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**FACULTY OF SCIENCE AND TECHNOLOGY**  
**DEPARTMENT of COMPUTER AND INFORMATION**  
**SCIENCE**

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**“Taking Live Snapshots of Virtual  
Infrastructures in the Cloud”**

by

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**Time : 10:00**

**Venue : WLG102**

## **Abstract**

One of the main paradigms of cloud computing is "Infrastructure as a Service (IaaS)." A virtual infrastructure in the cloud consists of virtual machines connected by a virtual network. Multiple virtual infrastructures can be created for individual users or user communities on a shared cloud computing infrastructure. The ability to take snapshots of an entire virtual infrastructure, including images of the virtual machines with their execution, communication and storage states, yields a unique capability towards cloud computing reliability. Such a distributed snapshot will be able to restore the operation of an entire virtual infrastructure in response to faults or failures. In this talk I present VNsnap, a system that takes live snapshots of virtual infrastructures.

Unlike existing distributed snapshot/checkpointing solutions, VNsnap does not require any modifications to the applications, libraries, or (guest) operating systems running in the virtual machines. Furthermore, VNsnap incurs only seconds of downtime as much of the snapshot operation takes place concurrently with the virtual infrastructure's normal operation. I will report our VNsnap prototype implemented on top of Xen and present experimental results with real-world parallel and distributed applications to demonstrate VNsnap's effectiveness and efficiency. I will also report our latest effort in porting VNsnap to the GENI ([www.geni.net](http://www.geni.net)) network infrastructure.

## **Biography**

Dongyan Xu is an associate professor of computer science and electrical and computer engineering at Purdue University. He received his Ph.D. in computer science from the University of Illinois at Urbana-Champaign in 2001 and afterwards joined Purdue University as an assistant professor. His current research focuses on the development of advanced virtualization technologies for cloud computing and for computer system security. He has also made early contribution to the area of peer-to-peer media streaming. He received an NSF CAREER Award in 2006 and is a co-author of a paper nominated for the Best Student Paper Award at the 2010 ACM/IEEE Supercomputing Conference.

**ALL ARE WELCOME!**