

IEEE ICCCN2004 Technical Program

Monday, Oct. 11, 2004

7:15 Registration Desk Opens (by Kitty Hawk)

8:00 – 8:30 Opening Ceremony (General and Program Chairs, Midway)

8:30 – 9:30 Keynote I: "**System X: Building the Virginia Tech Supercomputer**"

Dr. Srinidhi Varadarajan, Virginia Tech. (Midway)

Monday 10:00 – 11:30

Session 1: **Optical Network Survivability I (Midway)**

Chair: Benjamin Barán, National University of Asunción

- Fast Restoration of Signaling Packet Transportation in WDM Networks under Multiple Failures, *Kang Xi, Shin'ichi Arakawa, Masayuki Murata*, Osaka Univ. (Japan).
- A Restoration Software Framework for Survivable WDM Optical Networks, *Sung Woo Tak*, South Dakota State Univ. (USA), *Passakon Prathombutr*, National Electronics and Technology Center (Thailand), *Jongwook Jang*, Dongeui Univ. (Korea), *E. K. Park*, Univ. of Missouri Kansas City (USA).
- Optimal priority-based lightpath allocation for survivable WDM networks, *Suqin Zhong, Arunita Jaekel*, Univ. of Windsor (Canada).

Session 2: **Ad Hoc Networks (Kitty Hawk)**

Chair: Stephen Bush, GE Research

- An Application-Level QoS Comparison of Single-Stream and Multi-Stream Approaches in a Wireless Ad Hoc Network, *Toshiro Nunome, Shuji Tasaka*, Nagoya Institute of Technology (Japan).
- TKGS: Verifiable Threshold-Based Key Generation Scheme in Open Wireless Ad Hoc Networks, *Mohammed Moharrum, Ravi Mukkamala*, Old Dominion Univ. (USA), *Mohamed Eltoweissy*, Virginia Tech (USA).
- Path Based Routing Algorithm for Ad Hoc Networks, *Weilin Zeng, Tatsuya Suda*, Univ. of California Irvine (USA).

Session 3: **Internet Routing (Haneda)**

Chair: Itamar Elhanany, University of Tennessee

- A Fast Rerouting Scheme for OSPF/IS-IS Networks, *Yong Liu, A. L. Narasimha Reddy*, Texas A&M Univ. (USA).
- Preventing Oscillations in I-BGP with Route Reflectors, *Tomas Klockar, Lenka Carr-Motycková*, Lulea Univ. of Technology (Sweden).
- Optimal and Guaranteed Alternative LSP for Multiple Failures, *Lemma Hundessa, Jordi Domingo-Pascual*, Univ. Politècnica de Catalunya (Spain).

Monday 13:00 – 14:30

Session 4: **Transport Protocols (Midway)**

Chair: Ton Engbersen, IBM Zurich Research Labs

- The Impact of UMTS/WCDMA Channel Round-Trip Time Variations on TCP Vegas Performance, *Anthony Lo*, Delft Univ. of Technology (Netherlands) *Geert Heijenk*, Univ. of Twente (Netherlands), *Ignas Niemegeers*, Delft Univ. of Technology (Netherlands).
- Packet Reordering, High Speed Networks and Transport Protocol Performance, *Ladan Gharai*, Univ. of Southern California (USA), *Colin Perkins*, Univ. of Glasgow (UK), *Tom Lehman*, Univ. of Southern California (USA).
- Channel Delay Impact on TCP and SCPS-TP over LEO/GEO-Stationary Space Links, *Ruhai Wang*, Lamar Univ. (USA).

Session 5: **Overlay networks (Kitty Hawk)**

Chair: Damien Magoni, Université Louis Pasteur

- SODON: A High Availability Multi-Source Content Distribution Overlay, *Pei Zheng*, Arcadia Univ. (USA).
- Intelligent Extensible Routing For Overlay Networks With Embedded Constraint Resource Planning Shell: A Case Study With Deadline Based Packet Forwarding, *Javed Khan, Nouman Bantan*, Kent State Univ. (USA).
- CBRBrain: Provide Content Based Routing Service Over Internet Backbone, *Wen-Zhan Song, Li Xiang-Yang*, Illinois Institute of Technology (USA).

