Gateway Hosting Past, Present, & Future

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Current Gateway Hosting System

- OpenVZ - Container based virtualization
- Direct Attached Storage
- Two 4 Socket Machines
OpenVZ

- ‘chroot jail’ based
- single kernel
- storage mirrored with drbd
Data Centers

- Hardened, Secure, Distributed
- Generators, Flywheels, 1hr of Battery Backup
- Seamless Migration around maintenance and outages
Networking

- Global NOC - TransPac, ILight, NLR, I2, and others
- Redundant connections between data centers and the world
- Research Network Connects Indy and Bloomington with uninterrupted pieces of fiber
The Numbers

- 54 VMs currently running
- 24 VMs up more than 1 year
- 4.5 TB of disk used
- 18GB of memory in use
Original Design Goals

- Stability
- Low personnel cost
- Low monetary cost
New Design Goals

• Stability and Isolation
• Increased scalability
• Moderate monetary costs
New Hardware

• More nodes
• 10Gbs Ethernet
• Distributed Storage
Ceph

- Distributed Object Store POSIX filesystem
- Exports block devices striped across objects
- Policy based replication and clustered metadata
- [http://ceph.newdream.net/](http://ceph.newdream.net/)
KVM

- In the mainline kernel, preferred virtualization for RedHat
- Full emulation, kernel lives inside disk image
- Memory, processors, disk can be added on the fly
KSplice

• Patches kernel routines and data structures
• Try it out on your Ubuntu Desktop
• http://www.ksplice.com/
Converting

• ‘rsync’ into new storage
• remove dummy packages
• install kernel, initrd, bootloader
Questions?