Integrating Virtualization and Cloud Computing in Information Technology Education and Research

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Abstract:

The talk consists of two parts. Part I focuses on our experiences with incorporating virtualization and cloud computing into information technology education and research. Virtualization and cloud computing have brought transformative changes to information technology infrastructures. These technologies provided faculty and students with many opportunities previously unavailable in a traditional lab environment. Our exploration started from the traditional, centralized, physical lab environment, to a decentralized virtual lab environment, and then back to the centralized virtual lab environment supported by cloud computing. Different cloud-in-cloud approaches were implemented to build virtual environments for cyber security, cloud management, storage protocol configuration, and virtualization infrastructure configuration. Automated assessment in the cloud environment was explored. In part II, a case study of intrusion detection will be presented.