6th Annual IEEE Consumer Communications & Networking Conference

January 10 - 13, 2009 • Las Vegas, Nevada USA

Empowering the Connected Consumer

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IEEE CCNC 2009 Badges and Tickets
IEEE CCNC 2009 Badges must be worn at all times and are necessary for entrance into all IEEE CCNC events. Tickets are required for the Sunday and Monday Luncheons and the Conference Banquet.

Registration
The Registration Desk will be located on the second level of the Mardi Gras Tower. All attendees must register and receive a conference badge in order to participate in conference activities.

Hours for the Registration Desk will be:
- Saturday, 10 January, 2009 08:00 – 19:00
- Sunday, 11 January, 2009 08:00 – 19:00
- Monday, 12 January, 2009 08:00 – 19:00
- Tuesday, 13 January, 2009 08:00 – 14:00

Conference Meals
Included in the price of the full registration are the Opening Reception, Happy Demo Hour, Two Luncheons and Conference Banquet.

Business Service
Harrah’s has a full service Business Center that will help you with all of your meeting needs.

Internet Access
IEEE CCNC will offer free wireless access in all of the conference meeting rooms.

Guest rooms have high speed internet so that you can check emails and work on your laptop from the comfort of your guest room.

Student Travel Grant Certificates
Student Travel Grant Certificates will be distributed at the Banquet on Monday evening.

A Friend Reminder
Please turn off anything that chirps, beeps, buzzes or rings which includes but not limited to pagers, beepers, cell phones, PDA and laptops during the conference. The speakers and audience thank you for your consideration and cooperation.

Dress Attire
Business casual is recommended for all daytime and evening IEEE CCNC 2009 events.

Conference Location
All conference events except where noted on the Schedule at a Glance will be held on the second level of the Mardi Gras Tower.

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Harrah’s Las Vegas
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About the IEEE
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On Behalf of the IEEE CCNC 2009 Organizing Committee, it is our pleasure to welcome you to the Sixth Annual IEEE Consumer Communications and Networking Conference.

This year CCNC continues to strengthen and grow the value, breadth and depth of the conference to both the academic and industry communities. This strength is clear from our highest number of submissions to the conference resulting in our most selective program. To improve our integration with CES, this year we are moving to a three and a half day format to better allow attendees to visit CES while also accommodating our growing number of participants, workshops and events.

Our theme this year, “Empowering the Connected Consumer,” recognizes the growing shift in direction of the community from a focus solely on technology to supporting and delivering the user’s needs in a connected environment. Today it is becoming clear whether it be entertainment or communication devices, consumers are hungry for the combination of leading edge technologies delivered in an easy to use and affordable package. IEEE CCNC continues to recognize this need by providing a place for the community at large to understand the use of technology through the software and communication stacks in one premier conference!

This year we are proud not only to have a distinguished set of keynote speakers, but also the distinguished support of the Mr. Ki Tae Lee, Vice-chairman of Samsung Electronics, as the honorary chair of IEEE CCNC 2009. The conference begins on Saturday afternoon when we are honored to present our first keynote speaker, Jim Battaglia, Vice President of Strategic Business Development at Panasonic Research & Development Center of America. On Sunday morning, the keynote speaker will be Fred Kitson, Ph.D., Corporate Vice President of the Applied Research & Technology Center and Motorola, Inc. Following the Sunday Happy Hour Demonstrations the evening keynote speaker will be Patrick Barry Vice President of Connected TV, Connected Life, Yahoo! Inc. Finally, to round off the conference our final keynote, on Monday morning, will be YoungKy Kim, Ph.D., Executive Vice President of New Generation System Technology & Product, Samsung Electronics Co. Ltd.

We are sure you will find many exciting and stimulating presentations in the technical sessions and want to thank John Buford for collecting an extremely strong set of papers across a wide range of topics. Please see John’s introduction for a summary and highlights of this year’s program.

This year we again offer a complimentary tutorial to all attendees. This was very popular last year and we invite you to check the tutorials that will be taking place on Saturday. We are also continuing with other popular events from previous IEEE CCNC conferences, these include a full day of workshops on Tuesday, and various special sessions and panels throughout the conference. There will be plenty of chances to view this year’s record number of demos, with three demonstration sessions scheduled, two on Sunday and one on Monday.

Finally, we want to extend our thanks to the people who are truly responsible for making this conference a success through their generous contributions of time and energy. Our thanks to: John Buford, Technical Program Chair; Rajarathnam Chandramouli, Wireless Networking for Consumer Electronics Vice-Chair; Behrooz Shirazi, Personal Ad Hoc and Sensor Networks Vice-Chair; Zhu Li, Entertainment and Multimedia Networking Vice-Chair; Wolfgang Kellerer, Peer-to-Peer and Content Delivery Vice-Chair; Christian Becker, Emerging Applications and Pervasive Technologies Vice-Chair; Chi-Sung Laih, Security for CE Communications Vice-Chair; Kurt Tutschku, Workshop Chair; Mario Kolberg, Special Sessions Chair; Florence Kolberg, Short Papers Chair; Frank den Hartog and V. Prasad, Tutorial Co-Chairs; Shoshana Loeb, Technology Applications Panels Chair; Andreas Heiner and Subir Saha, Demonstration Co-Chairs; Mei Yang, Local Arrangements Chair; Wenjun Zeng, Best Paper Award Committee Chair; John Barr Career Forum Chair; Alan Kaplan, Publication Chair; Alex Gelman, Publicity Chair; Rob Fish, Patron Chair; Stan Moyer, Finance Chair; Bruce Worthman, Treasurer; Heather Ann Sweeney, Marketing; and finally special thanks to Diane Williams, who as ComSoc Project Manager did a tremendous job of pulling everything together.

We hope you find IEEE CCNC 2009 enjoyable and please let us know any suggestions for improvement.

Sincerely,

Simon Gibbs
IEEE CCNC 2009 General Co-Chair
Principle Engineer, Samsung Electronics, USA

Alan Messer
IEEE CCNC 2008 General Co-Chair
Senior Director, Samsung Electronics, USA
Welcome
to the Sixth Annual IEEE Consumer Communications and Networking Conference. Continuation the tradition set by IEEE CCNC in previous years, we are pleased to be able to once again provide a high-quality technical program of premier industry keynotes and the latest research presented in peer-reviewed technical papers, technology demonstrations, panels, workshops, and tutorials, in a venue that permits conference attendees to also participate in the consumer electronics (CE) industry's largest and highly popular tradeshow.

As the leading conference in consumer communications and networking, IEEE CCNC continues to have strong participation from the CE industry and from researchers around the world interested in the evolution of consumer electronics and applications spanning a variety of CE related technologies including wireless networks, sensor networks, ad hoc networks, pervasive computing, peer-to-peer networks, content delivery, entertainment and multimedia networks, emerging applications, and security.

Due to continued advancement in the underlying technologies, the research reported here is expected to have a significant impact on many practical problems and applications of CE. To provide important perspective and vision on this large body of research, we are very pleased to have leading members of the CE industry research community present this year's conference keynotes. The technical program starts on Saturday, 10 January, with six tutorials and an opening keynote address by Jim Battaglia, Vice-President, Panasonic Research & Development Center of America, on Connected Entertainment Devices: Past, Present, and Future. On Sunday morning, 11 January, Dr. Fred Kitson, Corporate Vice President, Motorola Technology, will speak on The Power of Communications+Content+Community. On Sunday evening, 11 January, Patrick Barry, Vice President of Connected TV, Connected Life, Yahoo! Inc. will speak. For the evening banquet on Monday, 12 January, the closing keynote speech will be delivered by Dr. Youngki Kim, Executive Vice President, Samsung Electronics, one of the founders of the mobile WiMax technology and business, who will speak on The Connected Device. The winners of the Best Paper Award, the Best Student Paper Award, and the Best Demonstration Award will also be announced at the banquet. Tuesday, 13 January, is reserved for 8 concurrent workshops.

On behalf of the technical program committee, it is a pleasure to report that IEEE CCNC 2009 had a record number of over 450 full paper submissions, a 33% increase from the previous year. In addition, there were 217 short paper submissions, an increase of 100%. The final program represents a highly selective and high quality set of research results. Of the 335 papers submitted to the six technical tracks, only 117 were accepted, for a very competitive acceptance rate of 35%. Of the 122 papers submitted to 12 different special session topics, 61 were accepted. Of the 217 short paper submissions, only 62 were accepted. Of 52 demonstration proposals, 29 were accepted. Of 113 workshop paper submissions to eight different workshops, 56 were accepted. We appreciate the work of the TPC members and the program chairs in carefully reviewing these submissions, and we thank all the authors for their hard work despite which many good papers could not be included.

The selection and organization of the final program relies upon the efforts of many volunteers from the research community who graciously served for many months on the organizing committee or as TPC members. Let me in particular acknowledge the technical track Vice Chairs: R. Chandramouli, Behrooz Shirazi, Zhu Li, Wolfgang Kellerer, Christian Becker, and Chi-Sung Laih; the Special Sessions Chair, Mario Kolberg; the Workshop Chair, Kurt Tutschku; the Short Papers Chair, Florence Kolberg; the Demonstrations Co-Chairs, Andreas Heiner and Subir Saha; the Tutorial Co-Chairs, Frank den Hartog and V. Prasad; the Technology Applications Panels Chair, Shoshana Loeb; and the Best Paper Award Committee Chair, Wenjun Zeng. I would also like to thank Alan Kaplan and Alex Gelman for their work on CCNC publicity. Special thanks goes to ComSoc staff Diane Williams, who has been helping us on a daily basis throughout the year; and IEEE staff Diana Romeo for her help with issues on proceedings and conference registration. Finally, we would like to express our sincere thanks to our sponsors Panasonic, Samsung, and Nokia.

It was a pleasure to work with the members of the organizing committee and the staff at IEEE ComSoc to prepare the technical program, which we now convey to you, with our congratulations to the authors, as what we believe is a very enriching and informative proceedings and conference.

John F. Buford, Ph.D.
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Special Session on Collaboration and Communication in Virtual Worlds
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Special Session on Digital Entertainment, Networked Virtual Environment and Creative Technology
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Special Session on Challenges in Future Vehicular Ad Hoc Networks
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Special Session on Multimedia Information Processing on Wireless Sensor Networks
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<td>Alain Houle, Université de Sherbrooke, Canada</td>
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<td>Ayman Khalil, INSA, USA</td>
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<td>Cuneyt Taskiran, Motorola Inc., USA</td>
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Empowering the Connected Consumer
## PROGRAM AT A GLANCE

### Saturday, 10 January 2009
- **08:00 – 19:00** Registration
- **09:00 – 17:00** Morning and Afternoon Tutorials
- **17:00 – 18:30** General Session – Opening Remarks & Keynote Address
- **18:30 – 20:00** Opening Reception

### Sunday, 11 January 2009
- **08:00 – 19:00** Registration
- **09:00 – 10:10** General Session – Keynote Address
- **10:10 – 10:30** Networking Coffee Break
- **10:30 – 12:30** Technical Sessions
- **12:30 – 13:15** Luncheon
- **13:15 – 14:00** Demonstration Presentations
- **14:00 – 16:00** Technical Sessions
- **16:00 – 16:30** Networking Coffee Break
- **16:30 – 18:00** Technology Application Panels
- **17:15 – 18:00** Young Professional Panel
- **18:00 – 19:00** Happy Hour Demonstrations
- **19:00 – 20:00** Evening Keynote Address

### Monday, 12 January 2009
- **08:00 – 19:00** Registration
- **08:30 – 10:00** Technical Sessions
- **10:00 – 10:30** Networking Coffee Break
- **10:30 – 12:30** Technical Sessions
- **12:30 – 13:15** Luncheon
- **13:15 – 14:00** Demonstration Presentations
- **14:00 – 16:00** Technical Sessions
- **16:00 – 16:30** Networking Coffee Break
- **16:30 – 18:00** Technology Application Panels
- **18:30 – 20:30** Banquet and Keynote Address

### Tuesday, 13 January 2009
- **08:00 – 14:00** Registration
- **09:00 – 17:00** Workshops

### NETWORKING OPPORTUNITIES

#### Saturday, 10 January 2009
- **18:30 – 20:00** Opening Reception • Location: Lake Tahoe Room

#### Sunday, 11 January 2009
- **10:10 – 10:30** Networking Coffee Break • Location: Foyer
- **12:30 – 13:15** Luncheon • Location: Reno Room
- **16:00 – 16:30** Networking Coffee Break • Location: Foyer
- **18:00 – 19:00** Happy Hour Demonstrations • Location: Lake Tahoe Room

#### Monday, 12 January 2009
- **10:00 – 10:30** Networking Coffee Break • Location: Foyer
- **12:30 – 13:15** Luncheon • Location: Reno Room
- **16:00 – 16:30** Networking Coffee Break • Location: Foyer
- **18:30 – 20:30** Banquet and Keynote Address • Location: Reno Room

### YOUNG PROFESSIONALS

Young Professional is a forum for graduate students from around the world to engage with their peers, network with industry leaders and learn how IEEE/ComSoc can train and develop you to become our “next generation of leaders” within the society and the industry.

#### Saturday, 10 January 2009
- **18:30 – 20:00** Opening Reception • Meet Industry Leaders

#### Sunday, 11 January 2009
- **17:15 – 18:00** Young Professional Panel • Location: Laughlin Room
- **18:00 – 19:00** Happy Hour Demonstrations: Meet Industry Leaders

#### Monday, 12 January 2009
- **18:30 – 20:30** Banquet and Keynote Address: Meet Industry Leaders
Jim Battaglia oversees strategy, planning, and new business development for Panasonic’s North American R&D operation and works closely with Panasonic’s consumer electronics and other business units. He has over 20 years experience in digital media and home electronics business, and has worked in both high-tech start-up and large CE corporate environments.

