

2009 21st International Teletraffic Congress

(ITC 21)

Paris, France
15 – 17 September 2009



IEEE Catalog Number: CFP0958H-PRT
ISBN: 978-1-4244-4744-2

Table of Contents

TS 1 – Routing

Optimal Call Routing in VoIP.....	1
<i>Costas Courcoubetis, Costas Kalogiros, Richard Weber</i>	
Two Steps Towards Practical Compact Routing.....	9
<i>Rolf Winter</i>	
On-Line Survivable Routing in WDM Networks.....	17
<i>Anteneh Beshir, Fernando Kuipers, Ariel Orda, Piet Van Mieghem</i>	

TS 2 – WLAN I

Analysis of a Fountain Codes Based Transport in an 802.11 WLAN Cell.....	25
<i>Dinesh Kumar, Tijani Chahed, Eitan Altman</i>	
Distributed Reservation-Based QoS in Ad Hoc Networks With Internet Access Connectivity.....	33
<i>Ali Hamidian, Ulf Körner</i>	
On the Unfair Channel Access Phenomenon in Wireless LANs.....	41
<i>Rastin Pries, Dirk Staehle, Simon Oechsner, Michael Menth, Stefan Menth, Phuoc Tran-Gia</i>	

TS 3 – Traffic Control

Admission Control with Resource Reallocation.....	49
<i>Henrik Lundqvist</i>	
Novel Overload Controls for SIP Networks.....	57
<i>Eric Noel, Carolyn Johnson</i>	
Congestion Control and Pricing of Volume Intensive Applications.....	65
<i>Costas Courcoubetis, Antonis Dimakis.</i>	
Backpressure-Based Control Protocols: Design and Computational Aspects.....	73
<i>Denis Miretskiy, Werner Scheinhardt, Michel Mandjes</i>	

TS 4 – Network Modeling

Parametric Distance Distributions for Fixed Access Network Analysis and Planning.....	81
<i>Catherine Gloaguen, Florian Voss, Volker Schmidt</i>	
A Novel Analytical Framework for Mobility Modeling in All-IP Wireless Systems.....	89
<i>Said Zaghloul, Wolfgang Bziuk, Admela Jukan</i>	
Connectivity Dynamics for Vehicular Ad-Hoc Networks in Signalized Road Systems.....	97
<i>Ivan Wang-Hei Ho, Kin K. Leung, John W. Polak</i>	
Adaptive and Efficient Radio Access Selection and Optimisation in a Heterogeneous Communication Environment.....	105
<i>Weizhi Luo, Eliane Bodanese</i>	

TS 5 – Performance I

Analysis of a Bloom Filter Algorithm via the Supermarket Model.....	113
<i>Yousra Chabchoub, Christine Fricker, Mohamed Hanene</i>	
A Mean-Field Approach to Some Internet-Like Random Networks.....	121
<i>Ilkka Norros</i>	
Variability of Service Times and Throughput Efficiency Trade-Off in IEEE 802.11 DCF.....	129
<i>Andrea Baiocchi</i>	
Maximum Weight Independent Sets in an Infinite Plane.....	137
<i>Jarno Nousiainen, Jorma Virtamo, Pasi Lassila</i>	

TS 6 – Network Planning

Mixing Malleable and Rigid Bandwidth Requests for Optimizing Network Provisioning.....	145
<i>Sebastien Soudan, Pascale Vicat-Blanc Primet</i>	
Integration of Equipment Constraints in the Capacity-Planning Process.....	153
<i>Cédric Fortuny, Olivier Brun, Mohamed Zied Ben Hamouda, Jean-Marie Garcia</i>	
Energy-Efficient Management of UMTS Access Networks.....	161
<i>Luca Chiaravaglio, Delia Ciullo, Michela Meo, Marco Ajmone Marsan</i>	

TS 7 – Network Tomography

IGen: Generation of Router-level Internet Topologies Through Network Design Heuristics.....	169
<i>Bruno Quoitin, Virginie Van den Schriek, Pierre Francois, Olivier Bonaventure</i>	
On the Importance of Local Connectivity for Internet Topology Models.....	177
<i>Hamed Haddadi, Damien Fay, Almerima Jamakovic, Olaf Maennel, Andrew Moore, Richard Mortier, Steve Uhlig</i>	
Improving Efficiency of IP Alias Resolution Based on Offsets Between IP Addresses.....	185
<i>Santiago Garcia-Jimenez, Eduardo Magaña, Daniel Morato, Mikel Izal</i>	

TS 8 – New Services

An Analytical Model for Provisioning of Emerging Personalized Content Distribution Services.....	193
<i>Sem Borst, Iraj Saniee, Anwar Walid</i>	
Network-Friendly Box-Powered Video Delivery System.....	201
<i>Yiping Chen, Bing Han, Jimmy Leblet, Gwendal Simon, Gilles Straub</i>	
Scalability and Performance Evaluation of a JAIN SLEE-Based Platform for VoIP Services.....	209
<i>Mauro Femminella, Roberto Francescangeli, Francesco Giacinti, Alessandro Parisi, Emanuele Maccherani, Gianluca Reali</i>	

