Intro to Cluster System Administration
Syllabus

I. Introduction and management node setup (Day 1)
   1. Setup hardware
   2. Install OS from DVD for management (mgmt) node
   3. Plug in networking

II. Networking (Day 2)
   1. OSI Model
      1. Physical Layer, Data Link Layer, Network Layer
      2. Repeaters vs. Bridges vs. Routers
   2. MAC address
   3. IP
      1. Address, netmask, broadcast, gateway
      2. Setup internal and external network device on mgmt node
      3. Routing tables and ARP
      4. NAT
         1. Setup NAT and IP forwarding
   4. DHCP
      1. Dynamic vs. static addresses
         1. Setup DHCP server
      2. Node discovery
         1. Harvesting MAC addresses
   5. DNS
      1. Setup DNS server

III. Node installation (Day 3 & 4)
   1. PXE setup
      1. tftpboot, kernel, initrd
      2. Unintended OS installation
         1. Software repository
            1. Setup yum repo and kickstart
   2. Common files
      1. host file, passwd/shadow files, ...
   3. Parallel shell
      1. Setup root ssh keys

IV. Other needed stuff (Day 5 & 6)

1. Security
    1. Setup iptables
2. Setup NTP
3. Shared file server
    1. Setup NFS file server for home directories and software and mount it on all the compute nodes
4. User management
    1. Username, password, gecos, home directory, shell
    2. Setup LDAP server and LDAP clients on compute nodes

5. Resource managers and job schedulers
    1. Maui/TORQUE or SLURM

V. What else? (Day 7)

1. Cluster admin tools
    1. xCAT
2. Build mpi and HPL and run a benchmark