Session 6: **Stochastic Modeling of QoS (Haneda)**

Chair: Wenye Wang, North Carolina State University

- Stochastic Modelling of Maintaining Specified QoS Constraints in Discrete-Time Domain, *Lin Guan, Mike Woodward, Irfan Awan*, Univ. of Bradford (UK).
- A Systematic Approach for Providing End-to-End Probabilistic QoS Guarantees, *Sami Ayyorgun*, Los Alamos National Laboratory (USA) *Wu-chun Feng*, Ohio State Univ. (USA).
- Reducing Queue-Fill Variability for Emergency Traffic in a Differentiated Services Network, *Manali Joshi, Cory Beard*, Univ. of Missouri Kansas City (USA).

Monday 15:00 – 16:30

Session 7: Queue & Buffer Management (Midway)

Chair: Cory Beard, University of Missouri Kansas City

- Fairness and Delay Guarantees of the New Pipelined-Sections Buffer Management Method, *Corneliu Pencea, Shun Cheung*, Emory Univ. (USA).
- Active Queue Management Algorithm Considering Queue and Load States, *Jaesung Hong, Changhee Joo, Saewoong Bahk*, Seoul National Univ. (Korea).
- Topology Based Packet Marking, *Basheer Al-Duwairi, Thomas Daniels*, Iowa State Univ. (USA).

Session 8: WLANs/WPANs (Kitty Hawk)

Chair: Nirmala Shenoy, Rochester Institute of Technology

- Cross-layer Optimized Routing for Bluetooth Personal Area Network, *Leping Huang, Hongyuan Chen, T.V.L.N Sivakumar*, Nokia Research Center Tokyo (Japan), *Kaoru Sezaki*, Univ. of Tokyo (Japan).
- Continuous Space Estimation for WLAN Location Determination Systems, *Moustafa Youssef, Ashok Agrawala*, Univ. of Maryland College Park (USA).
- High-Performance MAC for High-Capacity Wireless LANs, *Yuan Yuan*, Univ. of Maryland College Park (USA), *Daqing Gu*, Mitsubishi Electric Research Laboratories (USA), *William Arbaugh*, Univ. of Maryland College Park (USA), *Jinyun Zhang*, Mitsubishi Electric Research Laboratories (USA).

Session 9: VPN & Multimedia (Haneda)

Chair: Arup Acharya, IBM Thomas Watson Lab

- On Packet Loss Estimation for Virtual Private Networks Services, *Dongli Zhang, Dan Ionescu*, Univ. of Ottawa (Canada).
- Experimental evaluations of Open- Source Linux-based VPN solutions, *Shashank Khanvilkar, Ashfaq Khokhar*, Univ. of Illinois at Chicago (USA).

Monday 16:45 – 18:15: Panel Session (Midway)

Chair: Stephen Bush, GE Research

Title: "The Future of Sensor Networks: New Challenges and Innovative Approaches (inspired by challenges in related fields)".

Panel lists: **Martha Steenstrup** (Wireless Comm., Stow Research),

Azar Alizadeh (Nanotechnology, GE),

Anna Scaglione (Complexity Theory, Cornell), and

Jonathan Miller (Computational Biology, Baylor College of Medicine).

Conference Reception: Monday, Oct. 11, 2004, 18:30 – 20:00 (O'Hare 4)

Poster Paper Session: during reception (O'Hare 4)

Tuesday, Oct. 12, 2004

7:30 Registration Desk Opens (by Kitty Hawk)

8:30 – 9:30 Keynote II: "Impact of on-line Gaming on Networking"

Chekib Akrouf, IBM, Vice President

PowerPC and Networking Technology Development (Midway)

Tuesday 10:00 – 11:30

Session 10: **WDM and SONET (Midway)**

Chair: Arun Somani, Iowa State University

- Group Switching for DWDM Optical Networks, *Yuanyuan Yang*, State Univ. of New York at Stony Brook (USA), *S.Q. Zheng*, Univ. of Texas at Dallas (USA), *Dominique Verchere*, Alcatel (USA).
- IMSA: An Algorithm for SRLG Diverse Routing in WDM Mesh Networks, *Ajay Todimala*, *Byrav Ramamurthy*, Univ. of Nebraska-Lincoln (USA).
- Minimizing the Differential Delay for Virtually Concatenated Ethernet Over SONET Systems, *Satyajeet Ahuja*, Univ. of Arizona (USA), *Turgay Korkmaz*, Univ. of Texas at San Antonio (USA), *Marwan Krunz*, Univ. of Arizona (USA).

