



# Distinguished Seminar Comp. Sci. & IEEE



## Cloud Computing - a Paradigm IT Changer

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**Computer Science 209**

**Abstract** - Cloud Computing is an emerging computing paradigm envisioned to change all IT landscape facets including technology, business, services and human resources. It is a consumer/delivery model that offers IT capabilities as services billed based on usage. Many such cloud services can be envisioned, but the main ones are IaaS (Infrastructure-as-a-Service), PaaS (Platform-as-a-Service), and SaaS (Software-as-a-Service). The underlying cloud architecture includes a pool of virtualized compute, storage and networking resources that can be aggregated and launched as platforms to run workloads and satisfy their Service-Level Agreement (SLA). Cloud architectures also include provisions to best guarantee service delivery for clients and at the same time optimize efficiency of resources of providers. Examples of provisions include, but not limited to, elasticity through scaling resources up/down to track workload behavior, extensive monitoring, failure mitigation, and energy optimizations. The two main technologies enabling clouds are: (i) Virtualization, the foundation of clouds; and (ii) manageability (autonomics), the command & control of clouds. This talk is intended to provide an overview of cloud computing, its enabling technologies and current challenges. It will also look at clouds' IT/business ramifications as well as required future research.

**Brief Bio** - Dr. Yousif Mazin received his Masters in Electrical Engineering and PhD in Computer Engineering from the Pennsylvania State University in 1987 and 1992, respectively. Dr. Yousif is currently the Chief Technology Officer, Cloud Computing, in IBM Canada. Before that, he was chief systems architect for Phase Change Memory at Numonyx Corporation. He was also a Principal Engineer and Director of the Scale-out Virtualization and Autonomics project. Dr. Yousif held adjunct Professors positions at a number of universities including Duke, NCSU and OGI. His current focus is on enabling cloud technologies and setting the R&D directions for cloud computing.

