These are exciting times! The field of computer communications and networking is by all accounts enjoying both unprecedented growth and an incredible rate of technical innovation. Capabilities that only a few years back seemed to belong to the distant future or considered esoteric research topics, are rapidly moving into the reality of commercial offerings. Gigabit switches, be it ATM, Ethernet, Fiber Channel, etc., as well as routers are being announced by established companies and startups alike. High speed networking chipsets capable of sophisticated buffer management and scheduling functions are being developed and offered by numerous vendors. Ubiquitous access and mobility are fast becoming a reality through a combination of new protocols such as mobile IP, DHCP, etc., and infrastructure upgrades such as worldwide satellite networks with broadband versions soon to follow. Wavelength Division Multiplexing systems are being deployed and increasing many folds the capacity of network links. And the list could go on.

This incredible pace of progress and changes is presenting new opportunities and new challenges to the networking research community. The explosion of the capabilities and performance of computer networks is both fostering the creation of new applications and subsuming many of the existing networking technologies. Understanding those emerging applications while migrating existing functions calls for new solutions, techniques, and technologies. Additionally, keeping up with the current pace of innovation requires that we keep on looking forward to develop what will be the next generation technology, protocols, and applications.

The INFOCOM conference is squarely at the junction of all these activities. This is reflected not only in the growing success of the conference, which keeps breaking record after record every year, but also in the quality and diversity of its technical program. Seven outstanding tutorials by renowned experts in their fields, will provide attendees with opportunities to gain an in-depth understanding of the core
technologies behind the ongoing networking revolution. Next, starting with the keynote speech by Dr. Alan Baratz, President of SUN Microsystems' JavaSoft business unit, attendees will be exposed to how a major new trend in the networking industry, Java, is likely to impact what networks do and how they do it. The keynote speech will then be followed by a series of 43 technical sessions and three panels, that will span the latest research results and highlight new research areas.

The quality and breadth of this program are no accidents. They are the results of the time and energy expended by many of our most distinguished colleagues. They have worked tirelessly as reviewers, TPC members, and members of our organizing committee, and INFOCOM is what it is because of their continued enthusiasm, energy, and dedication.

Our TPC, headed by Prof. Ian Akyildiz, faced the daunting task of reviewing about 800 papers, and they are to be commended for the outstanding result of their efforts. Our tutorial chairs, Dr. Arvind Krishna and Dr. Catherine Rosenberg, were able to attract a set of very distinguished speakers and put together tutorials that cover both fundamental and key emerging networking technologies. Our panel chairs, Prof. David Tipper and Dr. Vittorio Trecordi, identified several topics that are timely as well as controversial, and helped organize panels that should yield lively and informative discussions. Our Internet chair, Dr. Andres Albanese, financial chairs, Dr. Yannis Korilis and Prof. Ariel Orda, local arrangements chair, Dr. Fred Bauer, publication chair, Dr. Abhijit Choudhury, and publicity chair, Dr. Ramesh Nagarajan, have been an exceptional and dedicated team, without whom INFOCOM'98 could not have happened. Our international ambassadors, a first for this year's INFOCOM, have played an important role in increasing awareness about INFOCOM outside of the USA, and therefore its success, and I would like to acknowledge their contribution. Last but not least, I would like to thank the INFOCOM’98 Vice-Chair, Prof. Henning Schulzrinne, for always being ready to step in, and the INFOCOM standing committee chair, Harvey Freeman, for his constant advice and help. To all these people, I want to again extend my deepest thanks and appreciation. They are to be credited with the success of INFOCOM'98.

Finally, I want to note that their efforts are reflected not only in the high quality of our program, but also in the range of topics it spans. This breadth is probably the best indicator of INFOCOM's vitality and ability to continue as the leading-edge forum where experts from academia, industry, and government come to share and learn about the latest in computer communications and networking. This being said, I want to welcome you all to San Francisco, and wish you a productive and enjoyable time at INFOCOM'98.
Message from Technical Program Chair

Welcome to San Francisco and to the 17th Annual INFOCOM conference.

Begun under the leadership of Harvey Freeman, INFOCOM continues to grow by leaps and bounds. In just the last five years, the number of paper submissions has doubled. In 1993 there were 400 submissions, in 1994 there were 449, in 1995 470, in 1996 590 and in 1997 there were 525. This year alone we received 800 papers -- more than 200 papers above the last record.

It is no wonder that INFOCOM has become the premier conference in the computer networking field. This can also be seen in the support of our colleagues within the IEEE Computer and Communications community. A remarkable 98% of those asked to participate in the technical program committee agreed to serve the conference as reviewers.

The INFOCOM '98 program is very diverse. The papers submitted represent research from more than 24 different countries, covering almost all of the continents in the world. There are 43 technical sessions, based on 172 accepted papers. Our major topics are: Routing, Multicasting, Optical Networks, Switching, Security, Active Networks, Protocol Specification, ATM Networks, Internet, WEB, Performance Modeling and Analysis, Wireless Networks, and Wireless ATM Networks. The topics are hot and the contributions are excellent. The papers reflect research activity at the forefront of computer networking -- clearly marking passage through the gateway to the 21st century.

