GridPP

UK Computing for Particle Physics

Virtualisation & Clouds at RAL-LCG2

Ian Collier
RAL Tier1
ian.collier@stfc.ac.uk

HEPiX Fall, Vancouver, 26 October 2011

e-Science

Overview

Services Virtualisation for RAL Tier1

E-Science Cloud project

Services Virtualisation

- Working since early last year on platform for services virtualisation for RAL Tier 1
- Use cases
  - Abstract systems from underlying hardware
    - we spend more time than we'd like migrating things just because HW is worn out/out of warranty
  - Resilient platform for services which do not require powerful computers
    - Old WNs can get flakey – and use lots of power
  - Resilient platform for more performant systems (esp web servers and monitoring systems)
  - Platform for testbeds & development systems
- We don't expect it to be cheaper - but more manageable

Services Virtualisation

- Looked at
  - Open source platforms
  - VMWare
    - Neighbouring Scientific Computing Technology Group run ESX
  - Hyper-V
    - inspired by CERN's positive experience - also used by Corporate IT at RAL

Services Virtualisation

- Settled on Hyper-V
  - Working well
  - Established test bed for grid and non-grid services
    - ~50 VMs
    - removing bottlenecks in provisioning non-production systems
  - Handful of non-resilient production service hosts
    - must tolerate brief interruptions and be restorable just with reinstall from Quattor - no 'state' information on host
  - We tend to be unix/linux admins - a 'challenge' getting to grips with Windows

Services Virtualisation

- Spent an amount of time trying to get iSCSI arrays working with Hyper-V for shared storage
  - relative lack of Windows experience led to assuming problem was on our side
- Vendor eventually admitted it was not fully supported - then denied it - never came up with a solution
- Then borrowed a couple of Equalogic arrays. They 'just worked'. :)
- Finally put order in last week for arrays to use in production
  - Quite some work before critical services will be allowed
- STFC Project to share admin resources across groups led to a shared SCVMM instance with STFC Corporate ICT.
  - They are Windows admins - this helps

EScience Cloud

- STFC EScience Department Project
- IaaS cloud service for other groups within STFC
- Initial development within Tier 1
  - Evaluating OpenStack and StratusLab
    - StratusLab further along, focus on enhancing grid infrastructures particularly interesting.
    - StratusLab also has good support for management with Quattor.
  - Early stage (work began last month)
    - Have handful of nodes
    - Have instantiated VM that picks up configuration from Quattor

EScience Cloud

- Additional use cases
  - Lightweight development and testbed systems internal to EScience
    - Likely to migrate development/testing nodes from HyperV
  - HEPiX VWG work
    - Virtualised WNs?

Conclusion

Watch this space

Questions?