

# Condor's Use of the Cisco Unified Computing System

Condor Project  
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# Condor and UCS

- > How can UCS benefit a Condor pool
  - Automated provisioning of machines with specialized configurations
- > Experimenting with a small UCS system and our local Condor pools
  - CHTC
  - BaTLab

# Center for High-Throughput Computing

- > Offers free compute resources to any researcher at UW-Madison
- > Extensive hands-on assistance for researchers
- > 2000 dedicated cores in CHTC
- > Many more cores available across campus and in OSG



# BaTLab

- > Automated building and testing of software
- > Dozen of platforms
- > Used by Condor and many other projects
- > [www.batlab.org](http://www.batlab.org)

# Use Cases

- > Switching OS on a machine
  - Match resource mix to demand
- > Jobs that require hardware access
  - GPUs, hardware counters, VM testing
- > Jobs that need special network configurations
  - Sensitive data (HIPPA)
  - Tests analyzing network traffic

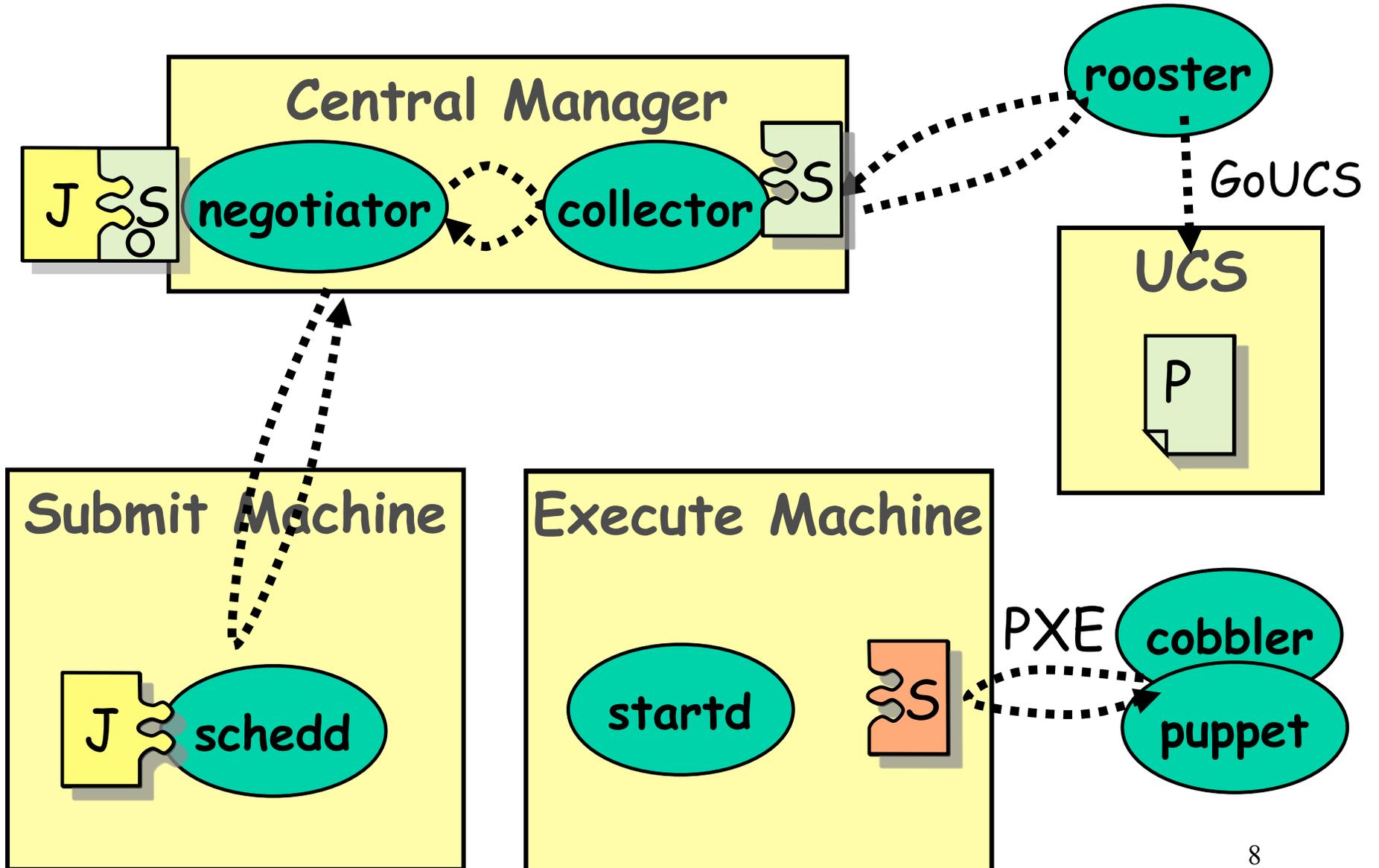
# Switching OS on a Machine

- > BaTLab has 1 or 2 machines per platform
- > Spike in jobs for a platform can cause large backlog
- > OS-switching machines can help manage backlog

# Tools We're Using

- > Offline ads
- > Condor rooster
- > GoUCS
- > PXE boot
- > Cobbler
- > Puppet

# Machine Startup



# Future Work

- > Improve offline ads and rooster
  - Multiple ads represent one machine
  - Pick most-matched ad to awaken
  - Shut down machine to switch ads

# Future Use Case

- > Jobs that require hardware access
  - Jobs that use GPUs, hardware counters, VMs
  - Administrator access required
  - Jobs may corrupt OS or hardware
  - Need hardware-level method to stop job and re-image machine

# Future Use Case

- > Special Network Configurations
  - Jobs with sensitive data
    - E.g. HIPPA data
    - Configure machine on secured network
  - Jobs analyzing network traffic
    - E.g. Three-machine test where Alice and Bob communicate and Eve listens in
    - Configure machines on an isolated network