After graduating from business school, Jim joined a new consortium spun out of the National Association of Home Builders, called SMART HOUSE. The venture led to the birth of structured wiring, which is now installed in nearly half of all new homes built in the U.S. After SMART HOUSE, Jim began his entrepreneurial career and held executive management positions in several start-up companies specializing in home networking and digital media products.

In 2004, Jim joined Pioneer Electronics at its Silicon Valley office, where he helped promote home networking in Pioneer’s Plasma TV and Blu-ray products. Jim co-founded and helped launch SyncTV, a new on-line video service that was designed specifically to meet the needs of consumers and CE manufacturers. Jim also participated in several industry alliances and consortia and chaired the DLNA’s Ecosystem Committee.

Now at Panasonic, Jim is developing strategies and plans to help the company fully benefit from new IP-connected product and services. He received his MBA from the Sloan School at MIT and holds technical degrees from the Universities of Pennsylvania and California-Berkeley.

Fred Kitson, Ph.D.
Corporate Vice President, Applied Research & Technology Center
Motorola, Inc.

"The Power of Communications+Content+Community"

Dr. Fred Kitson leads Motorola’s Applied Research and Technology Center (ARTC), a global team of researchers working to uncover the next big things in media mobility. Under his leadership, the ARTC works to develop disruptive breakthroughs and technology foundations that spawn new businesses for Motorola and innovative approaches to solving customer and market problems.

Dr. Kitson joined Motorola in 2005 as head of the Applications Research Center of Excellence, an international team of researchers focused on personal content handling and entertainment platforms. His expertise includes mobile systems, computer systems, consumer appliances and specific technologies such as multimedia digital signal processing, communications, and computer graphics. He joined Motorola from Hewlett-Packard (HP), where he had world-wide responsibility for mobile and media systems research for the corporate research labs.

Recently, Dr. Kitson has been an adjunct faculty member at the Georgia Institute of Technology, where he was inducted into the Academy of Distinguished Engineering Alumni in 2001. He was the 1991-1992 Clyde Chair visiting associate professor at the University of Utah’s Computer Science Department and has taught at the University of California-Berkeley, and Colorado State University. He has served on the board of the Wireless Center at the University of California-San Diego, the Telecommunications Board of the University of San Francisco, the Board of Counselors at the University of Southern California’s integrated media systems, and the UCLA-WINMEC Carrier Advisory Board.

Dr. Kitson received a Bachelor of Science with honors in Electrical Engineering from the University of Delaware, a Master of Science in Electrical Engineering from the Georgia Institute of Technology, and a Doctor of Philosophy in Electrical and Computer Engineering from the University of Colorado. He is a prolific publisher of technical papers and holds five patents.
Patrick Barry leads the Connected TV initiative for Yahoo!’s global Connected Life division.

Barry has overall responsibility for the Connected TV business, including the strategy, products and partnerships that extend Yahoo!’s content, communities and services to “10-foot interfaces” in the digital home.

The Connected Life business unit encompasses Yahoo!’s mobile products, Connected TV initiatives and strategic partnerships with companies including AT&T, T-Mobile, Sony, Nokia, Intel and Motorola.

Before joining Yahoo!, Barry was an active venture investor in the areas of networking, consumer electronics and web services. Prior to that, he worked with numerous start-up technology companies, both as an operating executive and as a practicing corporate and securities lawyer. He is a regular speaker at industry events, including CES, Digital Hollywood, CONNECTIONS and the Intel Developer Forum.

Patrick received his undergraduate degree from Columbia College and holds a JD from Hastings College of the Law.

Youngky Kim, Ph.D.

Executive Vice President
New Generation System Technology & Product
Samsung Electronics Co., Ltd.

“The Connected Device”

At Samsung Electronics, Youngky Kim has led developing and commercializing the world’s first CDMA, CDMA2000-1X, CDMA2000 1xEV-DO, and Mobile WiMAX network in 1996, 2000, 2002, and 2006 respectively. He is known as one of the founders of Mobile WiMAX technology and business. As general manager of WiBro/Mobile WiMAX division, he successfully led Mobile WiMAX standardization, the world first KT WiBro commercialization, and Sprint-Nextel’s decision on Mobile WiMAX network deployment.

Under his leadership, Samsung successfully entered KDDI CDMA2000 1X EV-DO and Mobile WiMAX network market as a principle network vendor. He started his career in modem algorithm development and expanded his area to network, applications, and business development.

He has led end-to-end CDMA system development, WCDMA system development, Mobile WiMAX system development, DSL network development, Core network development, IMS development and application server development. He has been internationally recognized for his expertise in wireless network technology and is currently responsible for LTE end-to-end system development, LTE handset chipset development, and WiMAX wireless technology in the Telecommunication R&D Center of Samsung Electronics. He has produced 72 US patents covering IS-54 wireless technology, IS-95 technology, EV-DO, IEEE 802.16, WCDMA, network and applications.

He holds a Ph.D. in electrical engineering from the University of Southern California, and a master’s degree in electronics engineering from Seoul National University, as well as a bachelor’s degree.

He has served as an advisor to a variety of high tech startup companies. He is a founder of Velti S.A., a successful Greek software company which focuses on the telecom and banking sectors.

Besides his professional engagements, he has been involved with various NGOs. In 1995, he was a founder and the technical director of the HR-Net project which at that time operated the largest news aggregator website for the Balkan region. He currently serves on the board of directors of Access2Democracy.

He holds a diploma in electrical engineering from Aristotle University of Thessaloniki, Greece and an MSc in computer engineering from Boston University, USA.
TECHNICAL AND SPECIAL SESSIONS - SUNDAY

Sunday, 11 January 2009
10:30 – 12:30 • Location: Silver Room
S1-2 Personal Ad Hoc and Sensor Networks
Session: Routing and Protocols I
Chair: Yusun Chang, Georgia Institute of Technology, USA

A Distributed Algorithm for Interference Aware Routing in Wireless Networks
Aravind Canthadai, Sridhar Radhakrishnan, Venkatesh Sarangan (Oklahoma State University, USA)

An Efficient Routing Approach over Mobile Wireless Ad Hoc Sensor Networks
Hamdy Soliman (New Mexico Tech, USA)
Mohammad AlOtaibi (New Mexico Institute of Mining and Technology, USA)

Multi-Hop Transmission Performance of Cognitive Temporary Bypassing for Wireless Ad Hoc Networks
Kenichi Nagao, Yusuke Kadowaki, Yasushi Yamao (University of Electro-Communications, Japan)

Methods for Improving Medium Reuse in IEEE 802.11 Networks
Simone Merlin, Santosh Abraham (Qualcomm Inc., USA)

Geographic Weighted Region Routing in Lossy Wireless Sensor Networks
Euhanna Ghadimi (Tehran University, Iran)
Mohammad Sadegh Talebi (Sharif University of Technology, Iran)
Ahmad Khouzani, Nasser Yazdani (University of Tehran, Iran)

Quantitative Analysis of Wi-Fi in the Presence of Interferers – Short Paper
Bingjian Zhang, Li Li, Ying Yap, Kunal Rele (Illinois Institute of Technology, USA)

A Cooperative Routing Method for Multiple Overlay Networks – Short Paper
Hiroki Okada, Trung Tran, Kazuhiko Kinoshita (Osaka University, Japan)
Nariyoshi Yamai (Okayama University, Japan)
Kosuke Murakami (Osaka University, Japan)

Tendency-based Geographic Routing for Sensor Networks – Short Paper
Jiao You, Dominik Lieckfeldt, Dirk Timmermann (University of Rostock, Germany)

Sunday, 11 January 2009
10:30 – 12:30 • Location: Elko Room
S1-4 Peer-to-Peer Networking and Content Delivery
Session: P2P Overlay Networks
Chair: Kurt Tutschku, University of Vienna, Austria

mDHT: Multicast-Augmented DHT Architecture for High Availability and Immunity to Churn
Jae Lee, Henning Schulzrinne (Columbia University, USA)
Wolfgang Kellerer, Zoran Despotovic (DOCOMO Communications Laboratories Europe, Germany)

A Novel Cooperative Caching Scheme for Unstrutered Peer-to-Peer Networks
Tomonori Mori, Takuya Asaka, Tatsuro Takahashi (Kyoto University, Japan)

Chameleoon: An Adaptable 2-Tier Variable Hop Overlay
Alan Brown, Mario Kolberg (University of Stirling, UK)
John Buford (Avaya Labs Research, USA)

A Multi-Tree Construction Algorithm for Multi-Channel Live Media Delivery on Overlay Service Network
Weizhan Zhang, Qinghua Zheng (Xi’an Jiaotong University, China)

A Scalable Residential Area Network Architecture Supporting HD-Quality Content Distribution
SungWook Chung (University of Florida, USA)
Eunsam Kim (Hongik University, Korea)
Jonathan Liu (University of Florida, USA)

Semantic Information Retrieval in a Distributed Environment
Ahmad Ali Iqbal (University of New South Wales, Australia)
Max Ott, Aruna Seneviratne (NICTA, Australia)

Service Platform and Social Networking Service Based on Peer-to-Peer Networking – Short Paper
Il-Woo Lee (ETRI, Korea)
Sunday, 11 January 2009
10:30 – 12:30 • Location: Goldfield Room
S1-6 Security for CE Networking
Session: Wireless Security
Chair: Ming-Yuh Huang, The Boeing Company, USA

An Intrusion Detection System in Ad Hoc Networks: A Social Network Analysis Approach
Wei Wang, Hong Man Senior, Yu Liu (Stevens Institute of Technology, USA)

Leap of Faith Security is Enough for Mobility
Janne Lindqvist, Miika Komu (Helsinki Institute for Information Technology, Finland)

A Security Framework with Strong Non-Repudiation and Privacy in VANETS
Jaerduck Choi, Soohwan Jung (Soongsil University, Korea)

A Device Authentication and Registration Method Assisted by a Cellular System for User-driven Service Creation Architecture
Takashi Matsunaka, Takayuki Warabino, Yoji Kishi (KDDI R&D Laboratories Inc, Japan)
Kiyohide Makacuhy, Takeshi Umezawa, Masugi Inoue (National Institute of Information and Communications Technology, Japan)

On the Power Consumption of Security Algorithms Employed in Wireless Networks
Dimitrios Meintanis, Ioannis Papaefstathiou (Technical University of Crete, Greece)

Self-Encryption Scheme for Data Security in Mobile Devices
Yu Chen (State University of New York – Binghamton, USA)
Wei-Shinn Ku (Auburn University, USA)

BLINK: Securing Information to the Last Connection – Short Paper
Scott Graver (State University of New York – Binghamton, USA)
Yu Chen (State University of New York – Binghamton, USA)
TECHNICAL AND SPECIAL SESSIONS - SUNDAY

Sunday, 11 January 2009
14:00 – 16:00 • Location: Silver Room
S2-2 Personal Ad Hoc and Sensor Networks
Session: Performance, Estimation, and Assessment
Chair: Hans-Peter Loeb, Infineon Technologies AG, Germany

BEST STUDENT PAPER AWARD WINNER
This paper will have 30 minutes presentation time.
A Novel Link Quality Assessment Method for Mobile Multi-Rate Multi-Hop Wireless Networks
Jinglong Zhou, Martin Jacobsson, Ertan Onur, Ignas Niemegeers
(DoElt University of Technology, Netherlands)

Hop-Count Based Node-to-Anchor Distance Estimation in Wireless Sensor Networks
Ma Di (Nanyang Technological University, Singapore)

Improving Packet Delivery Probability Estimation for Indoor Ad Hoc and Wireless Sensor Networks
Cheng Guo, Jinglong Zhou, Przemyslaw Pawelczak, Ramin Hekmat
(Delft University of Technology, Netherlands)

Quantitative Study of an Outdoor Multi-hop 802.11 Network Performance using a Novel Passive Measurement Approach
Ting Zhou, Hamid Sharif, Michael Hempel, Puttipong Mahasukhon, Wei Wang (University of Nebraska - Lincoln, USA)

Performance of Random Routing on Grid-Based Sensor Networks
Dulanjali Dhanapalan, Anura Jayasumana (Colorado State University, USA)

An Adaptive On-Demand Channel Estimation for Vehicular Ad Hoc Networks
Yusun Chang, Myoungwhun Lee, John Copeland
(Georgia Institute of Technology, USA)

An Energy-Optimal Scheme for Neighbor Discovery in Opportunistic Networking – Short Paper
Dongmin Yang, Jongmin Shin, Jeonggyu Kim, Chee-Ha Kim
(Pohang University of Science and Technology, Korea)

Sunday, 11 January 2009
14:00 – 16:00 • Location: Ely Room
S2-4 Peer-to-Peer Networking and Content Delivery
Session: P2P Media Streaming
Chair: Yi Cui, Vanderbilt University, USA

Peer Assisted Streaming of Scalable Video via Optimized Distributed Caching
Ozkan Harmanci, Sandeep Kanumuri, Ulas Kozat (DoCoMo-Labs USA, USA)
Mehmet Demircin (Georgia Institute of Technology, USA)
Reha Civanlar (DoCoMo-USA Labs, USA)

Toward Improving Scheduling Strategies in Pull-based Live P2P Streaming Systems
Anis Ouali (Concordia University, Canada)
Brigitte Kerhervé (Université du Québec à Montréal, Canada)
Brigitte Jaumard (Concordia University, Canada)

How Efficient Peer-to-peer Video Streaming Could Be?
Hao Liu (Georgia Tech, USA)

Energy-Efficient Video Transmission Scheduling for Wireless Peer-to-Peer Live Streaming
Ying Li (Princeton University, USA)
Zhu Li (Hong Kong Polytechnic University, Hong Kong)
Mung Chiang, Robert Calderbank (Princeton University, USA)

