oVirt at Leeds Beckett University

Using oVirt to provide a FOSS VDI solution to teach cyber security in a sandboxed realistic environment to remote students

oVirt at Leeds Beckett University

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Leeds Beckett University

Previous teaching provision

- PC network workstations.
- 3 labs 25 PCs.
- Scripted imaging system (IMS).

Why oVirt?

- Looking for a managed KVM solution.
- Free and Open Source Software.
- Open SDK and API.
- JAVA PYTHON RUBY Web.
- Community Support with option a vendor support.
- Scalable and Manageable.

First Stages

- POC based on PC Workstations.
- Test Class with feedback session from students.
- Planned integration into course modules.

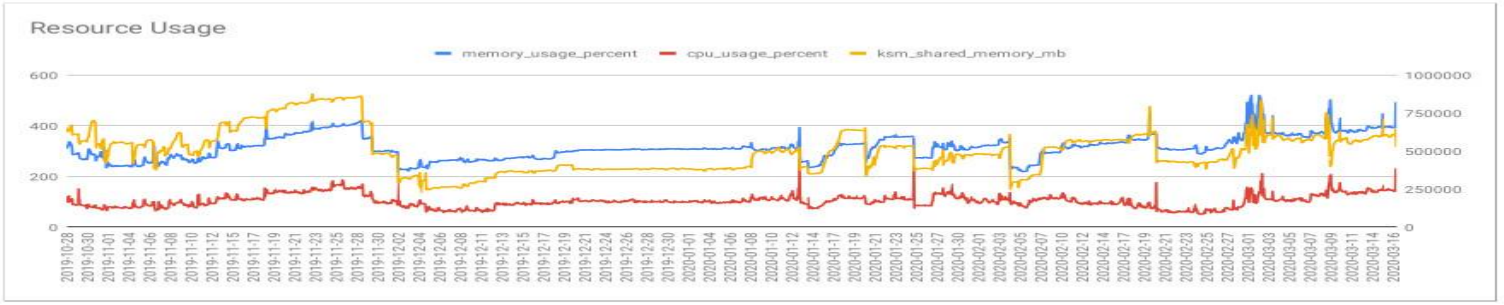
Original Setup

- 1 Datacenter
- 1 Cluster
- 3 Hosts

Resource Usage

Select which oVirt node(s) to view here

host_name 1 of 6



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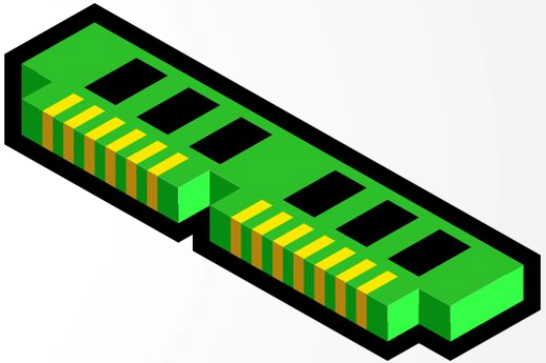
Upgrades to system

- 1 Datacenter
- 1 Cluster
- 3 Hosts + Increase Memory
- 4 Extra Hosts
- 8 more Hosts



Security Courses

- Originally running on IMS machine.
- VMware Player.
- VirtualBox.
- Most Now moved to oVirt.

Advantages with the oVirt System

- On premises there was a time penalty running VMs on physical machines.
- More flexible approach and quicker to roll out updates and changes.
- Less maintenance needed by the students.
- Can access the VMs remotely and on site.
- Staff can provide teaching support to students remotely.
- Extra flexiblility with group working.

Networking for Security

- We separate the oVirt service networking and the VM networking for students.
- We have an air-gapped switch for student VM networks.
- Access outside the isolated networks is via a proxy.

Remote Access for Students

- For student use they require web access to the portal really only https:
- And access to the console ports on the oVirt hosts.
- The University provides 2 methods at present.
- A remote-app service the provides a jump box.
- A VPN service to connect to the University.
- Both have problems especially since the University moved to distance learning.

