



Video and Virtualization: New tools for security education

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Briefly, about me

Carnegie Mellon University

 **Software Engineering Institute (FFRDC)**

 **CERT (Information Security)**

 **Practices, Development & Training**
(Focus on 'Tier 2'/technical security training)

 **Me**



Video



The video revolution is here

But it's not just these guys.



The video revolution is here

It's these guys, too



Cisco CCNA - Inter-VLAN Routing

Block

Corel Painter Essentials 2 - [Palaestra_Slidebackground-Diagram.RIF @ 100%]

File Edit Canvas Select Effects Window Help PALAESTRA TRAINING, LLC

Palaestra_Slidebackground-Diagram.RIF @ 100%

The diagram illustrates a network setup for inter-VLAN routing. On the left, a switch is shown with three VLANs: VLAN 2 (Blue), VLAN 3 (Red), and VLAN 4 (Green). Each VLAN contains several hosts (e.g., B2, B3, B4 in blue; R1, R2, R3, R4 in red; G1, G2, G3 in green). The switch is connected to a router. The router has an "uplink" and a "fa 0/0" interface. The router's interface is configured with IP addresses .1, .2, .3, and .4. The video player interface at the bottom shows a progress bar at 01:43 / 09:58.



Microsoft Information Protection

Block

net-security.org

The video player shows a man with glasses and a dark suit speaking. The video player interface at the bottom shows a progress bar at 02:03 / 03:36.

Who has a TiVo?



What does this mean for me?

Recommendations

- Everywhere there's a teacher, put a camera in a student chair
 - DoD Mandatory turnover
 - Increasingly organizational knowledge sits with contractors
 - Example: USMC 2007 IA Conference
- Give students control of the pace
- Reach the 'disenfranchised'
- Lifelong learning

But consider...

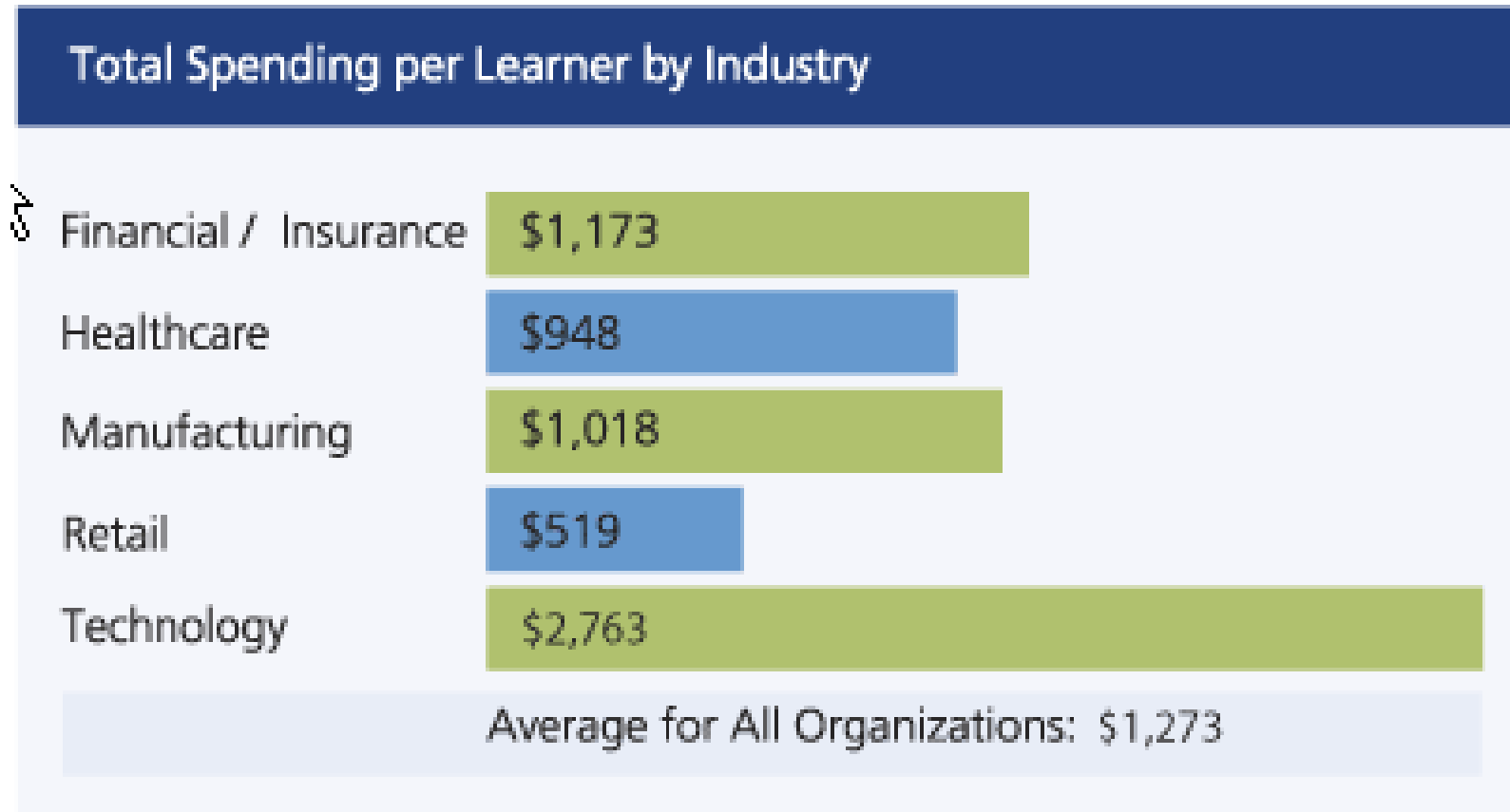
- ADA/Section 508 (provide transcript)
- Tagging video for searchability
- LMS compatibility



Virtualization



Does this surprise anyone?



Source: **Corporate Learning Factbook 2007**, Bersin & Associates

The perfect simulator

Virtual Machine
Technology: finally a
place where IT training
can be cheaper!

- Real systems
- Infinitely replayable
- Learn via mistakes

What does a flight
simulator cost?



What does this mean for me?

Recommendations

- If VM technology isn't a part of your technical training strategy, it should be
 - Get students out of the training lab
 - Build a library of configurations
 - Train on uncommon situations
- Sandbox labs
 - Blue *and* Red team training

But consider...

- Port/Protocol ramifications (RDP, VNC, etc)
- Have network staff evaluate sandbox
- O/S and software licensing concerns
- Limitations in what can be virtualized



Thank You

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