Ninety-nine percent of the papers were handled electronically. Once the topic areas were determined, three Area Technical Program Committee (ATPC) members were designated for each area. Each paper was then distributed to three different Technical Program Committee (TPC) members who generated individual referee reports, sent them to me and to their respective ATPC members. In turn, the ATPC members generated their own rankings and forwarded them to me. As a result, each paper was reviewed by six different people.
The quality of the submitted papers was excellent, making the selection process difficult. At a 2-day meeting in Atlanta on October 25-26, 1997, the ATPC members selected 172 papers for a 22% acceptance rate -- the lowest acceptance rate in the history of INFOCOM. I can state with a clear conscience that I have never before witnessed such a fair and professional meeting. Indeed every member tried his/her best to select the best papers from the exceptional submissions. As conference participants, you will be witness to the high quality of the papers. Many excellent papers could not be accepted due to space constraints. However, I hope that the feedback received will help the authors in any future revisions.

As a result, INFOCOM was one of the most challenging tasks in my professional career. The nightmare is over!!! The satisfaction for me is that I am now part of INFOCOM history and I am proud of it!!!

Preparing the technical program was not only personally challenging -- this record-breaking year is the result of many hard working and dedicated individuals.

This enormous task could only be achieved with the help of the outstanding colleagues who formed the ATPC (40 members) and the TPC (129 members), as well as many reviewers. The names of each are listed in these Proceedings. Their dedication and professionalism were exemplary. I cannot find words to express my sincere thanks to these colleagues and friends.

In addition to the committees, I must mention the staff here at Georgia Tech, including Janise McNair, Minjung Kim, Kyu Won Choi, Santithorn Bunchua, Jongwan Kang, Ursula Smalls, Steve Flynn, and Lonnie Harvel. Without their help, I do not think that I could have succeeded. My deepest appreciation goes to these people.

Our organizing committee was a dream team. Everybody did his/her best to be there whenever he/she was needed. Roch Guerin was the best General Chair one can dream of. Roch was on top of everything and was always there to solve any problems. Outstanding job!!! Ramesh Nagarajan did an outstanding job for publicity. He was the backbone of our organizing committee activities. Ramesh was the key person to keep publicity activities moving.

I am also thankful to Henning Schulzrinne, our General Vice-Chair, for all his help with many issues raised during the organization -- in particular, with his software for on-line processing that constituted the center of our electronic paper submission operations. Moreover, Henning lead the effort to receive a grant from the National Science Foundation (NSF) to support Junior Professors, PostDocs, and Graduate Students to attend the conference. At this point I would also like to state my appreciation to NSF for their support.

Special thanks also go to our keynote speaker, Alan Baratz, tutorial organizers, Arvind Krishna and Catherine Rosenberg, tutorial speakers, panel organizers, David Tipper and Vittorio Trecordi, and panel members for their diligent work to contribute to our conference. The IEEE Communications Society staff, Gayle Weisman, Judy Keller, Rhonda Jackson, and, Ting Qian and IEEE Publishing staff Ann Burgmeyer and Tara Wishneski, provided an outstanding effort to produce our final program and the Proceedings.

My personal special thanks go to other organizing committee members, Abhijit Choudhury, Fred Bauer, Yannis Korilis, Ariel Orda, Andres Albanese whose contributions were invaluable.

Finally, I would like to thank you, the participants, for attending the conference. We all put enormous time and effort into creating this program. I hope that you will enjoy the program and will always remember this conference where all the records were broken by large margins. I will definitely never forget it.
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(In addition to ATPC and TPC members the following colleagues helped to review the submitted papers)

<table>
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<tbody>
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<td>B. Haverkort</td>
</tr>
</tbody>
</table>
# Table of Contents

## Volume 1 Tuesday

### Session 1A: Quality of Service Routing
Session Chair: Martha Steenstrup, BBN/GTE

- QoS Routing in Networks with Uncertain Parameters ........................................ 3
  - D. H. Lorenz and A. Orda
- QoS Routing Via Multiple Paths Using Bandwidth Reservation .......................... 11
  - N. S. V. Rao and S. G. Batsell
- Bounds on End-to-End Performance via Greedy, Multi-Path Routing in Integrated
  Services Networks ........................................................................................................... 19
  - S. Mithal
- Routing with End to End QoS Guarantees in Broadband Networks ..................... 27
  - A. Orda

### Session 1B: Channel Allocation in Wireless Networks
Session Chair: Tony Ephremides, University of Maryland

- Effective Bandwidths in Wireless Networks with Multiuser Receivers .................. 35
  - D. Tse and S. Hanly
- Teletraffic Issues Related to Channel Allocation in Digital Mobile Cellular Networks .............................................................. 43
  - P. L. Hiew and M. Zukerman
- Performance Bounds for Dynamic Channel Assignment Schemes Operating under Varying
  Re-Use Constraints ........................................................................................................... 51
  - P. Whiting and S. Borst
- Channel Assignment Algorithms Satisfying Co-Channel and Adjacent Channel Reuse Constraints
  in Cellular Mobile Networks .............................................................................................. 59
  - S. Sarkar and K. N. Sivarajan

