



THE CHINESE UNIVERSITY OF HONG KONG
Institute of Network Coding
and
Department of Information Engineering
Seminar



DRESS Code for the Storage Cloud

By

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Time : 2:30 - 3:30 pm

**Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong**

Abstract

Cloud storage systems, such as Google data centers, Amazon S3, Wuala, etc. are now a growing paradigm for providing online storage of data making it accessible anywhere and anytime. These systems are dynamic by nature with new nodes being frequently added to repair the system from failures or to grow it when the number of users increases. It is crucial to make this process fast and efficient in order to lower the cost on the system and reduce its downtime.

In this talk, I will present new efficient codes for distributed storage that we call *Distributed Replication-based Exact Simple Storage* (DRESS) codes. DRESS codes permit fast and uncoded system repair and growth with minimum bandwidth, disk reads, and computational overheads. I will present optimal code constructions from projective planes and *Steiner* systems and describe simple randomized constructions that are growth-friendly. When the security in the cloud is breached and some nodes start acting maliciously, DRESS codes do not only guarantee data integrity, but also help catch the bad guys.

Biography

Salim El Rouayheb is a postdoctoral research fellow with the Electrical Engineering and Computer Sciences (EECS) Department, University of California, Berkeley. His research interests lie in the broad area of communications with a focus on reliable and secure distributed information systems and on the algorithmic and information-theoretic aspects of networking.

He received his Diploma degree in electrical engineering from the Lebanese University, Roumieh, Lebanon, in 2002, and his M.S. degree in computer and communications engineering from the American University of Beirut, Lebanon, in 2004. He received his Ph.D. degree in electrical engineering from Texas A&M University, College Station, in 2009. During Summer 2006, he was an intern at the Mathematics of Communication Research Department at Bell Labs. He received the *Charlie S. Korban* award for outstanding graduate student, and the Texas Telecommunication Engineering Consortium (TXTEC) Graduate Fellowship.

****ALL ARE WELCOME ****