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Faculty Research Colloquium

Dr. Zakaria Al-Qudah

Associate Professor of Computer Science & Engineering Department
School of Engineering

"Internet Path Stability: Exploring the Impact of MPLS Deployment"

3:30-4:30 PM, Monday, November 7, 2016
Building G, Ground Floor, G103 Conference Room

Abstract

With constant evolution of the Internet, many of its even well-established properties continue to change. This study re-evaluates the stability and diversity of Internet paths and whether it is affected by the widely deployed Multi-Protocol Label Switching (MPLS). In particular, using traceroutes between large number of source-destination pairs with the Internet Control Message Protocol (ICMP) extensions for the MPLS protocol, we study the stability and diversity of Internet paths as well as the amount of change in Round Trip Time (RTT) associated with a path change between a source-destination pair. Our results indicate that Internet routes are significantly less stable than previously reported. However, MPLS does not contribute significantly to this instability, and most path changes are associated with an insignificant change in RTT. While our route diversity results are not directly comparable with previous results, we find a great diversity of Internet routes: 60% of source-destination pairs in our experiments experienced 10 or more distinct routes in the course of 24 hours.

About the Speaker

Dr. Zakaria Al-Qudah is currently an associate professor of computer engineering at American University of Ras Al Khaimah (AURAK). Prior to joining AURAK, Dr. Al-Qudah served as an associate professor of computer engineering at Yarmouk University, Jordan, and a visiting assistant professor at Case Western Reserve University (CWRU), USA. Dr. Al-Qudah is generally interested in computer networking and Internet research. Specific subjects include the performance and security of Content Delivery Networks (CDNs), Next Generation Networks, cybersecurity and Internet Measurements. He has published several papers in high quality conferences and journals. Moreover, he holds a U.S. patent in the area of anycast content delivery networks.