2014 16th International Telecommunications Network Strategy and Planning Symposium (Networks)

Program

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Message from the General Chair

Networks is a conference that has been held every two years in many countries around the world. The topics covered show actuality and relevance since, even considering the two years time lapse between implementations, the participation has been kept with design and expectations and the quality of the works rather high. This year is not different, and we added an extra challenge of holding it offshore from main lands, in the beautiful Madeira island, Portugal. We got submissions from 1st authors coming from 33 countries all over the world, the top 3 are Portugal, Poland and Japan, with a total of 91 accepted papers with more than twenty five percent not meeting the conditions to reach the program. Also, we are counting with an amazing set if five brilliant keynote speakers who will help every participant to enlarge his horizons.

I hope the conference as whole (venue, social program, and scientific program) will enable the best progress of your ideas and connections and help this field to progress at high rate. With my warmest regards

António Teixeira

	Wednesday September 17th, 2014		
Time/Room	Sunset II + III	Lagoon I	Lagoon II
9:00-10:30	**Conference registration**		
10:30 - 11:30	**Opening** **Keynote 1** - Peter Chochrane - The infinite of clouds		
11:30 - 12:45	**Session 1** Content Storage & Distribution	**Session 2** Network Design and Planning Methods I	
12:45 - 14:00	**Lunch**		
14:00 - 15:00	**Keynote 2** - Ioannis Tomkos - Recent advances in backboneoptical networks		
15:00 - 15:45	**Session 3** Routing	**Session 4** Network Design and Planning Methods II	
15:45 - 16:00	Coffee break		
16:00 - 17:30	**Session 5** QoS I	**Session 6** Network Design and Planning Methods III	
17:30 - 19:00			**Tutorial 1** Felipe Rudge - Optical Networks and Photonic Switching – from short links to Tb/s world communications
19:00	**Reception and dinner**		

	Thursday September 18th, 2014		
Time/Room	Sunset II + III	Lagoon I	Lagoon II
9:00-10:00	**Keynote 3** - Deep Medhi - Dynamic Workload Provisioning and Networking Engineering in Heterogeneous Data Centers		
10:00 - 10:30	**Session 7** P2P Multimedia	**Session 8** Optical Network Design and Planning I	**Session 9** Cost Modeling & Analysis
10:30 - 11:00	**Coffee Break**		
11:00 - 12:45	**Session 10** QoS II	**Session 11** Optical Network Design and Planning II	**Session 12** Software Defined Networks
12:45 - 14:00	**Lunch**		
14:00-15:00	**Keynote 4** - Latif Ladid - The new internet based on IPv6		
15:00 - 15:45	**Session 13** Vehicular Networks	**Session 14** Access Networks	**Tutorial 2** Tibor Cinkler - Improving Availability of Heterogeneous Networks: Resilience Tips and Tricks
15:45 - 16:00	Coffee Break		
16:00 - 18:00	**Session 16** FTTx, PON and FSO I	**Session 17** Network Topology Design & Optimization I	
18:00 - 18:20	**1st Doctoral Challenge** Memorial to Miroslav Karásek		
18:30	**Dinner and Activity**		

	Friday September 19th, 2014		
Time/Room	Sunset II + III	Lagoon I	Lagoon II
9:00-10:00	**Keynote 5** - Josef Wozniak - To meet growing demands on modern WLANs: New advances in IEEE 802.11 technologies and their applications		
10:00 - 10:45	**Session 19 - Industry session** Frank Jaffer - FTTH: The APAC history Cláudio Rodrigues - FTTH by Portugal Telecom	**Session 20** Network Topology Design & Optimization II	**Session 21** Ad-Hoc networking
10:45 - 11:00	Coffee Break		
11:00 - 12:30	**Session 22** FTTx, PON and FSO II	**Session 23** Network Topology Design & Optimization III	**Session 24** Network Awareness
12:30 - 13:00	Closing session / panel - ANACOM & NICT & FTTH-APAC		
13:00	**Lunch**		

Keynote 1 - Peter Chochrane

Chair: António Teixeira (DETI, University of Aveiro, IT, Portugal)
Room: Sunset II + III

The infinite of clouds

Can today's internet support a projected >7Bn people and >50Bn Things on-line? The answer has to be: No! It is physically and economically unable to meet the need functionally and economically, and we therefore have only one viable option: The Cloud ! However, this is not a singular entity, but a plurality of (clouds) rich in types and form providing a far greater degree of economy, stability, resilience and the potential for near infinite security - but only if we think and do differently to today.

Predicting technological futures 5 - 10 years out, the systems and modes of operations we might adopt, and the potential disruption to the business world and our lives in general is reasonably straightforward, but predicting what people will actually do turns out to be near impossible. However, on the security front people are always the biggest risk; they break the rules, use unapproved hardware and software and 'click' on bogus sites. They leave passwords on post-it notes, discarded hard drives, lose USB drives, accept dubious IT gifts, are prone to loose talk and the odd 'work around' of network protocols and firewalls, and so on! Much of this is nullified by outsourced clouds and BYOD compounded by the variability of 'user owned' devices, OS, apps, security software, configurations, access points, transient modes, multiple fire walls, detectors and traps, et al. But the biggest advance to come is the intelligent and 'near real time' sharing of attack data and fixes device to device, network to network, server to server, cloud to cloud. Detect an intruder or attacker somewhere and immediately share that information with every network, server and device on the planet provides an incredible strong defence protocol even more viral than the attack. And it might even turn out to be more effective than the biological immune systems found in the most complex of organisms!

Biography

Peter is an entrepreneur, business and engineering advisor to international industries and governments. He has worked across: hardware,

software, systems, network, adaptive system design and operations. He currently runs his own company across 4 continents, is a visiting Professor at Hertfordshire University and was formerly CTO at BT and received numerous awards including an OBE and IEEE Millennium Medal.

Keynote 2 - Ioannis Tomkos

Chair: António Teixeira (DETI, University of Aveiro, IT, Portugal)
Room: Sunset II + III

Recent advances in backbone optical networks

The traffic carried by core optical networks as well as the per-channel interface rates required by routers are growing at a remarkable pace year-over-year. Optical transmission and networking advancements have so far satisfied these traffic requirements by delivering the content over the network infrastructure in a cost and energy efficient manner. However we are approaching fundamental spectral efficiency limits of single-mode fibers and the growth capabilities of conventional WDM networks operating on a fixed frequency grid are quite limited. Over the recent years, a large number of significant innovations that are able to offer a significant improvement in capacity increase (compared to legacy WDM systems at 10 Gb/s on a 50-GHz spacing) have emerged. Initial efforts targeted innovative modulation/coding techniques and flexible frequency allocations, in an effort to increase the spectral density in optical fiber links, leading eventually to the definition of spectrally flexible/elastic optical networks utilizing optical superchannels together with spectrally flexible/elastic multiplexing schemes (e.g. OFDM and Nyquist WDM), and advanced modulation formats which enable the dynamic and adaptive allocation of end-to-end demands with variable connection characteristics (e.g. requested data rates). Along these lines, novel all-optical processing schemes (e.g. realizing all optical add/drop of sub-channels out of super-channels and all-optical traffic grooming) assist in realizing transparentoptical networking with increased capacity and energy efficiency. However, while the spectrally flexible/elastic super-channel transmission/networking approach can optimize network resources through increased spectral utilization, it has limited growth potential due to the nonlinear Shannon limit imposed on the transport capacity of single-mode optical fiber within the limited gain bandwidth of optical amplifiers. Multi-band amplification technologies (e.g., C+L+S-band amplifiers) may yield temporary relief, but the only evident long-term solution to extend the capacity of optical communication systems relies on the use of the spatial domain. The simplest way to achieve