Session 11: **MANET Routing (Kitty Hawk)**

Chair: Xiang-Yang Li, Illinois Institute of Technology

- Performance Comparison of Geocast Routing Protocols for a MANET, *Peiling Yao*, *Ed Krohne*, *Tracy Camp*, Colorado School of Mines (USA).
- A Location-Based Routing Algorithm for Vehicle to Vehicle Communication, *Raul Aquino*, *Robert Edwards*, *Arthur Edwards*, Univ. of Sheffield (UK).
- Dynamic Key Management for Secure Routing In LCMRMG, *Wuxu Peng*, *Yalin Wang*, Texas State Univ. (USA), *Kia Makki*, Florida International Univ. (USA).

Session 12: Video Communications (Haneda)

Chair: Hon-Wai Leong, National University of Singapore

- A Hybrid Source-Channel Coding Scheme for Object-based Wireless Video Communications, *Haohong Wang*, Qualcomm, *Aggelos Katsaggelos*, Northwestern Univ. (USA).
- Network Adaptive Packet Scheduling for Streaming Video over Error-prone Networks, *Jong-ok Kim*, *Hideki Tode*, *Koso Murakami*, Osaka Univ. (Japan).
- Comparison of Traffic and Quality Characteristics of Rate-Controlled Wavelet and DCT Video, *Beshan Kulapala*, *Patrick Seeling*, *Martin Reisslein*, Arizona State Univ. (USA).

12:30 – 13:00 **Plenary talk:** Dr. Mohsen Guizani, IEEE/TCCC/Western Mich Univ

“Status of Next Generation Cellular and Wireless Local Area Network Services and Current Research Activities” (**Midway**)

Tuesday 13:00 – 14:30**Session 13: TCP Congestion Control (Midway)**

Chair: Ru Wang, Lamar University

- A Comparison of TCP-Friendly Congestion Control Protocols, *Surekha Biyani*, *James Martin*, Clemson Univ. (USA).
- A TCP-Friendly Congestion Control to Guarantee Smoothness by Slack Term, *Yuan-Cheng Lai*, *Shih-Che Chien*, National Taiwan Univ. of Science and Technology (Taiwan).
- Dynamic Congestion Control to Improve Performance of TCP Split-Connections over Satellite Links, *Lijuan Wu*, *Fei Peng*, *Victor Leung*, Univ. of British Columbia (Canada).

Session 14: Wireless Networks (Kitty Hawk)

Chair: Wenye Wang, North Carolina State University

- A Mobility Model for Cost Analysis in Integrated Cellular/WLANs, *Nirmala Shenoy*, *Bruce Hartpence*, Rochester Institute of Technology (USA), *Rafael Montalvo Mantilla*, Cisco Systems (USA).
- A Dynamic-Priority Based Approach to Streaming Video Over Cellular Network, *Shantanu Kumar Singh*, *Hon Wai Leong*, National Univ. of Singapore (Singapore), *Som Nath Chakravarty*, Flying Broom Pte Ltd. (Singapore).

Session 15: Multicast and any cast (Haneda)

Chair: Mohamed Eltoweissy, Virginia Tech

- k-Anycast Game in Selfish Networks, *Weizhao Wang, Xiang-Yang Li, Ophir Frieder*, Illinois Institute of Technology (USA).
- Multicast State Balancing By Using Alternate Shortest Paths, *Damien Magoni*, Univ. Louis Pasteur (France).
- Multiobjective Multicast Routing Algorithm for Traffic Engineering, *Jorge Crichigno*, Univ. Católica Ntra. Sra. de la Asunción (Paraguay), *Benjamin Baran*, Univ. Nacional de Asunción (Paraguay).

Tuesday 15:00 – 16:30

Session 16: Optical Network Survivability II (Midway)

Chair: Benjamin Barán, National University of Asunción

- Evaluating Dual-Failure Restorability in Mesh-Restorable WDM Optical Networks, *Michael T. Frederick, Pallab Datta, Arun K. Somani*, Iowa State Univ. (USA).
- A Multicast Protection Algorithm for Optical WDM Networks, *Ying Zhang, Deepinder Sidhu*, Univ. of Maryland Baltimore County (USA).
- Finding Good Candidate Cycles for Efficient p-Cycle Network Design, *Chang Liu, Lu Ruan*, Iowa State Univ. (USA).

