Contributing opportunistic resources to the grid with HTCondor-CE-Bosco

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Motivation

• Sites want an easy on-ramp to the OSG but the OSG full-stack can be daunting!

• Grid Certificates - Yuck. CE installation - Complicated (flexible?)

• However, most sites:
  • Can allow SSH pubkey-based auth.
  • Can easily add user accounts.
Motivation

- Let's use what the cluster admins are familiar.
- Access the cluster through the front door, the login nodes.
- Much like Bosco:
Our Proposal

- Create a new backend to the standard HTCondor-CE.
- Glideins submitted to this HTCondor-CE are routed to a remote job submission through Bosco.
- Transparent to the users, glideins will come from GlideinWMS factories.
HTCondor-CE-Bosco Features

• By using an HTCondor-CE-Bosco, multiple VO’s can submit to a Bosco instance

• Authorization and authentication is the same as any other CE

• Accounting is the same as any other CE

• But... The CE will submit to a remote cluster over SSH!
CE-Bosco in use

- UChicago hosts a CE which can send jobs to multiple resources
- Current, sends jobs to Stanford and IIT
- Next potential sites to connect are Ohio
HTCondor-CE-Bosco Features

• Load balance through multiple routes
• Incoming jobs will be distributed between multiple routes

JOB_ROUTER_ENTRIES = \
[ \n    GridResource = "batch slurm osguser1@lonepeak1.chpc.utah.edu"; \n    TargetUniverse = 9; \n    name = "Local_BOSCO_lonepeak1"; \n] \n[ \n    GridResource = "batch slurm osgusere@ember1.chpc.utah.edu"; \n    TargetUniverse = 9; \n    name = "Local_BOSCO_ember1"; \n] \n[ \n    GridResource = "batch slurm osguserk@kingspeak1.chpc.utah.edu"; \n    TargetUniverse = 9; \n    name = "Local_BOSCO_kingspeak1"; \n]
CE-Bosco in Use

• Sites also want to load balance across clusters.

• Utah load-balances multiple clusters to run OSG grid jobs
• Opportunistic sites now contribute around 20k Hours per day.

• Usage grows and shrinks depending on available resources at the site.
The HTCondor-CE-Bosco will enable a faster on-ramp for new clusters.

It will provide a great first step to entering the OSG.

And allow the centralized hosting of CE’s to offload operational costs to GlideinWMS.

User support can easily create the CE and send jobs to remote HPC clusters.
Questions?