Performance analysis of high-speed local networks and systems
• Modeling and simulation of high-speed local networks
• Middleware for high-speed local network communication
• Applications for high-speed local networks (e.g. video on demand)

The LCN 2004 and workshops received generous support from our industrial and academic supporters, namely University of South Florida, Nokia, Crossbow Technology Inc., National ICT Australia Limited, Smart Internet Technology CRC, Intel, Millennial Net, and Coronis Systems.

IEEE Workshop on Wireless Local Networks (WLN) will be held in conjunction with **LCN 2005 the in Sydney, Australia from 15-17 November 2005**

Plan ahead for LCN 2005 in Sydney, Australia in November 2005! More information about LCN 2005 will be posted here in upcoming months.

More information about the LCN 2005 conference can be obtained from:

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Conference/Workshop Update

Upcoming Conferences/Workshops Sponsored by the TCCC

IEEE International Conference on Pervasive Computing and Communications (**PerCom**)
Sheraton Kauai Resort, Kauai, Hawaii
March 8-12, 2005
Advance Program and Call for Participation (http://www.percom.org)
[Co-sponsored with TCCC (50%) and TCPP (50%)**]**

IEEE PerCom 2005 will be the third annual conference on the emerging area of pervasive computing and communications aimed at providing an exciting platform and paradigm for all the time, everywhere services. PerCom 2005 will provide a high profile, leading edge forum for researchers and engineers alike to present their latest research in the field of pervasive computing and communications.

24th IEEE International Performance Computing and Communications Conference (**IPCCC**)
IPCCC 2005 - April 7-9, 2005 - Phoenix, Arizona
Call for Participation (http://www.ipccc.org/)
[Co-sponsored with TCI (50%) and TCCC (50%)**]**

The International Performance, Computing, and Communications Conference (IPCCC) is the premier IEEE conference presenting research in the performance of computer and communication systems. For the last two decades, IPCCC has been a research forum for adacemic, industrial, and government researchers. The lively interactions among the researchers from these emerging new fields provide a stimulating environment rich with new ideas.

The Second IEEE Workshop On Embedded Networked Sensors (**EmNetS-II**)
May 30th-31st 2005, Sydney, Australia
Call for Participation (http://www.cse.unsw.edu.au/~emnet/)
[Co-sponsored with the University of New South Wale, National ICT Australia, CSIRO Australia, ARC (Sensor Networks), and TCCC at 25%**]**

The Second IEEE Workshop on Embedded Networked Sensors (EmNetS-II) will bring together researchers working in the broad area of embedded, networked sensors. The goal of the workshop is to promote community-wide discussion of ideas that will influence and foster continued research in the field. The workshop will provide a venue for researchers to present new ideas that have the potential to significantly impact the community in the long term, especially those exploring how practical considerations or novel application scenarios and requirements shape the design of these embedded and sensor networks.

Third Annual Conference on Communication Networks and Services Research (**CNSR2005**)
Halifax, Nova Scotia, Canada

May 16 - 18, 2005

Call for Participation (http://www.cnsr.info/Events/CNSR2005/ and E-mail: cnsr2005@dal.ca)

[Sponsorship of this conference is through the Government of Canada in cooperation with the Atlantic Canada Opportunities Agency's (ACOA) Atlantic Innovation Fund (AIF)**]**

The Third Annual Conference on Communication Networks and Services Research (CNSR2005) will be held in Halifax, Nova Scotia, May 16 - 18, 2005 at the Citadel Halifax Hotel. This annual conference is jointly sponsored by Dalhousie University, University of New Brunswick (UNB), Université de Moncton (UdeM) and the Atlantic Canada Opportunities Agency's (ACOA) Atlantic Innovation Fund (AIF).

The proceedings from CNSR2004 have been archived in the IEEE Xplore® Digital Library. CNSR2005 is sponsored in cooperation with the IEEE Computer Society's Technical Committee on Computer Communications (TCCC).

The IEEE Conference on Local Computer Networks (**LCN**) — ***30th Anniversary*** —

November 15-17, 2005

Sydney, Australia

Call for Papers (http://www.ieeelcn.org)

[100% sponsorship by TCCC**]**

For the past 30 years, the IEEE LCN conference has been the premier conference on the leading edge of practical computer networking. LCN is a highly interactive conference that enables an effective interchange of results and ideas among researchers, users, and product developers. Over the years, LCN has tracked many developments from the local network to the global Internet and the World Wide Web. In 2005, we are targeting embedded networks, wireless networks, ubiquitous computing, heterogeneous networks, and security as well as management aspects surrounding them. We encourage you to submit original papers describing research results or practical solutions. Paper topics include, but are not limited to:

Local Area Networks	Network Management
Personal/Wearable Networks	Mobility Management
Embedded Networks	Location-dependent Services
Wireless Networks	Ad-hoc Environments
Home/SOHO Networks	Network Traffic Characterizations
Network to the Home	Performance Evaluation/Measurements
High-Speed Networks	Quality-of-Service
Optical Networks	Congestion Control/Behavior Control
Storage-Area Networks	Network Reliability
Peer-to-Peer Networks	Network Security
Overlay Networks	Adaptive Applications

‘From Around the TCCC ExCom’

From time to time I would like to include activities from TCCC ExCom members that may be of interest to the TCCC membership. Attached below is a technology brief offered by Howard Salwen of Audeon Networks, Inc. Howard currently serves on the Board of Directors of a company engaged in on-line gaming products, and is a Member-at-Large of the TCCC ExCom.

MMORPG

By: Howard Salwen

Massive Multiplayer On line Role Playing (MMORPG) games could not exist without the Internet infrastructure coupled with powerful computer graphics.

Here’s how a typical MMORPG works. At the outset, each player selects a role - male, female, fantasy character, warrior, craftsman and so forth and proceeds on to a virtual world. The players can interact with each other in this virtual world because all the players are connected to each other via the Internet. Successful games have 10’s of thousands of players playing simultaneously! Examples of these games are Asheron’s Call, Star Wars Galaxy and World of Warcraft.

The game business is huge. In terms of revenue, the game business, of which MMORPG is a part, is comparable to the movie business and it is growing. Unfortunately, it is not easy to create a successful MMORPG game. A great deal of time is require and a broad spectrum of talents. The team must have authors who write the story line and graphic artists who create the visual images. Of course, there is quite a bit of programming to done. Successful games have incredible graphics. For example, the grass in a scene will ripple authentically with the wind and the sound of the wind blowing will be in proportion to what is seen on the monitor!

The Internet presents its problems too. Given that people all over the world are interacting with each other in the virtual world of the game, network latency becomes a major issue. In this case, the story writers, artists and network experts collaborate to disguise and hide the latency effects so that action seems natural. The team also includes administrative staff to do the billing and to help players with questions. This part of the game company organization looks a lot like the teams that run ISP’s.

As you play, it is hard to remember that Computer Communications is at the heart of the game.

Please do not hesitate to contact me or any of the ExCom members if you have any questions or concerns regarding TCCC activities. In particular, we would love to have your feedback on what you would like to see in the online publications area, ranging from tutorial-style articles on emerging technical areas by experts to original research articles

to reports on ongoing TCCC-related activities in different IEEE regions. Your feedback will enable us to serve our common interests in a more productive way.

Thank you,

Joe Bumblis
Chair, TCCC