spatial multiplexing is to deploy multiple systems in parallel. However, by simply increasing the number of systems, the cost and power consumption also increases linearly. In order to limit the increase in cost and power consumption, component sharing and integration have to be introduced. To this extent, significant research efforts have focused on the development and performance evaluation of few-mode fibers (FMF) and multi-core fibers (MCF), which can be seen as 'integrated fiber' media, for space division multiplexed (SDM) systems. This line of work is further supported by the development of integrated optical amplification systems, as well as the significant development efforts in the field of Tb/s integrated transponders for SDM systems. For such systems, the use of spatial superchannels, which are groups of same-wavelength sub-channels that are transmitted on separate spatial modes but routed together, are being investigated. However the benefits of SDM systems and the potential for deployment are yet to be fully understood. Finally it should be noted that in the optical networking evolution, significant efforts are being made on the development of the proper control plane framework to orchestrate the operation of such spectrally and spatially flexible networks in order to bring out their full-potential (i.e. besides capacity increase to support also other capabilities like network virtualization) and in that framework new solutions based on the software defined networking (SDN) paradigm are considered. This talk will survey the recent research developments in the field of core optical networking and will present in a tutorial form the main solutions that are currently under investigation.

Biography

Dr. Ioannis Tomkos is an experienced manager of large-scale, multi-organization, multi-national, multi-million-$ R&D teams/projects. He manages a team of post-doc scientists and Ph.D. students that participates/ed in many projects (over 25) with a consortium-wide leading role (including Project Leader/Technical Manager of 8 EU projects). Based on his innovative research ideas, he has attracted for his institute (AIT) an amount of funding in excess of 7M Euros. As a result of his achievements he was elected a Fellow of the IET (2010) and a Fellow of OSA (2012) for "outstanding contributions to the field of transparent optical networking". He was also elected "Distinguished Lecturer"

of IEEE Communications Society (2007). Together with his colleagues and students has authored over 550 journal articles & conferences presentations (including over 325 items archival through IEEE Xplore). He is the co-recipient of the 2014 IEEE/OSA JLT Best Paper Award. His published work has received over 4000 citations and his h-factor is 32. During 2004-2007 he has served as the Chair of the International "Optical Networking" Technical Committee of IEEE Communications Society and a member of the IEEE ComSoc's Techical Activities Council. He was also the Chairman of the IFIP Group on "Photonic Networking" and the Chairman of the "Optical Communications" Group at OSA. He is currently the Chair of the Greek chapter of IEEE Photonics Society. He has been Chair or member of the organizing committees for the major conferences in the area of telecommunications/networking (more than 130 conferences/workshops). In addition he is a member of the Editorial Boards of IEEE/OSA Journal of Lightwave Technology (Deputy Editor), the OSA/IEEE Journal of Optical Communications and Networking, the IET Proceedings of Optoelectronics and the Springer "Photonic Networks Communications". He is offering C-level consulting on techno-economic studies, business planning and technology evaluation.

Keynote 3 - Deep Medhi

Chair: Susana Sargento (DETI, University of Aveiro, IT, Portugal)
Room: Sunset II + III

Dynamic Workload Provisioning and Networking Engineering in Heterogeneous Data Centers

With the increase use of cloud-based services by end customers, cloud data center providers face a number of challenges. On the one hand, due to varied nature of end customers, workloads in data centers are highly dynamic. On the other hand, the network and diverse computing infrastructure supporting the cloud services must meet service level agreements, yet keeping energy consumption into account. In this talk, I will highlight a number of critical challenges. I will then discuss potential approaches to address these challenges that range from optimal provisioning of workload to network engineering in heterogeneous data centers.

Biography

Deep Medhi is Curators' Professor in the Department of Computer Science and Electrical Engineering at the University of Missouri- Kansas City, USA. He received B.Sc. in Mathematics from Cotton College, Gauhati University, India, M.Sc. in Mathematics from the University of Delhi, India, and his Ph.D. in Computer Sciences from the University of Wisconsin-Madison, USA. Prior to joining UMKC in 1989, he was a member of the technical staff at AT&T Bell Laboratories. He was an invited visiting professor at the Technical University of Denmark, a visiting research fellow at Lund Institute of Technology, Sweden, a research visitor at University of Campinas, Brazil under the Brazilian Science Mobility Program and served as a Fulbright Senior Specialist. He is the Editor-in-Chief of Springer's Journal of Network and Systems Management, and is on the editorial board of IEEE/ACM Transactions on Networking, IEEE Transactions on Network and Service Management, and IEEE Communications Surveys & Tutorials. He is co-author of the books, Routing, Flow, and Capacity Design in Communication and Computer Networks (2004) and Network Routing: Algorithms, Protocols, and Architectures (2007), both published by Morgan.

Keynote 4 - Latif Ladid

Chair: Rui Valadas (IT and DEEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal)
Room: Sunset II + III

The new internet based on IPv6

The IPv6 Deployment worldwide is becoming a reality now with some countries achieving more than 10% user penetration with Belgium (26.68%) and Switzerland (13.74%) at the top ranking (http://labs.apnic.net/dists/v6dcc.html) and reaching double digits v6 coverage on Google IPv6 stats. May Autonomous Networks (ASN) reach more than 50% with v6 preferred or v6 capable: (http://labs.apnic.net/ipv6-measurement/Economies/US/). Over 50 Million users are accessing Internet over IPv6 and probably not even knowing it. The US remains by far the biggest adopter of IPv6 with some 22 Million users followed by Germany, Japan and China with some 5 M users. Worldwide IPv6 deployment has passed the 4% Google usage bar doubling every 6 months (http://www.google.com/intl/en/ipv6/statistics.html). If this trend continues, we should achieve 50% by 2017 which would be the inflection point when the full roll-out of IPv6 becomes a strategic plumbing decision of the networks, a topic that is avoided so far due to many strategic and resources issues (lack of top management decision-making, lack of v6 skilled engineers and v6 deployment best practices, very limited ISP v6 access deployment, ..). The deployment of Carrier-grade NAT is in full swing making networking and user experience more brittle. The security and cybersecurity issues are like always brushed over at this stage due mainly to lack of IPv6 security skills. New topics are more on the lime light such as Cloud Computing, Internet of Things, SDN, NFV, 5G,... However, these fields are taking IP networking for granted designing them on IPv4/NAT building non-scalable and non-end to end solutions. The IPv6 Forum is driving new initiatives to garner support and create awareness in these are with initiatives such as the IEEE Comsoc IoT, SDN-NFV and 5G: www.ipv6forum.org.

Biography

Latif holds following positions: President, IPv6 FORUM www.ip6forum.org, Chair, IEEE ComSoc IoT (http://committees.comsoc.org/IoT) and

Chair, IEEE ComSoc 5G Committee
(http://committees.comsoc.org/5gmwi). Latif is a Research Fellow at the University of Luxembourg "Security & Trust" (SnT) www.securityandtrust.lu on multiple European Commission Next Generation Technologies IST Projects. Latif is also a Member of 3GPP PCG (Board) (www.3gpp.org) and member of the Future Internet Forum EU Member States, representing Luxembourg:
http://ec.europa.eu/information_society/activities/foi/lead/fif/index_en.htm .