### Session 1C: WDM Networks
Session Chair: Bo Li, Hong Kong University of Science and Technology

- Cost Effective Traffic Grooming in WDM Rings .................................................... 69
  - O. Gerstel, R. Ramaswami, and G. Sasaki
- Dynamic Load Balancing in Broadcast WDM Networks with Tuning Latencies ....... 78
  - I. Balldine and G. N. Rouskas
Unscheduled Multicasts in WDM Broadcast-and-Select Networks ............................................................. 86
E. Modiano

Wavelength Assignment in a WDM Ring: To Minimize Cost of Embedded SONET Rings .................. 94
O. Gerstel, P. Lin, and G. Sasaki

Session 1D: Switching I
Session Chair: Mark Karol, Bell Labs, Lucent Technologies

Minimum Distance Routing in the Bidirectional Shufflenet ................................................................. 102
M. Gerla, P. Palnati, E. Leonardi, and F. Neri

The Multi-Dimensional Shuffle-Exchange Network: A Novel Topology for Regular Network
Architectures ............................................................................................................................................ 110
P. P. To and T. T. Lee

Strictly and Wide-Sense Nonblocking Photonic Switching Under Crosstalk Constraint .................. 118
M. Vaez and C.-T. Lea

Strict-Sense Non-Blocking Conditions for Shuffle/Exchange Networks with Vertical Replication ...... 126
I. Busi and A. Pattavina

Session 2A: Wireless LANs
Session Chair: Vaduvur Bharghavan, University of Illinois Urbana-Champaign

Stability and Performance Analysis of HIPERLAN .............................................................................. 134
G. Anastasi, L. Lenzini, and E. Mingozzi

IEEE 802.11 Wireless LAN: Capacity Analysis and Protocol Enhancement ......................................... 142
F. Cali, M. Conti, and E. Gregori

A Comparison of MAC Protocols for Wireless Local Networks Based on Battery
Power Consumption ............................................................................................................................... 150
J.-C. Chen, K. M. Sivalingam, P. Agrawal, and S. Kishore

A Near-Optimum Channel Access Protocol Based on Incremental Collision Resolution and
Distributed Transmission Queues ........................................................................................................ 158
R. Garcés and J.J. Garcia-Luna-Aceves

Session 2B: Rate Based Congestion Control
Session Chair: Ramesh Nagarajan, Bell Labs, Lucent Technologies

Robust Rate Control for ABR Sources ................................................................................................. 166
E. Altman, T. Basar, and R. Srikant
LAPLUS: An Efficient, Effective and Stable Switch Algorithm for Flow Control of the Available Bit Rate ATM Service ................................................................. 174
  S. Prasad, K. Kiasaleh, and P. Balsara

A Control-Theoretic ABR Explicit Rate Algorithm for ATM Switches with Per-VC Queueing .......... 183
  L. Benmohamed and Y. T. Wang

Zero Queueing Flow Control and Applications ....................................................... 192
  H. T. Kung and S. Y. Wang

Session 2C: Video Modeling and Coding
Session Chair: Jorg Liebeherr, Polytechnic University, Brooklyn

Modeling Video Traffic in the Wavelet Domain ................................................... 201
  S. Ma and C. Ji

Threshold Autoregressive Models for VBR MPEG Video Traces ......................... 209
  B. S. Jang and C. Thomson

An Accurate and Treatable Markov Model of MPEG-Video Traffic ..................... 217
  A. Lombardo, G. Morabito, and G. Schembra

Robust H.263 Video Coding for Transmission over the Internet ......................... 225
  M. H. Willebeek-LeMair, Z.-Y. Shae, and Y.-C. Chang

Session 2D: End-to-End Protocol Performance
Session Chair: Kang Shin, University of Michigan, Ann Arbor

Timer Reconsideration for Enhanced RTP Scalability ...................................... 233
  J. Rosenberg and H. Schulzrinne

Explicit Window Adaptation: A Method to Enhance TCP Performance ............... 242
  L. Kalampoukas, A. Varma, and K.K. Ramakrishnan

TCP Behavior of a Busy Internet Server: Analysis and Improvements ............... 252
  H. Balakrishnan, V. N. Padmanabhan, S. Seshan, M. Stemm, and R. H. Katz

TCP Fast Recovery Strategies: Analysis and Improvements ............................. 263
  D. Lin and H.T. Kung

Session 3A: QoS Based Scheduling
Session Chair: James Roberts, France Telecom

Implementing Fair Queueing in ATM Switches: The Discrete-Rate Approach ........ 272
  F. M. Chiusi and A. Francini
Implementing Distributed Packet Fair Queueing in a Scalable Switch Architecture ................................................. 282
D. C. Stephens and H. Zhang

