

CSSIA

Center of Systems Security and Information Assurance

CSSIA Virtualization Data Center

Erich Spengler

Director – PI



Presentation Overview

- **Virtualization Landscape**
- **CSSIA VDC Architecture**
- **Capacity and Bandwidth Planning**
- **Business Model**
- **Model / Standard for Content Contribution and Dissemination**
- **Demonstration**
- **Next Step**
- **Q & A**



Virtualization Landscape

- **What systems currently exist?**

Brian Hay, University of Alaska Fairbanks

Chris May, Carnegie-Mellon and CERT

Erich Spengler, Center for Systems Security and Information Assurance (CSSIA)

Others

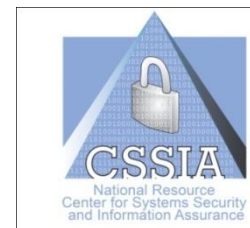
- **Commonalities**

Based on Multiple Vendor Products

Enable Student to work in Sandbox, isolated secure environment

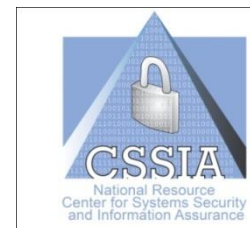
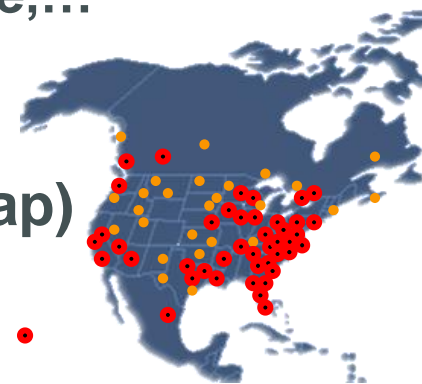
Enable Standardization

Provide for out of classroom learning experience



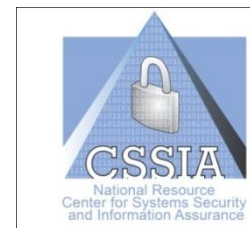
CSSIA VDC Architecture

- **Integrated Solution using multiple vendors**
- **Products and devices are currently supported**
Integration of Microsoft, Unix, Citrix, Cisco, VMware,...
- **Scheduling and course management**
- **Well Positioned for Content Distribution (see map)**
- **Customization and learning pod design**
- **Support for learning communities and institutions**
- **Rapid deployment of new learning environments**



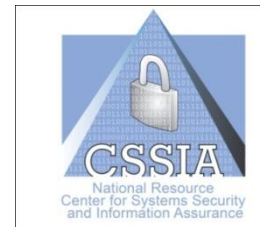
Capacity and Bandwidth Planning

- **CSSIA Strategy for Large Scale Deployment**
- **Greatest Challenges in Planning Large Scale Deployments**
Requirement per user (# Machines/CPU/Memory/Bandwidth)
- **Planning for a National Hub or Mesh design**
Host Institutions
Network Bandwidth Needs
Server
Cost
- **National Technical Support Team/Staffing**
- **High availability**



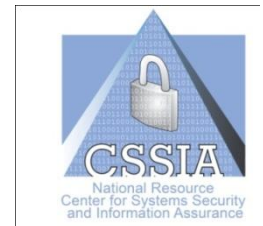
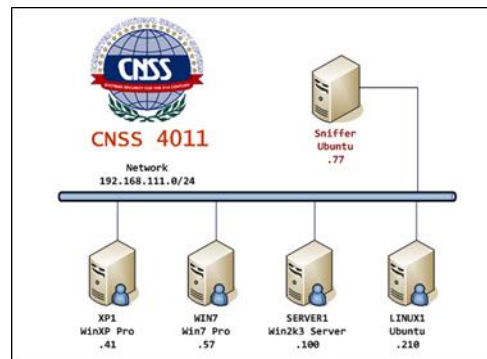
Key Factors in Building a Successful Model

- **Creation of a Federation or hosting communities**
- **Return on Investment Model**
- **Sustainability Model**
- **Management and structure**
- **Change management**
- **New technology deployment**
- **Ownership and sharing of equipment and licenses**



