MISSOURI S&T University of Science & Technology

Computer Science Dept. Seminar Series

Leveraging Software-defined Networking for Resource Adaptation of Virtual Desktop Cloud Applications

Dr. Prasad Calyam, UM - Columbia

Feb 19 Tuesday, 12:30 to 1:30pm - Venue – CS 209

Abstract - Popular applications such as email, photo/video galleries, and file storage are increasingly being supported by cloud platforms in residential, academia and industry communities. The next frontier for these user communities will be to transition 'traditional desktops' that have dedicated hardware and software configurations into 'virtual desktop clouds' that are accessible via thin-clients. In my talk, I will describe an intelligent resource allocation framework for thin-client based virtual desktops. The framework leverages principles of utility-directed provisioning and placement, software-defined networking and features a 'unified resource broker' for: (a) "route setup" when handling non-IP traffic between thin-client sites and data centers, (b) "path selection" and "load balancing" of virtual desktop flows to improve performance of interactive applications and video playback, and to cope with faults such as link-failures or Denial- of-Service cyber-attacks. I will also present results from our framework implementation within a virtual desktop cloud (VDC) setup in a multi-domain Global Environment for Network Innovations (GENI) Future Internet testbed spanning backbone and access networks. I will conclude the talk by describing how our VDC implementations are being leveraged for cloud technologies adoption use cases in delivering virtual classroom labs for faculty and students, as well as collaborative advanced manufacturing.

Brief Bio - Prasad Calyam is an Assistant Professor in the Department of Computer Science at University of Missouri-Columbia. He received his M.S. and Ph.D. degrees from the Department of Electrical and Computer Engineering at The Ohio State University. He most recently was a Research Director at Ohio Supercomputer Center/OARnet, The Ohio State University. His research and development areas of interest include: Distributed and Cloud Computing, Computer Networking, Multimedia Applications, and Cyber Security.