Task List for Creating Cluster Room

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# Introduction:

We have been working in this class in small teams with each team using a pair of computers. So far we have:

* Installed an initial operating system from USB
* Called the initial machine our server
* Configured the server to be a Cobbler Server
* Used PXEBOOT to net-install the second machine referred to as client
* Configured the server to be a Puppet Server
* Used Puppet Server to configure client machine
* Installed autofs from command line on the server
* Used Puppet to install autofs on the client
* With autofs installed you can now NFS mount /nfs/htc180
* Added an addition disk to the class server /nfs/htc-data
* Added to autofs on both the server and the client
* Installed HTCondor from the command line on the server
* Installed HTCondor using Puppet on the client
* Ran our first cluster computing job - Calculation of π using Monte Carlo Methods

It is now time to transition from having 5 separate mini clusters in the room to having one cluster with 11 compute nodes. This cluster with have a total of 44 cores.

In the future we want to install a distributed files system (Hadoop) and an NFS file system for long term storage. The NFS system will be on the class server. The Hadoop file system will be distributed across all the machines.

# Why:

* We want the room to serve as a place to provide Linux Cluster Computing workshops and tutorials.
* We want the cluster to be used for research.
* We want the class to gain sufficient experience to set up and manage new additional .clusters at An Najah.
* We want the class to be Cluster Computing experts.

# Initial Tasks:

As we transition to a single cluster, we want to try to keep as much functionality (as many machines working) as we can.

## First Steps:

* Configure all client machines to run as a GUI workstation
* Move Condor Master to htc180
* Reconfigure all current HTCondor clients to use htc180 as Condor Master
* Install and configure current HTCondor Masters to be HTCondor Clients

## Second steps:

* Install hardware RAID system on htc180 for home directories, Puppet and Cobber configuration files.
* Configure htc180 (room central server) to be Cobbler and Puppet Master
* Configure central account management system
* Create individual user accounts
* All home directories on htc180 and mounted on client machines

## Extra Features:

* Distributed NFS file system for user “data” files
* High performance files system - Hadoop file system
* System monitoring:
  + Nagios
  + Ganglia
  + Custom scripts and web page
* Other