

## Monday 8 October 2007

### 09:00-10:00 *MAM: Keynote 1*

Session Chair : W. Ben Ameer, GET/INT, France

### Reliable systems from unreliable components: Von Neumann-Shannon Revisited

Iraj Saniee — Bell Laboratories, Alcatel-Lucent, USA

### 10:00-10:30 Coffee Break

### 10:30–12:30 *MAM-1: WDM networks*

Session Chair : P. Demeester, Ghent University, Belgium

### Ethernet over WDM: Optimization for resilience and scalability

Andras Kern, Istvan Moldovan, Péter Hegyi and Tibor Cinkler — Budapest University of Technology and Economics, Hungary

### Impact of wavelength assignment strategies on hybrid WDM network planning

S. Al Zahr, M. Gagnaire, N. Puech — Ecole Nationale Supérieure des Télécommunications, France

### Multi-metrics reconfiguration in core WDM networks

G. Huiban — I3S-CNRS/Inria, France

P. Datta — Los Alamos National Laboratory, USA

### A fast heuristic for DWDM routing and grooming

M. Kiese — Munich University of Technology, Germany

A. Autenrieth — Nokia Siemens Networks GmbH, Germany

### 10:30–12:30 *MAM-2: Network design*

Session Chair : W. Grover, TRILabs, Canada

### p-Cycle network design: from fewest in number to smallest in size

D.P. Onguetou, W. Grover — TRILabs, Canada / University of Alberta, Canada

### Direct optimal design of a quasi-regular composite-star core network

S. Secci — Politecnico de Milano, Italy / ENST, France

A. Ceselli — Università degli studi di Milano, Italy

F. Malucelli, A. Pattavina — Politecnico di Milano, Italy

B. Sanso — Ecole Polytechnique de Montreal, Canada

### ILP approaches to study interconnection strategies for multi-ring networks in the presence of traffic grooming

L.C. Resendo, M.R.N. Ribeiro — Universidade Federal do Espírito Santo, Brasil

J.M. Pedro — Nokia-Siemens Networks S.A, Portugal

J.J.O. Pires — Technical University of Lisbon, Portugal

### Overview of resilience mechanisms based on multipath structures

M. Menth, R. Martin — University of Wuerzburg, Germany

A. M.C.A Koster — University of Warwick, UK

S. Orłowski — Zuse Institute, Germany

### 12:30–14:00 Lunch Break

### 14:00–15:30 *MPM-1: Restoration*

Session Chair : P.-D. Lansard, France Telecom, France

### Failure-specific p-Cycle network dual-failure restorability design

J. Doucette — University of Alberta, Canada / TRILabs, Canada

W. Li, M. Zuo — University of Alberta, Canada

### **Resolving a question about span restoration: do loopbacks involve a capacity penalty?**

W. Grover — TRILabs, Canada / University of Alberta, Canada

M. Scheffel — Munich University of Technology Institute of Communication Networks, Germany

### **Power, telecommunications, and emergency services in a converged network world**

G. O'Reilly, S.H. Richman — Bell Laboratories, Alcatel-Lucent, USA

A. Kelic — Sandia National Laboratories, USA

#### **14:00–15:30 MPM-2: Routing**

Session Chair : B. Fortz, ULB, Belgium

### **Checking for optimal egress points in iBGP routing**

M.-O. Buob — Orange Labs, France / LERIA, France

M. Meulle — Orange Labs, France

S. Uhlig — Delft University of Technology, The Netherlands

### **A distributed scheme for inter-domain routing optimization**

A. Tomaszewski, M. Mycek — Warsaw University of Telecommunications, Poland

M. Pioro — Warsaw University of Telecommunications, Poland / Lund University, Sweden

### **Implementation and performance evaluation of a multi-path incremental shortest path algorithm in quagga routing software**

V. Eramo, A. Cianfrani, M. Listanti — University of Roma "La Sapienza", Italy

#### **15:30-16:00 Coffee Break**

#### **16:00-18:00 MPM-3: Reliability**

Session Chair : C. Colbourn, Arizona State University, USA

### **Exact two-terminal reliability of some directed networks**

C. Tanguy — Orange Labs, France

### **Reliability analysis of distributed three-tier systems with P2P proxy agent**

M. Bruti — Telecom Italia Sparkle S.p.A., Italy

### **Risk-based incremental survivable network design**

K. Vajanapoom, D. Tipper — University of Pittsburgh, USA

### **Improving network reliability by avoiding misconfiguration**

D. Buchmann, D. Jungo, U. Ultes-Nitsche — University of Fribourg, Switzerland

#### **16:00-18:00 MPM-4: OR techniques in network design**

Session Chair : T. Cinkler, Budapest University of Technology and Economics, Hungary

