HTCondor-CE: APEL and BDII Integration

HTCondor Workshop 2019 - EU Joint Research Centre

Brian Lin
University of Wisconsin — Madison

APEL Accounting

- The `htcondor-ce-apel` RPM contains configuration and scripts for generating APEL batch and blah records
- Scripts key off of configuration on each worker node for scaling factor information
- Then write batch and blah records to `APEL_OUTPUT_DIR` (default: `/var/lib/condor-ce/apel/`) with `batch-` and `blah-` prefixes, respectively
- Currently supports HTCondor-CE with an HTCondor batch system
- https://htcondor-ce.readthedocs.io/en/latest/installation/htcondor-ce/#uploading-accounting-records-to-apel

APEL Accounting

To upload APEL accounting records:

1. On each worker node, set the appropriate scaling factor in the HTCondor configuration (`/etc/condor/config.d/`) and advertise it in the startd ad
   ```
   ApelScaling = <SCALING FACTOR>  # For example, 1.062
   STARTD_ATTRS = $(STARTD_ATTRS) ApelScaling
   ```
2. On the CE host, configure batch jobs (i.e. in `/etc/condor/config.d/`) to pick up the scaling factor from the worker node
   ```
   SYSTEM_JOB_MACHINE_ATTRS = ApelScaling
   ```
3. Configure HTCondor-CE ((`/etc/condor-ce/config.d/`) to use the worker node scaling attribute
   ```
   APEL_SCALING_ATTR = ApelScaling
   ```
4. Configure the APEL parser, client, and SSM

APEL Accounting

5. Create a script and run it daily in a cron job:

```
#!/bin/bash
# accountingRun.sh
# sjones@hep.ph.liv.ac.uk, 2019
# Run the processes of a HTCondor accounting run

/usr/share/condor-ce/condor_blah.sh       # Make the blah file (CE/Security data)
/usr/share/condor-ce/condor_batch.sh      # Make the batch file (batch system job run
times)
/usr/bin/apelparser                # Read the blah and batch files in
/usr/bin/apelclient                # Join blah and batch records to make job records
/usr/bin/ssmsend                   # Send job records into APEL system
```

APEL Accounting

- Setup is largely manual and many of the steps are good candidates for packaging (e.g. CE host configuration, cron job). Expected in the next point releases for HTCondor-CE 3 and 4
- Need to coordinate with the APEL team to provide non-HTCondor batch support
- Long term, interested in having HTCondor-CE pass batch job information back up to the CE job ad

BDII Integration

- The `htcondor-ce-bdii` package contains a script that generates LDIF output for all HTCondor-CEs at a site as well as an underlying HTCondor batch system
- https://htcondor-ce.readthedocs.io/en/latest/installation/htcondor-ce/#enabling-bdii-integration
- On the site BDII host:
  1. Install the HTCondor-CE BDII package
     `yum install htcondor-ce-bdii`
  2. Set `CONDOR_HOST = <CENTRAL MANAGER>` in the HTCondor configuration
  3. Set static BDII info in `/etc/condor-ce/config.d/99-ce-bdii.conf`

BDII Integration

- HTCondor-CE is designed to be a lightweight grid → local policy translator, leaving worker management and matchmaking up to the underlying batch system
  - GLUE2 resource information is dense and HTCondor-CE can’t deliver this information
  - Complicates providing non-HTCondor batch system support
- Current implementation ties HTCondor-CE endpoint too closely with an HTCondor batch system

Questions/Comments?

As always, you can find us on htcondor-users@cs.wisc.edu

Special thanks

- Laurence Field at CERN
- Stephen Jones at Liverpool
- Vanessa Hamar and Christelle Eloto at CC-IN2P3