StreamComplete: an Architecture for Mesh-based Peer-to-Peer Live Video Streaming
Federico Covino, Massimo Mecella (SAPIENZA -- Universita' di Roma, Italy)

VP2P - A Virtual Machine-Based P2P Testbed for VoD Delivery
Yih-Farn Chen, Rittwik Jana, Daniel Stern, Bin Wei, Mike Yang
(AT&T Labs - Research, USA)

Distributed Media Transcoding Using a P2P Network of Set Top Boxes – Short Paper
Guntur Ravindra (Motorola, India)
Sumit Kumar (International Institute of Information Technology, India)
Suresh Chintada (Motorola India Research Lab, India)

Wireless Phonebooth
Harishankar Menderkar Vinodbabu (Royal Institute of Technology, Sweden)

Rich Immersive Sports Experience: A Hybrid Multimedia System for Content Consumption
John Favvett, Brian Beyer, Daniel Hum, Aaron Ault, James Krogmeier
(Purdue University, USA)
Cuneet Taskiran (Motorola Inc., USA)

An Efficient Contents Sharing Method for DRM
Xue Feng, Zhi Tang, YinYan Yu (Peking University, China)

Adaptive Configuration of Pervasive Computing System with QoS Consideration
Weiyi Zhang (North Dakota State University, USA)

Remote AppBus – Enabling Seamless Access to Short Term Memory on Mobile Devices
Nitya Narasimhan, Craig Jansen, Michael Pearce (Motorola Labs, USA)

A Ticket Based Digital Rights Management Model
Ming-Kung Sun, Chi-Sung Laih, Hong-Yi Yen, Jyun-Rong Kuo
(National Cheng Kung University, Taiwan)

Towards a Resilience Benchmarking for Home Gateways – Short Paper
Sakkavarathri Ramathanan (FRST Telecom – Orange Labs, France)

Sunday, 11 January 2009
14:00 – 16:00 • Location: Ely Room
S2-5 Emerging Applications and Pervasive Technologies
Session: Pervasive Computing Applications
Session Chair: Stefano Ferretti, University of Bologna, Italy

Wireless Phonebooth
Harishankar Menderkar Vinodbabu (Royal Institute of Technology, Sweden)

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Towards a Resilience Benchmarking for Home Gateways – Short Paper
Sakkavarathri Ramathanan (FRST Telecom – Orange Labs, France)
Sunday, 11 January 2009
14:00 – 16:00 • Location: Goldfield Room
S2-6 Security for CE Networking
Session: Privacy and System Security
Chair: Yu Chen, SUNY Binghamton, USA

Privacy Preserving DRM Solution with Content Classification and Superdistribution
Jun Yao, Sunnam Lee, Suhyun Nam (Samsung Electronics, Korea)

A Secure DVB Set-top Box via Trusting Computing Technologies
Onur Acikelmez, Jean-Pierre Seifert, Xinwen Zhang (Samsung Electronics, USA)

A SIP Security Testing Framework
Hemanth Shrinivasan and Kamil Sarac (University of Texas at Dallas, USA)

A Self-Healing Key Distribution Scheme Based on Bilinear Pairings
Biming Tian, S. Han, F. K. Hussain, T. S. Dillon, E. Chang (DEBI Institute Curtin University of Technology, Australia)

Feature Selection for Intrusion Detection System Based on Support Vector Machine
Safaa Zaman, Fakhri Karray (University of Waterloo, Canada)

Email Shape Analysis for Spam Botnet Detection – Short Paper
Paul Sroufe, Santi Phithakkitnukoon, Ram Dantu, Joao Cangussu (University of Texas at Dallas, USA)

A Security Service Protocol for MANETs – Short Paper
Antonio Taddeo, Alberto Ferrante (University of Lugano, Switzerland)

Authenticating User Using Keystroke Dynamics and Finger Pressure – Short Paper
Hatachanoek Saevanee (University of Chulalongkorn, Thailand)

Monday, 12 January 2009
8:30 - 10:00 • Location: Laughlin Room
M1-1 Wireless Networking for Consumer Electronics
Session: Signal Processing for Communications I
Chair: Hazem Refai, University of Oklahoma-Tulsa, USA

Pulse Repetition Based Selective Detection Scheme for Coherent IR-UWB Systems
Jaewoon Kim (Soongsil University, Korea)
Don-Suk Roh (Eltronix Co., Inc., Korea)
Yoan Shin (Soongsil University, Korea)

Noncausal and Bidirectional Soft Decision Feedback Equalizer
Yun-Ho Lee (Samsung Electro-Mechanics Co., USA)

Near Maximum-Likelihood Detection with Low Complexity for Collaborative Spatial Multiplexing in Uplink Mobile WiMAX Systems
Sanhae Kim (Soongsil University, Korea)
Dongjun Lee (POSDATA, Korea)
Oh-Soon Shin, Yoan Shin (Soongsil University, Korea)

Interference-Aware Channel Assignments with Seamless Multi-Channel Monitoring on Wireless Mesh Network – Short Paper
Sungjun Kim (Information and Communications University, Korea)

Parallelization and Analysis of Speech Recognition on Mobile Multi-core Processor – Short Paper
Seung-Mo Cho, Hyulong Song (Samsung Electronics Co., Ltd., Korea)

Architectural Comparison of Unlicensed Mobile Access (UMA) and Voice Call Continuity (VCC) Networks – Short Paper
Snehal Kale (University of Colorado at Boulder, USA)

Load Balancing for Proxy Mobile IPv6 Networks – Short Paper
Mun Suk Kim (Yonsei University, Korea)

IEEE CCNC 2009
Empowering the Connected Consumer
TECHNICAL AND SPECIAL SESSIONS - MONDAY

Monday, 12 January 2009
8:30 - 10:00 • Location: Copper Room
M1-3 SS SAM
Session: Scalable Adaptive Multicast in P2P Overlays
Chair: Jeremy Minieweaver, MIT Lincoln Labs, USA

Bandwidth Fair Application Layer Multicast for Multi-party Video Conference Application
Boon Ping Lim, ettikan Kandasamy Karuppiah (Pansonic R&D Center, Malaysia)
Khoa Phan (Ho Chi Minh City University of Technology, Vietnam)
En Shu Lin (Pansonic R&D Center, Malaysia)
Thoai Nam (Ho Chi Minh City University of Technology, Vietnam)

Hybrid Overlay Multicast Simulation and Evaluation – Short Paper
Jung-woo Baik (Sejong University, Korea)
IPv6 – Short Paper
Inter-Domain Mobility Support Scheme Using Multicast in Proxy Mobile Networks
Zhou Su (Waseda University, Japan)

ALM-Bi-Cast – Short Paper
Max Mühlhäuser (Technical University Darmstadt, Germany)
Jussi Kangasharju (University of Helsinki, Finland)
Dirk Bradler (Technical University Darmstadt, Germany)

Optimally Efficient Multicast in Structured Peer-to-Peer Networks
Dirk Bradler (Technical University Darmstadt, Germany)
Jussi Kangasharju (University of Helsinki, Finland)
Max Mühlhäuser (Technical University Darmstadt, Germany)

Transmission Cost of P2P Multicasting – Short Paper
Ting Peng (Xi'an Jiaotong University, China)

Efficient Construction in ALM with Assignment of Layered Degree and Weight
Zhou Su (Waseda University, Japan)

Inter-Domain Mobility Support Scheme Using Multicast in Proxy Mobile Networks
IPv6 – Short Paper
Jung-woo Baik (Sejong University, Korea)

Hybrid Overlay Multicast Simulation and Evaluation – Short Paper
John Buford (Avaya Labs Research, USA)
Mario Kolberg (University of Stirling, UK)

Monday, 12 January 2009
8:30 - 10:00 • Location: Elko Room
M1-4 Short Papers
Session: New Results in P2P Networking
Session Chair: Alex Gelman, NETovations Group, LLC, USA

An Interest-Based P2P File Sharing System
Haiying Shen (University of Arkansas, USA)

Providing Stability of P2P Live Video Streaming during Multi-homed Vertical Handoff
Seungik Lee, YangWoo Ko, Dongnan Lee
(Information and Communications University, Korea)

Achieving Peer-to-peer Telecommunication Services through Social Hashing
Xiaohui Yang (George Mason University, USA)
Ram Dantu (University of North Texas, USA)
Duminda Wijesekera (George Mason University, USA)

A Measurement Study on Video Acceleration Service
Pan Pan, Yi Cui (Vanderbilt University, USA)

Contribution-aware Overlay Optimization for Peer-to-peer Live Streaming Applications
Hao Chen (Fudan University, China)

SLAAP: Stream Location-Aware Alliance Partitioning in BitTorrent Networks for Video-On-Demand Systems
Hala ElAarag (Stetson University, USA)

A P2P, Agent-based System of Systems Architecture for Cooperative Maritime Networks
Sean Geoghegan, Grady McCorkle, Chris Robinson, Greg Fundyfer, Jamelle Brown, Srinivas Ramaswamy (University of Arkansas at Little Rock, USA)
Mhamed Ithmi (INSA-Rouen, France)

Monday, 12 January 2009
8:30 - 10:00 • Location: Ely Room
M1-5 Emerging Applications and Pervasive Technologies
Session Chair: Rob Fish, Mformation Technologies, USA

Comparative Study of Joint TOA/DOA Estimation Techniques for Mobile Positioning Applications, Wei Li (Brunel University, UK)
Wenbing Yao (Huawei Technologies, UK)

L-VIRT: A 3-D Range-Free Localization Method for RFID Tags Based on Virtual Landmarks and Mobile Readers
Mathieu Bouet, Guy Pujolle (University of Paris 6, France)

Effect of Collision on Movement Tracking Using Active RFID Power Measurement, Taekyu Kim (Information and Communications University, Korea)

Media Adaptation for Connected Mobile Devices – Short Paper
Michael Chukwu (University of Windsor, Canada)
Policy-Based Service Provisioning in a Wireless Network with Variable Channel Data Rates – Short Paper
Whay Chiou Lee, John Barr, Steve Emoott, Ravi Ramamirtham, Dave Silk (Motorola, USA)

Intelligent Software Architecture for the Service Layer of Wireless Billboard Channels – Short Paper
Zhanlin Ji, Ivan Ganchev, Mairtin O’Droma (University of Limerick, Ireland)

Secure Resource Control in Service Oriented Applications – Short Paper
Shudong Chen (Eindhoven University of Technology, Netherlands)

Monday, 12 January 2009
8:30 – 10:00 • Location: Goldfield Room
M1-6 SS CCVW
Session: Collaboration and Communication in Virtual Worlds
Chair: Krishna Dhara, Avaya Labs Research, USA

A Distributed Architecture for Collaborative Teleoperation Using Virtual Reality and Web Platforms
Christophe Domingues (University of Evry, IBISC, France)
Samir Otmane, Frederic Davesne (IBISC, France)
Malik Mallem (University of Evry Val d’Essonne, France)
Laredj Benchikh (IBISC, France)

A Framework for Designing Adaptive Systems in VR Applications
Pierre Boudoin, Samir Otmane (IBISC, France)
Malik Mallem, Hichem Maaref (University of Evry Val d’Essonne, France)

Virtual Worlds as an Enterprise Services Tool
Sameer Vijaykar (IIT Bombay, India)
Muthukumar Kadaravasal (Iowa State University, USA)
K. Kishore Dhara, Xiaotao Wu, Venkatesh Krishnaswamy (Avaya Labs Research, USA)

Characterizing Graphical Desktop Sharing System’s Workload in Collaborative Virtual Environments
Iztok Humar, Janez Bester, Saso Tomazic (University of Ljubljana, Slovenia)

Towards Tangible “Virtual Money”
Kenji Saito (Keio University, Japan)
Eisichi Morino (Gesell Research Society Japan, Japan)

An O(1) Lookup and Decentralized Bootstrapping Peer to Peer SIP System
Lanfhi Gu, Zhang Chunjong (BUPT, China)

Secure and Dynamic Cooperation of Personal Networks in a Fednet
Malohat Ibrohimova (University of Delft, Netherlands)
Soni Heemstra de Groot (Deft Technical University, Netherlands)
Monday, 12 January 2009
8:30 - 10:30 • Location: Tonopah Room
M1-7 SS IPTV
Session: IPTV Toward Seamless Infotainment
Chairs: Heather Yu, Huawei Technologies, USA
Bin Wei, AT&T Labs, USA
Zhao Liu, AT&T Labs, USA

IPTV - Toward Seamless Infotainment
Bin Wei, Zhao Liu (AT&T Labs, USA)

Channel Change Delay in IPTV Systems
Huseyin Uzunalioglu (Alcatel-Lucent, USA)

DLNA-Based IPTV Platform
Isabel Lloré, Francisco Rodriguez, José Manuel Palacios Valverde,
Joaquín Lopez Rizaldos (Telefonica I+D, Spain)
Francisco González (Technical University of Madrid, Spain)

New Interactive Experiences with IPTV Services Using an IMS infrastructure
José Simoes (Fraunhofer InstituteFOKUS, Germany)

User-Viewing Characteristics Aware Resource Allocation for Mobile IPTV
in IEEE 802.11 Based WMNs – Short Paper
Chae Y. Lee, Kyungjin Oh
(Korea Advanced Institute of Science and Technology, Korea)

A Platform and Services for Standardized IPTV Ecosystems – Short Paper
Oliver Friedrich, Christian Riede, Robert Seeliger, Benjamin Zachey,
Stefan Arbanowski (Fraunhofer Institut FOKUS, Germany)

