xCAT
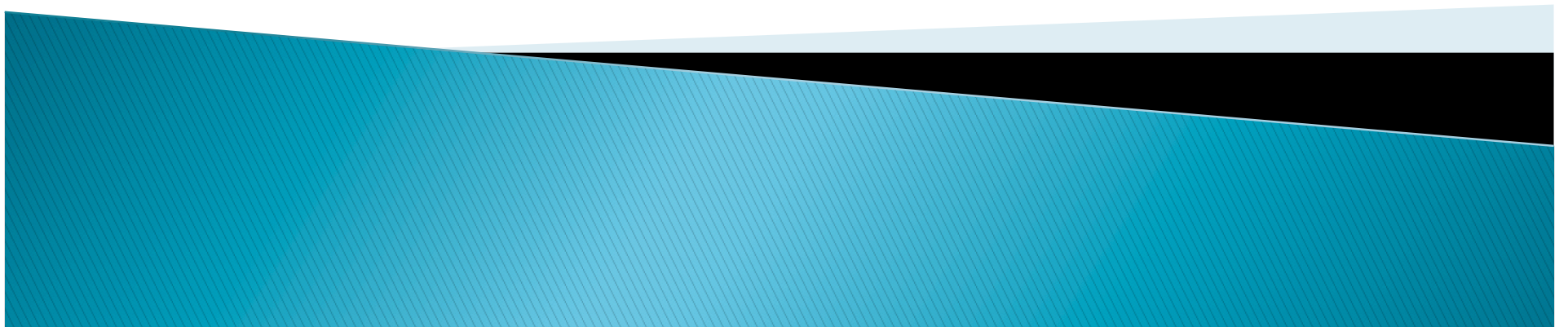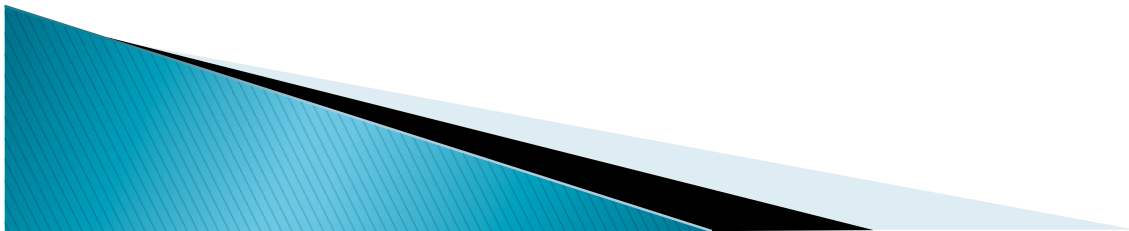
How to build 16 systems in 16 minutes

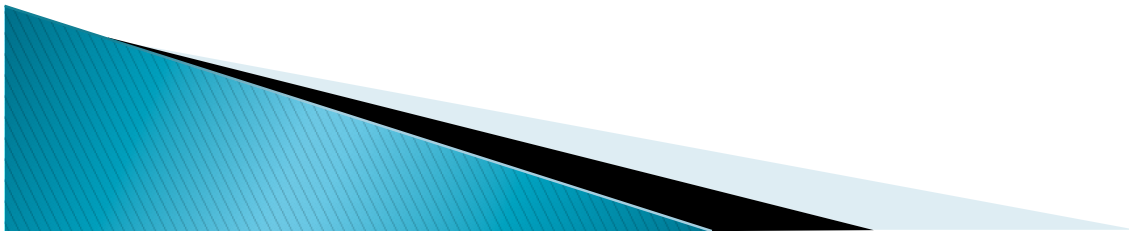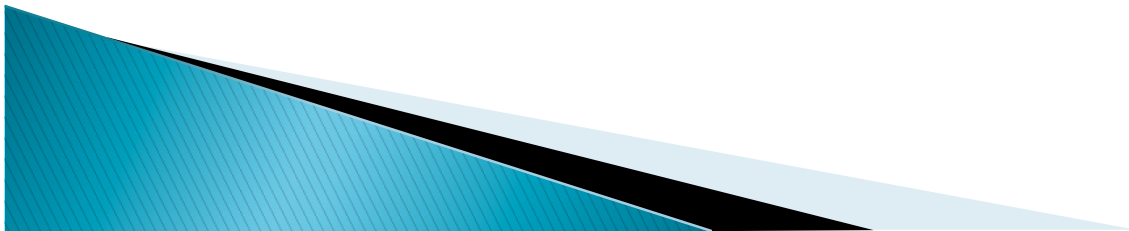# What is xCAT