Keynote 5 - Josef Wozniak

Chair: Tibor Cinkler (Budapest University of Technology and Economics, Hungary)
Room: Sunset II + III

To meet growing demands on modern WLANs: New advances in IEEE 802.11 technologies and their applications

The talk concentrates on recent advances in development of the Wi-Fi technology, together with new areas of deployment and new applications. Wireless solutions offering real mobility have changed the way people work, learn, play, and communicate with each other. The productivity and convenience of mobility continuously create new expectations. New wireless LANs should support more mobile devices, more applications, and more users than ever. It means that both home and enterprise-grade Wi-Fi solutions should deliver:

- High-performance and flexible Wi-Fi access,
- An easy way to support both BYOD (Bring Your Own Device policy) and guest access,
- Flexible deployment options, etc.

The talk addresses a wide spectrum of Wi-Fi technologies, showing continuous efforts to enhance the Wi-Fi technology, including developments that extend the legacy solution in the frequency and time domains to reveal new possibilities. The stress is put on interesting application scenarios offered by different WiFi amendments. In particular, the talk focuses on:

- 802.11n. The technology which already produced a multi-billion market and improves such communications characteristics as the rate of transmission, coverage and other. It significantly increased the spectrum of Wi-Fi applications. The standard introduces integration of 2.4 and 5 GHz bands.
- 802.11ac. The solution widely expands ideas of 802.11 and is intended for both home and general purpose solutions. Designed as

general purpose solution, it can be used in variety of applications, from direct fast transfer of information between client devices to building complex network access infrastructures.

- 802.11ad. The technology shifts data transfer to higher - almost unbounded - frequencies of 60 GHz band. This is the Wi-Fi industry response on the users' new requirements to support gigabits per second rates in case of transmissions over shorter distances. It makes possible to build new application scenarios for home/office distribution of HDVD and similar bandwidth-hunger applications. Moreover, its short range ensures makes it possible to create numerous independent networks in indoor environment with adjusted transmission ranges, minimized delays and maximum transmission rates.

- 802.11af – This new amendment employs cognitive radio technologies to take advantage of unused frequency channel in TV licensed spectrum. Due to its low working frequency range, it can be easily applied to expand the transmission range of WLANs in order to remove a gap in coverage between ordinary WLANs and operator-based WLMAN and/or 3GPP installations. 802.11ah – The solution is proposed for sensor networks, industrial automatic and home control, green/eco nets as well as for coverage expanding, throughput maximization.

Biography

Jozef Wozniak received his Ph.D. and D.Sc. degrees in Telecommunications from Gdansk University of Technology in 1976 and 1991, respectively. He is currently a Full Professor at the Faculty of Electronics, Telecommunications and Computer Science, Gdansk University of Technology. He has worked on a number of research projects, authored of more than 200 journal and conference papers. He has also coauthored 4 books on data communications, computer networks and communication protocols. In the past he participated in research and teaching activities at Politecnico di Milano, Vrije Universiteit Brussel and Aalborg University, Denmark. In 2006 he was Visiting Erskine Fellow at the Canterbury University in Christchurch, New Zealand. He has served in technical

committees of numerous national and international conferences, chairing or co-chairing several of them. He is a senior member of IEEE and IFIP, being the chair of the WG6.8 (Wireless and Mobile Communications Group) IFIP TC6. His current research interests include modeling and performance evaluation of communication systems with the special interest in wireless and mobile networks.

Tutorials

Tutorial 1 - Felipe Rudge

Room: Lagoon II

Optical Networks and Photonic Switching – from short links to Tb/s world communications

Early optical systems ran on single wavelengths and relatively short distances (few km). Then, systems and networks evolved into WDM, optical amplification and dispersion compensation allowing hundreds of Gb/s over thousands of km in singlemode fibers. Today, we have terabit (Tb/s) capacity, running over millions of km of optical fiber cables and world-wide networks with huge amount of traffic generated in the metro-access. At the optical nodes, Photonic Switching and Routing deals seamlessly with 100 optical channels or even more. At the metro-access, Optical Packet/Burst Switching (OPS/OBS) emerge as flexible and fast solutions in the optical domain. The seminar summarizes the evolution of fiber optic communication systems into the new era of global communications, Internet included, which would not be possible without photonic technology.

Tutorial 2 - Tibor Cinkler

Room: Lagoon II

Improving Availability of Heterogeneous Networks: Resilience Tips and Tricks

This tutorial will present selected telecommunications areas where solving resilience problems is not trivial. These areas are mostly complex heterogeneous environments where the number of protection possibilities grows further. The heterogeneous networks include Multi-Layer, Multi-Domain, Multi-Cast, Multi-RAT (Radio Access Technology), etc. The focus will be on unveiling these problems, explaining modeling obstacles, tips and tricks as well as providing solution methods and simulation results. Understanding this tutorial does not require any pre-knowledge, however, experts will also find some interesting results.

Topics:

1. Introduction
    - on availability, failures and resilience.
    - on heterogeneous networks.
2. Bound on resource requirements of shared protection
3. Routing with re-optimised protection
4. Protecting elastic traffic
5. Multi-layer resilience 6. Multi-cast resilience
6. Physical impairments and resilience
7. Multi-domain and multi-provider resilience
8. Multi-RAT and FMC resilience (Multi - Radio Access Technology and Fixed-Mobile Convergence).

Biography

Tibor Cinkler has received M.Sc.('94) and Ph.D.('99) degrees from the Budapest University of Technology and Economics (BME), Hungary, where he is currently associate professor at the Department of Telecommunications and Media Informatics (TMIT) and where he habilitated in 2013. He received his DSc degree from the Hungarian Academy of Sciences in 2013. His research interests focus on optimisation of routing, traffic engineering, design, configuration, dimensioning and particularly

resilience of IP, Ethernet, MPLS, ngSDH, OTN and of heterogeneous GMPLS-controlled WDM-based multilayer networks as well as of heterogeneous FMC access networks. He is author of over 220 refereed scientific publications (with over 1400 citations) and of 4 patents.

He has been involved in numerous related European and Hungarian projects including ACTS METON and DEMON; COST 266, 291, 293; IP NOBEL I and II and MUSE; NoE e-Photon/ONe, e-Photon/ONe+ and BONE; CELTIC PROMISE and TIGER2; NKFP, GVOP, ETIK; and he has been member of ONDM, DRCN, RNDM, BroadNets, AccessNets, IEEE ICC and Globecom, ECOC, EUNICE, CHINACOM, Networks, WynSys, ICTON, etc. Scientific and Programm Committees.

He has been guest editor of a Feature Topic of the IEEE ComMag and reviewer for many journals. He has organised DRCN 2001 and 2013, ONDM 2003, Networks 2008 and ICUMT 2011 conferences in Budapest.He has been one of the chairs of the ICC 2013 ONS in Budapest, Hungary. He chairs the IFIP WG 6.10 on Optical networking.He teaches various courses on networking and optimisation at the university, as well as for companies and tutorials at conferences and summer and winter schools.

He received numerous awards including: Dimitris Chorafas Prize for Engineeing, ICC best paper award, Tivadar Puskás award, Virág-Pollák award 4 times, the 60-year HTE anniversary medal, the Bolyai Medal, etc.