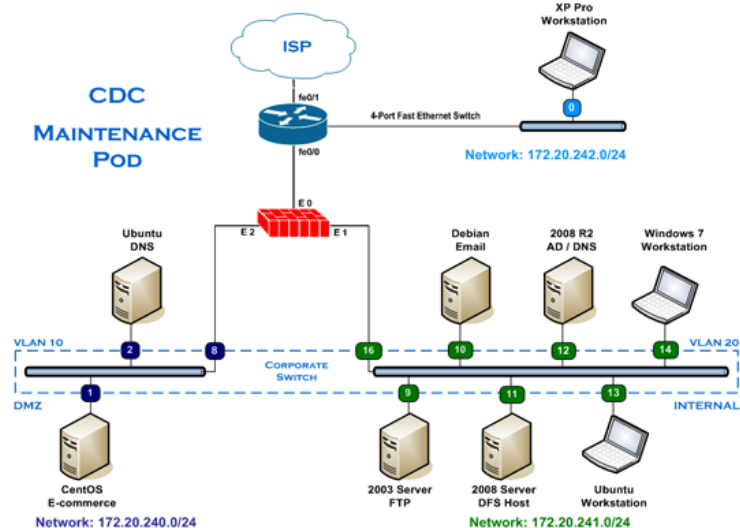
Model / Standard for Content Contribution and Dissemination

- Establishing and managing a library of reusable learning content
- A Call for ALL Available content (who and how to contribute)
- Ability to use current curriculum and ownership model
- Establishing a contribution process
- Establishing a staging and quality assurance process

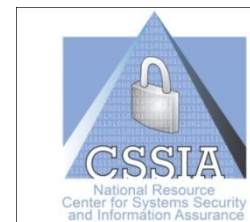
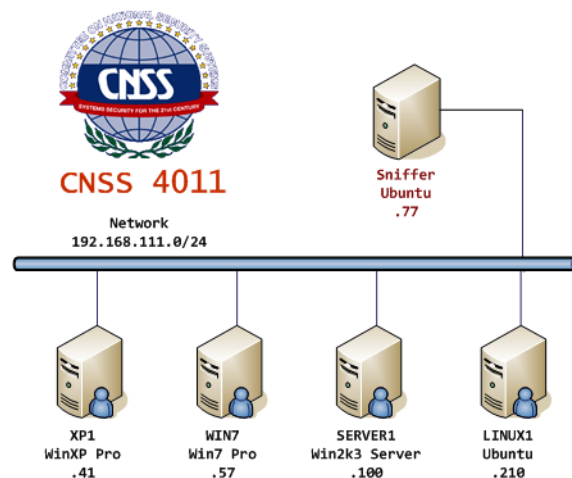