Session 17: Network Monitoring (Kitty Hawk)

Chair: Lemma Hundessa, Polytechnic of Catalunya

- Scalable Network Monitoring for Multimedia Applications in Enterprise Networks, *Bengi Karaçali*, Avaya Labs Research (USA), *Chandra Kintala*, Stevens Institute of Technology (USA).
- An Empirical Evaluation of Landmark Placement on Internet Coordinate Schemes, *Sridhar Srinivasan, Ellen Zegura*, Georgia Tech (USA).

Session 18: QoS (Haneda)

Chair: Chin-Tser Huang, University of South Carolina

- Differentiated Quality of Service Slotted ALOHA, *Douglas Dillon*, Hughes Network Systems (USA).
- A Load Balancing Hierarchical Model for Micro-mobility Management, *Jing Li, Sampalli Srinivas*, Dalhousie Univ. (Canada).
- Quality of Service in Two-Stage Ethernet Passive Optical Access Networks, *Abdallah Shami, Xiaofeng Bai*, Lakehead Univ. (Canada), *Chadi Assi*, Concordia Univ. (Canada), *Nasir Ghani*, Tennessee Tech Univ. (USA).

Tuesday 16:45 – 18:25

Session 19: Best Paper Candidates (Midway)

Chair: Stephen Bush, GE Research

- An Analytical Study on the Impact of Authentication in Wireless Local Area Network, *Wei Liang, Wenye Wang*, North Carolina State Univ. (USA).
- Modeling Energy Consumption in Single-Hop IEEE 802.11 Ad Hoc Networks, *Marcelo Carvalho, Cintia Margi, Katia Obraczka, J. J. Garcia-Luna-Aceves*, Univ. of California Santa Cruz (USA).
- Connected K-Coverage Problem in Sensor Networks, *Zongheng Zhou, Samir Das, Himanshu Gupta*, State Univ. of New York Stony Brook (USA).

Session 20: Best Paper Candidates (Kitty Hawk)

Chair: S. Q. Zheng, University of Texas at Dallas

- HRED: A Simple and Efficient Active Queue Management Algorithm, *Liuja Hu, Ajay Kshemkalyani*, Univ. of Illinois at Chicago (USA).
- Effective Network Monitoring, *Yuri Breitbart, Feodor Dragan, Hassan Gobjuka*, Kent State Univ. (USA).

Session 21: Best Paper Candidates (Haneda)

Chair: Xiang-Yang Li, Illinois Institute of Technology

- Exploiting Autonomous System Information in Structured Peer-to-Peer Networks, *Ji Li, Karen Sollins*, Massachusetts Institute of Technology (USA).
- Email Worms Modeling and Defense, *Cliff Zou, Don Towsley, Weibo Gong*, Univ. of Massachusetts (USA).
- An Effective Scheduling Method with Finer Data Division for Continuous Media Data Broadcasting, *Tomoki Yoshihisa, Masahiko Tsukamoto, Shojiro Nishio*, Osaka Univ. (Japan).

Conference Dinner Banquet/Awards: Oct. 12, 2004, 19:00 – 22:00 (O'Hare 4)

Wednesday, Oct. 13, 2004

8:00 Registration Desk Opens (by Kitty Hawk)

8:30 – 9:30 Keynote III: **"Self-Organization of Wireless Networks: The New Frontier"**

Dr. Sudhir Dixit, Nokia Fellow, Nokia NRC/Boston (Midway)

Wednesday 10:00 – 11:30

Session 22: Optical Networks (Love A)

Chair: Arunita Jaeckel, University of Windsor

- Performance versus Cost Analysis of WDM Networks with Dynamic Traffic Grooming Capabilities, *Isabella Cerutti, Andrea Fumagalli, Sonal Sheth*, Univ. of Texas at Dallas (USA).
- Optical network design with optical constraints in multi-hop wdm mesh networks, *Kwangil Lee, Mark Shayman*, Univ. of Maryland College Park (USA).
- Model for Series of Reconfigurations in Wavelength-Routed Optical Networks, *Passakon Prathombutr*, National Electronics and Technology Center (Thailand), *Jerry Stach, E. K. Park*, Univ. of Missouri Kansas City (USA), *Sung Woo Tak*, South Dakota State Univ. (USA).