- DHCP
- OpenIPMI
- TFTP

Who am I

- Name: Ali Tayarani
- Employer: Broad Institute
- Title: Sysadmin

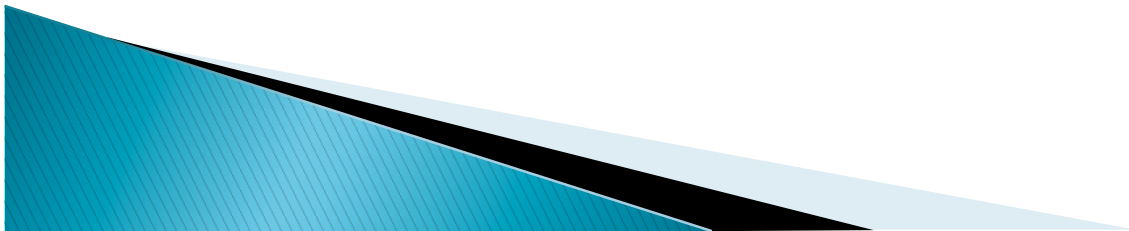# Deploying Systems Quickly

▶ Support for RedHat, SuSE, Windows, AIX, VMWare
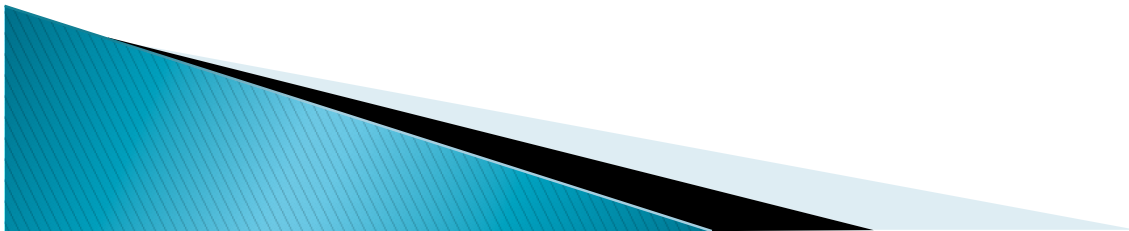
▶ Uniform Images

▶ Deploy from your desk

Why

- Easy to set up
- Easy to deploy and redeploy
- Free – Eclipse Public License

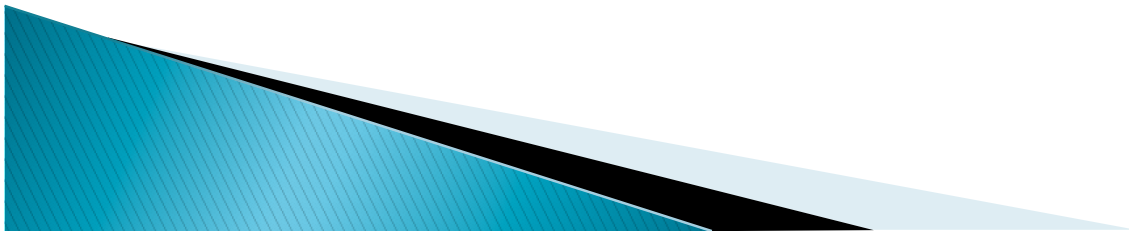# Why: Remote Management

- [root@xcat2 ~]# rpower $NODENAME boot
- [root@xcat2 ~]# rinv $NODENAME all
- [root@xcat2 ~]# rvitals $NODENAME all

