

## Special issue on “cloud optical network”

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This special issue was well received, and the guest editors received more than 18 high-quality technical papers. All submitted papers were peer-reviewed by experienced reviewers. After a thorough review process and based on comments received from the reviewers, 7 papers have been selected for publication in this Special Issue of the Springer Photonic Network Communications (PNET) journal.

We are pleased to introduce a collection of 7 papers (acceptance ratio of 38.9%) covering a range of hot topics in cloud optical networks such as *elastic cloud optical networks, cloud optical data center networks, cloud optical access networks*.

A brief summary of accepted papers is provided next.

In “Design of optical filters and switches used in telecommunications and computer engineering; S. Eslamian, A. Mazaheri, M. H. Keshavarz, S. Omidvari, E. Goodarzi, and M. Honarjou”, the authors investigate optical switch, optical filter and attenuator intensity system based on photonic crystal structure in communication and computer applications for cloud optical networks. Simulation is obtained by using finite element method and finite-difference time-domain method.

In “Adaptive multilevel modulation for grooming in elastic cloud optical networks; C. Yu, W. Hou, Y. Wu, J. Wu and Z. Sun”, the authors propose green grooming for elastic cloud optical networks based on link adaption. This position paper demonstrates the important role of adaptive multilevel mod-

ulation on saving spectrum and power consumption for the green grooming in elastic cloud optical networks, because the spectral bandwidth can be saved by increasing the number of bits per symbol to transmit the same data rate.

In “Survivable routing, spectrum and waveband assignment strategy in cloud optical and data center network; S. Yin, S. Huang, Y. Zhou, H. Huang, J. Zhang and W. Gu”, the authors study the survivable routing, spectrum and waveband assignment strategy in cloud optical data center networks, and a novel algorithm named HSPGA is presented to significantly decrease the amount of employed ports, along with the improved spectrum efficiency.

In “Availability-aware service provisioning in SD-EON-based inter-datacenter networks; X. Chen, F. Ji, S. Zhu, Q. Bao, and Z. Zhu”, the authors experimentally access the performance of a novel availability-aware service provisioning solution in software defined elastic cloud optical data center networks. This solution is assorted with the algorithm that leverages different path protection schemes and service downgrading strategy to satisfy different service availability requirements and further improve the system performance.

In “Novel multi-band DFT-spread OFDM-PON systems based on intensity modulation and direct detection for cloud computing; X. Gong, Y. Peng, Y. Liu and H Li”, the authors propose a transmission system approach tailored to cloud optical access networks, in terms of the OFDM-PON based on intensity modulation and direct detection. The DFT-spread is utilized to reduce the peak-to-average power ratio (PAPR), and meanwhile, a multi-band power allocation and bit loading are achieved to satisfy the different degrees of QoS requirement owned by ONUs.

In “Survivable deployment of cloud-integrated fiber-wireless networks against multi-fiber failure; Y. Yu, Y. Liu, P. Han, and Y. Zhou”, the authors investigate the optimization of tolerating multiple disabled distribution fibers with

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capacity and coverage constraints for cloud optical access networks.

In “Experimental demonstration of remote unified control for OpenFlow-based software-defined optical access networks; H. Yang, J. Zhang, Y. Zhao, J. Wu, Y. Ji, Y. Lin, J. Han, and Y. Lee”, the authors evaluate a service-aware flow scheduling strategy in their novel software-defined cloud optical access network (SDOAN) architecture for remote unified control based on OpenFlow-enabled PON. The SDOAN can enhance the resource utilization and QoS guarantee of each user effectively through unified control manner, and reduce the operating expense by remote interaction and operation.

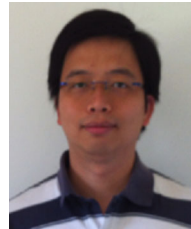


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**Kumudu Munasinghe** obtained his Ph.D. in Telecommunications Engineering from the University of Sydney in 2008. He is currently an Assistant Professor at the University of Canberra, where he is extensively involved in multidisciplinary research and Ph.D. candidate supervision. He has also successfully secured several prestigious research grants such as the Australian Research Council’s (ARC) APD Fellowship, ARC Discovery Project Grant, Army Research Scheme Grant from the Department of Defense. He is also a TPC member/reviewer for many international conferences and journals and won many research awards including VC’s Early Career Researcher Award, National ICT Australia Prize for Next Generation Applications and the IEEE Student Award at the 50th Anniversary Global Communications Conference in Washington DC, 2007.



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