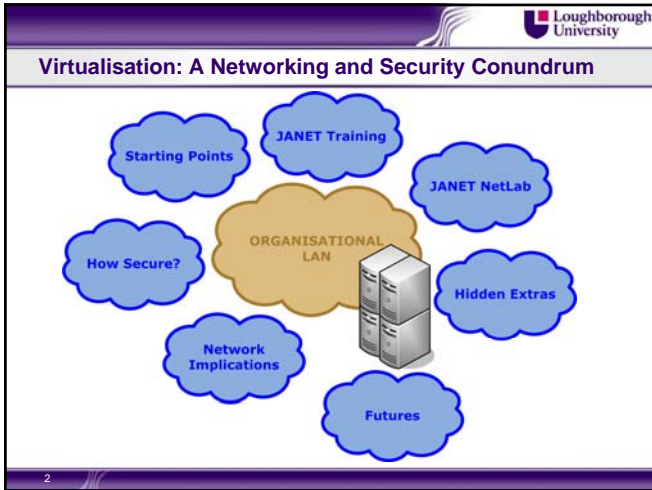



Virtualisation: A Networking and Security Conundrum


Matthew Cook
Network & Security Manager
Loughborough University





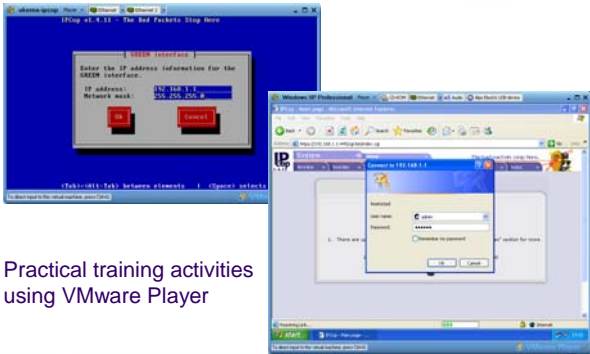
Starting Points

- This is not a virtualisation implementation presentation...
- However this is set of ideas surrounding the network implications of your organisation implementing virtualisation technologies.
- Loughborough are currently evaluating the benefits of varied technologies: VMware, Microsoft Hyper-V, Xen and Solaris Zones.
- Not talking about Desktop, Application or Storage Virtualisation.
- If it is not on your agenda now, it will be!



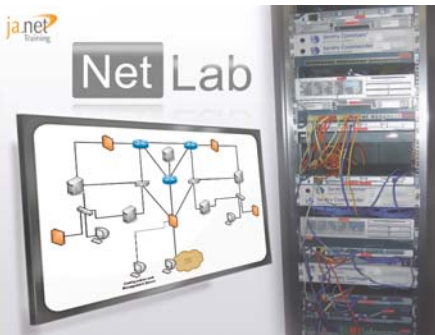
3

JANET Training



Practical training activities using VMware Player

JANET NetLab



- Core of JANET
- State of the art
- Industry standard
- Course support
- VMware ESX
- VPN connection
- Firewalls
- IPv6
- Multicast

How Secure?

- Can secure Virtual Machines exist on the same host?
 - Do you want to run your Web and SQL server on the same physical computer, even if virtualised?
 - Breaking out of the VM is possible
- Is automatic provisioning a good idea?
- Where is the traditional DMZ?
- Shared VM Services
 - Anti Virus
 - HIDS/HIPS



Network Implications

- Is the virtual network secure?
 - Does your IDS/IPS have visibility of the virtual switch?
 - Network probe guest VM?
 - Increased frequency of SSL based attacks

- Expectation that the network can deliver:
 - Speed requirements, does it make sense to virtualise high bandwidth applications?
 - Same IP Everywhere (VMotion)
 - Automated VLAN changes

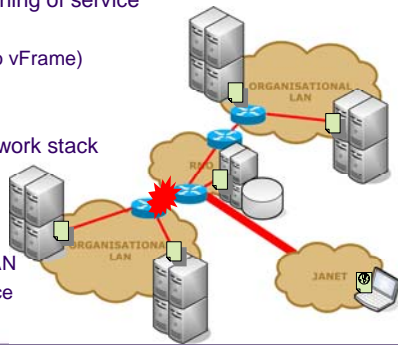


Hidden Extras

- Can you get enough bandwidth from the server?
 - PCI-X 1.0 - 133 Mhz @ 8.53Gb/sec
 - PCI-X 2.0 - 266 Mhz @ 17.2Gb/sec
 - PCI-X 2.0 - 533 Mhz @ 34.4Gb/sec
 - However: beware slow cards, slow the whole bus
 - Take advantage of multiple buses
 - Don't let the network take the blame!
- Fixing shortcomings in software
 - USB over IP
 - Digi's AnywhereUSB
 - http://www.vmware.com/pdf/esx_anywhereusb2.pdf

Futures

- Automated provisioning of service
 - Virtual Machine
 - Networking (Cisco vFrame)
 - Storage
- Complete IPv6 Network stack
- Pervasive Data Centres
 - Organisational SAN
 - Shared VM Service



Loughborough University

Birds of a Feather Session

- 17:45 – 18:30
K3.14
Practical Implications of Virtualisation
- What has your site implemented?
- Did you have to change your network infrastructure?
- Worried about IT Security?
- Any advice to provide to the community?
- There is time before the wine reception and exhibition...




10

Loughborough University

JANET CSIRT Conference October 2008

- JANET CSIRT Conference booked for October 2008
- Sir Denis Rooke Building, Holywell Park, Loughborough University
- Thursday 23rd October 08
- Full day programme
- Further Details:
<http://www.ja.net/services/csirt/>



11

Loughborough University



Questions?

Matthew Cook
<http://escarpment.net/>
