Cloud Computing System Reliability Modeling and Evaluation

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Abstract:

This seminar will provide an overview and evolution of cloud computing systems (CCS). The cloud computing paradigm has ushered in the need for the ability to provide computing resources in a highly scalable, flexible, and transparent fashion. Since cloud computing systems serve as utilities, customer and service level agreements need to be satisfied. This makes the reliability and availability of the cloud extremely important from the customer viewpoint. This talk will focus on reliability modeling and evaluation of cloud computing systems along with the corresponding performance metrics. Specifically, non-sequential Monte Carlo simulation (MCS) to evaluate CCS reliability at a system-wide scale will be discussed. The method allows a CCS to be evaluated by providers and users alike, providing a new method for estimating the parameters of service level agreements (SLAs) and ensuring that CCSs match those requirements. Results demonstrate that the proposed method is effective and applicable to systems at a large scale level. Multiple insights will also be provided into the nature of CCS reliability.

Speaker Biography:

Dr. Alam received the B.S. degree in Electrical Engineering with top honors from Aligarh Muslim University, and the M.E. with distinction and Ph.D. degrees from Indian Institute of Science, Bangalore. He had held faculty/research positions in India, England, Canada, and Saudi Arabia before joining the University of Toledo in 1989. He also served as acting director of the School of Computer Science, University of Windsor, Canada. He has published more than 150 papers in peer-reviewed international journals and conferences. Dr. Alam’s research is currently supported by NSF on localization in wireless sensor networks. In the past his research has been supported by NSF; NSERC and Department communication, Canada; and research grants in Saudi Arabia. Dr. Alam has advised/co-advised more than 30 Master’s and Ph.D. students. He served as the Graduate Director of the EECS Department from 1996 - 1998 and the Undergraduate Director of the CSE program from 1998 - 2001. He received 2008 EECS Teacher of the year award, 2008 College of Engineering Outstanding Teacher award and 2006 IEEE Engineer of the year award of the Toledo Section of the IEEE. Dr. Alam is a life senior member of IEEE.