



Traffic modelling and Quality-of-Service analysis in high-performance multimedia networks

Professor Geyong Min

Chair in High Performance Computing and Networking

Wednesday 11 June 2014, 5.15pm

Harrison Lecture Theatre 004

Refreshments will be served after the presentation



Performance modelling, analysis and optimisation of high-performance computing and network systems have been important research topics over the past years and pose great challenges that require new methods and tools to keep up with their rapid evolution and increasing complexity. Measurement studies have convincingly demonstrated that realistic traffic in high-performance computing and multimedia networks exhibits heterogeneous bursty arrival patterns, which have significant impact on the system design, performance and Quality-of-Service (QoS) and have recently drawn tremendous interest from both academia and industry.

This talk will report various models for capturing the heterogeneous traffic characteristics in real-world high-performance computing and network systems. An original

and cost-effective analytical model will then be presented for the promising hybrid traffic scheduling mechanism that can provide differentiated QoS required in high-performance multimedia networks by integrating the well-known Priority Queuing (PQ) and Generalized Processor Sharing (GPS).

The accuracy of the model is validated through extensive simulation experiments of the actual system. The analytical model will be used as an efficient performance evaluation and optimisation tool for the system resource management, network traffic control and QoS analysis. Finally, the related emerging issues and future directions in high-performance computing and networking will be explored and discussed.