Monday, 12 January 2009
10:30 – 12:30 • Location: Laughlin Room
M2-1 Wireless Networking for Consumer Electronics
Session: Signal Processing for Communications II
Chair: Su-Khiong Yong, Samsung Electronics, Korea

Time-Domain Channel Estimation of High Accuracy for LDPC Coded SC-FDE System Using Fixed Point Decoding, Ming Lei
(Intel Corporation, China)

A Novel Probabilistic Data Association Based MIMO Detector Using Joint Detection of Consecutive Symbol Vectors
Shaosheng Yang, Tiejun Lv
(Beijing University of Posts and Telecommunications, China)

DFT Structured Codebook Design with Finite Alphabet for High Speed Wireless Communication
Pengfei Xia, Su Khiong Yong (Samsung Electronics, USA)

A New Twist on the Generalized Marcum Q-Function GM(a,b) with Fractional-Order M and Its Applications
Annamalai Annamalai (Prairie View A&M University, USA)

Window Design for SISO and MIMO OFDM Systems
Tsung-Wen Feng (Advanced Micro Devices, Inc., Taiwan)

Pilot-Aided Channel Estimation Methods for ICI Reduction in Mobile OFDM Systems
Dah-Chung Chang (National Central University, Taiwan)

Wireless Network architecture for Diagnosis and Monitoring Applications – Short Paper
Zeashan Khan (GIPSA Lab, France)
**TECHNICAL AND SPECIAL SESSIONS - MONDAY**

**Monday, 12 January 2009**

**10:30 – 12:30** • **Location: Elko Room**

**M2-4 Peer-to-Peer Networking and Content Delivery**

Session: Incentive-Based Content Delivery

Chair: Mario Kolberg, University of Stirling, UK

- A Novel Optimistic Unchoking Algorithm for BitTorrent
  Dongyu Qiu, Zuhui Ma (Concordia University, Canada)

- Remuneration Aware Resource Acquisition in P2P Overlay
  Joseph So (Chinese University of Hong Kong, Hong Kong)

- Incentives for P2P File Sharing in Mobile Ad Hoc Networks
  Aftab Mawji, Hossein Hassanein (Queen's University, Canada)

**Experimental Study of Broadcast Channel in BitTorrent**

Zengbin Zhang, Yuan Lin, Yang Chen (Tsinghua University, China)

- A Group-Level Incentive Scheme for Data Collection in Wireless Sensor Networks
  Long Cheng (Beijing University of Posts and Telecommunications, China)
  Canfeng Chen, Jian Ma (Nokia Research Center, China)
  Yimin Chen (Stanford University, USA)

- Analyzing Human Centric Data for Sharing Mobile Internet with Social Buddies
  Siva Gurumurthy (University of Massachusetts, USA)

**Towards a Tree-based Taxonomy of Anonymous Networks – Short Paper**

Douglas Kelly, Richard Raines, Barry Mullins, Michael Grimala,
Rusty Baldwin (Air Force Institute of Technology, USA)

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**Monday, 12 January 2009**

**10:30 – 12:30** • **Location: Ely Room**

**M2-5 SS SOWAHSN 1**

Session: Service-Oriented Wireless Ad Hoc and Sensor Networks

Chair: Stan Moyer, Telcordia, USA

- Energy-Aware Task Assignment and Data Aggregation in Wireless Sensor Networks
  Hadji AbdelSalam (Old Dominion University, USA)

- Realising Zone Using UPnP
  Amitabha Thapliyal, Prakash Bhagavathi, Thennmozhri Arunan, Deepak Rao
  (Samsung India Software Operations Pvt. Ltd, India)

- Service Composition in Service-Oriented Wireless Sensor Networks with Persistent Queries
  Xiumin Wang, Jianping Wang, Zeyu Zheng
  (City University of Hong Kong, Hong Kong)
  Yinlong Xu (University of Science and Technology of China, China)

- Effective Cross Layer-Based Video Streaming Algorithm over Mobile Ad Hoc Networks
  Lee GyeongCheol, Hwangjun Song (POSTECH, Korea)

- Enhanced Group-based Key Management Scheme for Wireless Sensor Networks using Deployment Knowledge
  Canh Ngo (Kyung Hee University, Korea)

- Network Assisted Mobility Support for 6LoWPAN
  Gargi Bag, Sail Shams (Ajou University, Korea)

- Enabling Service Aggregation for Providers of Consumer Services and Applications – Short Paper
  Stanley Moyer (Telcordia Technologies, USA)
  Peter Kriens (aQute, France)

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**Monday, 12 January 2009**

**10:30 – 12:30** • **Location: Goldfield Room**

**M2-6 SS VCED**

Session: Virtualization for CE Devices

Chair: Sang-bum Suh, Samsung, Korea

- A Virtual Window System for CE Devices Based on System Virtualization
  Sung-Min Lee, Sang-bum Suh, Sang-Dok Mo (Samsung, Korea)
  Alexander Trefimov (Samsung, Russia)

- Secure Architecture for Light-Weight Virtual Machine Mobility
  Kyung-Ah Chang, Sang-bum Suh (Samsung, Korea)

- A Practical Look at Micro-Kernels and Virtual Machine Monitors
  Michel Gien, François Armand (VirtualLogix, France)

- Virtualization for Advanced Power Management of Consumer Electronic Devices
  Frank Altschuler (Trango Virtual Processors, USA)

- A Step to Support Real-time in Virtual Machine
  See-Hwan Yoo, Min Park, Chawk Yoo (Korea University, Korea)

- Device Driver Isolation within Virtualized Embedded Platforms
  Sebastien Sumpf (Research Intern, Germany)
  Jörg Brakensiek (Nokia, USA)

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**Monday, 12 January 2009**

**10:30 – 12:30** • **Location: Tonopah Room**

**M2-7 SS IPTV**

Session: IPTV Toward Seamless Infotainment

Chairs: Suresh Chintada, Motorola, India
R Ramakrishnan, Motorola, India

- A Unified Approach for Repairing Packet Loss and Accelerating Channel Changes in Multicast IPTV
  Ali Begen (Cisco Systems, USA)

- IPTV Service Delivery over SP-driven P2P Networks - A Framework for Linear to Non-Linear Service Distribution
  Muhabar Mustaq, Tofik Ahmed
  (University of Bordeaux-1 / CNRS-LaBRI, France)

- High Performance Adaptive Video Services Based on Bitstream Switching for IPTV System
  Yinnian Zhu, Wei Liu, Lina Dong, Wenjun Zang (University of Missouri, USA)
  Heather Yu (Huawei Technologies, USA)

- DOCSIS IP-Video Bypass Architecture (DIBA), An Architecture for IPTV over Cable
  Gerald Joyce, Jeffrey Bao, Michael Patrick, David Flanagan (Motorola, USA)

- Contextual Advertising for IPTV Using Automated Metadata Generation
  Lee Begeja, Paul Van Vleck (AT&T Labs, USA)

- An Effective Batching Scheme Utilizing the Segment Interval Time for Wireless IPTV
  Chi Hyun Cho, Kyung Tae Kim, Hee Yong Youn
  (Sungkyunkwan University, Korea)

- A Multimedia Delivery Architecture for IPTV with P2P-Based Time-Shift Support – Short Paper
  Diego Gallo, Charles Miers, Vlad Coroama (University of São Paulo, Brazil)
  Victor Souza (Ericsson, Sweden)
  Tereza Cristina Carvalho (University of São Paulo, Brazil)
  Per Karlsson (Ericsson, Sweden)
Monday, 12 January 2009
14:00 – 16:00 • Location: Laughlin Room
M3-1 Wireless Networking for Consumer Electronics
Session: Wireless Networks
Chair: Sangho Choe, Catholic University of Korea, Korea

Performance Evaluation of a Deployed WiMAX System Operating in the 4.9GHz Public Safety Band
Nicholas LaSorte, William Barnes, Hazem Refai (Oklahoma University, USA)

Dynamic QoS Aware Route Optimization for Networks with Mobility Agents
Dev Pragad, Paul Pangalos, Vasilis Friderikos, Hamid Aghamel (King’s College London, UK)

Joint Channel Bandwidth Adaption, Topology Control, and Routing for Multi-Radio Multi-Channel Wireless Mesh Networks
Li Li (National University of Defense Technology, China)

An Energy Efficient Communication Scheme for Applications based on Low Power Wireless Networks
Koushik Sinha (Honeywell Technology Solutions Lab, India)

Remote Discovery and Management of End-User Devices in Heterogeneous Private Networks
Ben Hillen, Igor Passchier, Bas van Schoonhoven (TNO, Netherlands)

An Integrated WiMAX/WiFi Architecture with QoS Consistency over Broadband Wireless Networks
Huu-Tang Lin, Ying You Lin, Wang-Rong Chang, Rung-Shiang Cheng (National Cheng Kung University, Taiwan)

A Multichannel MAC Protocol to Solve Exposed Terminal Problem in Multi-hop Wireless Networks – Short Paper
Xiaoqin Xing, Kai Liu (Beijing University of Aeronautics and Astronautics, China)

Monday, 12 January 2009
14:00 – 16:00 • Location: Copper Room
M3-3 Personal Ad Hoc and Sensor Networks
Session: RFID
Chair: Dr. Seung-Mo Cho, Samsung Electronics Co. LTD., Korea

Using Generalized Query Tree to Cope with the Capture Effect in RFID Tag Singulation
Victor Kai Yuen Wu, Roy Campbell (University of Illinois at Urbana-Champaign, USA)

EPC UHF RFID Reader: Mobile Phone Integration and Services
Jari Savolainen, Sassan Iraji, Harri Hirvola (Nokia, Finland)

Efficient RFID Anti-Collision Scheme with Multi-Collision Reflected Frame Request
Sangho Seo (Information and Communications University, Korea)

A Simulation Study on the Energy Efficiency of Pure and Slotted Aloha Based RFID Tag Reading Protocols
Alejandro Ruiz Rivera, Dheeraj Klar, Kwan-Wu Chin (University of Wollongong, Australia)

Passive RFID for Intelligent Transportation Systems – Short Paper
Kashif Ali, Hessam Hassanein (Queen’s University, Canada)

Cross-Layer Design of Embedded Modulation and Retransmission Diversity for Prioritized Packet Transmission in Wireless Networks – Short Paper
Annamalai Annamalai, Dhadeshugoor Varnan (Prairie View A&M University, USA)
John Matyjas, Michael Medley (Air Force Research Laboratory, USA)

Adaptive Block DFT-LMS Signal Detection in Ultra-Wideband Communications – Short Paper
Chia-Chiang Hu, Wei-Gao Jhu (National Chung Cheng University, Taiwan)
Monday, 12 January 2009
14:00 – 16:00  •  Location: Ely Room
M3-5 SS SOWAHSN 2
Session: Service-Oriented Wireless Ad Hoc and
Sensor Networks
Chair: Andreas Heiner, Nokia, Finland

Design of Wireless Sensor Network for Multi-point Surveillance of a
Moving Target Based on the Relationship between Tracking Probability
and Sensor Density
Kazuya Tsuchamoto, Hirofumi Ueda, Hitomi Tamura, Kenji Kawahara, Yuji Oie
(Kyushu Institute of Technology, Japan)

Using Clustering Method to Optimize Heterogenous Antennas in Ad Hoc
Wireless Networks
Yong Wang (Florida International University, USA)

Source Location Anonymity for Sensor Networks
Ali Abbasi (University of Tehran, Iran)
Mohammad Sadeq Talebi (Sharif University of Technology, Iran)

Minimum Overlapping Layers and Its Variant for Prolonging Network
Lifetime in PMRC-based Wireless Sensor Networks
Li Qiaoqin (University of Electronic Technology and Science, China)
Mei Yang, Yingtao Jiang (University of Nevada – Las Vegas, USA)

Service Oriented Wireless Sensor Network Toolbox for Consumer
Applications
Jongwoo Sung (Information and Communications University, Korea)

SmartSearch: Situation-Aware Web Search on Mobile Devices – Short
Paper
Henry Song, Swoorap Kalasapur, Sangho Jeong, Doreen Cheng (Samsung, USA)

A Hierarchically Structured Worldwide Sensor Web Architecture – Short
Paper
Ian Rhead, Madjid Merabti, Hala Mokhtar, Paul Fergus
(Liverpool John Moores University, UK)

Opt-in Detection based on Call Detail Records – Short Paper
Huqi Zhang, Ram Dantu (University of North Texas, USA)

Monday, 12 January 2009
14:00 – 16:00  •  Location: Goldfield Room
M3-6 SS VCED / SS FVAHN
Session: Virtualization for CE Devices / Challenges in
Future Vehicular Ad Hoc Networks
Chair: Sang-bum Suh, Samsung, Korea

An Agent Framework for CE Devices to Support Storage Virtualization on
Device Ensembles
Woojoong Lee, Young-Ki Hong, Chanik Park
(Pohang University of Science and Technology, Korea)

Virtual Machines for CE
Gernot Heiser (University of New South Wales, Australia)

The Throughput-Reliability Tradeoff in 802.11-Based Vehicular Safety
Communications
Zhe Wang, Mahbub Hassan (University of New South Wales, Australia)

Privacy and Scalability Analysis of Vehicular Combinatorial Certificate
Schemes
Robert White, Stanley Pietrowicz, Eric van den Berg, Giovanni Di Crescenzo,
Dennis Mok, Richard Ferrer, Tao Zhang, Hyung Shim
(Telcordia Technologies, USA)

A Proposal of Link Metric for Next-Hop Forwarding Methods in Vehicular
Ad Hoc Networks
Hiraku Okada, Akira Takano, Kenichi Mase (Niigata University, Japan)

Fragile Watermarking Based on Localized Histogram Modification – Short
Paper
Hyang-mi Yoo (Chungbuk National University, Korea)
Sang-Kwang Lee
(Electronics and Telecommunications Research Institute, Korea)
Jae-Won Suh (Chungbuk National University, Korea)
Sunday, 11 January 2008 • 16:30 – 18:00
Location: Copper Room
Consumer Device Management –
Industry Standards and Solutions
Moderator: Stan Moyer, Telcordia, USA

Today, services and applications are being deployed on a wide range of devices. How to manage these devices is a concern to the service provider, application developer, and device manufacturer. For example, deploying services to consumer electronics devices for residential applications, handheld devices for mobile applications and end user devices prevalent in today's corporate networks.

