



## **Performance Modelling and Analysis of Data-Centre Networks under Bursty Traffic**

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Traffic burstiness is a ubiquitous phenomenon in modern communication networks and can deteriorate considerably the system performance and Quality-of-Service (QoS). Modelling and analysis of bursty traffic have drawn significant interest and received tremendous research efforts from both academia and industry. This talk will present heterogeneous stochastic models for capturing the traffic characteristics in real-world computer networks. A new analytical performance model will be then presented for Data-Centre Networks (DCNs) in the presence of bursty and batch arrival traffic that is modelled by the Compound Poisson Process with geometrically distributed batch sizes. The validity and accuracy of the model are demonstrated by comparing analytical performance results with those obtained through extensive simulation experiments of the actual system. The analytical model is then used as a cost-effective tool to investigate the effects of bursty and batch arrival traffic on the design and performance of DCNs. Finally, the related emerging issues and future directions will be presented and discussed.