CSEE SEMINAR SERIES
FRIDAY, NOVEMBER 15, 2013
11 a.m. – Noon
Flarsheim 557

Dr. Prasad Calyam, Ph.D.

“Design and Verification of Resource Allocation in Virtual Desktop Cloud Applications”

Abstract

Popular applications such as email, photo/video galleries, and file storage are increasingly 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. This talk 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 application use in cases such as: ClassroomLab-as-a-Service, ElderCare-as-a-Service, and ManufacturingSim-as-a-Service.

Bio

Prasad Calyam is an Assistant Professor in the Department of Computer Science at University of Missouri-Columbia. Before coming to the university in 2013, he was a Research Director at Ohio Supercomputer Center/OARnet, at Ohio State University. His research and development areas of interest include the following: Distributed and Cloud Computing, Computer Networking, Networked-Multimedia Applications, and Cyber Security. He has published over 40 papers in various conference and journal venues. As the Principal Investigator, he has successfully led teams of graduate, undergraduate, and postdoctoral fellows in numerous Federal, State, and Industry sponsored R&D projects. His research sponsors include NSF, DOE, VMware, Cisco, Dell, Verizon, IBM, Huawei, Internet2, and others. He serves as an Editor for “IEEE Communications Magazine” and “Journal of Mobile and Ubiquitous Computing Technology.” He also is an expert consultant for industry, academia, and government agencies in the design and development of software systems comprising of advanced architectures and cloud-based performance analysis technologies.