HTCondor Architecture Vocabulary

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Did you know the manual has a glossary?

https://htcondor.readthedocs.io/en/latest/codes-other-values/glossary.html
Job

What is a job?

“Atomic unit of work”
One executable (script, binary)
Like $y = f(x)$, transforms inputs into outputs

How does HTCondor describe jobs?
ClassAd

What is a ClassAd?

“Key-value pairs”
Metadata for a job (or other HTCondor object)
Values can be Booleans, numbers, strings, or expressions
Can add custom keys/values

exec = a.out
cpus = 1
Access Point (AP)

What is an Access Point (AP)?

“machine where users place jobs to be run”
The home for jobs
Often where users log in

exec = a.out
cpus = 1
Execution Point (EP)

What is an Execution Point (EP)?

“where jobs run”
ALSO described using ClassAds

...how do the APs and EPs talk to each other?
Daemons

First...What are Daemons?

“A long-running process; an older term for ‘service.’”

HTCondor entities (AP, EP, etc.) are associated with a particular daemon

Now, “how do APs and EPs find each other?”
Central Manager (CM)

What is the Central Manager?
“machine with central database of all the services, an accountant and negotiator”

It is responsible for “matching” jobs on the AP with execute points
What is a Slot?
“the location on the EP where the job runs”
Think of it as a “slice” (or sometimes the entirety!) of a server/machine.

Created by the condor_starter daemon
What is the Sandbox?

“a set of files” associated with the job

“input sandbox” = files needed at job’s start

“output sandbox” = files to be preserved after the job completes
Learn More

• Architecture
  • https://indico.cern.ch/event/936993/contributions/4022092/

• ClassAds
  • https://indico.cern.ch/event/936993/contributions/4022129/

• User Tutorial
  • https://agenda.hep.wisc.edu/event/1733/contributions/25486/

• HTCondor Philosophy
  • https://agenda.hep.wisc.edu/event/1579/contributions/23050/
What’s Missing?
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