Installation and Configuration of HTCondor from (our) Repositories

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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
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
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
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?