### **The $k$ -edge connected subgraph problem: valid inequalities and branch and cut**

F. Bendali, I. Diarrassouba, A.R. Mahjoub — LIMOS / Université Blaise Pascal, France

M. D. Biha — Université d'Avignon, France

J. Mailfert — Université d'Auvergne, France

### **A column generation approach for design of networks using path-protecting p-Cycles**

B. Jaumard — GERAD / Concordia University, Canada

C. Rocha — Université de Montreal

D. Baloukov, W. Grover — TRILabs / University of Alberta, Canada

### **$k$ -splittable delay constrained routing problem: a branch and price approach**

J. Truffot, C. Duhamel, P. Mahey — LIMOS / Université Blaise Pascal, France

### **Integrally indecomposable polytopes and the survivable network design problem**

E. Eisenschmidt, M. Koeppel — Otto von Guericke University, Magdeburg, Germany

## Tuesday 9 October 2007

### **09:00-10:00 TAM: Keynote 2**

Session Chair : Eric Gourdin, Orange Labs, France

### **Combinatorial Models of Network Reliability**

Charles Colbourn — Computer Science, Arizona State University, USA

### **10:00-10:30 Coffee Break**

### **10:30-12:30 TAM-1: Availability**

Session Chair : R. Clemente, Telecom Italia Labs, Italy

### **Incremental availability evaluation model for $p$ -Cycle protected connections**

J. Szigeti, T. Cinkler — Budapest University of Technology and Economics, Hungary

### **High availability survivable networks: when is reducing MTTR better than adding protection capacity?**

W. Grover — TRILabs / University of Alberta, Canada

A. Sack — TELUS, Canada

### **Provision of connection-specific availability guarantees in communication networks**

A. Mykkeltveit, B. Helvik — Norwegian University of Science and Technology, Norway

### **Availability improvement by dynamic path provisioning in dual-homing multilayer networks**

D. Schupke, C. Gruber — Nokia Siemens Networks GmbH, Germany

### **10:30-12:30 TAM-2: Planning**

Session Chair : D. Tipper, University of Pittsburgh, USA

### **Impact of reliability constraints and operational expenses on equipment planning**

K. Casier, D. Colle, S. Verbrugge, P. Demeester — Ghent University, Belgium

R. Meersman — COMSOF, Belgium

### **Evaluation of survivable Ethernet over WDM network architectures in metro ring network**

G. Baier, T. Engel, A. Autenrieth — Nokia Siemens Networks GmbH & Co KG, Germany

### **Quantitative Evaluation of Architectures for Multilayer Transport Networks**

R. Huelsermann, M. Jaeger, A. Betker, M. Dueser, F.-J. Westphal, A. Gladisch — T-Systems Enterprise Services GmbH, Germany

### **Exploiting connection-holding time for an efficient dynamic traffic grooming**

M. Tornatore, A. Baruffaldi, A. Pattavina — Politecnico di Milano, Italy

H. Zhu — Blade Network Technologies, USA

B. Mukherjee — University of California, USA

### **12:30-14:00 Lunch Break**

### **14:00-15:30 TPM-1: Management software**

Session Chair : Prosper Chemouil, Orange Labs, France

### **Map of relaying messages (MORM) - An approach of message distribution enabling network advertisement and discovery**

D. Zhou — Siemens IT Solutions & Services, Austria

N. Akhtar, Y. Wang, K. Moessner — University of Surrey, UK

D. Migault — Orange Labs, France

### **A Composition language for programmable traffic flow monitoring in multi-service self-managing networks**

R. Chaparadza — Fraunhofer FOKUS, Germany

**14:00-15:30 TPM-2: Robustness**

Session Chair : J. Eberspaecher, Technical University of Munich, Germany

**A simple robust routing scheme**

A. Bashllari, D. Nace — Université de Technologie de Compiègne, France  
E. Gourdin, O. Klopfenstein — Orange Labs, France

