

Topology-Aware Job Scheduling and Placement in Cloudlet and High Performance Computing Systems

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April 19, 2019

9:30 – 10:30 AM

Room 261 Jabara Hall

Abstract

In the topic of resource management of distributed systems, the interconnection topology of the computing nodes plays an important role in the way that the jobs should be scheduled and allocated into the system. In this talk, I will discuss two resource allocation problems. The first problem is the topology-aware job scheduling and placement in high performance computing (HPC) systems, in which a 3D torus-based interconnection topology is used, and the objective is to reduce system fragmentation and improve system utilization. The second problem is the virtual machine (VM) placement in cloudlet computing systems. A wireless mesh network topology and the adaptive bandwidth enabled by the Software Defined Networking (SDN) technologies are applied in the considered cloudlet computing systems.

Biography

Kangkang Li is a Ph.D. Candidate in Department of Computer Science and Engineering at University of Notre Dame. He is expected to receive his Ph.D. degree in May 2019. He received his Bachelor's degree from Nanjing University of Posts and Telecommunications, and his Master's degree from Temple University. His research interests cover resource management in fog and edge computing systems, high performance computing systems and cloud computing systems.