TS 9 – Traffic Analysis

Analysis of the Impact of Early Fiber Access Deployment on Residential Internet Traffic.....	217
<i>Guillaume Vu-Bugrier</i>	
On Appropriate Intervals for Active Measurement of Packet Transmission Delays.....	225
<i>Katsunori Ori, Takafumi Okuyama, Yutaka Takahashi</i>	
Efficient Methods for Traffic Matrix Modeling and On-line Estimation in Large-Scale IP Networks.....	231
<i>Pedro Casas, Sandrine Vaton, Lionel Fillatre, Thierry Chonavel</i>	
Identification of Heavyweight Address Prefix Pairs in IP Traffic.....	239
<i>Patrick Truong, Fabrice Guillemain</i>	

TS 10 – Peer-to-Peer Networks

A New Statistical Approach to Estimate Global File Populations in the eDonkey P2P File Sharing System.....	247
<i>Patrick Brown, Sanja Petrovic</i>	
Peer-To-Peer Unstructured Anycasting Using Correlated Swarms.....	255
<i>Pushkar Patankar, Gunwoo Nam, George Kesidis, Takis Konstantopoulos, Chita R. Das</i>	
Fundamental Delay Bounds in Peer-to-Peer Chunk-Based Real-Time Streaming Systems.....	263
<i>Giuseppe Bianchi, Nicola Belfari-Melazzi, Lorenzo Bracciale, Francesca Lo Piccolo, Stefano Salsano</i>	
Simulation Analysis of Download and Recovery Processes in P2P Storage Systems.....	271
<i>Abdulhalim Dandoush, Sara Alouf, Philippe Nain</i>	

TS 11 – Performance II

Robust Regression for Minimum-Delay Load-Balancing.....	279
<i>Federico Larroca, Jean-Louis Rougier</i>	
Flow-Level Modelling of TCP Traffic Using GPS Queueing Networks.....	287
<i>Olivier Brun, Ahmad Al Sheikh, Jean-Marie Garcia</i>	

Optimal Policy for Multi-Class Scheduling in a Single Server Queue.....	295
<i>Natalia Osipova, Urtzi Ayesta, Konstantin Avrachenkov</i>	
A Stochastic Network Calculus for Many Flows.....	303
<i>Kazutomo Kobayashi, Yukio Takahashi, Hiroyuki Takada</i>	

TS 12 – Optical Networks

A Joint Transmission Grant Scheduling and Wavelength Assignment in Multichannel SG-EPON.....	311
<i>Lehan Meng, Jad El-Najjar, Chadi Assi, Hamed Alazemi</i>	
Dynamic Topology Overlays for Multipoint Ethernet-Over-SONET/SDH.....	319
<i>Nasir Ghani, Qing Liu, Rui Wang, Yan Qiao, Chongyang Xie, Srikanth Seethamraju, Ashwin Gumaste</i>	
Traffic Grooming in WDM Optical Packet Rings.....	326
<i>Bogdan Uscumlic, Annie Gravey, Isabella Cerutti, Philippe Gravey</i>	
SWING: Traffic Capacity of a Simple WDM Ring Network.....	334
<i>Thomas Bonaldi, Sara Oueslati, James Roberts, Charlotte Roger</i>	

TS 13 – Robustness and Protection

Efficiently Adding Link Facilities to Improve Quality Stability at Failures.....	342
<i>Noriaki Kamiyama</i>	
FoF-R Ant-Based Survivable Routing Using Distributed Resilience Matrix.....	350
<i>William Liu, Harsha Sirisena, Krzysztof Pawlikowski</i>	
A Graph Theoretical Approach to Traffic Engineering and Network Control Problem.....	356
<i>Ali Tizghadam, Alberto Leon-Garcia</i>	

TS 14 – Optimization of Wireless Networks

QoS and Channel Aware Packet Bundling for VoIP Traffic in Cellular Networks.....	364
<i>Jung Hwan Kim, Baek-Young Choi, Cory Beard</i>	
Effects of Link Rate Assignment on the Max-Min Fair Throughput of Wireless Mesh Networks.....	372
<i>Barbara Staehle, Dirk Staehle, Rastin Pries</i>	
Operating Point Selection in Multiple Access Rate Regions.....	380
<i>Eitan Altman, Konstantin Avrachenkov, Laura Cottatellucci, Merouane Debbah, Gaoning He, Alberto Suarez</i>	

TS 15 – Queuing

A Discrete Time Queueing Model for End-to-End Delay and Jitter Analysis.....	388
<i>Olav Østerbø</i>	
Scaling of Buffer and Capacity Requirements of Voice Traffic in Packet Networks.....	396
<i>Florin Ciucu, Oliver Hohlfeld</i>	
Distribution of Loss Volume and Estimation of Loss for Aggregated Video Traffic.....	404
<i>Astrid Undheim, Peder J. Emstad</i>	
Queueing in Space: Design of Message Ferry Routes in Static Ad Hoc Networks.....	412
<i>Veeraruna Kavitha, Eitan Altman</i>	

TS 16 – WLAN II

On a Positive Recurrence Criterion for Multidimensional Markov Chains with Application to the Stability of Slotted-Aloha with a Finite Number of Queues.....	420
<i>Sayee Kompalli, Ravi R. Mazumdar</i>	
A Traffic-Oriented Approach for Channel Assignment in WLAN.....	428
<i>Ali Ibrahim, James Roberts</i>	
Layer 2 vs. Layer 3 Mechanisms for Improving TCP Performance in 802.11 Wireless LANs.....	436
<i>Martin Heusse, Guillaume Urvoay-Keller, Andrzej Duda</i>	
MUD Receiver Capacity Optimization for Wireless Ad Hoc Networks.....	444
<i>Jahangir Sarker, Zbigniew Dziong, Francois Gagnon</i>	

Cwj qt 'kpfgz