1st Doctoral Challenge
Memorial to Miroslav Karásek

Professor Miroslav was a great researcher and friend who left us way before he should. Great person and great researcher! We devote this 1st Doctoral Challenge to him.

Ing. Miroslav Karásek, DrSc.

† **27. April 2013**

On Saturday of 27 th of April, shortly before his 67th birthday, our leading research scientist, Miroslav Karásek, died.

Miroslav was born in Kolín, Czech Republic, where he also spent most of his life. He obtained his MSc. degree with honours at the Faculty of Electrical and Electronics Engineering, Czech Technical University in Prague in the major of Microwave technology. Subsequently, he joined the Institute of Radio Engineering and Electronics, Czechoslovak Academy of Sciences, which was then transformed into today's Institute of Photonics and Electronics, Czech Academy of Sciences.

He defended his PhD thesis in June 1974. The thesis entitled 'P-n-p baritt' dealt with microwave components based on active semiconductors. Miroslav followed this research direction also during his research stay at the University of Birmingham in the UK. Upon his return from Birmingham, he focused on modelling and characterization of properties of microwave semiconductor diodes, measurement of noise properties of microwave oscillators and their frequency stabilization using dielectric resonators. From 1981 he directed his research – in line with the new direction of our institute – into data transfer via optical fibres. In 1987, he was awarded prestigious Humbolt Fellowship and spent two years at the High-Frequency Department of the Technical University in Braunschweig with the world-known fibre optic scientist Prof. H.-G. Unger. During the Fellowship, Miroslav conducted research into methods for measurement of chromatic dispersion of single-mode optical fibres and modelling of

fluoride-based optical fibres doped with Praseodymium. Upon his return from Braunchweig in 1987, Miroslav defended his DSc work that dealt with 'Dispersion of optical signals in optical fibre waveguides'. In the early nineties, Miroslav left academia to work in industry, but he returned back and studied fibre amplifiers that use rare-earth elements and Raman amplifiers. Not surprisingly to all of us, he soon became internationally-recognised scientist in this field. Thanks to his extremely efficient work attitude, friendly approach and knowledge of several languages, he successfully participated in many national and international research projects. In 1999-2000 he worked as a visiting Professor at Electrical Engineering Department of Laval University in Quebec City in Canada. After 2000, he started a long-lasting and successful collaboration with CESNET a.l.e., resulting in inventions of many original configurations ofoptical amplifiers as well as fibre optic network architectures. These inventions surpassed commercially-available systems in terms of Capex (Capital expenditure) as well as Opex (Operational Expenditure) costs. In 2007, this important and successful research received an award by the Ministry of Education, Youth and Sports of the Czech Republic. Miroslav was also a key member of the research team that was awarded a Honourable Mention for exceptionally excellent delivery of a research project sponsored by the Czech Science Foundation by the chairman of the Czech Science Foundation (main research funding body in the Czech Republic) in 2007. In the field of optical amplifiers, Miroslav was extremely active till his recent retirement that was due to a serious illness.

Miroslav published two books and more than 100 original scientific papers in international journals and at prestigious international conferences, which generated more than 750 citations. He was also very active in education of students from the Faculty of Physical and Nuclear Engineering, Czech Technical University, worked as a committee member in the Czech Science Foundation and other scientific and technical bodies.

All of us that had the honour of working with Miroslav or meeting him on various occasions will remember him not only as an extremely efficient, productive and reputable researcher, but – above all – always a friendly and helpful colleague – simply an exceptionally nice person.

On behalf of friends and colleagues
Prof. Jiří Čtyroký and Radan Slavík

Networks 2014 Technical Program

Session 1
Content Storage & Distribution

Wed. September 17 (11:30-12:45) - Room: Sunset II + III

Chair: António Teixeira (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal)

wed.s1.1

A Transparent OpenFlow-based Oracle for Locality-Aware Content Distribution

Emanuele Di Pascale (CTVR - Trinity College Dublin, Ireland); Frank Slyne (CTVR - Trinity College Dublin, Ireland); Marco Ruffini (CTVR, Trinity College Dublin, Ireland)

wed.s1.2

A New Class of Web Caching Strategies for Content Delivery

Gerhard Hasslinger (Deutsche Telekom, Germany); Kostas Ntougias (D T, Germany); Frank Hasslinger (TUDa, Germany)

wed.s1.3

Caching and capacity allocation game in self-managed content provider networks

Dariusz Gasior (Wroclaw University of Technology, Poland); Maciej Drwal (Wroclaw University of Technology, Poland)

Session 2
Network Design and Planning Methods I

Wed. September 17 (11:30-12:45) - Room: Lagoon I

Chair: Ioannis Tomkos (Athens Information Technology Center (AIT), Greece)

wed.s2.1

Clustering and Dynamic Resource Allocation for Macro-Femtocell Networks

Rebeca Estrada (ETS, Canada); Hadi Otrok (Khalifa University of Science, Technology & Research (KUSTAR), UAE); Zbigniew Dziong (École de technologie supérieure, University of Quebec, Canada)

wed.s2.2

Cell Planning for Outdoor Distributed Antenna Systems in Dense Urban Areas

Syed Fahad Yunas (Tampere University of Technology, Finland); Mikko Valkama (Tampere University of Technology, Finland); Jarno Niemelä (Elisa Corporation, Finland)

wed.s2.3

Dynamic Spectrum and Core Allocation with Spectrum Region Reducing Costs of Building Modules in AoD Nodes

Shohei Fujii (Osaka University, Japan); Yusuke Hirota (Osaka University, Japan); Hideki Tode (Osaka Prefecture University, Japan); Takashi Watanabe (Osaka University, Japan)

wed.s2.4

Modelling of the LTE Radio Interface for NRT Traffic

Slawomir Hanczewski (Poznan University of Technology, Poland); Maciej Stasiak (Poznan University of Technology, Poland); Piotr Zwierzykowski (Poznan University of Technology, Poland)

Session 3
Routing

Wed. September 17 (15:00-15:45) - Room: Sunset II + III

Chair: Akiya Inoue (Chiba Institute of Technology, Japan)

wed.s3.1

Robust Routing in ISP Networks considering YouTube Traffic Demand Fluctuations

Gerd Windisch (Chemnitz University of Technology, Germany); Thomas Martin Knoll (Chemnitz University of Technology, Germany); Thomas Bauschert (Chemnitz University of Technology, Germany)

wed.s3.2

Enriching the Poor Man's Traffic Engineering: Virtual Link Provisioning for Optimal OSPF TE

Krisztián Németh (Budapest University of Technology and Economics, Hungary); Attila Kőrösi (Budapest University of Technology and Economics, Hungary); Gábor Rétvári (Budapest University of Technology and Economics, Hungary)

wed.s3.3

Energy-Aware routing and grooming for IP transport over WDM MLR networks

Miguel Henriques (Coriant, Portugal); Pedro Pinho (IT - Instituto de Telecomunicações, Portugal); Antonio Teixeira (University of Aveiro, Portugal)

Session 4
Network Design and Planning Methods II

Wed. September 17 (15:00-15:45) - Room: Lagoon I

Chair: Pablo Pavon-Marino (Technical University of Cartagena, Spain)

wed.s4.1

Network Planning Guaranteeing End-to-end Overload Probability for Stochastic Traffic Demands