This panel of leading standards organizations executives will discuss the architecture and remote management specifications and tools available today for device management. The panel will look at the current initiatives within each group, and set a baseline for what is already being accomplished in this arena. From this discussion, the picture will become clearer of where opportunities and obstacles still lurk. In addition, the vision beyond today's commercial requirements will emerge to frame a discussion of the next steps and possibilities inherent in new technologies under development. Our hope is that this frank discussion will help align the industry and provide a catalyst for future technology solutions.

Stan Moyer is Executive Director and Strategic Research Program Manager in the Applied Research area of Telcordia Technologies, where he has worked since 1990. Stan is currently president of the OSGi™ Alliance and is also a member of the board and treasurer for the IEEE Communications Society.

Sunday, 11 January 2008 • 16:30 – 18:00
Location: Silver Room
Context Aware Mobile Services –
Beyond Location Information
Moderator: Shoshana Loeb, Telcordia, USA

Shoshana Loeb is an Executive Director in the Applied Research organization at Telcordia Technologies leading efforts focused on the creation of new market-driven products and services for next generation universal service platforms (4G, 5G and 6G services), mobile phone applications including location based services, social networking, navigation services, automotive Telematics application and Tele-health as well as media and video based cell phone applications that address the long-tail of e-commerce, and the development of new business opportunities and innovative business models for commercialization. She was showcased by NPR as a distinguished woman and Science and Technology and was the founder and CEO of Elity Systems, a venture backed startup which is now part of Unica (UNCA). Dr. Loeb holds an award-winning Ph.D. in Applied Mathematics from The Weizmann Institute of Science in Israel and a Post-Doctoral Fellowship in Computer Science and Artificial Intelligence at Yale University. She is a co-author of The Fabric of Mobile Services, Wiley and Son, 2009 forthcoming, and the author of Filtering of Information Streams, Springer 2009, forthcoming.

Monday, 12 January 2008 • 16:30 – 18:00
Location: Copper Room
Standardization Map of the
Consumer Electronics Industry
Moderator: Clint Chaplin, Samsung Electronics

Clint Chaplin works on home networking technology standards for Samsung Electronics, with a current emphasis on UWB and 802.11 technologies. He was the founder and chair of the IEEE 802.11 Task Group r, which developed an amendment to 802.11 to speed up the handover process. He is also active in the IEEE Standards Organization Standards Board.

With more than 30 years of engineering experience in computer technology, he previously worked at Symbol Technologies in their Wireless Systems division, where he architected the management infrastructure for 802.11 system control, as well as working on or leading several wireless security projects. He also was active in IEEE 802.11 Task Group i, as well as the Wi-Fi Alliance where he was elected to the position of Technical Chair and subsequently elected to the position of BoD Chair. Before Symbol Technologies, he worked for DesaWare, Microsoft, MicroLabs, and Sirius Systems Technologies/ Victor Technologies.

He has a Bachelor of Science in Electronic Engineering, a Masters of Science in Computer Science, and a Masters of Engineering with a concentration in high speed digital communications from California Polytechnic State University, San Luis Obispo.
DEMONSTRATIONS

Sunday, 11 January 2009
13:15 – 14:00  Demonstration Presentations
18:00 – 19:00  Happy Hour Demonstrations

Monday, 12 January 2009
13:15 – 14:00  Demonstration Presentations

Location: Lake Tahoe Room

Title: Demonstration of Call-to-Web Session Linkage System
Authors: Masashi Toyama, Koji Murakami, Yoshiko Sueda, Osamu Mizuno, Nippon Telegraph and Telephone Corporation, Japan
Abstract: We demonstrate a prototype of a call-to-Web session linkage system for sharing a Web application between caller and receiver. The system makes a session linkage between Web browsers based on call session information of SIP, which is an application-layer control protocol mainly used for IP telephony systems. After that, the system offers Web servers information for the linkage so that Web servers can provide a shared Web service easily. This system can even be used by a browser of home appliances, which are difficult to upgrade because those linkage protocols consist of basic browser functions.

Title: Demonstration of First Response Communication Sandbox
Authors: Dirk Bradler, Max Mühlhäuser, TU Darmstadt, Germany
Jussi Kangasharju, University of Helsinki, Finland
Abstract: First response communication is tackled by several independent research groups. While there are existing prototypes and simulated results, comparison of first response solutions is hardly possible so far. We have built an universal XML based description format to handle all relevant settings and actions typical for first response scenarios. In addition we implemented a user-friendly movement and environment simulator which interacts with the network simulation on top of the simulated movement. The chosen data structure have proven to be well suited for describing settings and actions found in a first response scenario. The simulator combines movement and network simulation and therefore enables both, fine grained movement models and location aware network models with reciprocal interdependencies.

The simulation results of the chosen communication approach are therefore finer grained than using a network or movement simulator separately. In this demo we show different movement and network models, perform movement simulations and show the interface for using mobility simulation within network simulators.

Title: Demonstration of Home Appliance Control Using Heterogeneous Sensor Networks
Authors: Takahiro Ito, Yuichi Kato, Masatoshi Ogura, Hideki Kamiya, Hiroshi Mineno, Tadanori Mizuno, Shizuoka University, Japan
Norihiro Ishikawa, NTT, Japan
Abstract: This demonstration presents the system showed in the paper accepted at CCNC 2009 “Home Appliance Control Using Heterogeneous Sensor Networks”. By using this system, control of a network camera based on the value of a sensor is possible. With mobile devices, a user can set or delete the service, which would be executed when a predefined event occurred. When the value of sensors satisfies the event occurrence condition, this architecture detects it, and executes the service which is determined in advance. The definition of the event, which is composed of several types of sensors, is also possible. Therefore, a user can use sensors without being conscious of the difference of vendors. We demonstrate how to define an event and set a service against the defined event.

Title: Demonstration of Non-cluster Based Topology Control Method for Wireless Sensor Networks
Authors: Wenzhu Zhang, Lin Zhang, Jian Yuan, Xiaoxiao Yu, Xiuxing Shan, Tsinghua University, China
Abstract: Environmental surveillance applications usually require a long living cycle of sensor nodes, especially when they are powered by non-charged batteries. Inspired by cellular automata, we propose a non-cluster based topology control method to prolong the lifetime of wireless sensor networks. Differing from the traditional cluster-based methods, our approaches lead a special way to maintain longer system lifetime by sacrificing a small proportion of network coverage and connectivity degrees. The demonstration contains both theoretical simulation and system-level experiment, which will be instructive for future study.
Abstract: One of the most active research topics in the field of video signal processing is scalable video coding (SVC). The recently published extension of the H.264/AVC video coding standard introduces scalability features by employing a layered encoding of the video stream. In our work we investigated the usage of this scalable extension of H.264/AVC for in-network multimedia adaptation. We developed an RTSP/RTP-based proxy which exploits the layered encoding of the video and can perform real-time video adaptation on an inexpensive off-the-shelf WiFi router. This is achieved by applying a stateful, packet-based adaptation approach that keeps the computational costs at a minimum. With that approach it is possible to simultaneously adapt multiple video streams to varying network conditions or to the capabilities of the consumers’ end-devices. In our demonstration we show the streaming of two scalable video streams from a server to a client and the in-network adaptation of the video at the WiFi router. The adaptation can be controlled interactively in the temporal, spatial and SNR domains. 

Title: In-network Real-time Adaptation of Scalable Video Content on a WiFi Router
Authors: Ingo Keller, Robert Kuschel, Hermann Hellwagner, Klagenfurt University, Austria

Abstract: This demonstration presents spam scenarios and a lightweight security mechanism for protecting spam calls in SIP-based VoIP services. Generally, VoIP providers have been applying only the HTTP digest scheme to authenticate a UA. They may be not considering protecting SIP signaling between the light-weight UA and the SIP proxy using the TLS mechanism since it suffers from the heavy overhead for computation on the resource-constrained UA. Therefore, the spammer can send SIP messages such as INVITE or 200 OK directly to the UA or the SIP proxy, and then communicate with the user by establishing a media channel. This paper demonstrates several spam scenarios when the TLS mechanism is not established at the light-weight SIP UA. Besides, we will show that these spam calls can be protected by using our proposed security scheme instead of TLS mechanism.

Title: Demonstration of Spam and Security Mechanism in SIP-Based VoIP Services
Authors: Jae-Choi Kang, Sang-Suk Chae, Jae-Duck Choi, Souhwan Jung, Soongsil University, Korea

Abstract: Push-to-talk, a walkie-talkie kind of communications, has been gaining attention as a service in cellular networks. Unlike traditional walkie-talkies, however, push-to-talk requires network infrastructure for its operation. While infrastructure-less operation in mobile ad hoc networks has been explored in the past, such approaches attempt to establish an end-to-end path for communications, which may be unstable and exhibit bad performance over multiple hops; and often the node density may be insufficient to establish such paths in the first place. In this demo, we apply the concept of asynchronous message passing using delay-tolerant networking to audio messages which get recorded and then transmitted via store-carry-and-forward from the source to the destination. This decouples audio quality from some extent from the instant dynamics of the network and enables intelligible communications at the expense of some potential extra delay. We present an implementation of the DT-Talkie on the Nokia N810 Internet tablets, leveraging the DTN reference implementation developed in the concept of the DTN Research Group.

Title: DT-Talkie: Interactive Voice Messaging for Heterogeneous Groups in Delay Tolerant Networks
Author: Md. Tarikul Islam, Helsinki University of Technology, Finland

Abstract: Push-to-talk, a walkie-talkie kind of communications, has been gaining attention as a service in cellular networks. Unlike traditional walkie-talkies, however, push-to-talk requires network infrastructure for its operation. While infrastructure-less operation in mobile ad hoc networks has been explored in the past, such approaches attempt to establish an end-to-end path for communications, which may be unstable and exhibit bad performance over multiple hops; and often the node density may be insufficient to establish such paths in the first place. In this demo, we apply the concept of asynchronous message passing using delay-tolerant networking to audio messages which get recorded and then transmitted via store-carry-and-forward from the source to the destination. This decouples audio quality from some extent from the instant dynamics of the network and enables intelligible communications at the expense of some potential extra delay. We present an implementation of the DT-Talkie on the Nokia N810 Internet tablets, leveraging the DTN reference implementation developed in the concept of the DTN Research Group.

Title: Demonstration of Standard IPTV Content Delivery Network Architecture Interfaces
Authors: Mohamed Fouz Menai, Frederic Fieu, Orange Labs – France Telecom Group, France

Abstract: This document we suggest a demonstration of standard SIP/RTSP based Content Delivery Networks (CDN). The intended use of SIP based CDNs is in the scope of IMS based IPTV architectures that are being standardized in the Open IPTV Forum [1], ESIT-TISPAN and the ITU-T. The system includes a central server (Content Delivery Network Controller) analyzing all received content delivery requests. The Content Delivery Network Controller chooses the cluster of servers a request should be redirected to. The choice is made depending on client location, content availability, location and servers’ global load. Each cluster is controlled by a Cluster Controller that would make the choice of the final VoD server to deliver the content, based on a fine grained analysis of the load of the VoD servers it manages. The system proves the feasibility of the standards and highlights the flexibility of SIP [1] interfaces when coupled with RTSP [2] to organize redirections within a CDN.

Title: Demonstration of Standard IPTV Content Delivery Network Architecture Interfaces
Authors: Mohamed Fouz Menai, Frederic Fieu, Orange Labs – France Telecom Group, France

Abstract: This document we suggest a demonstration of standard SIP/RTSP based Content Delivery Networks (CDN). The intended use of SIP based CDNs is in the scope of IMS based IPTV architectures that are being standardized in the Open IPTV Forum [1], ESIT-TISPAN and the ITU-T. The system includes a central server (Content Delivery Network Controller) analyzing all received content delivery requests. The Content Delivery Network Controller chooses the cluster of servers a request should be redirected to. The choice is made depending on client location, content availability, location and servers’ global load. Each cluster is controlled by a Cluster Controller that would make the choice of the final VoD server to deliver the content, based on a fine grained analysis of the load of the VoD servers it manages. The system proves the feasibility of the standards and highlights the flexibility of SIP [1] interfaces when coupled with RTSP [2] to organize redirections within a CDN.

Title: Demonstration of GridMedia+: A P2P Streaming System for Live Streaming in a Single P2P Engine and also provides a uniform user interface for both PC users and TV users.

Authors: Li Zhao, Tsinghua University, China

Abstract: Supporting both live and on-demand video in a P2P streaming system is an emerging requirement and a technical trend. This demo showcases an experimental but practical P2P streaming system named GridMedia+, which combines live video streaming and on-demand video streaming in a single P2P engine, and also provides a uniform user interface for both PC users and TV users.

Title: GridMedia+: A P2P Streaming System for Live and On-Demand Video
Author: Li Zhao, Tsinghua University, China

Abstract: One of the most active research topics in the field of video signal processing is scalable video coding (SVC). The recently published extension of the H.264/AVC video coding standard introduces scalability features by employing a layered encoding of the video stream. In our work we investigated the usage of this scalable extension of H.264/AVC for in-network multimedia adaptation. We developed an RTSP/RTP-based proxy which exploits the layered encoding of the video and can perform real-time video adaptation on an inexpensive off-the-shelf WiFi router. This is achieved by applying a stateful, packet-based adaptation approach that keeps the computational costs at a minimum. With that approach it is possible to simultaneously adapt multiple video streams to varying network conditions or to the capabilities of the consumers’ end-devices. In our demonstration we show the streaming of two scalable video streams from a server to a client and the in-network adaptation of the video at the WiFi router. The adaptation can be controlled interactively in the temporal, spatial and SNR domains.