Example Use: Virtualization Topologies

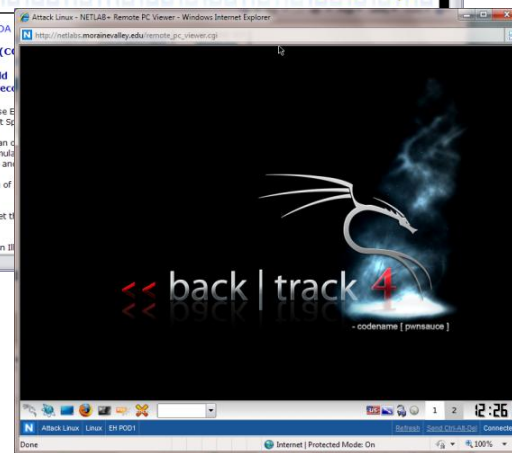
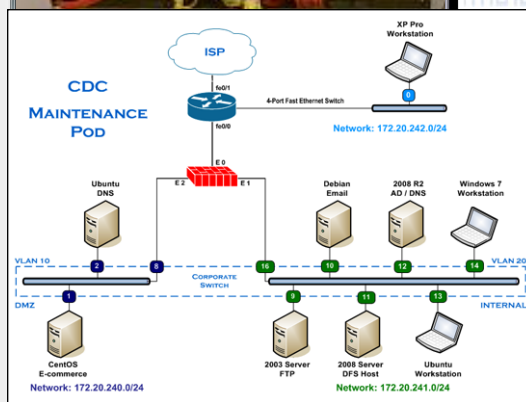
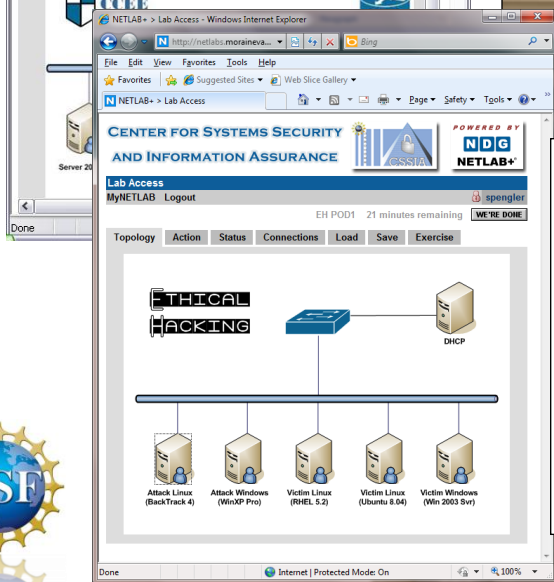
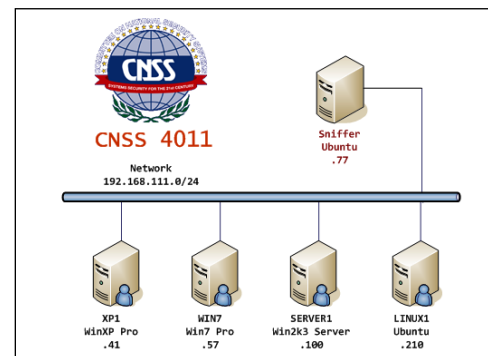
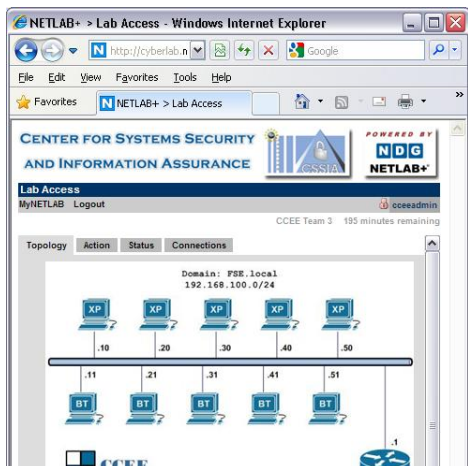
Regional Competition Topology



CNSS 4011 IA Lab Learning Topology



Demo: CSSIA Online Cyber Security Lab

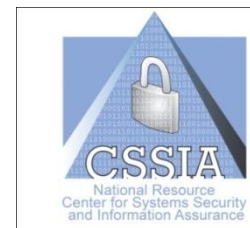


Contacts

- **CSSIA:** Erich Spengler spengler@morainevalley.edu
- **Collegiate Competitions:** David Durkee ddurkee12@oh.rr.com
- **High School Competitions:** John Sands sands@morainevalley.edu
- **VMware IT Academy:** David Nelson davenelson@vmware.com
- **Citrix IT Academy:** Dan Myers dan.myers@citrix.com
- **NDG:** Richard Weeks info@netdevgroup.com

Next Steps

- **Continue to Develop curriculum**
Forensics/CEH/Mobile Computing/Security+/Citrix etc.
- **Continue to Improve Environment**
New Features/Support for Additional Products/Connection to AD
- **Continue to Share Results and Curriculum**
Establish a National Curriculum Library
- **Pursue the Funding and Establishment of a National Virtualization Network (150+ Schools by 2015)**
Identify Potential Hubs/Create a National Support Network
- **Faculty Professional Development**



Questions

Q and A Time