F. Toutain

Design Considerations for Supporting TCP with Per-Flow Queueing ................................................................. 299
B. Suter, T. V. Lakshman, D. Stiliadis, and A. Choudhury

Session 3B: Wireless Multiple Access
Session Chair: Jim Freebersyser, Army Research Office

Remote-Queueing Multiple Access (RQMA): Providing Quality of Service for Wireless Communication ................................................................. 307
N. R. Figueira and J. Pasquale

D²MA: A Distributed Access Protocol for Wireless ATM Networks ................................................................. 315
M. Listanti, F. Mascitelli, and A. Mobilia

A Five-Phase Reservation Protocol (FPRP) for Mobile Ad Hoc Networks ................................................................. 322
C. Zhu and M. S. Corson

Judicious Use of Redundant Transmissions Multi-Channel ALOHA Networks with Deadlines ................................................................. 332
Y. Birk and Y. Keren

Session 3C: Performance Analysis I
Session Chair: Udo Krieger, Deutsche Telekom

Cell Loss Asymptotics in Buffer Fed with a Large Number of Independent Stationary Sources ................................................................. 339
N. Likhanov and R. R. Mazumdar

Packet Multiplexers with Adversarial Regulated Traffic ................................................................. 347
S. Rajagopal, M. Reisslein, and K. W. Ross

Computing Queue-Length Distributions for Power-Law Queues ................................................................. 356
M. Roughan, D. Veitch, and M. Rumsewicz

New Bounds and Approximations Using Extreme Value Theory for the Queue Length Distribution in High-Speed Networks ................................................................. 364
J. Choe and N. B. Shroff

Session 3D: IP over ATM Networks
Session Chair: Josep Sole-Pareta, University Politecnico de Cataluna

Performance Issues in VC-Merge Capable Switches for IP over ATM Networks ................................................................. 372
I. Widjaja and A. I. Elwalid
Adaptive Resource Management for Flow-Based IP/ATM Hybrid Switching Systems ........................................ 381
H. Che, S.-Q. Li, and A. Lin

Flow-Aware Gateway Support for IP-over-ATM ................................................................................................. 390
K. Lee and A. Fisher

A Simulation Study of Packet Forwarding Methods over ATM: SBR Evaluation ........................................... 401
F. Hoymany and D. Mossé

Panel: Evolution of Internet and Telecommunications
Organizer: Allison Mankin, USC/ISI-East

Panelists from ISP, telco, and Internet development communities discuss the evolution and growth of the communications fabric:
- Services (data, phone, etc.)
- Reliability
- Growth
- Who will be the providers?
- What technologies will effect the most changes?

Volume 2 Wednesday

Session 4A: Network Security, Management and Pricing
Session Chair: Irene Katzela, University of Toronto

Compact and Unforgeable Key Establishment over an ATM Network ........................................................... 411
Y. Zheng and H. Imai

Designing a Distributed Authorization Service.................................................................................................. 419
T. Y. C. Woo and S. S. Lam

CMIS/P++: Extensions to CMIS/P for Increased Expressiveness and Efficiency in the Manipulation of Management Information ................................................................. 430
G. Pavlov, A. Liotta, P. Abbi, and S. Ceri

Incentive-Compatible Pricing Strategies in Noncooperative Networks ........................................................... 439
Y. A. Korilis, T. A. Varvarigou, and S. R. Ahuja

Session 4B: Protocol Verification and Testing
Session Chair: Hasan Ural, University of Ottawa

An Extension to Concurrent TTCN .............................................................................................................. 447
M. Xu and J. Wu

Promela++: A Language for Constructing Correct and Efficient Protocols ............................................... 455
A. Basu, G. Morrisett, and T. von Eicken
User-Level Protocol Servers with Kernel-Level Performance ............................................................. 463
J. C. Brustoloni and P. Steenkiste

Towards Formal Semantics for QoS Support ...................................................................................... 472
J.-P. Richter and H. de Meer

Session 4C: Internet
Session Chair: Jon Crowcroft, University College of London

Adding Voice to a Distributed Game on the Internet ................................................................. 480
J. Bolot and S. F. Parisis

Internet Telephony Gateway Location ......................................................................................... 488
J. Rosenberg and H. Schulzrinne

Measurement and Analysis of Long-Range Dependent Behavior of Internet Packet Delay .......... 497
M. S. Borella and G. B. Brewster

Simulation of FEC-Based Error Control for Packet Audio on the Internet .................................... 505
M. Podolsky, C. Romer, and S. McCanne

Session 4D: Performance Analysis II
Session Chair: Tulin Atmaca, Int-Evry

Performance Analysis of Feedback Controlled Data Packet Transmission over High-Speed Networks ............................................................................. 516
Y. Kim and S. Li

The Cost of Quality in Networks of Aggregate Traffic ........................................................... 525
N. G. Duffield and S. H. Low