Title: In-network Real-time Adaptation of Scalable Video Content on a WiFi Router
Authors: Ingo Keller, Robert Kuschel, Hermann Hellwagner, Klagenfurt University, Austria

Abstract: In this paper, we describe HW and SW features of the developed prototype of a hybrid of 3G mobile phone and wireless terminal, which provides integral video projection onto two VGA/2 displays. These could be fold/collapsible one onto each other, or re-mounted, while the ratio of the total length to height is preserved at 4:3, so enabling integral video VGA format and, consequently, displaying internet content, e-mail messages, PC SW screens, multimedia etc. Two displays that share the image provides it with overall resolution of 640x480 pixels per inch. The device is driven by OMAP 2420 multimedia processor with ARM1136 core and Linux operating system. In addition, the device is equipped with specially developed prototypes of unique spring/microgenerator based battery charger as well as with ultra-thin mountable foil-based QWERTY keyboard.

Title: Integrated Dual-Display-Based 3G Mobile Phone / Wireless Terminal
Authors: Vlatko Lipovac, Vedran Batos, University of Dubrovnik, Hungary

Abstract: Remote monitoring of physical effort has a great importance in the treatment of some cardiopathies. Nowadays, wearable motion-tracking devices represent an easy solution to acquire relevant data. We demonstrate a system based on a commercial sensor that sends real-time information to a hospital via a mobile gateway -the patient’s cell phone- in the same Bluetooth WPAN.

Title: Low Cost Remote Effort Monitoring with Wearable Accelerometers
Authors: Francisco Castano, Daniel Rodriguez-Silva, Sergio Costas-Rodríguez, Rafael Martínez-Alvarez, Universidad de Vigo, Spain

Abstract: Nowadays, in most content delivery solutions the service is delivered to the same device that controls the session – thus, service delivery and control are tightly coupled. We present a solution that was designed with the goal to decouple service control and delivery. Using our approach, multimedia streaming services can be delivered to off-the-shelf DLNA devices in visited networks. The service provider receives information about the media player device and the target environment via a mobile phone. Proximity technologies (e.g. barcodes, NFC) of the control device are used for the exchange of required credentials is performed. This paper describes a demonstration scenario and our prototype implementation.
Title: Mobile P2P Fast Similarity Search
Authors: Thomas Bocek, Fabio Hacht, David Hausherr, Burkhard Stiller, University of Zurich, Switzerland
Ela Hunt, University of Strathclyde, UK

Abstract: In informal data sharing environments, misspellings cause problems for data indexing and retrieval. This is even more pronounced in mobile environments, in which devices with limited input devices are used. In a mobile environment, similarity search algorithms for finding misspelled data need to account for limited CPU and bandwidth. This demo shows P2P fast similarity search (P2PFastSS) running on mobile phones and laptops that is tailored to uncertain data entry and uses available resources efficiently. In this demo, users publish and search for textual content containing misspellings without relying on query logging, as done by Google, and with a minimum distributed indexing infrastructure. Similarity search is supported by using the concept of deletion neighborhood to evaluate the edit distance metric of string similarity.

Title: Mobile Touch: NFC-like Interaction with Yesterday's Phones
Authors: Victor Klos, M. Oskar van Deventer, Mark van Staalduinen, TNO, Netherlands

Abstract: Near Field Communication (NFC) enables fast interactive mobile services as it allows two mobile devices to quickly and securely exchange information when they are within touching range. However, NFC-enabled phones are virtually absent on the market today, which impedes the break through of these useful services. This paper presents the Mobile Touch Technology, which utilizes the mobile phone's microphone plus its connectivity capabilities to effectively emulate NFC with mobile phones that are already widely available on the market.

Title: NAT Free Open Source 3D Video Conferencing using SAMTK and Application Layer Router
Authors: Nobuo Kaguchi, Shintaro Nishiura, Odira Abade, Nagoya University, Japan
Takahiro Kurosawa, WIDE, Japan
Tatsuya Jimmi, TOSHIBA Corporation, Japan
Eiichi Muramoto, Panasonic Corporation, Japan

Abstract: SAMTK: Scalable Adaptive Multicast Toolkit is a toolkit to bridge the gap between network researchers and application developers in the field of multi-point communication. SAMTK includes a Qt based GUI that ensures a single source multi-platform use (Linux, FreeBSD, Windows and MacOS). It provides interfaces for network plugins used by one-to-many network sockets and a simple application programming interface for application developers to develop multi-point communication applications quite easily.
ALR: Application Layer Router is a router which parses UDP packets and does a lookup in its internal forwarding table to duplicate and deliver the packets to multiple destinations. It provides NAT traversal function by using a single UDP port both for session registration and packet delivery. The demo shows the feasibility of NAT free 3D video conferencing using Application Layer Router and the ease of development of video conferencing applications using SAMTK.

Title: NGN/IMS-based Ubiquitous Health Monitoring System
Author: Koichiro Rikitake, University of Tokyo, Japan

Abstract: In this demonstration we present an ubiquitous health monitoring system based on the NGN/IMS (Next Generation Network/IP Multimedia Subsystem). It enables us to be taken care of by medical professionals anytime, anywhere using portable medical sensors and mobile networks. To provide seamless health monitoring services, an open, secure and functional platform is required. Such a platform should support multiple functions such as real-time transfer, event notification, and continuous data accumulation.

The NGN/IMS is a potential platform to fulfill these requirements, because it is a standard-based open platform, which provides AAA (Authentication, Authorization and Accounting), QoS (Quality of Service) support, event notification and a data management server. We present a system design and a prototype implementation on a NGN/IMS testbed.
Title: Smart Personal Health Manager: A Sensor BAN Application
Authors: Deepak Ayyagari, Yongji Fu, Sharp Laboratories, USA

Abstract: The demonstration will show the prototype system of smart personal health manager. The smart personal health manager consists of a sensor suite and operates a multi-hop wireless network. It can be applied for real-time, continuous, wearable physiological monitoring as well as environmental monitoring for healthcare management.

Title: TLS-Tandem: A Smart Card for WEB Applications
Author: Pascal Urien, ENST, France

Abstract: This demonstration shows a WEB application offering multimedia contents, whose access is fully controlled by a smart card according to an innovative context, named TLS-Tandem. The client's PC is not pre-configured for these operations; credentials required by the WEB site, and used by the smart card (certificates, private keys), are distributed via AJAX facilities.

Title: Trust-by-Wire in Packet-Switched IPv6 Networks: Tools and FPGA Prototype for the IPclip System
Authors: Peter Danielis, Stephan Kubisch, Harald Widiger, Jens Rohrbeck, Vladyslav Altman, Jan Skodzik, Dirk Timmermann, University of Rostock, Germany

Abstract: This demonstration shows the hardware prototype of the IPclip (IP Calling Line Identification Presentation) mechanism for IPv6 networks. IPclip is a mechanism, which provides Trust-by-Wire in IP-based networks by adding trustworthy location information to IP packets. It is implemented on an FPGA development board and configurable at runtime via a graphical configuration tool. We show IPclip’s basic functionality in a localization scenario using an analysis tool and Google Earth and discuss several application scenarios during the demonstration.

Title: U-FIPI: Ubiquitous Sensor Network Service Infra Supporting Bidirectional Location-Awareness between Mobile Nodes and Fixture Nodes
Author: Soon Ju Kang, Kyungpook National University, Korea

Abstract: We introduce a ubiquitous sensor network system, called U-FIPI, to monitor the early symptom of fire and intruder in indoor environment. Especially, this system adapts a novel approach to provide bidirectional location-awareness service between various mobile nodes and U-FIPI fixture nodes making it suitable for total service as a new concept of building management system.

Title: Using SNS as Access Control Mechanism for DLNA Content Sharing System
Authors: Taeyoung Song, Yoshihiro Kawahara, Tohru Asami, University of Tokyo, Japan

Abstract: The home networking becomes more interesting if users can share high quality contents with friends and colleagues living away from the user. DLNA certified devices allow users to share or access digital media contents on the same home network. However, the sharing of the content is only limited inside local area networks. In this paper, we propose a global content sharing home gateway named DAS (DLNA Agent for SNS). Different from exiting approaches using VPN, DAS enables to share specified contents to selected users with support of access control functionality provided by Social Network web services. As DAS behaves as a DLNA certified server, there is no need to modify commercial DLNA CE devices.

Title: Vanets: Case Study of a Peer-to-peer Video Conferencing System
Authors: Tareq Hessain, Yi Cui, Yuan Xue, Vanderbilt University, USA

Abstract: We present a peer-to-peer video conferencing system, Vanets. Our system takes advantage of transcoding to optimize the video streaming rate of the participating peers. We use the active peer participant focus technique to allocate higher bandwidth to the user currently talking. Each participant maintains a local tree topology where the participant is the root and uses this topology to stream video. Therefore, passive participants receive higher quality video from an active participant, while receiving lower quality video from the rest of the participants.

Title: Trojan Detection and Defense System
Author: Ting Liu, Xi’an Jiaotong University, China

Abstract: This paper presents a novel Trojan detection and defense system. The prototype searches the important files which contain users’ confidential information on disk. All processes that access those files will be monitored by capturing and analyzing the IRPs (I/O Request Packets). The prototype can distinguish Trojans processes from regular ones by evaluating their API-calls with several machine-learning models, rather than traditional signature-based mechanism. Trojan’s IRPs and processes will be suspended and killed to protect users’ confidential information from attackers. Testing results indicate that this prototype can detect and defend unknown Trojans quickly and accurately.
Mobile multimedia services enabling IP-based services using multi protocol broadcast, DVB-H has become a leading global technology to offer mobile multimedia service. DVB-H has redesigned DVB-T to overcome mobility related handicaps of DVB-T such as power consumption and data streams integrity during mobility. DVB-H also enables IP based services using multi protocol encapsulation (MPE) by encapsulating IP packets into MPEG-2 streams. These developments have paved way to integrate broadcast technologies with traditional telecommunication technologies.

Summary:
Mobility protocols at IP and higher layers have been used for handover across heterogeneous networks. Yet seamless handover requires communication across the different network technologies and across different layers. IEEE standard 802.21 is the first attempt to standardize an architecture and protocol to support efficient handover across different 802 networks (WLAN, WiMAX, Ethernet) as well as different cellular networks. Different networks may use their own security mechanism, causing excessive delay during heterogeneous network handover. Studies are being conducted in IEEE802.21a on how to optimize security signaling during handover and how to secure the MIH signaling messages. For multicast and broadcast applications such as the TV broadcast, DVB-H has become a leading global technology to offer mobile multimedia service. DVB-H has redesigned DVB-T to overcome mobility related handicaps of DVB-T such as power consumption and data streams integrity during mobility. DVB-H also enables IP based services using multi protocol encapsulation (MPE) by encapsulating IP packets into MPEG-2 streams. These developments have paved way to integrate broadcast technologies with traditional telecommunication technologies. Studies to integrate DVB-H into the IEEE 802.21 standard will be presented.

**Summary:**
This tutorial presents a comprehensive introduction to the emerging 60 GHz wireless technology that covers all aspects of the current state-of-the-art in 60 GHz technology. The current status of the worldwide 60 GHz frequency spectrum allocation, regulatory requirements as well as industry standardization efforts for 60 GHz technology will be reviewed. We then discuss the 60 GHz channel modeling framework followed by discussion on the current solutions, challenges, and trade-offs involved in the implementation of a high data-rate 60GHz radio module. Radio architectures for single and multiple antenna (phased array) systems are presented. We then discuss antenna array beamforming as an enabling technology to achieve Gbps throughput over general 60 GHz NLOS channels as well as comparing OFDM and SC-FDE as two major potential baseband modulation schemes in terms of computational complexity, power efficiency, and equalizer choice. Unequal error protection (UEP) techniques which can be applied in baseband to support uncompressed high definition video communications are also discussed. This tutorial will also cover the aspect of MAC layer design for directional 60 GHz communications systems highlighting the issues related to carrier sensing, deafness and device discovery. The MAC design consideration to support uncompressed video using UEP will be detailed.
 welcome to the 1st IEEE International Workshop on information retrieval in sensor networks (IRSN’09) that takes place in conjunction with the IEEE CCNC 2009.

thanks to sensor technologies which allow for cheaper sensors with increasing sensing capability, there is a growing trend of deploying sensor nodes in the physical world to form a network for monitoring events of interest. critical to such a sensor network is a functionality that allows for efficient storage and fast retrieval of information. despite various efforts, research on techniques that enable information retrieval for sensor networks is still in an infancy stage and mostly ad hoc. it is understandable, though. compared to information retrieval systems already existing on the internet, that designed for sensor networks poses unseen challenges due to limitations in sensor storage, processing, and communication capacities.

in its inaugural effort, IRSN 2009 wants to serve as a forum for both researchers and practitioners to exchange the latest results in all aspects of how to support information retrieval services in sensor networks. the papers that were submitted were assessed in a rigorous review process by the TPC members, each paper receiving at least three reviews. we finally accepted six papers for presentation. the Proceedings consists of four papers as two other accepted papers were later withdrawn by their authors for various reasons.

we thank the TPC members for their help with evaluating the papers. we would also like to acknowledge the help and guidance from Dr. Kurt Tutschku – the IEEE CCNC 2009 Workshop Chair – during the organization of IRSN 2009.

