CSSIA

Center of Systems Security and Information Assurance

CSSIA Virtualization Data Center

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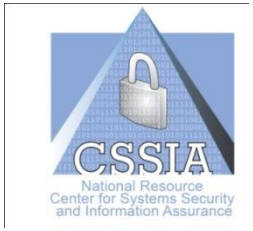
Director – PI

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**

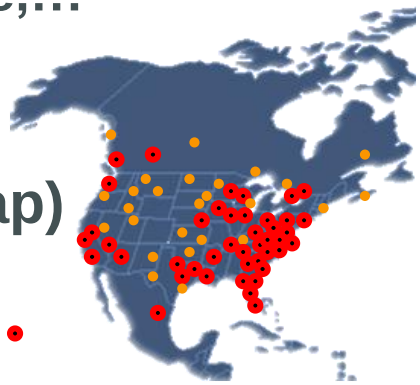
Virtualization Landscape

- **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



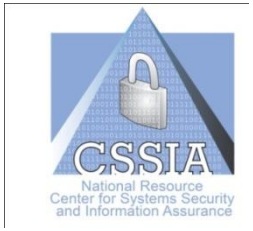
CSSIA VDC Architecture

- **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**



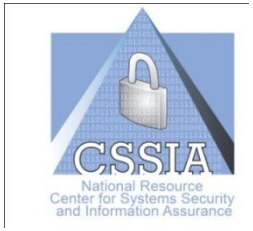
Capacity and Bandwidth Planning

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



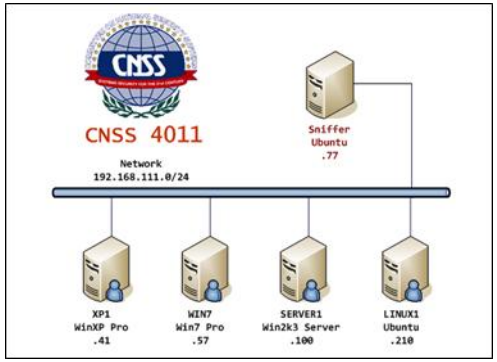
Key Factors in Building a Successful Model

- **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**



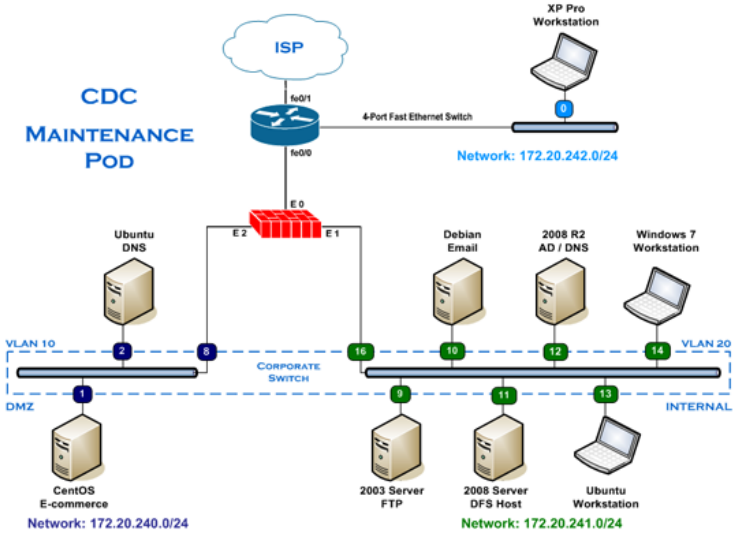
Model / Standard for Content Contribution and Dissemination