Linear Complexity Algorithms for Maximum Throughput in Radio Networks and Input Queued Switches ............................................................................ 533
L. Tassiulas

Transport Layer Adaptable Rate Control (TARC): Analysis of a Transport Layer Flow Control Mechanism for High Speed Networks ......................................................... 540
R. Y. C. Brockett and I. Rubin

Session 5A: Adaptive Wireless Protocols
Session Chair: Aubrey Bush, NSF

Adaptive Use of Error-Correcting Codes for Real-Time Communication in Wireless Networks .......... 548
M. Elaoud and P. Ramanathan

Adaptive Resource Management for DS-CDMA Networks Subject to Energy Constraints .......... 556
S.-J. Oh and K. M. Wasserman
Adaptive Frame Length Control for Improving Wireless Link Throughput, Range and Energy Efficiency ................................................................. 564
P. Lettieri and M. B. Srivastava

Controlled Multimedia Wireless Link Sharing via Enhanced Class-Based Queueing with Channel-State-Dependent Packet Scheduling ............................................. 572
C. Fragouli, V. Sivaraman, and M. Srivastava

Session 5B: Active Networks
Session Chair: Ken Calvert, Georgia Tech

Active Reliable Multicast ........................................................................ 581
L.-W. Lehman, S. Garland, and D. L. Tennenhouse

Improving the Performance of Distributed Applications Using Active Networks ........................................... 590
U. Legedza, D. Wetherall, and J. Guttag

Self-Organizing Wide-Area Network Caches .............................................. 600
S. Bhattacharjee, K. Calvert, and E. W. Zegura

DAN: Distributed Code Caching for Active Networks .................................... 609
D. Decasper and B. Plattner

Session 5C: QoS and Resource Allocation in Integrated Services Networks
Session Chair: Geoffrey Xie, Naval Postgraduate School

Bandwidth Allocation for Guaranteed versus Best Effort Service Categories .............................................. 617
E. Altman, A. Orda, and N. Shimkin

SCED+: Efficient Management of Quality of Service Guarantees ......................... 625
R. L. Cruz

Enforceable Quality of Service Guarantees for Bursty Traffic Streams ................. 635
E. W. Knightly

On Statistical Multiplexing, Traffic Mixes, and VP Management ......................... 643
C.-F. Su and G. de Veciana

Session 5D: Video Communication
Session Chair: Giovanni Pacifici, IBM T.J. Watson Research Center

Scheduling for Large-Scale On-Demand Data Broadcasting ............................. 651
D. Aksoy and M. Franklin

A Network-Conscious Approach to End-to-End Video Delivery over Wide Area Networks Using Proxy Servers ..................................................... 660
Y. Wang, Z.-L. Zhang, D. H. C. Du, and D. Su
Some Proposals to Improve Error Resilience in the MPEG-2 Video Transmission over ATM Networks .......................................................... 668
P. Cuenca, A. Garrido, F. Quiles, and L. Orozco-Barbosa

A General Optimal Video Smoothing Algorithm .................................................. 676
Z. Jiang and L. Kleinrock

Session 6A: Scalable Routing and Multi-Casting
Session Chair: Bulent Yener, New Jersey Institute of Technology

Hierarchical Source Routing through Clouds ...................................................... 685
M. Montgomery and G. de Veciana

Distributed Top-Down Hierarchy Construction .................................................. 693
D. G. Thaler and C. V. Ravishanka

Hierarchical Routing Using Link Vectors .......................................................... 702
J. Behrens and J.J. Garcia-Luna-Aceves

Forwarding State Reduction for Sparse Mode Multicast Communication ............ 711
J. Tian and G. Neufeld

Session 6B: Mobility Management
Session Chair: Christopher Rose, Rutgers University

Minimizing the Wireless Cost of Tracking Mobile Users: An Adaptive Threshold Scheme .................................................. 720
Z. Naor and H. Levy

Efficient PCS Call Setup Protocols ................................................................. 728
Y. Cui, D. Lam, J. Widom, and D. C. Cox

Update and Search Algorithms for Wireless Two-Way Messaging: Design and Performance .................................................. 737
T. Woo, T. F. La Porta, J. Golestani, and N. Agarwal

Architectures and Handoff Schemes for CATV-Based Personal Communications Network .................................................. 748
N.-F. Huang, C.-A. Su, and H.-C. Chao

Session 6C: End Systems
Session Chair: Simon Lam, University of Texas - Austin

The END: A Network Adapter Design Tool ....................................................... 756
A. Indiresan, A. Mehra, and K. G. Shin

Implementing Protocols in Java: The Price of Portability .................................. 765
B. Krupczak, M. Ammar, and K. Calvert

xx
A Comparative Study of High Speed Networks................................................................. 774
J. Hall, R. Sabatino, S. Crosby, I. Leslie, and R. Black

A Novel Server Selection Technique for Improving the Response Time of a Replicated Service........ 783
Z. Fei, S. Bhattacharjee, E. W. Zegura, and M. Ammar

Session 6D: Panel - Broadband Wireless Networks
Organizer: Suresh Singh, University of South Carolina

Discuss services to be provided, possible architectures and support for Mobility and QoS in broadband wireless networks. Additional issues include: extending connectivity to users who roam between heterogenous wireless networks (wireless ATM to cellular to satellite); can QoS guarantees be translated (adapted) to changing environments.

