

Guest Lecture on “Cloud Computing”

23/12/2017 @ 10.30 am

Venue : IoT Lab, ECE Department

Title: New Frontiers in Cloud Computing for Big Data and Internet-of-Things (IoT) Applications



Prof. Rajkumar Buyya

Abstract: Computing is being transformed to a model consisting of services that are commoditized and delivered in a manner similar to utilities such as water, electricity, gas, and telephony. Several computing paradigms have promised to deliver this utility computing vision. Cloud computing has emerged as one of the buzzwords in the IT industry and turned the vision of "computing utilities" into a reality. Clouds deliver infrastructure, platform, and software (application) as services, which are made available as subscription-based services in a pay-as-you-go model to consumers. Cloud application platforms need to offer (1) APIs and tools for rapid creation of elastic applications and (2) a runtime system for deployment of applications on geographically distributed computing infrastructure in a seamless manner.

The Internet of Things (IoT) paradigm enables seamless integration of cyber-and-physical worlds and opening up opportunities for creating new class of applications for domains such as smart cities. The emerging Fog computing is extending Cloud computing paradigm to edge resources for latency sensitive IoT applications.

This keynote presentation will cover (a) 21st century vision of computing and identifies various IT paradigms promising to deliver the vision of computing utilities; (b) opportunities and challenges for utility and market-oriented Cloud computing, (c) innovative architecture for creating market-oriented and elastic Clouds by harnessing virtualisation technologies; (d) Aneka, a Cloud Application Platform, for rapid development of Cloud/Big Data applications and their deployment on private/public Clouds with resource provisioning driven by SLAs; (e) experimental results on deploying Cloud and Big Data/Internet-of-Things (IoT) applications in engineering, and health care, satellite image processing, and smart cities on elastic Clouds; and (f) directions for delivering our 21st century vision along with pathways for future research in Cloud and Fog computing.

Speaker Bio:

Dr. Rajkumar Buyya is a Redmond Barry Distinguished Professor and Director of the Cloud Computing and Distributed Systems (CLOUDS) Laboratory at the University of Melbourne, Australia. He is also serving as the founding CEO of Manjrasoft, a spin-off company of the University, commercializing its innovations in Cloud Computing. He served as a Future Fellow of the Australian Research Council during 2012-2016. He has authored over 625 publications and seven text books including "Mastering Cloud Computing" published by McGraw Hill, China Machine Press, and Morgan Kaufmann for Indian, Chinese and international markets respectively. He is one of the highly cited authors in computer science and software engineering worldwide (h-index=114, g-index=245, 65,200+ citations). Recently, Dr. Buyya is recognized as a "Web of Science Highly Cited Researcher" in 2016 and 2017 by Thomson Reuters, a Fellow of IEEE, and Scopus Researcher of the Year 2017 with Excellence in Innovative Research Award by Elsevier for his outstanding contributions to Cloud computing.

Software technologies for Grid and Cloud computing developed under Dr. Buyya's leadership have gained rapid acceptance and are in use at several academic institutions and commercial enterprises in

40 countries around the world. Dr. Buyya has led the establishment and development of key community activities, including serving as foundation Chair of the IEEE Technical Committee on Scalable Computing and five IEEE/ACM conferences. These contributions and international research leadership of Dr. Buyya are recognized through the award of "2009 IEEE Medal for Excellence in Scalable Computing" from the IEEE Computer Society TCSC. Manjrasoft's Aneka Cloud technology developed under his leadership has received "2010 Frost & Sullivan New Product Innovation Award". Recently, Dr. Buyya received "Mahatma Gandhi Award" along with Gold Medals for his outstanding and extraordinary achievements in Information Technology field and services rendered to promote greater friendship and India-International cooperation. He served as the founding Editor-in-Chief of the IEEE Transactions on Cloud Computing. He is currently serving as Co-Editor-in-Chief of Journal of Software: Practice and Experience, which was established over 45 years ago



Dr. Satish Narayana Srirama is a Lead Research Fellow (Research Professor) and the head of the Mobile & Cloud Lab at the Institute of Computer Science, University of Tartu, Estonia. He received his PhD in computer science from RWTH Aachen University, Germany. His current research focuses on cloud computing, mobile web services, mobile cloud, Internet of Things, fog computing, migrating scientific computing and enterprise applications to the cloud and large scale data analytics on the cloud. He is an Editor of Wiley Software: Practice and Experience, a 45+ year old Journal, was an Associate Editor of IEEE Transactions in Cloud Computing and a program committee member of several international conferences and workshops.

Dr. Srirama has co-authored over 100 refereed scientific publications in international conferences and journals. He was adjudged the "Researcher of the year - 2011" by Institute of Computer Science, University of Tartu and also have won five best paper awards as a co-author at different conferences. Dr. Srirama has successfully managed several national, international and enterprise collaborative research grants and projects.