Workshop Co-Organizers:

General Chair
Jun Suzuki, University of Massachusetts at Boston, USA

PC Chair
Duc A. Tran, University of Massachusetts at Boston, USA

Paper Presentations 09:00 – 11:00

Energy-Aware Data Gathering in Wireless Sensor Networks
Soyoung Hwang (ETRI, Korea)

Information Storage, Reduction and Dissemination in Sensor Networks: A Survey
Quan Le-Trung (University of Oslo, Norway)
Paul Engelstad (University of Oslo / Telenor R&I, Norway)
Amirhossein Taherkordi, Hai Ngoc Pham (University of Oslo, Norway)
Tor Skeie (Simula Research Lab, Norway)

Toward Interoperable Publish/Subscribe Communication between Wireless Sensor Networks and Access Networks
Pruet Boonma, Junichi Suzuki (University of Massachusetts at Boston, USA)

High-Resolution Speech Signal Reconstruction in Wireless Sensor Networks
Andria Pazarloglou, Radu Stoleru, Ricardo Gutierrez-Osuna (Texas A&M University, USA)

Empowering the Connected Consumer
Welcome to the Fifth IEEE International Workshop on Digital Rights Management Impact on Consumer Communications (DRM ’09)

Consumers and consumer electronics are increasingly using the Internet for distribution of digital goods, including digital versions of books, articles, music, and images. The ease with which digital goods can be copied and redistributed makes the Internet well suited for unauthorized copying, modification and redistribution. The rapid adoption of new technologies such as high-bandwidth connections, wireless networks, and peer-to-peer networks is accelerating this process.

Digital Rights Management (DRM) systems are intended to protect the rights of content owners in scenarios in which the participants have conflicting goals and are not fully trusted. This adversarial situation introduces interesting new twists on classical problems studied in cryptology and security research, such as key management and access control. Furthermore, novel security mechanisms can enable new business models and applications.

Recent research has also proposed new primitives for DRM, such as hash functions that make it possible to identify content in an adversarial setting.

Now in its fifth year, this one-day workshop on Digital Rights Management Impact on Consumer Communications consists of six presentations and provides an open forum for researchers, engineers and academia to exchange the latest technical information and research findings in addressing problems faced by both rights holders and end consumers as well as service providers and regulatory policy makers.

This workshop would not have been possible without the support of many people. First of all, we would like to thank the IEEE CCNC 09 workshop chair, Kurt Tutschku (University of Vienna, Austria), for his wonderful support in organizing this workshop. Our special thanks are due to the Program Committee members, many of which have been serving this workshop for a few years, for their excellent job in reviewing the submissions and thus guaranteeing the quality of the workshop under a very tight schedule. We are indebted to the IEEE CCNC Workshop committee and the IEEE CCNC Organizing committee for giving us a chance to continue this workshop for its fifth time. Finally, we would like to take this opportunity to thank all the authors for their contributions to the workshop.

Workshop Co-Organizers:
Xin Wang, ContentGuard, Inc., USA
David Llewellyn-Jones, Liverpool John Moores University, UK

Privacy Preserving Multiparty Multilevel DRM Architecture
Amit Sachan, Sabu Emmanuel, Amitabha Das (Nanyang Technological University, Singapore)
Mohan Kankanhalli (National University of Singapore, Singapore)

Cooperative and Non-Cooperative Game-Theoretic Analyses of Adoptions of Security Policies for DRM
Zhiyong Zhang, Qingqi Pei, Jianfeng Ma (Xidian University, China)
Lin Yang (China Electronic Equipment & Systems Engineering Corporation, China)

Chinese MPEG-21 Rights Expression Language: Enhancing Digital Rights Management Adoption to Digital Libraries in Hong Kong
Zhaohua Liu (City University of Hong Kong, Hong Kong)

On Observable Delegation of Personal Data by Watermarking
Sven Wohlgemuth (National Institute of Informatics, Germany)
Noboru Sonenhara, Isao Echizen (National Institute of Informatics, Japan)

Octopus: An Application Independent DRM Toolkit
Gilles Boccon-Gibod, Julien Boeuf, Jack Lacy (InterTrust, USA)

The Legal Environment for Copyright Protection and Trust Management in China
Sun Lei, Li Zhao, Xin Tong (Tsinghua University, China)
Knox Carey (Intertrust, USA)
Welcome to the First IEEE Intelligent Vehicular Communication Systems (IVCS) workshop to be held in conjunction with IEEE CCNC 2009 in Las Vegas in January 2009.

Vehicular communication systems have now gained popularity and importance. New technical challenges have evolved that demand research and investigations. Globally, automobiles are indispensable for connecting people, delivering goods and services and for commuting from one place to another. Car industries are of great importance in Asia, Europe, USA and the rest of the world. Car makers will be key players in car telematics. Much research remain to be done to bring alive the vision of future intelligent vehicular applications, which will be supported by vehicular communications and networks. Consumer telematic technologies will be needed to enable drivers to exploit the advantages of next generation intelligent transportation systems.

IEEE IVCS 2009 serves as a leading forum to bring together researchers and engineers in both academia and industry to exchange ideas, share experiences, and report original works about all aspects of car consumer telematics, communications, networking, security and services. The main purpose is to promote discussions of research and relevant activities in the design of architectures, algorithms, and applications for intelligent vehicular communication environments. This year’s papers address a broad range of research issues in intelligent vehicular communication systems, from security to reliable broadcast; mitigating hidden terminal effects; signal strength measurements; MAC protocols. They are a good representative of the breadth of research areas within intelligent vehicular communication systems.

We would like to express our appreciation to all the contributors and authors for the 20 submissions to IVCS’09. The submissions were from 10 countries on three continents and the Middle East. After a rigorous review process, we finally accepted 6 papers for presentation. We have therefore prepared an exciting program in this workshop.

We especially want to thank the members of the Technical Program Committee and all the external reviewers for their valuable help in evaluating the papers. We would like to thank all TPC Vice Chairs, i.e., Dr. Fan Bai, Dr. Kun Yang, and Dr. D K Kim and the Publicity Chair Dr. Kemal Tepe for their efforts. Finally, we would like to acknowledge the great support by the CCNC 2009 team; in particular, the workshop chair Prof. Kurt Tutschku (University of Würzburg, Germany) for facilitating the organization of this workshop.

Thank you and enjoy the workshop!

Yours sincerely,

General Chair
Russell Hsing, Telcordia USA

General Vice Chairs
C K Toh, University of Hong Kong, Hong Kong
J-L C Wu, NTUST, Taiwan
Wojciech Cellary, Poznan University, Poland

Technical Program Chairs
Daniel Wong, USA
C D Chang, III, Taiwan

Paper Presentations 09:00 – 12:00

SeGCom: Secure Group Communication in VANETs
Dijiang Huang (Arizona State University, USA)

Piggyback Cooperative Repetition for Reliable Broadcasting of Safety Messages in VANETs
Lin Yang, Jinhua Guo (University of Michigan, USA)

A Broadcasting Method for Suppressing Hidden Terminals Effect on IEEE802.11DCF
Tetuya Shigeyasu, Hiroshi Matsuno, Norihiko Morinaga (Hiroshima International University, Japan)

Concurrent Measurements of the Vehicular Channel Transfer Function and 802.11 Received Signal Strength Index
Haris Kremo (WINLAB, Rutgers University, USA)
Ivan Seskar, Predrag Spasojevic (Rutgers University, USA)

Index Coded Repetition-Based MAC in Vehicular Ad Hoc Networks
Behnam Hassanabadi, Le Zhang, Shahrkh Valae (University of Toronto, Canada)

Adaptive Multi-Channel MAC Protocol for Dense VANET Using Directional Antennas
Xu Xie (Huazhong University of Science and Technology, China)
Welcome to the 5th IEEE International Workshop on Networking Issues in Multimedia Entertainment (IEEE NIME 2009) that takes place in conjunction with the 6th IEEE CCNC Conference.

The growing availability of digital contents and the simultaneous cost reductions in storage, processing, and networking is driving the growth of the entertainment technology. While in the past entertainment technology traditionally offered predominantly passive experiences, continual advances in network and computer technologies are providing tools for implementing greater interactivity and for enabling consumers to enjoy more exciting experiences, such as, for example, interactive digital TV, interactive theatre and orchestrated music and sound design. This phenomenon is pulling together an extremely diverse group of experts specializing in different technical areas, such as networking, computer graphics, artificial intelligence, games, animation, multimedia design, human-computer interaction, educational media and software engineering. Even though high-tech entertainment promotes interdisciplinary fusion, yet only the ubiquity of wireless/wired communication is considered suitable for accepting the challenge of building a large interactive environment for the delivery of the maximum entertainment value to millions of consumers worldwide. In this respect, there is a great hope that the wired and wireless may take over this complex scenario for fulfilling the consumer expectations.

Now in its fifth year, the IEEE International Workshop series on Networking Issues in Multimedia Entertainment provides an open forum for researchers, engineers and academia to exchange the latest technical information and research findings on next-generation networked multimedia concepts, technologies, systems, and applications for entertainment covering existing deployments, current developments and future evolution.

We would like to express our appreciation to all the contributors and authors for the submissions to IEEE NIME 2009. Special thanks are due to the members of the Technical Program Committee and all the external reviewers for their invaluable help with the review process. Finally, we would like to acknowledge the support by the IEEE CCNC 2009 organizers, the IEEE CCNC steering committee and the workshop chairs.

Workshop Co-Organizers:
- Marco Roccetti, Bologna University, Italy
- Giovanni Pau, UCLA, USA
- Abdennour El Rhalibi, Liverpool John Moores University, UK

A Statistical Approach to Cheating Countermeasure in P2P MOGs
Stefano Ferretti, Marco Roccetti, Roberta Zioni (University of Bologna, Italy)

On SPAWC: Discussion on a Musical Signal Parser and Well-Formed Composer
Stefano Ferretti, Marco Roccetti, Bruno Zamborlin
(University of Bologna, Italy)

An Enhanced Periodic Broadcasting Scheme for VoD with Heterogeneous Receivers
Jong Ik Jang, Kyung Tae Kim, Hee Yong Yoon
(Sungkyunkwan University, Korea)

Peer-to-Peer Voice Communication for Massively Multiplayer Online Games
Tonio Triebel, Benjamin Guthier, Wolfgang Effelsberg
(University of Mannheim, Germany)

Blue Danger: Live Action Gaming over Bluetooth
Athen Ma, Laurissa Tokarchuk, Yapeng Wang
(Queen Mary, University of London, UK)

Networking Aspects for the Security of Game Input
Christos Bouras (University of Patras, Greece)
Vassilis Tsogkas, Vassilis Poulopoulos
(Research Academic Computer Technology Institute, Greece)

Minimizing Rate Distortion in Peer-to-Peer Video Streaming
Tareq Hossain, Yi Cui, Yuan Xue (Vanderbilt University, USA)

At the Crossroads of Web and Interactive Multimedia: An Approach to Merge the Two Realms
Stefano Ferretti, Paola Salomoni, Marco Roccutti, Silvia Mirri, Ludovico Muratori
(University of Bologna, Italy)

VANETS w/o Limitations: An Optimal Distr. Alg. for Multi-Hop Comm. and Some Preliminary Results
Alessandro Amoroso, Marco Roccutti, Massimo Nanni, Lorenzo Prati
(University of Bologna, Italy)

Fast Multi-hop Broadcast over Vehicular Networks: A Real Testbed Evaluation
Claudio Palazzi (University of Padova, Italy)
Stefano Ferretti, Marco Roccutti (University of Bologna, Italy)

AGI-Cast Strategies for P2P Massively Multiplayer Online Games
Luca Genovali (IMT, Italy)
Laura Ricci (University of Pisa, Italy)

A Convergence Proposal Between the Brazilian Middleware for iDTV and Home Network Platforms
Nairon Viana, Orlewilson Maia, Vicente Lucena Jr, Luciano Pinto
(University of Amazonas, Brazil)
Welcome to The Fourth International Symposium on Ubiquitous Applications & Security Services (UASS '09)

Ubiquitous Computing is emerging rapidly as an exciting new paradigm to provide computing and communication services any time, any where. For realizing ubiquitous computing, UASS is needed. Our symposium provides a chance for academic and industry professionals to discuss recent progress in the area of ubiquitous Computing Environment including models and systems, new directions, novel applications associated with the utilization, and acceptance of ubiquitous computing devices and systems.

In response to the call for papers, we received 41 papers from around the world including Korea, China, Hong Kong, Taiwan, Japan, Spain, Canada and USA, representing more than 15 universities and institutions.

In order to guarantee high-quality proceedings, we put extensive effort into reviewing the papers. All submissions were peer reviewed by at least 3 program committee members as well as external reviewers. As the quality of the submissions were quite high, it was extremely difficult to select the papers for oral presentations and publications in the proceedings of the symposium. After extensive discussion and based on the reviews, we finally decided to accept 10 papers for oral presentations and publications in the proceedings. We believe that the chosen papers and topics will provide novel ideas, new results, work in progress and state-of-the-art techniques in this field as well as stimulate future research activities.

This symposium would not have been possible without the support of many people to make it a success. First of all, we would like to thank the CCNC 09 workshop chair, Kurt Tutschku, Austria. In addition, the Program Committee members for their excellent job in reviewing the submissions and thus guaranteeing the quality of the symposium under a very tight schedule. We are also indebted to the members of the organizing committee. Finally, we would like to take this opportunity to thank all the authors and participants for their contributions to make UASS-09 a grand success. We are looking forward to meet you in Las Vegas, Nevada, USA, on January 11-13, 2009.