Session 7A: Switching II
Session Chair: Murat Azizoglu, University of Washington

A Practical Scheduling Algorithm to Achieve 100% Throughput in Input-Queued Switches .......... 792
A. Mekkittikul and N. McKeown

A Multicast Single-Queue Switch with a Novel Copy Mechanism................................. 800
M. Hashemi and A. Leon-Garcia

Doubling Memory Bandwidth for Network Buffers .................................................... 808
Y. Joo and N. McKeown

Multiconfiguration Multihop Protocols (MMPs): A New Class of Protocols for Packet-Switched WDM Optical Networks................................................................. 816
J. P. Jue and B. Mukherjee

Session 7B: ATM Networks
Session Chair: Ioanis Nikolaidis, University of Alberta

OPENET: An Open and Efficient Control Platform for ATM Networks.............................. 824
I. Cidon, T. Hsiao, A. Khamisy, A. Parekh, R. Rom, and M. Sidi

UNITE - An Architecture for Lightweight Signalling in ATM Networks........................... 832
G. Hjalmtyssson and K.K. Ramakrishnan

Intelligent Voice Smoother for VBR Voice over ATM Networks.................................... 841
P. L. Tien and M. C. Yuan

An Adaptive Connection Admission Control Policy for VBR+ Service Class .................... 849
S. Mukherjee, D. Reininger, and B. Sengupta
Session 7C: Resource Allocation and Network Protocols
Session Chair: Joe Touch, USC/ISI

Equilibrium Allocation of Variable Resources for Elastic Traffics .................................................. 858
S. H. Low

Schemes for Scheduling of Control Messages by Hierarchical Protocols ........................................... 865
E. Bortnikov and R. Cohen

Admission Control for Booking Ahead Shared Resources ................................................................. 873
A. Greenberg and D. Wischik

Exploring the Performance Impact of QoS Support in TCP/IP Protocol Stacks ................................. 883
R. Engel, D. Kandlur, A. Mehra, and D. Saha

Session 7D: Optical Networks
Session Chair: Achille Pattavina, Politecnico Milano

Limited Wavelength Translation in All-Optical WDM Mesh Networks ............................................. 893
V. Sharma and E. A. Varvarigos

On the Optimal Placement of Wavelength Converters in Wavelength-Routed Networks ................. 902
S. Subramaniam, M. Azizoglu, and A. K. Somani

Provisioning Algorithms for WDM Optical Networks ........................................................................ 910
M. Alanyali and E. Ayanoglu

Design of Logical Topologies: A Linear Formulation for Wavelength Routed Optical Networks with No Wavelength Changers ................................................................. 919
R. M. Krishnaswamy and K. N. Sivarajan

Volume 3 Thursday

Session 8A: ATM Switching
Session Chair: Chin-Tau Lea, Hong Kong University of Science and Technology

Performance of ATM Switches with Age Priority Packet Discarding under the ON-OFF Source Model .................................................................................................................. 931
H.-B. Chiou and Z. Tsai

A Delay and Loss Versatile Scheduling Discipline in ATM Switches ................................................ 939
J. M. Hah and M. C. Yuang

Impact Analysis of Packet-Level Scheduling on an ATM Shared-Memory Switch ......................... 947
C. Fulton, S. Li, and A. Lin

Dynamic Flow Switching, A New Communication Service for ATM Networks ................................ 955
Q. Bian, K. Shiomoto, and J. Turner

xxii
Session 8B: Reliable Multi-Casting
Session Chair: C.S. Raghavendra, The Aerospace Corporation

Optimal Multicast Feedback.................................................................................................................... 964
J. Nonnenmacher and E. W. Biersack

How Bad is Reliable Multicast without Local Recovery? ............................................................... 972

Optimal Packing of Group Multi-Casting .......................................................................................... 980
S. Chen, O. Gunluk, and B. Yener

A Comparison of Server-Based and Receiver-Based Local Recovery Approaches for Scalable
Reliable Multicast................................................................................................................................. 988
S. K. Kasera, J. Kurose, and D. Towsley

Session 8C: Congestion Control
Session Chair: Anna Charny, Cabletron and MIT

TCP-Like Congestion Control for Layered Multicast Data Transfer................................................ 996
L. Vicisano, L. Rizzo, and J. Crowcroft

Feedback Consolidation Algorithms for ABR Point-to-Multipoint Connections in
ATM Networks........................................................................................................................................ 1004
S. Fahmy, R. Jain, R. Goyal, B. Vandalore, S. Kalyanaraman, S. Kota, and P. Samudra

A Load Profiling Approach to Routing Guaranteed Bandwidth Flows ............................................. 1014
I. Matta and A. Bestavros

