

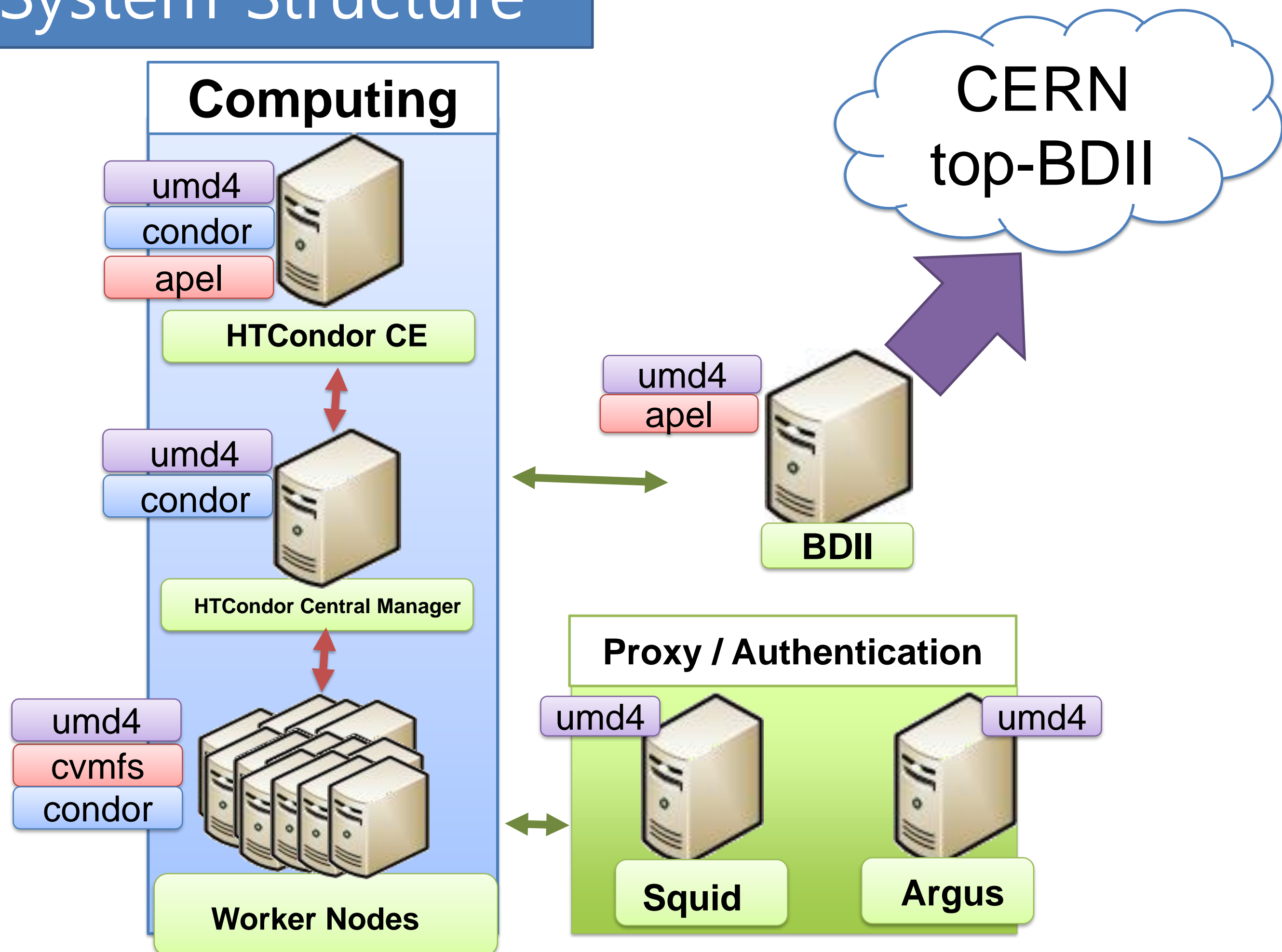
Motivation

- Demand for alternative job manager system as it becomes difficult to maintain the Torque/PBS system.
- Require UMD middleware for combination with existing KISTI ALICE Tier-1 center.