Alternatives
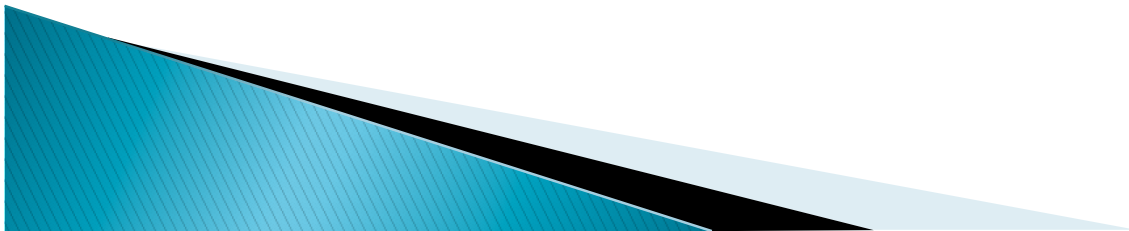
▸ Perceus
▸ Cluster Systems Management (CSM)

Operations

- Build templates (KickStart, AutoYaST)
- Configure xCAT to recognize host
- PXE boot to templates

Operations: Build Templates

```
part / --size 1 -grow -
   fstype ext3

%packages
@ Base
@ X Window System
ntp
rsync
```

```
<partitioning config:type="list">
   <drive>
      <device>/dev/sda</device>
      <initialize
config:type="boolean">true</initialize>
      <use>all</use>
   </drive>
</partitioning>
<software>
   <patterns config:type="list">
      <pattern>base</pattern>
         <pattern>x11</pattern>
   </patterns>
   <packages config:type="list">
      <package>xntp</package>
      <package>rsync</package>
   </packages>
</software>
```
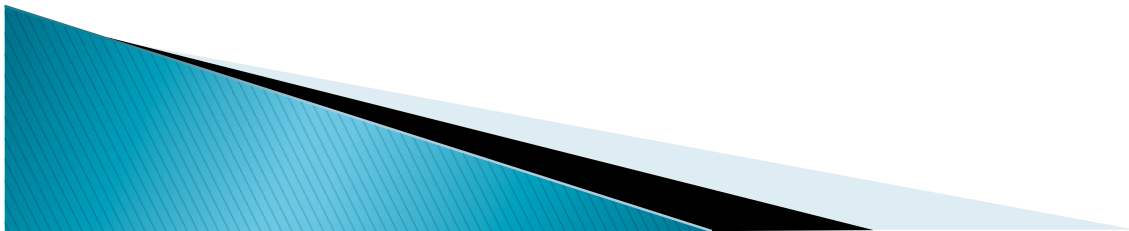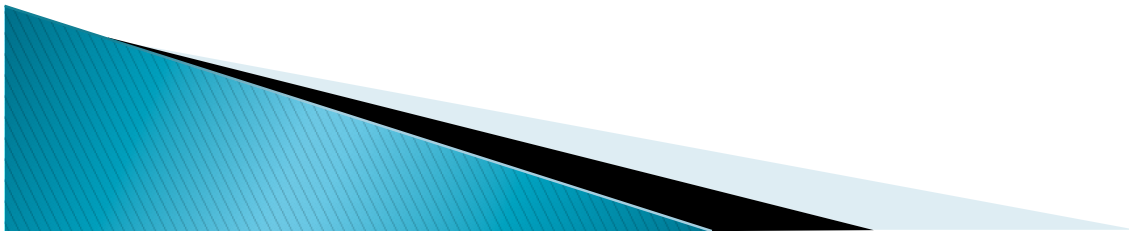
KickStart

AutoYaST

Operations: Configure and Deploy

- ```
  [root@xcat2 ~]# nodeadd $NODENAME
  groups=compute,all mac.interface=eth0
  hosts.ip=x.x.x.x
  mac.mac=yy:yy:yy:yy:yy:yy nodehm.mgt=ipmi
  nodehm.power=ipmi
  ```

- ```
  [root@xcat2 ~]# makehosts $NODENAME;
  makedhcp $NODENAME
  ```

- ```
  [root@xcat2 ~]# nodeset $NODENAME install
  ```

