BINGHAMTON UNIVERSITY | Computer Science
STATE UNIVERSITY OF NEW YORK

COMPUTER SCIENCE RESEARCH SEMINAR

VFresh: Fast and Live Replacement of Hypervisor

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Friday, March 29, 2019 at noon in room R15, Engineering Building

Abstract: Hypervisors are increasingly complex and must be often updated for applying security patches, bug fixes, and feature upgrades. However, in a virtualized cloud infrastructure, updates to an operational hypervisor can be highly disruptive.

Before being updated, virtual machines (VMs) running on a hypervisor must be either migrated away or shut down, resulting in downtime, performance loss, and network overhead. We present a new technique, called VFresh, to transparently replace a hypervisor with a new updated instance without disrupting any running VMs. A thin shim layer, called the hyperplexor, performs live hypervisor replacement by remapping guest memory to a new updated hypervisor on the same machine. The hyperplexor leverages nested virtualization for hypervisor replacement while minimizing nesting overheads during normal execution. We present a prototype implementation of the hyperplexor on the KVM/QEMU platform that can perform live hypervisor replacement within 10ms.

Bio: Spoorti Doddamani is a Ph.D. candidate at Binghamton University advised by Dr. Kartik Gopalan. Her research focuses on operating systems and virtualization.

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Refreshments will be provided!