EGI Hands-On Training for AEGIS Site Administrators
School of Electrical Engineering of the University of Belgrade

Storage Element (SE) installation

Vladimir Slavnic

SCL, Institute of Physics Belgrade

Serbia

slavnic@ipb.ac.rs

23/11/2012

Storage Element (SE)

- A Storage Element (SE) is a service which allows a user or an application to store data for future retrieval

- All data on SE must be considered read only

- The SE may control simple disk servers, large disk arrays or tape-based Mass Storage Systems (MSS)

- Disk Pool Manager (DPM), CASTOR, dCache

- Supported versions:
  - SL5 64 bit
  - SL6 64 bit
- Installation and configuration of the NTP service
- SELINUX configuration (disable)
- YUM auto update should be disabled

- UMD-2 based installation

- Disable DAG repository if available on the system

- Remove all UMD and EPEL related configuration files that may exist from */etc/yum.repos.d/*

- Install the appropriate EPEL repository:
  # wget http://download.fedoraproject.org/pub/epel/6/x86_64/epel-release-6-7.noarch.rpm
  #yum install epel-release-6-7.noarch.rpm

- Install yum-priorities and protect-base
  # yum install yum-priorities yum-protectbase

- Install SL5 umd-release RPM or SL6 umd-release RPM

  – This adds all missing repositories that are needed for the installation of UMD products and configures yum priorities
  # wget http://repository.egi.eu/sw/production/umd/2/sl6/x86_64/base/umd-release-2.0.0-1.el6.noarch.rpm

  # yum install umd-release-2.0.0-1.el6.noarch.rpm

- Installation of the CA certificates

 # yum install ca-policy-egi-core

- Install host certificate in */etc/grid-security* directory
  - hostcert.pem - containing the machine public key
  - hostkey.pem - containing the machine private key

 # chown root.root /etc/grid-security/hostcert.pem

 # chown root.root /etc/grid-security/hostkey.pem

 # chmod 600 /etc/grid-security/hostcert.pem

 # chmod 400 /etc/grid-security/hostkey.pem

- In the case of DPM head node:

  # yum install emi-dpm_mysql

- In the case of the disk node:

  # yum install emi-dpm_disk

- Or where all is located on the same node:

  # yum install emi-dpm_mysql emi-dpm_disk

- Filesystems MUST be separate partitions mounted on the disk server

- Filesystem partitions MUST be dedicated to DPM

- Filesystems MUST NOT be called /dpm

- Check the filesystem permissions, which must look like:

  # ls -ld /data01

  drwxrwx--- 3 dpmmgr dpmmgr 4096 Jun 9 12:14 data01

- DPM: 5015/tcp

- DPNS: 5010/tcp

- SRM:
  - 8443/tcp for *SRMv1*,
  - 8444/tcp for *SRMv2*,
  - 8446/tcp for *SRMv2.2*

- RFIO: 5001/tcp, 20000-25000/tcp
  - or by setting $RFIO_PORT_RANGE

- GRIDFTP: 2811/tcp, 20000-25000/tcp
  - or by setting $GLOBUS_TCP_PORT_RANGE, $GLOBUS_TCP_SOURCE_RANGE

- Prepare YAIM configuration files:
  - site-info.def
  - groups.conf
  - users.conf
  - vo.d/*

- YAIM variables relevant for WN:
  - https://twiki.cern.ch/twiki/bin/view/LCG/Site-info_configuration_variables#WN.

DPM configuration variables

###############################

The name of the DPM head node

DPM_HOST="(se-name).$MY_DOMAIN"

The DPM pool name (max 15 character long name)

DPMPOOL="pool-all"

The filesystems/partitions parts of the pool

DPM_FILESYSTEMS="$DPM_HOST:/data"

The database user

DPM_DB_USER=*************

The database user password

DPM_DB_PASSWORD=*********

The DPM database host

DPM_DB_HOST=$DPM_HOST

The DPM db name. Default is dpm_db

DPM_DB=dpm_db

The DPNS db name. Default is cns_db

DPNS_DB=cns_db

The DPM infosystem user name

DPM_INFO_USER=*********

The DPM infosystem user password

DPM_INFO_PASS=********

Specifies the default amount of space reserved for a file

DPMFSIZE=200M

Variable for the port range - Optional, default value is shown

RFIO_PORT_RANGE="20000 25000"

#The DPNS server base dir. Default value is home , i.e. the DPNS server is serving the

#/dpm/domain/home name space. If you have multiple DPNS server under the same #domain use

#for example home2 or data for this value.