**Between fully dynamic routing and robust stable routing**

W. Ben Ameer — GET/INT, France

**A model for robust capacity planning for telecommunications networks under demand uncertainty**

A. Ouorou — Orange Labs, France  
J.-Ph Vial — ORDECSYS, Switzerland

**15:30-16:00 Coffee Break**

**16:00-18:00 TPM-3: Protection**

Session Chair : B. Jaumard, Concordia University, Canada

**Factors affecting the efficiency of demand-wise shared protection**

B. Forst, W. Grover — TRILabs / University of Alberta, Canada

**Failure specific self-protecting multipaths – increased capacity savings or overengineering?**

M. Menth, R. Martin, U. Spoerlein — University of Wuerzburg, Germany

**Suitability of minimum interference routing schemes with protection**

E. Calle, J.E. Marzo, A. Urra, P. Vila — University of Girona, Spain

**Protection for adaptive multi-layer traffic engineering**

T. Cinkler, P. Hegyi, G. Geleji, J. Szigeti — Budapest University of Technology and Economics, Hungary

**16:00-18:00 TPM-4: Design**

Session Chair : D. Nace, CNRS/UTC, France

**A multicast QoS control scheme and system in EPON system**

Y. Nie — Hitachi Research & Development Corporation, China

**Design and performance evaluation of protected super-EPON access networks using a dedicated protection ring architecture**

João Santos, O. Quantos, J. Pires, J. Pedro — Technical University of Lisbon, Portugal

**Integrated method for organization of wireless sensor networks with mobile sinks**

W. Aioffi, F. Quintão, G. R. Mateus — Federal University of Minas Gerais, Brazil

**Globally optimal distributed synchronous batch reconfiguration for efficient hazard-free dynamic provisioning**

W. Grover — TRILabs / University of Alberta, Canada

## Wednesday 10 October 2007

**09:00-10:00 WAM: Keynote 3**

Session Chair : **D. Colle, Ghent University, Belgium**

### **Quantitative Estimations on Performance in IP/MPLS Network Operations**

**Dimitri Papadimitriou** — Alcatel-Lucent, Belgium

**10:00\_10:30 Coffee Break**

**10:30\_12:30 WAM-1: Optical Networks**

Session Chair : **Stéphane Gosselin, Orange Labs, France**

### **Comparative study of fully pre-cross-connected protection architectures for transparent optical networks**

**A. Grue, W. Grover, J. Doucette, B. Forst, D. Onguetou, D. Baloukov** — TRILabs / University of Alberta, Canada

**M. Clouqueur, D. Schupke** — Nokia Siemens Network GmbH, Germany

### **Optimal placement of monitoring equipment in transparent optical networks**

**C. M. Machuca, M. Kiese** — Munich University of Technology, Germany

### **Influence of protection on cost savings in transparent optical networks**

**D. Staessens, D. Colle, I. Lievens, M. Pickavet, P. Demeester** — University of Ghent, Belgium

### **ROADM design for OMS-DPRing in GMPLS-based optical networks**

**L. Velasco, S. Spadaro, J. Comellas, G. Junyent** — Universitat Politecnica de Catalunya, Spain

**10:30-12:30 WAM-2: IP & GMPLS networks**

Session Chair : **P. Lindberg, TeliaSonera, Sweden**

### **Robust pre-provisioning of local protection resources in MPLS networks**

**O. Klopfenstein** — Orange Labs, France

### **Experimental shared path protection algorithms in distributed all-optical GMPLS-based networks**

**R. Martinez, R. Munos, R. Casellas** — Centre Tecnologic de Telecommunications de Catalunya, Spain

**J. Comellas, G. Junyent** — Universitat Politecnica de Catalunya, Spain

### **Optimization of resilient weight systems for shortest-path routing in IP networks**

**M. Dzida, M. Zagozdzon** — Warsaw University of technology / Research & Development Center of Polish Telecom, Poland

**M. Pioro** — Warsaw University of Technology, Poland / Lund University, Sweden

**12:30-14:00 Lunch Break**

**14:00-15:30 WPM-P: Panel Discussion**

### **Single layer versus multi-layer recovery techniques in core networks**

**Moderator: JP. Vasseur, Cisco, USA**

Panelist :

**Emmanuel Dotaro,** Alcatel-Lucent, France

**Maurice Gagnaire -** ENST, France

**Jean-Louis Le Roux -** Orange Labs, France

**Lei Wang -** Telenor, Norway

**Raymond Zhang -** BT/Infonet, USA

**15:30-16:00 Closing Session**