Symposium Co-Organizers:

Steering Co-Chairs
Jong Hyuk Park, Kyungnam University, Korea
Laurence T. Yang, St Francis Xavier University, Canada

General Co-Chairs
Hsiao-Hwa Chen, National Cheng Kung University, Taiwan
Javier Lopez, University of Malaga, Spain

Program Co-Chairs
Changhoon Lee, Korea University, Korea
Justin Zhan, Carnegie Mellon University, USA
SeungJin Lim, Utah State University, USA

Design of Authentication Protocol for LR-WPAN Using Pre-Authentication Mechanism
Sung-Hyung Lee, Jae-Hyun Kim (Ajou University, Korea)

Intelligent Pervasive Network Authentication: S/Key-Based Device Authentication
Deok-Gyu Lee (ETRI, Korea)
Doo-Sook Park, Im-Yeong Lee (SoonChunHyang University, Korea)
Han Jong-wook (ETRI, Korea)

Context-Aware Processing Of Mobile Device Sensor Information: Car Accident Detection Hosted Service
Alejandro Cadenas, José María González Calabozo, Oscar Solá (Telefonica I+D, Spain)

A Hierarchical Unequal Packet Loss Protection Scheme for Robust H.264/AVC Transmission
Xingjun Zhang, Xiaohong Peng (Aston University, UK)
Dajun Wu (Institute for Infocomm Research, Singapore)
Tim Porter, Richard Haywood (Aston University, UK)

Decentralized Flocking Algorithms for a Swarm of Mobile Robots: Problem, Current Research and Future Directions
Xiong Naixue (Georgia State University, USA)
Yan Yang (Japan Advanced Institute of Science and Technology, Japan)
Jong Hyuk Park (Kyungnam University, Korea)
Tai-hoon Kim (Security Engineering Research Support Center, Korea)

StemCerts-2: Pairs of X.509 v3 Certificates for Greater Security, Flexibility and Convenience
Paolo Gasti, Giovanni Chiola (Università degli Studi di Genova, Italy)

Performance Evaluation of Hybrid Multipath Mobile Ad Hoc Network
Binod Vaidya (Tribhuvan University, Nepal)
Tai-hoon Kim (Security Engineering Research Support Center, Korea)
Jong Hyuk Park (Kyungnam University, Korea)

Activity-Oriented Access Control for Ubiquitous Environments
Le Xuan Hung (KyungHee University, Korea)

Deploying Context-Aware Services: A Case Study of Rapid Prototyping
Ana Bernardos, Paula Tarrio, Josue Iglesias, Jose Casar (Universidad Politecnica de Madrid, Spain)

On Refresh-based Tag Identification Schemes
Jihoon Cho (Royal Holloway University of London, UK)
Welcome to the 5th IEEE International Workshop on Social Television that takes place in conjunction with the 2009 IEEE Consumer Communication Networking (CCNC).

TV is changing and changing fast. With Internet content, multiple delivery mechanisms and personalization it will never be the same again. Added to the phenomenon of social network, TV becomes both a personal experience that reaches back to its original social roots and a global explosion of shared content and ideas, all in real time. This workshop will explore the multiple facets of the new TV experience and highlight its potentials as well as its challenges. Papers will explore how to create the experiences, how to share them, the pitfalls of opening the TV to the web as well as its promises. The workshop wants to be highly interactive with participation from the audience as well as the speakers to adapt to the dynamic pace of the TV landscape.

We would like to thank the authors that contributed papers to the Workshop. While the Workshop is small, the papers cover major aspects of Social Networking and provide both an industrial and academic vision for the future of Social TV.

Special thanks are due to the members of the Technical Program Committee and all the external reviewers for their invaluable help with evaluating the papers. We would like to acknowledge in particular Kurt Tutschku of the University of Vienna and John Buford of Avaya Labs, USA for their support and Subir Saha of Motorola for mentioning this opportunity in the 1st place.

Workshop Co-Chairs:
Henry Holtzman, MIT Media Lab, USA
Marie-Jose Montpetit, MIT Media Lab (Visiting), USA

Paper Presentations 09:00 – 12:00

Evolving the TV Experience
Simon Gibbs, Anugeetha Kunjithapatham, Phuong Nguyen, Priyang Rathod, Mithun Sheshagiri (Samsung, USA)

Active TV: Enter into a Cross Media, Community-Based Experience
Emmanuel Marilly, Alexis Germaneau, Bertrand Boidart, Olivier Martinot (Alcatel Lucent, France)

Social Television through Iterative Design
Noel Massey, Gunnar Harboe (Motorola, USA)

Sharing the Experience with Mobile Video: A Student Community Trial
Jukka Nurminen, Olli Karonen (Nokia Research Center, Finland)
Lorant Farkas (Nokia Siemens Networks, Hungary)
Timo Partala (Helsinki Institute of Information Technology, Finland)

Comment Spam Injection Made Easy
Marco Ramilli, Marco Prandini (University of Bologna, Italy)

Adding the Community to Channel Surfing: A New Approach to IPTV
Channel Change
Marie-Jose Montpetit (Motorola, USA)
Henry Holtzman (MIT Media Lab, USA)
Herb Calhoun, Dan Grossman (Motorola, USA)
Welcome to the 4th International Workshop on Dependable and Sustainable Peer-to-Peer Systems (DAS-P2P 2009) that takes place in conjunction with the 6th Annual IEEE Consumer Communications & Networking Conference (CCNC 2009).

This workshop focuses on dependability and sustainability of peer-to-peer (P2P) systems, with respect to their design, operations, applications, and social impacts.

P2P is a promising technology upon which we can build sustainable societies. Designs of P2P systems are characterized by their usage of overlay networks such that there is symmetry in the roles among participants. This implies distribution of authorities, not only preventing single points of failure, but also assuring a level of autonomy that allows many of us to spontaneously start, maintain, or recover from failures of such systems.

Although difficulties exist, such as issues of trust among participants, one needs to be aware that such difficulties are, in many parts, due to our own human nature; depending on P2P is, in fact and literally, depending on ourselves and our friends, who seem to be the only ones we can trust anyway, when it comes to our own survival.

The goal of this workshop is to share experiences, insights and new ideas, set forth a research agenda, and suggest future directions by collaborations among researchers in different disciplines and with similar interests toward dependability and sustainability.

We hope that presentations of new ideas and discussions among participants at this workshop will cast new lights upon efforts for realization of sustainable societies and how our technology can assist to achieve the common goal for the humankind.

We would like to thank all who made contributions to this workshop, including the authors, the program committee members and IEEE CCNC 2009 organizers especially the workshop chair Kurt Tutschku (University of Vienna, Austria).

Workshop Co-Organizers:
Yusuke Doi, TOSHIBA Corporation, Japan
Youki Kadobayashi, Nara Institute of Science and Technology, Japan
Akiko Orita, Chuo University, Japan
Kenji Saito, Keio University, Japan

Paper Presentations • 09:00 – 12:00

A Fair Transaction Mechanism for P2P File-Sharing Applications
Dongsheng Peng, Weidong Liu, Chuang Lin, Zhen Chen (Tsinghua University, China)

A Distributed Framework for Passive Worm Detection and Throttling in P2P Networks
Muhammad Aeed, Laurissa N. Tokarchuk (Queen Mary, University of London, UK)

Measurement of Routing Table in Kad
Jie Yu (National University of Defense Technology, China)
Zhoujun Li (Beihang University, China)

Efficient Data Management using the Session Log in DHT and its Evaluation
Satoru Neguchi, Atsuo Inomata, Kazutoshi Fujikawa, Hideki Sunahara (Nara Institute of Science and Technology, Japan)

Rapid P2P Overlay Network Programming on a Distributed Reduction Machine
Kenji Saito, Kendai Miyazawa (Keio University, Japan)

PIAX: Toward a Framework for Sensor Overlay Network
Yuuichi Teranishi (Osaka University, Japan)

Paper Presentations • 13:00 – 17:00

Real-Time Scalable Attribute Querying Framework for RFID Based Smart Spaces
Gautam Das (University of Massachusetts at Amherst, USA)

A Peer-to-Peer Architecture for Live Streaming with DRM
Xuguang Lan (Xi’an Jiaotong University, China)

Truncated Pyramid Peer-to-Peer Architecture with Vertical Tunneling Model
Zhonghong Ou, Jiehan Zhou, Erkki Harjula, Mika Ylianttila (University of Oulu, Finland)

Lightweight Fault-Tolerance Mechanism for Distributed Mobile Agent-Based Monitoring
Jinho Ahn (Kyonggi University, Korea)

Interest-Based Self Organization in Group-Structured P2P Networks
Sardar Kashif Ashraf Khan, Laurissa N. Tokarchuk (Queen Mary, University of London, UK)
A warm welcome to the Third International Workshop on Personalized Networks (PerNets '09) colocated with IEEE CCNC-2009, a premier conference that is held every year in Las Vegas, USA. PerNets was held with Mobicom in the last two editions. The nature of the IEEE CCNC conference as well as the venue which hosts Consumer Electronic Show (CES) every year is another important aspect which made us to shift PerNets to IEEE CCNC. We are thankful to the IEEE CCNC committee for encouraging us to conduct this workshop with IEEE CCNC.

The ubiquitous nature of wireless networks has spawned many interesting applications that were unimaginable hitherto. It has also brought many challenges for the communication and networking community to address. We see present day mobile devices that are capable of providing many services that required several devices before. For example, most cell phones nowadays provide high speed data access, still and video cameras, PDA functionality, etc. These advances in device sophistication and service offerings, including wireless hotspots, have made a difference in the way we communicate. With increased user mobility and user’s desire to always be connected, we have seen a growing interest in Personal Area Networks (PANs) and Body Area Networks (BANs). These networks can be tuned and applied meaningfully for individual users and their requirements. On the other hand the Internet has changed our way of interacting dramatically. These two major communication areas PANs and BANs and the Internet are having an in-depth influence on the way we communicate; it is worth considering them ‘together’ as the future communication vehicle. Since the communication requirements of persons are having a global scope these days, PerNets has been designed to enhance interactions between these two fields. Since PANs and BANs are the two most basic person centric networks, PerNets has been designed to discuss issues and the latest results that are offshoots of PAN and BAN solutions including the sensor networks that are person centric with global scope together with the Internet.

PerNets has been an important venue for hosting discussions on personalization of devices and networks with user centric applications. The EU funded project Magnet on Personal Networks, Mobile VCE-Personal Distributed Environment, MOPED, MyNet, etc., are all examples of investigations by the research community that contributed towards personalization of the devices and the networks alike.

The main idea of this edition of PerNets is to bring the latest research and allow discussions on them. The idea is also to allow participants to attend the IEEE CCNC technical sessions, tutorials and demonstrations. We will be discussing the nuances of all the issues that are relevant in the context of wireless communication networks used to enable applications that are person centric.

We have accepted 10 papers out of 24 submissions which we received from around the globe. All the papers were selected on their relevance and applicability to the theme of PerNets-2009. The papers will be presented at the Workshop. We will also have keynote speeches as we had in the earlier two editions.

We would like to thank all the authors who submitted their work to our workshop. We owe them our sincere regards for their support. Our special thanks are due to the members of the Technical Program Committee and all the external reviewers. In fact, many of our TPC members have been helping PerNets since its inception. We are indebted to the IEEE CCNC Workshop committee and the IEEE CCNC Organizing committee for giving us a chance to conduct this workshop. The workshop chair Kurt Tutschku has encouraged us throughout. We thank him for his cooperation.

Workshop Co-Organizers:
Ignas Niemegeers, Chair, WMC, TU Delft, Netherlands
Sonia Heemstra de Groot, CWPC, TU Delft, Netherlands
R Venkatesha Prasad, WMC, TU Delft, Netherlands

Paper Presentations • 09:00 – 12:00
Views on Personal Networks and Business Opportunities
Rune Roswall (TeliaSonera, Sweden)

Context-Aware Mobility Management with Energy Efficiency for Multimedia Streaming Service in Wireless LAN
Jong Tae Park (Kyungpook National University, Korea)

Content Sharing among UPnP Gateways on Unstructured P2P Network Using Dynamic Overlay Topology Optimization
Ema Kawamoto, Kohei Kadowaki, Takahiro Koita, Kenya Sato (Doshisha University, Japan)

Basic Design of a User-Driven Service Creation Platform Assisted by Cellular Systems
Takeshi Umezawa, Kiyohide Nakauchi, Ved Kaffe, Masugi Inoue (National Institute of Information and Communications Technology, Japan)

Multipath Routing Issues in Virtual Private Ad Hoc Networks
Peter Dedeker, Jeroen Hoebeke, Ingrid Moerman, Joris Moreau, Piet Demeester (Ghent University, Belgium)

A Mobile Middleware Approach for the Convergence of Wide Area and Personal Area Networks
Carsten Jacob, Anna Kress (Fraunhofer FOKUS, Germany)
Stephan Steglich (TU Berlin / Fraunhofer FOKUS, Germany)

Paper Presentations • 13:00 – 15:30
A Novel Congestion Control Method for IEEE 802.16 Mesh Networks
Yun Li, Dengyu Wei (Chongqing University of Posts and Telecommunications, China)

Mobility Modeling for Personal Networks -- Properties and its Impact
Yanying Gu, R Venkatesha Prasad (Delft University of Technology, Netherlands)

A Framework for Gateway and Access Network Selection in Ad Hoc Distributed Personal Networks
Javad Vazifehdo, Martin Jacobsson, Ignas Niemegeers (Delft University of Technology, Netherlands)

Improving the Accuracy of Person Localization with Body Area Sensor Networks: An Experimental Study
Cheng Guo, Jing Wang, R Venkatesha Prasad (Delft University of Technology, Netherlands)

Self-Configuring Publish/Subscribe Middleware for Wireless Sensor Networks
Pruet Boonma, Junichi Suzuki (University of Massachusetts at Boston, USA)
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