Abstract:

Xen is the leading open-source hypervisor for x86, IPF and POWER machines. It allows a single machine to be partitioned so as to provide the illusion of multiple *virtual machines*, each of which can run an operating system instance along with all of its associated services and applications. Hypervisor technology promises great cost and manageability improvements for the data center, enabling for example *server consolidation*, *high availability*, *enhanced security* and *live migration*. Xen supports both high-performance *paravirtualized* operating systems (optimized to run on top of a hypervisor) as well as *fully virtualized* operating systems which make use of hardware support.

In this talk I will give an overview of Xen, outlining its basic architecture, and discuss how it supports paravirtualized operating systems. I will then look at the recently available x86 hardware extensions from Intel and AMD, and explain how these allow Xen to support fully virtualized operating systems. Finally, I will look to the future of hardware support for virtualization, in particular considering possible extensions to both platform chipsets and individual hardware devices. Together these extensions should enable us to realize virtualized IO which is safe, direct & high-performance.