DPNS_BASEDIR=home

EGI Hands-On Training for AEGIS Site Administrators

- ## Head node:

  # /opt/glite/yaim/bin/yaim -c –s ./site-info.def -n emi_dpm_mysql

- ## Disk node

  # /opt/glite/yaim/bin/yaim -v -s site-info/site-info.def -n emi_dpm_disk

- ## Both:

  # /opt/glite/yaim/bin/yaim -v -s site-info/site-info.def -n emi_dpm_mysql emi_dpm_disk

- ## dpm-qryconf

[root@dpm ~]# /opt/lcg/bin/dpm-qryconf

POOL pool-all DEFSIZE 200.00M GC_START_THRESH 0 GC_STOP_THRESH 0 DEF_LIFETIME 7.0d
DEFPINTIME 2.0h MAX_LIFETIME 1.0m MAXPINTIME 12.0h FSS_POLICY maxfreespace
GC_POLICY lru RS_POLICY fifo GIDS 0 S_TYPE - MIG_POLICY none RET_POLICY R

                      CAPACITY 14.63T FREE 4.12T (28.1%)

se1.ipb.ac.rs /storage4 CAPACITY 2.95T FREE 762.04G (25.2%) RDONLY

se1.ipb.ac.rs /storage5 CAPACITY 2.95T FREE 780.78G (25.8%) RDONLY

se1.ipb.ac.rs /storage6 CAPACITY 0 FREE 0 (0.0%) DISABLED

se2.ipb.ac.rs /storage7 CAPACITY 2.95T FREE 1.69T (57.2%)

se2.ipb.ac.rs /storage8 CAPACITY 2.95T FREE 1.45T (49.2%)

se2.ipb.ac.rs /storage9 CAPACITY 2.82T FREE 399.17G (13.8%)

se3.ipb.ac.rs /storage10 CAPACITY 2.95T FREE 133.87G (4.4%)

se3.ipb.ac.rs /storage11 CAPACITY 2.95T FREE 466.18G (15.4%)

se3.ipb.ac.rs /storage12 CAPACITY 0 FREE 0 (0.0%) DISABLED

- DPM daemons finger dependency: https://ggus.eu/tech/ticket_show.php?ticket=82970
  - Workaround: "yum install finger"
- EMI2 dpm-mysql and lfc 1.8.3 dependency problem with obsoleted gridsite-apache: https://ggus.eu/ws/ticket_info.php?ticket=87495
  - Workaround: you should disable the updates repository (either the UMD or the EMI one). The new dpm/lfc 1.8.4 will have the dependencies solved.

- Generic Installation & Configuration for EMI 2:
    - https://twiki.cern.ch/twiki/bin/view/EMI/GenericInstallationConfigurationEMI2

- UMD-2 software:
    - http://repository.egi.eu/category/umd_releases/distribution/umd-2/

- EMI-DPM 1.8.3
    - http://repository.egi.eu/2012/07/10/dpm-1-8-3-2/

- YAIM Guide:
    - old guide - https://twiki.cern.ch/twiki/bin/view/LCG/YaimGuide400
    - new guide - WorkInProgress https://twiki.cern.ch/twiki/bin/view/EMI/EMIYaim
    - DPM specific variabes - https://twiki.cern.ch/twiki/bin/view/LCG/Site-info_configuration_variables#DPM

- DPM Installation, configuration and maintenance guides:
  - https://svnweb.cern.ch/trac/lcgdm/wiki/Dpm/Admin
- EMI 2 DPM page:
  - http://www.eu-emi.eu/emi-2-matterhorn-products/-/asset_publisher/B4Rk/content/dpm-1