Version Control

- Subversion
- Two Wrappers
  - New node: `svnbuild $NODEADD_CMD`
  - Transition from xCAT1:
    `xcatMove.py $NODENAME`
  - Code is available @
    http://www.broadinstitute.org/~ali

Version Control: New Nodes

```
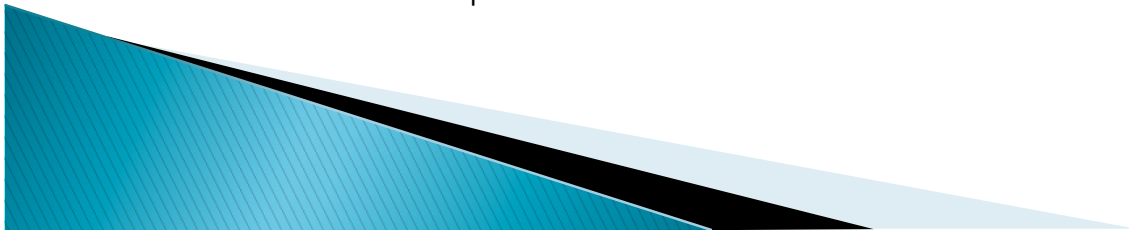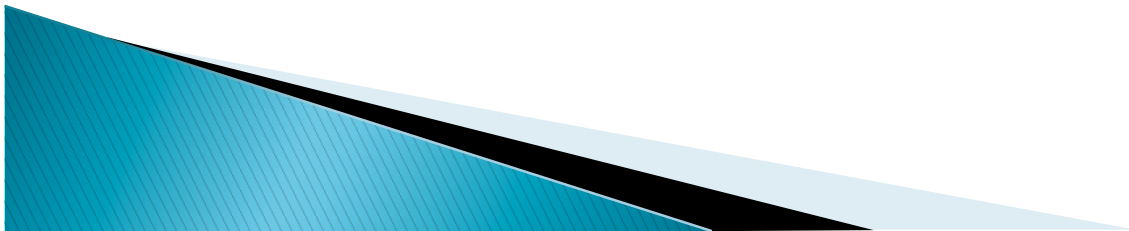DIR=/root/svn/xcat2/tables/

$*
for TABLE in hosts mac nodelist nodehm
do
tabdump $TABLE > $DIR/$TABLE
done
echo "Please enter desired comments for files you have
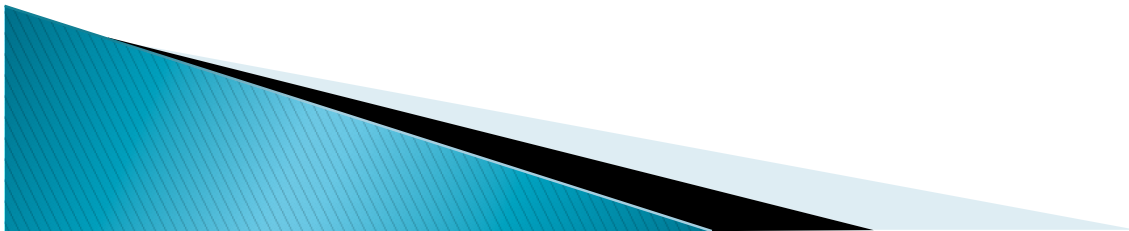  changed:"
read COMMENT

cd $DIR
svn ci -m "$COMMENT" *
```

Other Considerations

- Vendor Support Utilities
- Local Package Mirror

What's Next

- ▸ Speed up xCAT2
- ▸ Build more templates

Resources

- http://www.broadinstitute.org/~ali
- http://xcat.sourceforge.net
- Documentation:
  - http://sourceforge.net/apps/mediawiki/xcat/index.php?title=HowTos