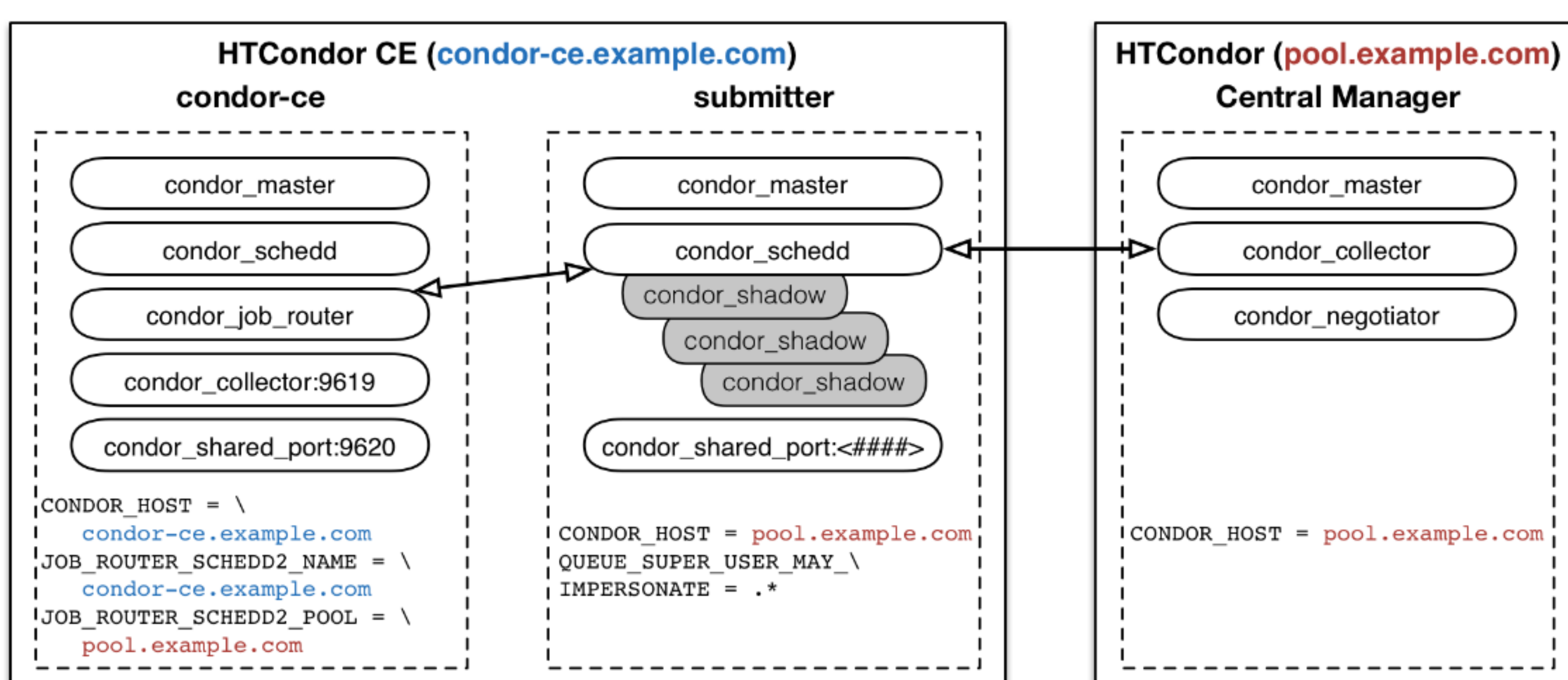
Past Activities

- RAL was moved to HTCondor using ARC-CE and modified CREAM-CE.
- CERN IT announced that they have successfully deployed HTCondor-CE systems for WLCG computing.
 - CERN IT has published the automated Puppet scripts for the installation and configuration of HTCondor-CE on GitHub.

System Structure



- The above figure shows the structure of the KISTI CMS Tier-2 Center using HTCondor-CE and HTCondor. In order to publish the resource information of HTCondor-CE and authentication, site-BDII and Argus service were additionally configured. In addition, a squid server for CMS job execution was also configured.



Ref : <https://twiki.grid.iu.edu/twiki/bin/viewfile/Documentation/Release3/InstallHTCondorCE/condor-ce-condor-schematics.png>