Phuong Nga Tran (Hamburg University of Technology, Germany); Bharata Dwi Cahyanto (Hamburg University of Technology, Germany); Andreas Timm-Giel (Hamburg University of Technology, Germany)

wed.s4.2

Flow adjustment methods for survivable networks

Yoann Fouquet (Université de Technologie de Compiègne, France); Dritan Nace (Compiegne University of Technology, France); Michal Pióro (Warsaw University of Technology, Poland); Michael Poss (UTC, France); Mateusz Żotkiewicz (Warsaw University of Technology, Poland)

Session 5
QoS I

Wed. September 17 (16:00-18:00) - Room: Sunset II + III

Chair: Stephane Senecal (Orange Labs, France)

wed.s5.1

QoS Monitoring Model of Registration Procedure for IMS Platform

Joanna Balcerzak (Orange Labs, France); Grzegorz Tyszka (Orange Labs Poland, Poland); Stephane Senecal (Orange Labs, France)

wed.s5.2

Computing end-to-end QoS Paths in the Internet Considering Multiple Alliances

Romain Jacquet (Telecom Bretagne, France); Alberto P Blanc (Telecom Bretagne, France); Geraldine Texier (IRISA/TELECOM Bretagne/ReOP, France)

wed.s5.3

QoE-based Access Network Dimensioning

Amanpreet Singh (University of Bremen, Germany); Xi Li (University of Bremen, Germany); Indika Abeywickrama (University of Bremen, Germany); Andreas J. Könsgen (University of Bremen, Germany); Carmelita Görg (University of Bremen, Germany); Phuong Nga Tran (Hamburg University of Technology, Germany); Andreas Timm-Giel (Hamburg University of Technology, Germany)

wed.s5.4

Exploiting Hybrid Measurements for Network Troubleshooting

Stefano Traverso (Politecnico di Torino, Italy); Edion Tego (Fondazione Ugo Bordoni, Italy); Eike Kowallik (Fastweb, Italy); Stefano Raffaglio (Fastweb, Italy); Andrea Fregosi (Fastweb, Italy); Marco Mellia (Politecnico di Torino, Italy); Francesco Matera (Fondazione Ugo Bordoni, Italy)

wed.s5.5

Risk-awareness in Resilient Networks Design: Value-at-Risk is Enough

Piotr Cholda (AGH University of Science and Technology, Poland); Piotr Guzik (AGH University of Science and Technology, Poland); Krzysztof Rusek (AGH University of Science and Technology, Poland)

wed.s5.6

RED-based admission control algorithm for Flow-Aware Networks

Rafal Stankiewicz (AGH University of Science and Technology, Poland); Robert Wójcik (AGH University of Science and Technology, Poland); Jerzy Domżał (AGH University of Science and Technology, Poland)

Session 6
Network Design and Planning Methods III

Wed. September 17 (16:00-18:00) - Room: Lagoon I

Chair: Ken-ichi Baba (Kogakuin University, Japan)

wed.s6.1

Self-adapted Protocol for Intra and Inter-echelons Communications

Tomé Gomes (Critical Software, Portugal); Gonçalo Valadas (Critical Software, Portugal); André Zúquete (University of Aveiro, Dep. of Electronics, Telecommunications and Informatics, Portugal); Susana Sargento (Instituto de Telecomunicações, Universidade de Aveiro, Portugal)

wed.s6.2

Modelling of Network Nodes with Threshold Mechanisms and Multi-service Sources

Mariusz Glabowski (Poznan University of Technology, Poland); Maciej Sobieraj (Poznan University of Technology, Poland)

wed.s6.3

An Autonomous Decentralized Control for Indirectly Controlling System Performance Variable in Large-Scale and Wide-Area Network

Yusuke Sakumoto (Tokyo Metropolitan University, Japan); Masaki Aida (Tokyo Metropolitan University, Japan); Hideyuki Shimonishi (NEC, Japan)

wed.s6.4

A Simulation Framework for Virtual Network Embedding Algorithms

Michael Beck (Ludwig Maximilian University of Munich, Germany); Andreas Fischer (University of Passau, Germany); Fabian Kokot (University of Passau, Germany); Claudia Linnhoff-Popien (University of Munich, Germany); Hermann de Meer (University of Passau, Germany)

wed.s6.5

Energy savings in dynamic and resilient optical networks based on traffic-aware strategies

Ioan Turus (Technical University of Denmark, Sweden); Annalisa Morea (Alcatel-Lucent, France); Dominique G Verchere (Alcatel-Lucent Bell Labs, France); Anna Manolova Fagertun (Technical University of Denmark, Denmark); Lars Dittmann (Technical University of Denmark, Denmark); Josva Kleist (NORDUnet A/S, Denmark)

wed.s6.6

Tabu Search for Bicriteria Multipoint-to-Multipoint Virtual Connections

Lúcia Martins (University of Coimbra, Portugal); Rui Barbosa (Universidade de Coimbra, Portugal)

Session 7
P2P Multimedia

Thu. September 18 (10:00-10:30) - Room: Sunset II + III

Chair: António Navarro (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal)

thu.s7.1

P2P Live Streaming System for Multi-view Video with Fast Switching

Daishi Kondo (The University of Tokyo, Japan); Yusuke Hirota (Osaka University, Japan); Akihiro Fujimoto (Wakayama University, Japan); Hideki Tode (Osaka Prefecture University, Japan); Koso Murakami (Osaka University, Japan)

thu.s7.2

Peers' Departure Handling in Hybrid Live P2P Streaming Protocol

Chourouk Hammami (HANA Lab. University of Manouba, Tunisia); Achraf Gazdar (Ecole Nationale des Sciences de l'Informatique, Tunisia); Abdelfettah Belghith (University of Manouba, Tunisia)

Session 8
Optical Network Design and Planning I

Thu. September 18 (10:00-10:30) - Room: Lagoon I

Chair: Hiroaki Harai (National Institute of Information and Communications Technology, Japan)

thu.s8.1

Resilient Distributed Design of Very Large Multi-Domain Optical Networks

Kien Trung Do (Universite de Montreal, Canada); Brigitte Jaumard (Concordia University, Canada)

thu.s8.2

Cluster Optimization for Building All-Optical Wide Area Networks

Nancy Perrot (Orange Labs, France); Raluca-Maria Indre (Orange Labs, France)

Session 9
Cost Modeling & Analysis

Thu. September 18 (10:00-10:30) - Room: Lagoon II

Chair: Carmen Mas (Technical University of Munich, Germany)

thu.s9.1

A combined CAPEX and OPEX cost model for LTE networks

Thomas Martin Knoll (Chemnitz University of Technology, Germany)

thu.s9.2

Analysis of the Cost-Effective Digital Radio over Fiber System in the NG-PON2 context

Rosinei S Oliveira (UFPA, Brazil); Diogo Viana (I. T. Aveiro, Portugal); Mario Lima (I.T. Aveiro, Portugal); Carlos Renato Francês (Universidade Fereral do Para, Brazil); Antonio Teixeira (University of Aveiro, Portugal); Joao Crisostomo Weyl Costa (UFPA, Brazil)

Session 10
QoS II

Thu. September 18 (11:00-12:45) - Room: Sunset II + III

Chair: Susana Sargento (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal)

thu.s10.1

Agent-Based Platform for Continuous Measurement of Internet Access Quality of Service

Ricardo Nunes (Instituto Superior Tecnico, Portugal); Ricardo Lopes Pereira (INESC-ID/Instituto Superior Técnico, Portugal); Rui Valadas (Instituto de Telecomunicações and DEEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Sandro Parranca (Anacom, Portugal)

thu.s10.2

Just-In-Time with Enhanced Fairness (JITef)

Carlos Santiago (Instituto de Telecomunicações, Portugal); Rui Valadas (Instituto de Telecomunicações and DEEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal)

thu.s10.3

Evaluating user-perceived performance in high-speed backhaul networks

Raluca-Maria Indre (Orange Labs, France); Philippe Olivier (Orange Labs, France); Bruno Kauffmann (Orange Labs, France); Nabil Benameur (Orange, France)

thu.s10.4

Why Are So Many Lines Still Reserved for Emergency Telephone Calls in Emergency Situations?

