xCAT and Masterless Puppet: Aiming For Ideal Configuration Management

Jason St. John

Research Computing

xCAT

Very powerful and lots of options, but we chose to use only a few of them:

- Stateless

- Only for image provisioning

    - DHCP + PXE + local disk wiping at boot

- Only for compute nodes and front-ends

Masterless Puppet

- Decentralized config management

  - Stored in xCAT image and updated via cron

- System roles for compute nodes, login nodes, various auxiliary servers

Puppet Configuration Style

- No templates

- Files laid out like a miniature root file system

- "copy this config file and put it here"

- Hiera is used minimally for secrets only

- Version controlled in Git

Why we like this combination:

- Trivial maintenances

- Speed of config management runs

- Disaster recovery: reboot

- No node drift

Why we like this combination:

- Easy on-boarding of new admins

- Trivial to set up development nodes

- Lightweight impact on infrastructure

- Small failure domains

Main takeaways

- Go stateless

- Don't use templates unless necessary

- Decentralize

  - config management

  - other infrastructure

- Use version control (e.g. Git)

Questions?