**Graduate Seminar (EEL 6936)**
**Department of Electrical Engineering**


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Electrical Engineering, USF


Friday, August 30th, 2013, 12:55-1:55 p.m.
Chemistry Building, Room 111 (CHE 111)

# Network Scheduling for E-Science Big Data

## Abstract


Researchers in the scientific computing community are actively leveraging advanced state-of-the-art networking infrastructures to achieve massive bulk data transfer/processing across extended national and global distances, trending towards the exascale. However, these new evolutions are placing huge burdens on network resource provisioning, and even the most scalable backbones cannot handle all demands in an "on-line" manner. It is here that the concept of network *advance reservation* (AR) is becoming increasingly important. Namely, this approach lets users reserve connections at future time instants, i.e., via *network scheduling*, thereby allowing operators to stagger demands and improve their resource assignments. Along these lines, this talk will survey this field and outline several important research directions. Some refined AR scheduling schemes will then be presented to improve carried load (revenue generation) and resource efficiency. Networking control plane issues will also be highlighted to extend these theoretical schemes across distributed real-world settings. Overall, network scheduling services will have broad-based applicability for many commercial applications as well, i.e., in storage extension, grid and cloud computing, broadcast, etc.


## Biography

Dr. Nasir Ghani is a Professor in the Electrical Engineering Department at the University of South Florida. Earlier he was a faculty member and Associate Chair in the ECE Department at the University of New Mexico. He has also spent over 8 years in industry working at several large hi-tech corporations (including Nokia, IBM, and Motorola) and several startups. Currently he is involved in a range of research activities in the areas of cyberinfrastructure design, disaster recovery, cloud computing, and cyber-physical systems (integrated power grids). In addition, his research has been supported by the National Science Foundation, Defense Threat Reduction Agency, Department of Energy, Qatar Foundation, Department of Education, NSWC, and Sprint-Nextel Corporation. He also received the NSF CAREER Award in 2005 for his work in multi-domain networking. Dr. Ghani has chaired the IEEE ComSoc Technical Committee on High Speed Networks from 2008-2010 and has been a symposium co-chair for IEEE GLOBECOM, IEEE ICC, and IEEE ICCCN. He has also run a workshop series for IEEE INFOCOM and has served on numerous NSF, DOE, and international panels. He is an Associate Editor for IEEE Systems and has also served on the editorial board of IEEE Communications Letters. He received the Ph.D. degree in Computer Engineering from the University of Waterloo, Ontario, Canada.