Kazuki Tanabe (Tokyo Institute of Technology, Japan); Sumiko Miyata (Kanagawa University, Japan); Ken-ichi Baba (Kogakuin University, Japan); Katsunori Yamaoka (Tokyo Institute of Technology, Japan)

thu.s10.5

Optimization Approach for Throughput Analysis of Multi-hop Wireless Networks

Chaegwon Lim (Ministry of Science, ICT, and Future Planning, Korea); Chong-Ho Choi (Seoul National University, Korea); Hyuk Lim (Gwangju Institute of Science and Technology, Korea); Kyung-Joon Park (DGIST, Korea)

thu.s10.6

Analysis evaluation of multiplex transmission using MIMO transmission and A-MPDU for a collision detection scheme in WLAN

Yoshiaki Morino (Nippon Institute of Technology, Japan); Takefumi Hiraguri (Nippon Institute of Technology, Japan); Toshiyuki Ogawa (Nippon Institute of Technology, Japan); Hideaki Yoshino (Nippon Institute of Technology, Japan); Kentaro Nishimori (Niigata University, Japan)

thu.s10.7

Evaluation of the impact of mobility on typical KPIs used for the assessment of QoS in mobile networks: an analysis based on drive-test measurements

Arianna Rufini (Fondazione Ugo Bordoni, Italy); Andrea Neri (Fondazione Ugo Bordoni, Italy)

Session 11
Optical Network Design and Planning II

Thu. September 18 (11:00-12:45) - Room: Lagoon I

Chair: Latif Ladid (University of Luxembourg, IPv6 forum)

thu.s11.1

Optimizing ROADM Configuration in WDM Networks

Brigitte Jaumard (Concordia University, Canada); Kien Trung Do (Universite de Montreal, Canada)

thu.s11.2

A new flexible ONU design for UDWDM-PON with coherent transceivers and smart activation process

Josep Segarra (UPC, Spain); Vicent Sales (UPC, Spain); Josep Prat (UPC, Spain); Robert Pous (Promax, Spain)

thu.s11.3

On the Trade-offs between ODU and OCh Preplanned Shared Restoration in Transport Networks

Joao Pedro (Coriant - PT/Amadora, Portugal); Bodhisattwa Gangopadhyay (CORIANT, Portugal)

thu.s11.4

Routing, Spectrum and Core Assignment for Space Division Multiplexing Elastic Optical Networks

Hideki Tode (Osaka Prefecture University, Japan); Yusuke Hirota (Osaka University, Japan)

thu.s11.5

Tradeoffs of a converged wireless-optical access network

Ákos Ladányi (Budapest University of Technology and Economics, Hungary); Tibor Cinkler (Budapest University of Technology and Economics, Hungary); Gyula Sallai (Budapest University of Technology and Economics, Hungary)

thu.s11.6

STBC Code For O-MIMO System Based On MGDM Technique - Simulations and Results

Monia Najjar Bounouh (Syscom, Tunisia); Houria Rezig (National Engineering School of Tunis (ENIT), Tunisia)

Session 12
Software Defined Networks

Thu. September 18 (11:00-12:45) - Room: Lagoon II

Chair: Joanna Balcerzak (Orange Labs, France)

thu.s12.1

Application-layer traffic optimization in software-defined mobile networks: a proof-of-concept implementation

Zoltan Faigl (Budapest University of Technology and Economics, Hungary); Zsolt Szabó (Budapest University of Technology and Economics, Hungary); Róbert Schulcz (Budapest University of Technology and Economics, Mobile Innovation Centre, Hungary)

thu.s12.2

Proposal of Disaster Avoidance Control

Hiroshi Saito (NTT, Japan); Ryoichi Kawahara (NTT, Japan); Takeshi Fukumoto (NTT, Japan)

thu.s12.3

A fail-safe SDN bridging platform for Cloud Networks

Pedro A. Gonçalves (Universidade de Aveiro, Portugal); André Martins (Universidade de Aveiro, Portugal); Daniel Corujo (Instituto de Telecomunicações Aveiro, Portugal); Rui L Aguiar (University of Aveiro, Portugal)

thu.s12.4

Network Virtualization: Paving the Way to Carrier Clouds

Slavisa Aleksic (Vienna University of Technology, Austria); Igor Miladinovic (Alcatel-Lucent, Austria)

thu.s12.5

Optical Network Evolution for 5G Mobile Applications and SDN-based Control

Neda Cvijetic (NEC Laboratories America, Inc., USA)

thu.s12.6

Generalized Virtual Networking: an enabler for Service Centric Networking and Network Function Virtualization

Stefano Salsano (University of Rome ""Tor Vergata"", Italy); Nicola Blefari-Melazzi (University of Rome ""Tor Vergata"", Italy); Francesco Lo Presti (Universita' di Roma Tor Vergata, Italy); Giuseppe Siracusano (Universita' di Roma Tor Vergata, Italy); Pier Luigi Ventre (Consortium GARR)

Session 13
Vehicular Networks

Thu. September 18 (15:00-15:45) - Room: Sunset II + III

Chair: Jozef Wozniak (Gdańsk University of Technology (GUT), Poland)

thu.s13.1

Internet on trains: a multi-criteria analysis of on-board deployment options for on-train cellular connectivity

Bram Naudts (Ghent University - iMinds, Belgium); Jonathan Spruytte (Ghent University - iMinds, Belgium); Jan Van Ooteghem (Ghent University - iMinds, Belgium); Sofie Verbrugge (Ghent University - IBBT, Belgium); Didier Colle (iMinds - Ghent University, Belgium); Mario Pickavet (Ghent University - iMinds, Belgium)

thu.s13.2

Data Rate Adaptation Mechanisms in Vehicular Networks

Nuno Nunes (University of Aveiro, Portugal); Susana Sargento (Instituto de Telecomunicações, Universidade de Aveiro, Portugal)

Session 14
Access Networks

Thu. September 18 (15:00-15:45) - Room: Lagoon I

Chair: Neda Cvijetic (NEC Laboratories America, Inc., USA)

thu.s14.1

Possibility of a new type of wireless network - Connected small cells with 3G-LTE signaling primitives and PON for the backhaul

Takahiko Yamada (Ritsumeikan University, Japan); Toshikazu Nishimura (Ritsumeikan University, Japan)

thu.s14.2

Demand Analysis of Internet Access Services in Japan

Akiya Inoue (Chiba Institute of Technology, Japan); Yohei Tsuchiya (Chiba Institute of Technology, Japan); Mizuki Saito (Chiba Institute of Technology, Japan); Motoi Iwashita (Chiba Institute of Technology, Japan)

thu.s14.3

Data Broadcasting over DAB/DMB with Fountain Codes and Auxilliary Mobile Data Channels