- **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**

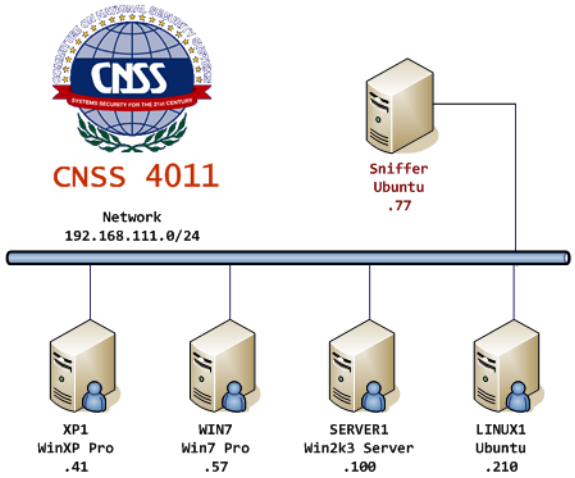


Example Use: Virtualization Topologies

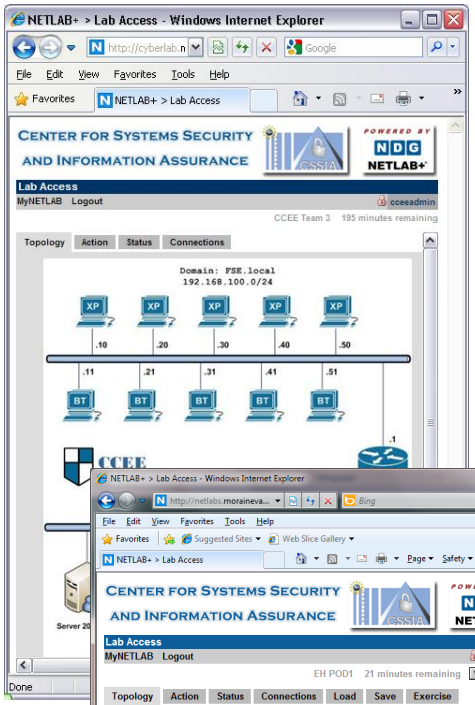
Regional Competition Topology

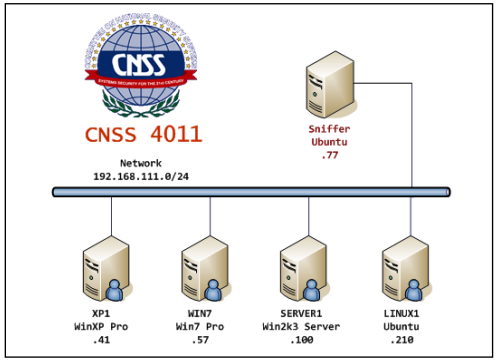


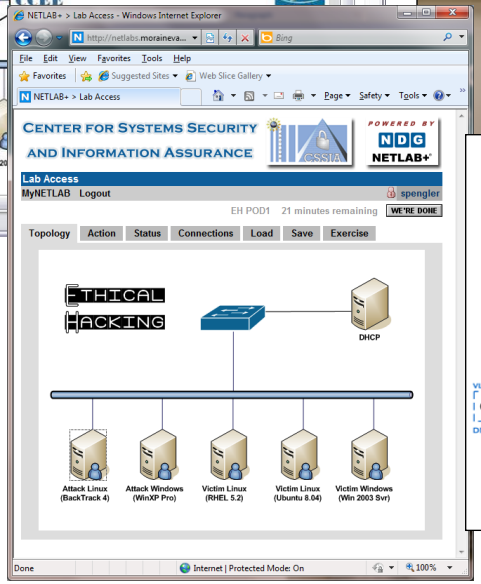
CNSS 4011 IA Lab Learning Topology

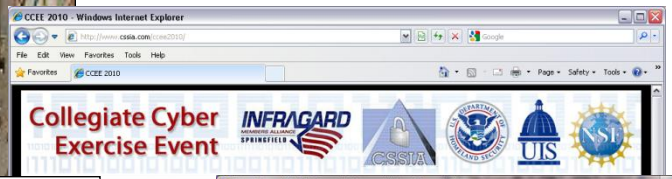


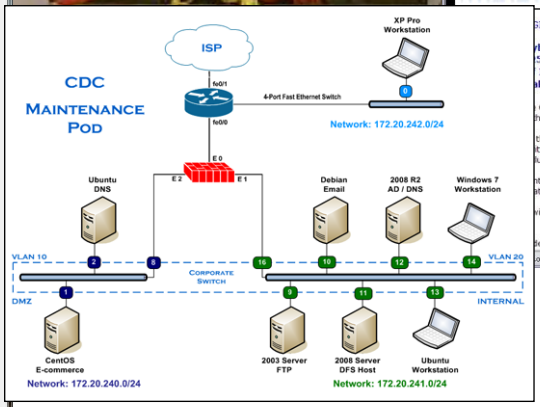
Demo:
CSSIA Online Cyber Security Lab

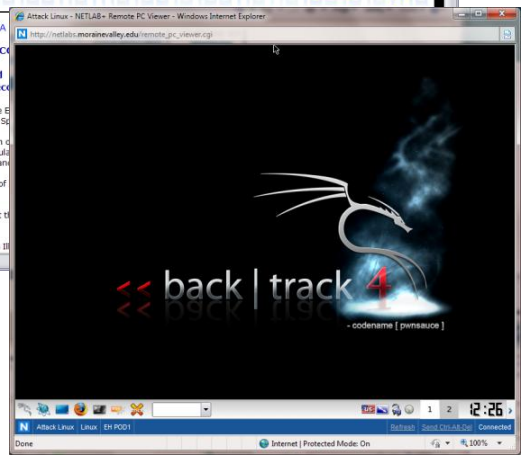












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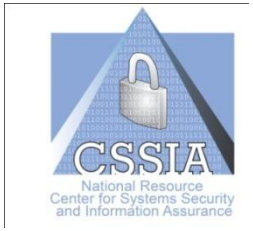
Next Steps

- **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