Guest Editorial

# Special Issue: Selected Papers from the Fourth International IEEE Symposium on Advanced Networks and Telecommunication Systems (IEEE ANTS 2010)

The Fourth International Symposium on Advanced Networks and Telecommunication Systems (ANTS) (http://www.ieee-comsoc-ants.org/2010/) was held in Mumbai, India, during December 16–18, 2010, at the Indian Institute of Technology (IIT) Bombay (Mumbai). The theme of ANTS-2010 continued to focus on communication systems and networking technologies for *realizing converged ubiquitous broadband connectivity*. ANTS-2010 presented technical sessions, peer-reviewed and invited, industry talks and government panels, that related to networking technologies and telecommunication design principles in access, metro, and core areas, in three parallel tracks and plenary sessions. ANTS continued to follow its original design vision of fostering interaction between industry, academia, and government; between Indian technologists and those overseas; and between service providers and network equipment vendors.

ANTS-2010 received 89 submissions (three-page extended summaries) from the open call for peer-reviewed papers. The Technical Program Committee selected 16 papers for oral presentation and another 14 for poster presentation. The authors of four of these papers, after careful review by the Guest Editors of this issue, were invited to submit full-length versions for potential publication in this Special Issue of the Optical Switching and Networking (OSN) journal. After a thorough review process, as followed with regular OSN submissions, all the invited papers have been selected for publication in this Special Issue.

In "Evaluation of Post-Fault Restoration Strategies in Multi-Domain Networks", Feng Xu, Tamal Das, M. Peng, and Nasir Ghani investigate the use of loose routes based on abstracted domain information to restore paths upon failure in multi-domain IP/MPLS and DWDM networks, as compared to domain-by-domain crankback. The performance of these approaches is studied by simulation.

The paper "Flexible Hybrid WDM/TDM PON Architectures using Wavelength Selective Switches", by Goutam Das, Bart Lannoo, Abhishek Dixit, Didier Colle, Mario Pickavet, and Piet Demeester, addresses the challenge of improving the flexibility and efficiency of hybrid PONs using WDM and TDM. The approach focuses on Wavelength Selective Switches with different configurations at the nodes. The authors show by simulation that the gains more than offset the increased cost.

"A Token-Based Routing Mechanism for GMPLS-Controlled WDM Networks", by Rabindra Ghimire and Seshadri Mohan, studies the issue of wavelength blocking in dynamic lightpaths, distinguishing between the case when there is no commonly available wavelength, and when a previously available wavelength becomes unavailable before the reservation can be finalized. They propose a token based approach to explore multiple paths in order to improve performance.

Finally, "Dynamic Circuit Provisioning in All-Optical WDM Networks using Lightpath Switching", by Neal Charbonneau, Arush Gadkar, Bharath H. Ramaprasad, and Vinod M. Vokkarane, introduce the idea that a traffic flow, over its lifetime, may utilize different ligthpaths or sequences of lightpaths from source to destination. The authors call this lightpath switching, and show that it can reduce blocking. They also extend this idea to address dynamic anycast circuits.

Our hope is that the readers will find this special issue to be relevant to their research and practice. We thank the authors for considering this journal as a venue for disseminating their research. We also gratefully thank the reviewers of submissions to this special issue, and the ANTS 2010 TPC members and reviewers, for their critical comments during the review process. We also express our deepest gratitude to Prof. G. Rouskas, Editor-in-Chief of this journal, for supporting special issues from the ANTS conference; our gratitude as well to the late Prof. Fabio Neri, former Editor-in-Chief who passed away during the preparation of this special issue, and sympathy for his loss.

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