

CS Seminar

Efficient, Consistent and Secure Global-Scale Data Management

Professor Amr El Abbadi
Department of Computer Science,
University of California, Santa Barbara

Date:

December 19, 2018
Wednesday
3:30 pm

Venue:

Room 308
Chow Yei Ching Building
The University of Hong Kong

Abstract:

Processing and analyzing data is becoming increasingly ubiquitous and is the driving force behind the sustained growth of Internet applications and the emergence of Big Data Analytics. These applications typically adopt the cloud model where they are hosted in a single datacenter. This introduces a fundamental limitation: communication to a centralized datacenter incurs significant latencies. The utilization of edge nodes is inevitable for the future success and growth of many emerging low latency and mobile applications. In this talk, we will explore various technologies that aim to facilitate building global-scale and edge-aware data management systems. These approaches are based on Geo-replication, where data is replicated across geographic locations to be closer to users, and Edge-awareness, where applications are deployed on edge locations to bypass the last-mile infrastructure. We propose novel consensus approaches that manage access to partitioned data across globally-distributed datacenters and edge nodes. The main objective is to reduce the latency of serving user requests, while ensuring fault-tolerance and adapting gracefully to mobility. In addition to failures, data centers are constantly exposed to an increasing number of non-trivial adversarial threats. Traditional cryptographic methods either limit the functionality of the data, or significantly increase retrieval costs. We will highlight some novel approaches that ensure efficient privacy preserving access to data in the Cloud.

About the Speaker:

Amr El Abbadi is a Professor of Computer Science at the University of California, Santa Barbara. He received his B. Eng. from Alexandria University, Egypt, and his Ph.D. from Cornell University. Prof. El Abbadi is an ACM Fellow, AAAS Fellow, and IEEE Fellow. He was Chair of the Computer Science Department at UCSB from 2007 to 2011. He has served as a journal editor for several database journals, including, The VLDB Journal, IEEE Transactions on Computers and The Computer Journal. He has been Program Chair for multiple database and distributed systems conferences. He currently serves on the executive committee of the IEEE Technical Committee on Data Engineering (TCDE) and was a board member of the VLDB Endowment from 2002 to 2008. In 2007, Prof. El Abbadi received the UCSB Senate Outstanding Mentorship Award for his excellence in mentoring graduate students. In 2013, his student, Sudipto Das received the SIGMOD Jim Gray Doctoral Dissertation Award. Prof. El Abbadi is also a co-recipient of the Test of Time Award at EDBT/ICDT 2015. He has published over 300 articles in databases and distributed systems and has supervised over 35 PhD students.

All are welcome!

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