Multi-Service Connection Admission Control Using Modular Neural Networks ............................ 1022
C.-K. Tham and W.-S. Soh

Session 8D: Wireless Networks
Session Chair: Andrew Campbell, Columbia University

Software Radios for Wireless Networking......................................................................................... 1030
V. Bose, A. B. Shah, and M. Ismert

MSOCKS: An Architecture for Transport Layer Mobility .................................................................... 1037
D. A. Maltz and P. Bhagwat

Mobile-End Transport Protocol: An Alternative to TCP/IP Over Wireless Links ............................ 1046
K.-Y. Wang and S. K. Tripathi

Demand-based Radio Network Planning of Cellular Mobile Communication Systems............................. 1054
K. Tutschku
Session 9A: Video II
Session Chair: T. V. Lakshman, Bell Labs, Lucent Technologies

Layered Video Multicast with Retransmissions (LVMR): Evaluation of Hierarchical Rate Control ................................................................. 1062
X. Li, S. Paul, and M. Ammar

Adaptive Multicast of Multi-Layered Video: Rate-Based and Credit-Based Approaches ............................................................. 1073
B. Vickers, C. Albuquerque, and T. Suda

End-to-End Delay of Videoconferencing over Packet Switched Networks .................................................. 1084
M. Baldi and Y. Ofek

SAVE: An Algorithm for Smoothed Adaptive Video over Explicit Rate Networks ...................................... 1093
N.G. Dufleld, K.K. Ramakrishnan, and A. R. Reibman

Session 9B: Scheduling Support for Adaptive Bandwidth Sharing
Session Chair: Edward Knightly, Rice University

Packet Fair Queueing Algorithms for Wireless Networks with Location-Dependent Errors .................. 1103
T. S. E. Ng, I. Stoica, and H. Zhang

Minimum Delay Self-Clocked Fair Queueing for Packet-Switched Networks .................................. 1112
F. Chiussi and A. Francini

On Adaptive Bandwidth Sharing with Rate Guarantees ................................................................. 1122
N. G. Dufleld, T. V. Lakshman, and D. Stiliadis

Optimal Bandwidth/Delay Tradeoff for Feasible-Region-Based Scalable Multimedia Scheduling .................. 1131
W. Zhao, T. Seth, M. Kim, and M. Willebeek-LeMair

Session 9C: Wireless Protocols
Session Chair: C.K. Toh, Hughes Systems

Handover Re-routing Schemes for Connection Oriented Services in Mobile ATM Networks .............. 1139
B. A. J. Banh, G. J. Anido, and E. Dutkiewicz

User Agent Migration Policies in Multimedia Wireless Networks ...................................................... 1147
R. Ramjee, T. La Porta, J. Kurose, and D. Towsley

Data Transfer Scheme for Wireless Real-Time Communications ......................................................... 1156
C.-S. Wu and G.-K. Ma

A Generalized Processor Sharing Approach to Time Scheduling in Hybrid CDMA/TDMA .................. 1164
M. A. Arad and A. Leon-Garcia
Session 9D: Reliable Multicast Protocols
Session Chair: J.J. Garcia-Luna Aceves, University of California – Santa Cruz

Efficient Rate-Controlled Bulk Data Transfer Using Multiple Multicast Groups ........................................ 1172
S. Bhattacharyya, J. F. Kurose, D. Towsley, and R. Nagarajan

An End-to-End Reliable Multicast Protocol Using Polling for Scaleability .................................................. 1180
M. P. Barcellos and P. D. Ezhilchelvan

An Error Control Scheme for Large-Scale Multicast Applications ............................................................ 1188
C. Papadopoulos, G. Parulkar, and G. Varghese

A Scalable Control Topology for Multicast Communications ...................................................................... 1197
J. Liebeherr and B. S. Sethi

Panel - Active Networks - Hype or Next Big Thing?
Organizer: Tom Chen, GTE Labs

Active networks promise a new level of flexibility to essentially program the network for customized services or computations. This concept is quite different from the traditional view of networks, and it naturally raises controversial issues such as security and code mobility, which are the subjects of numerous current research activities.

This panel brings together a few of the prominent researchers in this new research area to present their views of what active networks will be or should (not) be.