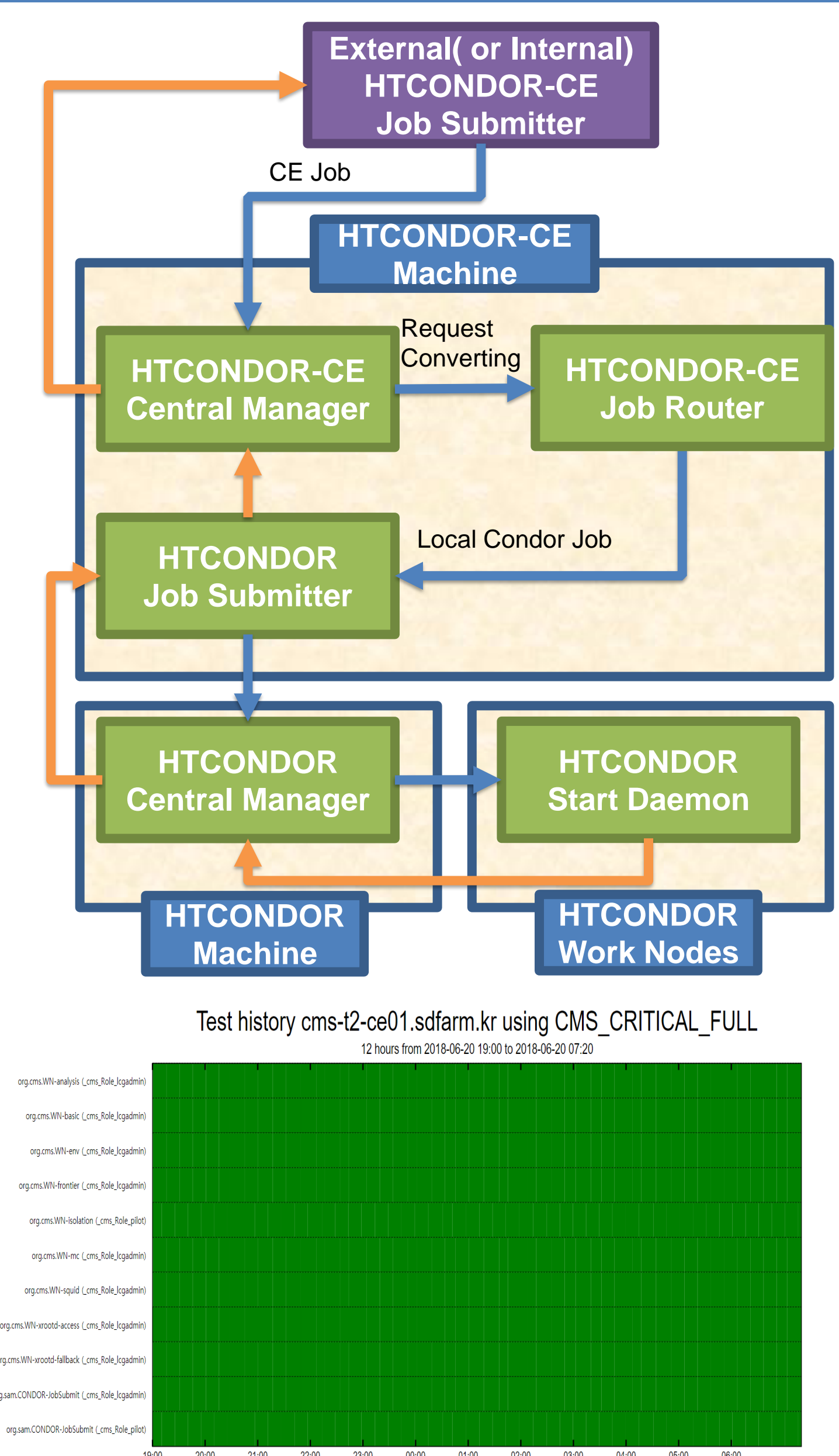
- The most important part of the system configuration is the location of condor_schedd. A local user should be allowed to submit a job into local pool system on HTCondor-CE machine.

Setup

- HTCondor's Central Manager is no different than a regular HTCondor cluster. We installed installed SCHEDD on the HTCondor-CE machine instead of Central Manager as shown in the figure above.
- HTCondor-CE package was not included in the UMD repository. Therefore, it was necessary to download the package of HTCondor-CE from the koji-hub homepage that manages the OSG middleware packages. We modified that package to operate in the UMD middleware environment.
- The HTCondor-CE was rebuilt using "RPM rebuild" to install on UMD middleware. The grid-certificates and blahp packages needed some modifications in the rebuild process.
- After completing the above procedure, We manually set the variables which were provided by CERN as Puppet scripts. eg) Argus configuration, local environment, osg-configure, sysconfig script and so on.
- The APEL system for publishing user information does not support HTCondor-CE now. We uploaded the patches for the APEL package as the pull-request on the GitHub homepage. (Pull-Request#150 on APEL GitHub homepage)

Testing & Result

- We used the HTCondor's Grid universe to test the setup of HTCondor-CE. When the task is submitted, communication is done between the Central Manager and the HTCondor-CE machine in relation to the task. The condor_ce_q and condor_q commands can be used to verify the system operation.
- After this test, we registered our site to GOCDB and received HTCondor-CE jobs.
- Recent, the SAM test has been successfully completed and will be registered as T2_KR_KISTI in the new CMS Tier-2 Center.



Conclusion

- HTCondor-CE can be used on the production site in UMD middleware as Computing Element (CE).
- To publish account information for HTCondor-CE, you need a patch for HTCondor-CE support that we created.

Reference

- Andrew Lahiff. (2014). "HTCondor at the RAL Tier1". HTCondor Week 2014
- Iain Steers. (2016). "HTCondor-CE: For When the Grid is Dark and Full of Terrors". HTCondor Week 2016
- Iain Steers. (2016). "puppet-htcondor_ce". GitHub, url: https://github.com/cernops/puppet-htcondor_ce
- Brian Lin. (2017). "HTCondor-CE Overview". OSG Documentation. url: <https://opensciencegrid.org/docs/compute-element/htcondor-ce-overview/>

Link

- Koji-hub HTCondor-CE. <http://koji-hub.batlab.org/koji/packageinfo?packageID=310>
- HTCondor-CE Support's pull request. <https://github.com/apel/apel/pull/150>