Paulo Alexandre (University of Aveiro, Portugal); Jose Vieira (Universidade de Aveiro, Portugal); Antonio Navarro (University of Aveiro, Portugal)

Session 16
FTTx, PON and FSO I

Thu. September 18 (16:00-18:00) - Room: Sunset II + III

Chair: Jacklyn D. Reis (CPqD, Brazil)

thu.s16.1
Experimental Investigation on the Role of Optical Amplification for TV Broadcasting Optical Networks

Angelo Pizzoleo (University of Rome Tor Vergata, Italy); Silvello Betti (University of Rome Tor Vergata, Italy); Francesco Matera (Fondazione Ugo Bordoni, Italy); Silvia Di Bartolo (ISCTI - Ministry of Economic Development - Communications Department, Italy); Giuseppe Tripaldi (University of Rome Tor Vergata, Italy)

thu.s16.2
Colourless ONU based on Self Seed Signal RSOA in a WDM-PON

Luiz Henning (UTFPR, Brazil); Paulo P Monteiro (Universidade de Aveiro, Portugal); Maria Medeiros (Universidade de Coimbra, Portugal); Alexandre Pohl (Federal University of Technology - Parana (UTFPR), Brazil)

thu.s16.3
Context Requirements in Future Access Networks

Bruna Paredes (University of Aveiro, Portugal); Susana Bento (University of Aveiro, Portugal); Simão Brandão (University of Aveiro, Portugal); Ricardo Ferreira (Instituto de Telecomunicações, Portugal); Ali Shahpari (University of Aveiro, Portugal); Antonio Teixeira (University of Aveiro, Portugal); Mario Lima (I.T. Aveiro, Portugal)

thu.s16.4
Development of FTTH-PON Technologies: Market Reality Check 2010-2014

Krzysztof Borzycki (National Institute of Telecommunications, Poland)

thu.s16.5

FTTH solutions in the Slovenian Telecommunications Market

Bostjan Batagelj (University of Ljubljana, Slovenia)

thu.s16.6

Fine Granular Architecture for Optical Metro Transport Network

Olivier Renais (Orange Labs, France); Esther Le Rouzic (Orange Labs, France); Paulette Gavignet (Orange Labs, Networks and Carriers, France); Bernard Arzur (Orange Labs, Networks and Carriers, France); Ahmed Triki (Orange Labs, Networks and Carriers, France)

thu.s16.7

Free Space Optics in different (civil and military) application scenarios in combination with other wireless technologies

Erich Leitgeb (TUG, Austria); Thomas Plank (Graz University of Technology, Austria); Markus Loeschnigg (University of Technology, Graz, Austria); Peter Mandl (Graz University of Technology, Austria)

thu.s16.8

Recent Advanced Modulation Techniques in Optical fiber Access Network

Lijia Zhang (Beijing University of Posts and Telecommunications, P.R. China)

Session 17
Network Topology Design & Optimization I

Thu. September 18 (16:00-18:00) - Room: Lagoon I

Chair: Felipe Rudge Barbosa (University of Campinas – Unicamp, Brazil)

thu.s17.1

Application of game theory to the capacity allocation problems in Internet Service Providers markets

Dariusz Gasior (Wroclaw University of Technology, Poland); Maciej Drwal (Wroclaw University of Technology, Poland)

thu.s17.2

Performance Evaluation of the Blocking Windows Algorithm in Blocking Multicast log2 (N; 0; p) Switching Networks

Grzegorz Danilewicz (Poznan University of Technology, Poland); Marcin Dziuba (Poznan University of Technology, Poland)

thu.s17.3

The Rearrangeable Nonblocking Conditions in the multi-MBA(N,e,2) Switching Network

Remigiusz Rajewski (Poznan University of Technology, Poland)

thu.s17.4

An energy-efficient control algorithms for switching fabrics

Mariusz Zal (Poznan University of Technology, Poland); Przemyslaw Wojtysiak (Poznan University of Technology, Poland)

thu.s17.5

Design Cost and Spectrum Efficiency Comparison of Fixed-Grid and Flex-Grid Optical Networks with Grooming

Amaro de Sousa (Institute of Telecommunications, University of Aveiro, Portugal); Carlos Lopes (Institute of Telecommunications, University of Aveiro, Portugal); Paulo P Monteiro (Universidade de Aveiro, Portugal)

thu.s17.6

Access Network Optimization

Marcel Kalsch (T-Systems International GmbH, Germany); Katrin Tschirpke (Hochschule Aschaffenburg, Germany)

thu.s17.7

Space division multiplexing (SDM) transmission and related technologies

Naoya Wada (NICT, Japan); Jun Sakaguchi (National Institute of Information and Communications Technology, Japan); Werner Klaus (National Institute of Information and Communications Technology, Japan); Benjamin J Puttnam (National Institute of Information and Communications Technology (NICT), Japan); Ruben S Luís (National Institute of Information and Communications Technology, Japan); Jose Manuel Delgado Mendinueta (National Institute of Information and Communications Technology, Japan); Yoshinari Awaji (National Institute of Information and Communications Technology (NICT), Japan)

Session 19
Industry session

Fri. September 19 (10:00-10:45) - Room: Sunset II + III

Chair: Bostjan Batagelj (University of Ljubljana, Slovenia)

Session 20
Network Topology Design & Optimization II

Fri. September 19 (10:00-10:45) - Room: Lagoon I

Chair: Slavisa Aleksic (Vienna University of Technology, Austria)

fri.s20.1

Optical Packet and Circuit Integrated Network: Development and Deployment

Hiroaki Harai (National Institute of Information and Communications Technology, Japan)

fri.s20.2

Challenges in the Design and Deployment for Packet Optical Converged Core Network

Hosong Lee (KT, Korea); Kwangkoog Lee (KT Corporation, Korea); Sangwan Na (KT Corporation, Korea); Youngwuk Lee (KT Corporation, Korea)

Session 21
Ad-hoc Networking

Fri. September 19 (10:00-10:45) - Room: Lagoon II

Chair: Susana Sargento (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal)

fri.s21.1

Trust Management in Mobile Ad Hoc Networks

Michail Chatzidakis (University of Athens, Greece); Stathes Hadjiefthymiades (University of Athens, Greece)

fri.s21.2

Fast image file distribution with Fountain Codes via a Wi-Fi Ad-Hoc network, using low power processors

Carlos Faneca (University of Aveiro, Portugal); Jose Vieira (Universidade de Aveiro, Portugal); André Zúquete (University of Aveiro, Dep. of Electronics, Telecommunications and Informatics, Portugal)

fri.s21.3

Performance evaluation of Neighbor Discovery++ protocol for the provisioning of self-configuration services in IPv6 mobile ad hoc networks

Monika Grajzer (Gido Labs sp. z o. o., Poland); Mariusz Glabowski (Poznan University of Technology, Poland)

Session 22
FTTx, PON and FSO II

Fri. September 19 (11:00-12:30) - Room: Sunset II + III

Chair: Markus Loeschnigg (University of Technology, Graz, Austria)

fri.s22.1

Solutions for a Single Carrier 40 Gbit/s Downstream Long-Reach Passive Optical Network

Guy Torfs (Ghent University, Belgium); Xin Yin (Ghent University - IMEC, Belgium); Arno Vyncke (Ghent University, Belgium); Marijn Verbeke (Ghent University, Belgium); Johan Bauwelinck (Ghent University - iMinds, Belgium)

fri.s22.2

Dynamic Bandwidth and Wavelength Allocation with Coexistence of Transmission Technologies in TWDM PONs