Session 10A: Web
Session Chair: Darleen Fisher, NSF

Reducing Overhead in Flow-Switched Networks: An Empirical Study of Web Traffic .............................. 1205
A. Feldmann, J. Rexford, and R. Caceres

Scalable Delivery of Web Pages Using Cyclic Best-Effort Multicast ......................................................... 1214
K. C. Almeroth, M. Ammar, and Z. Fei

Techniques for Developing and Measuring High Performance Web Servers over High Speed ATM Networks ......................................................................................................................... 1222
J. C. Hu, S. Mungee, and D. C. Schmidt

The Network Effects of Prefetching ............................................................................................................. 1232
M. Crovella and P. Barford

Session 10B: Potpourri
Session Chair: Jennifer Hou, Ohio State University

Routing Lookups in Hardware at Memory Access Speeds ........................................................................... 1241
P. Gupta, S. Lin, and N. McKeown
IP Lookups Using Multiway and Multicolumn Search .......................................................... 1248
B. Lampson, V. Srinivasan, and G. Varghese

Informed-Source Coding-on-Demand (ISCOD) over Broadcast Channels ......................... 1257
Y. Birk and T. Kol

A CSMA/CD Compatible MAC for Real-Time Transmissions Based on Varying Collision Intervals .......................................................... 1265
O. Sharon and M. Spratt

Session 10C: Analysis Techniques for Wireless Networks
Session Chair: John Daigle, University of Mississippi

On Wireless Spectrum Estimation and Generalized Graph Coloring .................................. 1273
K. Kumaran and S. Khanna

Upper and Lower Bounds of a Class of Channel Assignment Problems in Cellular Networks .......... 1284
A. Sen, T. Roxborough, and S. Medidi

Modeling Fast Fading Channel Dynamics for Packet Data Performance Analysis ............. 1292
Y. Y. Kim and S. Li

Stability of a Type-II Hybrid ARQ Protocol for DS-SSMA Packet Radio Systems .............. 1301
Q. Zhang, T. F. Wong, and J. S. Lehnert,

Session 10D: Performance Models of ATM Networks
Session Chair: Moshe Sidi, Technion, Haifa, Israel

Sizing Exit Buffers in ATM Networks under CBR Traffic ................................................ 1309
H. Levy, T. Mendelson, M. Sidi, and J. Keren-Zvi

On the Impact of Long-Range-Dependent Traffic in Dimensioning ATM Network Buffer .... 1317
G. C. Lin and T. Suda

Per-Stream Jitter Analysis in CBR ATM Multiplexors ...................................................... 1325
A. Privalov and K. Sohraby

On the Capabilities of On-Off Models to Capture Arbitrary ATM Sources ...................... 1333
S. Galmes and R. Puigjaner

Session 11A: ABR and Fairness
Session Chair: Alex Kolarov, NEC America

Performance of ERICA and QFC for Transporting Bursty TCP Sources with Bursty Interfering Traffic .................................................. 1341
D. P. Hong and T. Suda
Converging to Approximated Max-Min Flow Fairness in Logarithmic Time ........................................ 1350
B. Awerbuch and Y. Shavitt

A Stochastic Approximation Approach for Max-Min Fair Adaptive Rate Control of ABR
Sessions with MCRs ........................................................................................................ 1358
S. P. Abraham and A. Kumar

A Generalized Max-Min Rate Allocation Policy and Its Distributed Implementation Using
ABR Flow Control Mechanism .................................................................................. 1366
Y. T. Hou, H. H.-Y. Tzeng, and S. S. Panwar

Session 11B: IEEE 802.14 and IEEE 802.12
Session Chair: Patrick Dowd, University of Maryland and National Security Agency

Deterministic Service Guarantees in 802.12 Networks, Part II: the Cascaded Network Case .......... 1376
P. Kim

Evaluation of Priority and Scheduling Schemes for an IEEE 802.14 MAC Protocol Loaded
by Real Traffic .............................................................................................................. 1384
M. V. Ivanovich and M. Zakerman

Adaptive Control Mechanism for Cable Modems MAC Protocols ........................................... 1392
D. Sala, J. O. Limb, and S. U. Khaunte

A Priority Scheme for the IEEE 802.14 MAC Protocol for Hybrid Fiber-Coax Networks .......... 1400
M. D. Corner, N. Golmie, J. Liebeherr, and D. H. Su

Session 11C: Multicast and Multi-Path Routing Algorithms
Session Chair: Anindo Banerjea, University of Toronto

Loop-Free Multipath Routing Using Generalized Diffusing Computations ............................ 1408
W. T. Zaumen and J.J. Garcia-Luna-Aceves

An Efficient Multipath Forwarding Method ........................................................................ 1418
J. Chen, P. Druschel, and D. Subramanian

VTDM - A Dynamic Multicast Routing Algorithm .............................................................. 1426
H.-C. Lin and S.-C. Lai

An Efficient Multicast Routing Algorithm for Delay-Sensitive Applications with
Dynamic Membership .................................................................................................. 1433
S.-P. Hong, H. Lee, and B. H. Park

xxvii
Session 11D: Performance Analysis III
Session Chair: Ness Shroff, Purdue University

A Source Model for VBR Video Traffic Based on M/G/∞ Input Processes ............................................ 1441
M. Krunz and A. Makowski

Performance and Fluid Simulations of a Novel Shared Buffer Management System ..................... 1449
K. Kumaran and D. Mitra

Long-Tailed Loss Rates in a Single Server Queue................................................................................ 1462
P. R. Jelenkovic

Performance Analysis of a Hybrid Priority Control Scheme for Input and Output Queueing ATM Switches ................................................................. 1470
J. Y. Lee and Y. H. Kim