

# **Ganeti at PDX**

Dustin Rice dustin@pdx.edu

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#### Introduction

- Linux sysadmin for 10 years
- Focus on virtualization
- Began with KVM
  - Some Xen
- Worked mostly in higher ed



## History with Ganeti

- First saw in 2011 at OSCON
- Implemented at U of A in 2012
- DRBD in EL
  - Issues
  - Pros/Cons

#### **PSU Linux Environment**

- RHEL/CentOS 5 and 6
- Puppet (Currently v 2.7)
- Few yum repos as possible
- Using Integ Ganeti repo and EPEL
  - http://jfut.integ.jp/linux/ganeti/6/x86\_64

#### **PSU Ganeti Cluster**

- Version 2.9.x (I know, I know)
  - Why?
- 14 nodes (90+ Instances)
  - o 8 Dell m610 blades
  - 2 Dell r620 servers
  - 4 Dell m620 blades
- Blade versus server?



#### **PSU Ganeti Cluster**

- Sharedfile disk template
  - Why not DRBD?
  - Primary/Secondary Nodes
- NFS Storage
  - NetApp Backend
- Provisioning VMs
  - Cobbler/Kickstart

### PSU Ganeti Cluster Storage

- Clustered Data ONTAP 8.2.2RC2 with four 3220 nodes
- Uses 4TB Near-line SAS 7200RPM
- 500GB Flash Cache PCI module for random read access
- 20 GB Aggregate ethernet bandwidth

#### **PSU Ganeti Cluster Resources**

- 14 Nodes
- 256 total CPUs (w/ HT) 544GB total RAM across cluster
- 1.5 TB storage (w/ de-dupe)
  - 1.29TB on disk (398.07GB after de-dupe)
- 1 x 1Gb innerconnects
- 1 x 1Gb bridged NICs
- ~40% capacity total

#### Xen Conversion

- Started with ~60 VMs on ~15 hosts
- Why do the conversion?
- Initial challenges
  - Convert or rebuild?
  - Time cost versus gains
- Convert using virt tool (virt-v2v)



#### Xen Conversion Detail

- Setup KVM and libvirtd
- Dump XML meta data
  - Deal with disk (block versus file)
- Convert with virt-v2v
- Put disk file in place

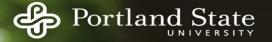


#### **Lessons Learned**

- Have a better test environment
  - More of a production mirror
- More aggressive update cycle
- Find a better EL-style yum repo

### Moving forward

- Update hardware (both Ganeti and NetApp nodes)
- Hot Site Replication for DR
- KSM (<u>http://www.linux-kvm.org/page/KSM</u>)
- Performance tweaks (<a href="http://www.linux-kvm.org/page/VhostNet">http://www.linux-kvm.org/page/VhostNet</a>)
- Ganeti Web Manager



## **Questions and Discussion**