Session 23: IEEE 802.11 (Love B)

Chair: Chin-Tser Huang, University of South Carolina

- Admission Control for Variable Bit Rate traffic using Variable Service Interval in IEEE 802.11e WLANs, *Wing Fai Fan, Danny H. K. Tsang, Brahim Bensaou*, Hong Kong Univ. of Science and Technology (China).
- Proxy-RED: An AQM Scheme for Wireless Local Area Networks, *Sungwon Yi, Martin Keppes, Sachin Garg, Xidong Deng*, Pennsylvania State Univ. (USA).

Session 24: Peer to Peer (Haneda)

Chair: Karen Sollins, MIT

- A Genetic-Algorithm-Based Neighbor-Selection Strategy for Hybrid Peer-to-Peer Networks, *Simon G. M. Koo, C. S. George Lee, Karthik Kannan*, Purdue Univ. (USA).
- A Hybrid Topology Architecture for P2P Systems, *Aameek Singh, Ling Liu*, Georgia Tech (USA).
- Cooperative Patching: A client based P2P architecture for supporting continuous live video streaming., *Meng Guo, Mostafa Ammar, Ellen Zegura*, Georgia Tech (USA).

Wednesday 13:00 – 14:30

Session 25: Network Security (Love A)

Chair: Ru Wang, Lamar University

- Formal Specification and Verification of a Micropayment Protocol, *Mohamed Gouda, Alex Liu*, Univ. of Texas at Austin (USA).
- Measurement and Analysis of Worm Propagation on Internet Network Topology, *Jonghyun Kim, Sridhar Radhakrishnan, Sudarshan K. Dhall*, Univ. of Oklahoma (USA).
- Analyzing the Performance of Internet Worm Attack Approaches, *Yu Wei*, Texas A&M Univ. (USA).

Session 26: Sensor Networks (Love B)

Chair: Feiyi Wang, MCNC R&D Institute

- **PAGER: A Distributed Algorithm for the Dead-end Problem of Location-based Routing in Sensor Networks**, *Le Zou, Mi Lu, Zixiang Xiong*, Texas A&M Univ. (USA).
- **Efficient Collection of Sensor Data in Remote Fields Using Mobile Collectors**, *Yuldi Tirta, Zhiyuan Li, Yung-Hsiang Lu, Saurabh Bagchi*, Purdue Univ. (USA).

Session 27: Voice over IP (Haneda)

Chair: Luiz DaSilva, Virginia Tech

- **Adaptive IP Encapsulation for Real-Time Traffic Over Ethernet**, *Marwan Krunz*, Univ. of Arizona (USA), *Phillip Rosengard*, Raytheon (USA).
- **Design and Implementation of SIP Network and Client Services**, *Aameek Singh*, Georgia Tech (USA), *Priya Mahadevan*, Univ. of California San Diego (USA), *Arup Acharya, Zon-Yin Shae*, IBM T.J. Watson Research Center (USA).
- **Context-aware Communication Services: A Framework for Building Enhanced IP Telephony Services**, *Manuel Goertz, Ralf Ackermann, Johannes Schmitt, Ralf Steinmetz*, Darmstadt Univ. of Technology (Germany).

Poster Session Papers (Monday evening during reception in O'Hare 4):

Spatial Multipath Location Aided Ad Hoc Routing, Soumendra Nanda and Robert Gray, Dartmouth College, USA

An Efficient Queue Urgency Metric with Application to High-Speed Packet Switching, Michael Kahane, U. Barzilai, and I. Elhanany, Ben-Gurion University, Israel

Bandwidth-Guaranteed QoS Multicast Routing by Multiple Paths in AD Hoc Wireless Networks, Huayi Wu, Xiaohua Jia, Yanxiang He and Chuanhe Huang, City University of Hong Kong

AUM: Auto-Update Micromobility for IPv6 Networks, Aurbind Sharma and A.L. Ananda, National University of Singapore

Querying Sensor Networks: Techniques, Evaluation, and New Directions, Sayed Ahmed, M. Rasit Eskicioglu, and Sajid Hussain, University of Manitoba

Procedure for Multicast Tree Maintenance Based on Member Time Duration, Kais Mnif and Michel Kadoch, Ecole de Technologie Supérieure, Canada

ForCES Protocol Design Analysis for Protection against DoS Attacks, Shadhidhar Lakkavalli and Hormuzd Khosravi, Intel Corp, USA