Anna Buttaboni (Politecnico di Milano, Italy); Marilet De Andrade (Politecnico di Milano, Italy); Massimo Tornatore (Politecnico di Milano, Italy)

fri.s22.3

Photonic Integrated Transceiver for Hybrid PONs

Francisco Ruivo Rodrigues (Universidade de Aveiro, Portugal); Ana Tavares (Instituto de Telecomunicaçoes, Portugal); Ana da Silva Lopes (Instituto de Telecomunicações, Portugal); Simão Brandão (University of Aveiro, Portugal); Ricardo Ferreira (Instituto de Telecomunicações, Portugal); Ali Shahpari (University of Aveiro, Portugal); Mario Lima (I.T. Aveiro, Portugal); Antonio Teixeira (University of Aveiro, Portugal)

fri.s22.4

Flexible Optical Transmission Systems for Future Networking

Jacklyn D. Reis (CPqD, Brazil); Miquel Garrich (Centro de Pesquisa e Desenvolvimento em Telecomunicações, Brazil); Daniel M Pataca (CPqD, Brazil); Júlio César Medeiros Diniz (CPqD Foundation, Brazil); Valery Rozental (University of Brasilia, Brazil); Luis de Carvalho (CPqD, Brazil); Eduardo Magalhães (CPqD, Brazil); Uiara de Moura (CPqD, Brazil); Neil Guerrero Gonzalez (CPqD, Research and Development Center of Telecommunications, Brazil); Juliano Rodrigues Fernandes de Oliveira (CPqD Foundation, Brazil); Julio Cesar Oliveira (CPqD, Brazil)

Session 23
Network Topology Design & Optimization III

Fri. September 19 (11:00-12:30) - Room: Lagoon I

Chair: Amaro de Sousa (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal)

fri.s23.1

Comparative Study of Latency and Throughput in OPS/OBS Metro-Access Networks

Yara Martins (LG Corp., Brazil); Felipe Rudge Barbosa (University of Campinas – Unicamp, Brazil); Indayara Martins (Unicamp, Brazil); Edson Moschim (State University of Campinas - UNICAMP, Brazil)

fri.s23.2

Assessing IP vs optical restoration using the open-source Net2Plan tool

Jose-Luis Izquierdo-Zaragoza (Universidad Politécnica de Cartagena, Spain); Pablo Pavon-Marino (Technical University of Cartagena, Spain)

fri.s23.3

Mathematical modelling of metric-driven routing and resource allocation in wireless mesh networks

Yuan Li (Lund University, Sweden); Michał Pióro (Lund University, Sweden); Vangelis Angelakis (Linköping University, Sweden); Di Yuan (Linköping University, Sweden); Alexandros Fragkiadakis (Institute of Computer Science, FORTH, Greece)

fri.s23.4

Mechanism for dynamic optimization of inter-domain traffic cost in multi-homed ISP's network

Zbigniew Dulinski (Jagiellonian University, Poland); Rafal Stankiewicz (AGH University of Science and Technology, Poland); Krzysztof Wajda (AGH University of Science and Technology, Poland)

fri.s23.5

Planning methodology towards next generation optical access networks

Carmen Mas (Technical University of Munich, Germany); Wolfgang Kellerer (Technische Universität München, Germany)

Session 24
Network Awareness

Fri. September 19 (11:00-12:30) - Room: Lagoon II

Chair: Paulo Salvador (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal)

fri.s24.1

Detecting DDoS Attacks at the Source Using Multiscaling Analysis

Ivo Petiz (Instituto de Telecomunicações, University of Aveiro, Portugal); Paulo Salvador (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal); António Nogueira (University of Aveiro/Instituto de Telecomunicações, Portugal); Eduardo Rocha (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal)

fri.s24.2

Customer-Side Detection of Internet-Scale Traffic Redirection

Paulo Salvador (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal); António Nogueira (University of Aveiro/Instituto de Telecomunicações, Portugal)

fri.s24.3

Stability of Flow Features for the Identification of Internet Applications

Rui Valadas (Instituto de Telecomunicações and DEEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal); M. Rosário de Oliveira (Universidade Técnica de Lisboa, Instituto Superior Técnico and CEMAT, Portugal); Denis Collange (Orange Labs, France); Marcin Pietrzyk (Orange Labs, France)

fri.s24.4

A Peer-to-Peer System for Large Scale Traffic Measurements

Helder Veiga (University of Aveiro, Cape Verde); Rui Valadas (Instituto de Telecomunicações and DEEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Paulo Salvador (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal)

fri.s24.5

Framework for Collecting Social Network Events

Hugo Fonseca (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal); Eduardo Rocha (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal); Paulo Salvador (Instituto de Telecomunicações, DETI, University of Aveiro, Portugal); António Nogueira (University of Aveiro/Instituto de Telecomunicações, Portugal)

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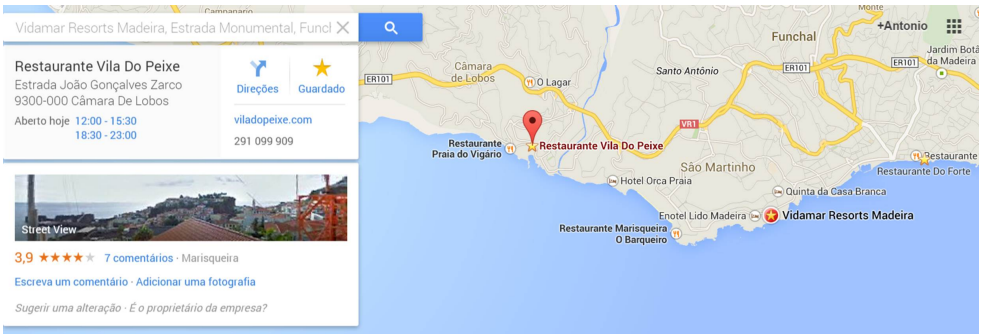
Zbigniew Dziong - *École de technologie supérieure, University of Quebec*

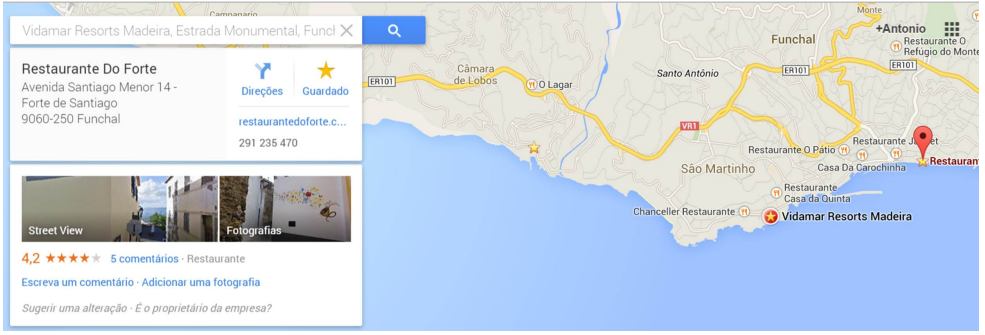
Wednesday September 17th, 2014 - Reception and dinner

Buses leaving from hotel at 19:00



Thursday September 18th, 2014 - Dinner and Activity

Buses leaving from hotel at 18:30



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