Installation and Configuration of HTCondor from (our) Repositories

Tim Theisen

Terminology

› Personal HTCondor (narrower definition)

- Single node HTCondor

- Runs under a user account

› Mini-HTCondor (new term)

- Single node HTCondor

- Started by the system

- Running as root

- Could be multi-user

Getting the HTCondor Software

› Tarball distribution
  - Get from our Downloads page
    – https://research.cs.wisc.edu/htcondor/downloads/
  - Typically used for personal HTCondors

› Repository
  - Instructions linked from our Downloads page
    – https://research.cs.wisc.edu/htcondor/instructions/
  - Prevalent method of installation

Outline of Steps

› Add the HTCondor repository to the system

› Install HTCondor

› Configure HTCondor

› Start HTCondor

› Use HTCondor

Setup the Repository

› ## On Red Hat

- # wget https://research.cs.wisc.edu/htcondor/yum/RPM-GPG-KEY-HTCondor
- # rpm --import RPM-GPG-KEY-HTCondor
- # cd /etc/yum.repos.d
- # wget https://research.cs.wisc.edu/htcondor/yum/repo.d/htcondor-stable-rhel7.repo

› ## On Debian/Ubuntu

- $ wget -qO - https://research.cs.wisc.edu/htcondor/ubuntu/HTCondor-Release.gpg.key | \
    sudo apt-key add -
- # echo "deb http://research.cs.wisc.edu/htcondor/ubuntu/8.8/bionic bionic contrib" >> \
    /etc/apt/sources.list
- # echo "deb-src http://research.cs.wisc.edu/htcondor/ubuntu/8.8/bionic bionic contrib" >> \
    /etc/apt/sources.list

Installing from Repository

› Red Hat

- # yum install condor

  - or -

- # yum install minicondor

› Debian / Ubuntu

- $ sudo apt update
- $ sudo apt install htcondor

  - or -

- $ sudo apt install minihtcondor

Configuring HTCondor on Linux

› Configuration files should be placed in the /etc/condor/config.d directory

- Parsed in sorted order
- Common backup files ignored (*~, .rpmnew, .rpmsave, etc.)

› Mini-HTCondor package contains one configuration file

CENTER FOR
HIGH THROUGHPUT
COMPUTING

HTCondor

Starting HTCondor

› On modern systems

> # systemctl enable condor

> # systemctl start condor

› Older systems (RHEL 6)

> # chkconfig –add condor

> # service condor start

After Installation

› Check to see if HTCondor is running

- condor_status -any
  - Lists out the various daemons
- condor_status
  - Lists out the slots (execute nodes)
- condor_q
  - Talks to the local schedd
- Submit a job

Mini-HTCondor

› Single Node
  - Loopback network interface only
  - Does not need to be in DNS

› Optimized for fast startup
  - No benchmarks on startup
  - Smaller update intervals

› Configuration file

  In /etc/condor/config.d/00-mini(ht)condor

› Automatically started on Debian and Ubuntu system

CENTER FOR
HIGH THROUGHPUT
COMPUTING

HTCondor

Live Demo

› Install and run minihtcondor on Ubuntu 18.04 VM on my laptop

Example 3 Node Pool

› Example 3 node pool in fermicloud

› Add configuration files to /etc/condor/config.d

› For example:

  - /etc/condor/config.d/49-common (all nodes)

    CONDOR_HOST = fermicloud176.fnal.gov

  - /etc/condor/config.d/51-role-cm (one node)

    use ROLE: CentralManager

  - /etc/condor/config.d/51-role-submit (some set of nodes)

    use ROLE: Submit

  - /etc/condor/config.d/51-role-exec (some set of nodes)

    use ROLE: Execute

3 Node Pool (cont.)

› Security Configuration using pool password
  - /etc/condor/config.d/50-security
    SEC_PASSWORD_FILE = /etc/condor/password.d/POOL
    SEC_DAEMON_AUTHENTICATION = REQUIRED
    SEC_DAEMON_INTEGRITY = REQUIRED
    SEC_DAEMON_AUTHENTICATION_METHODS = PASSWORD
    SEC_NEGOTIATOR_AUTHENTICATION = REQUIRED
    SEC_NEGOTIATOR_INTEGRITY = REQUIRED
    SEC_NEGOTIATOR_AUTHENTICATION_METHODS = PASSWORD
    SEC_CLIENT_AUTHENTICATION_METHODS = FS, PASSWORD, KERBEROS, GSI
    ALLOW_DAEMON = condor_pool@*/fermicloud*.fnal.gov, \
            condor@*/$(IP_ADDRESS)
    ALLOW_NEGOTIATOR = condor_pool@*/fermicloud176.fnal.gov
  - condor_store_cred add -c

Live Demo

› Start up and run an already configured 3 node pool in fermicloud

Questions?