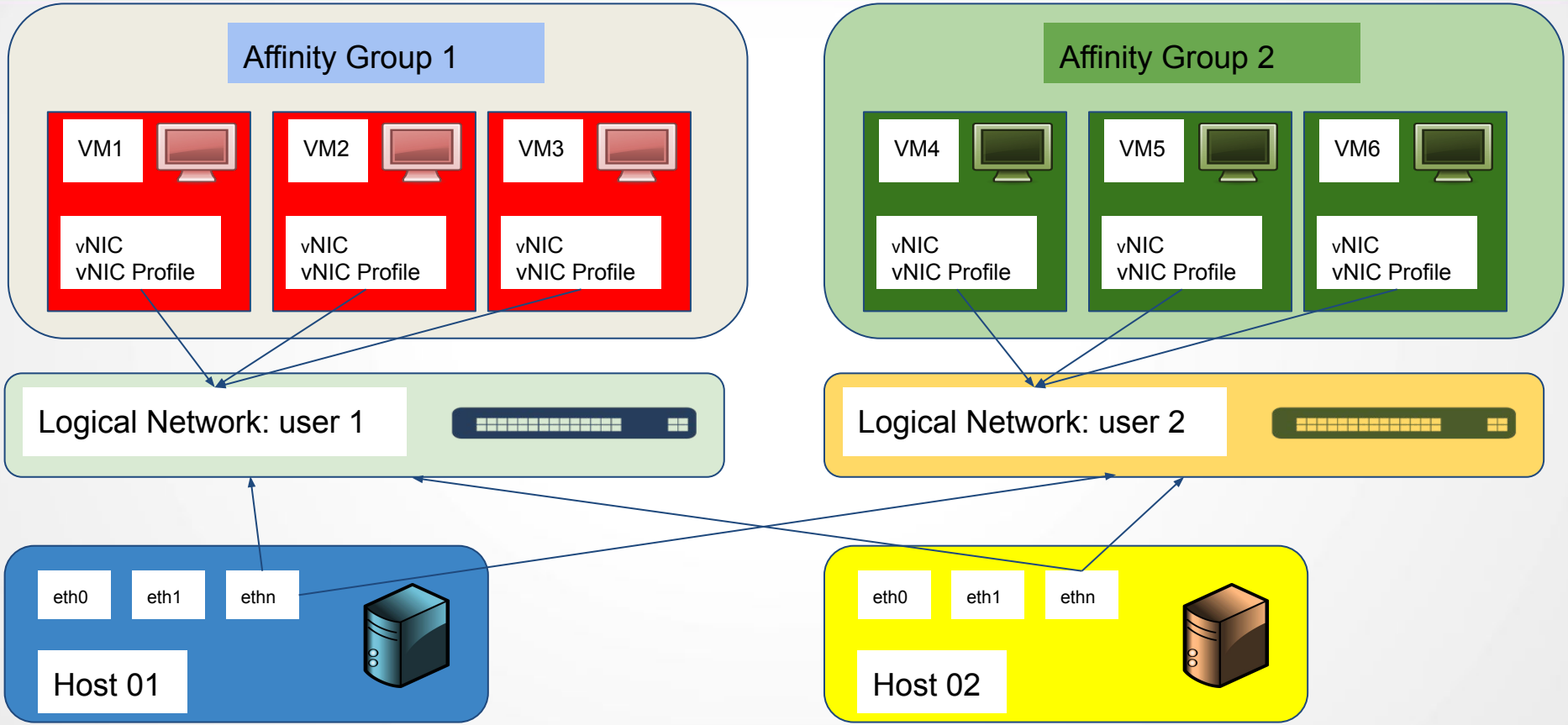
Improved Remote Access

- Improvements would be achieved by access through the firewall to
  - https: to the portal.
  - Console access to the spice and VNC ports on the oVirt hosts.
- We could use a separate display network in a DMZ to provide console access.
- We could use a spice proxy for spice connections.
- We could use web sockett proxy for noVNC.

Network Snooping

- Port Mirroring.
- Software only.
- Legacy Linux Bridge.
- 20 Logical networks on all Hosts.
- Affinity groups.
- Move to using OVN networks.

Group Networks



oVirt 2020 Conference

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https://github.com/cliffe/SecGen