



Bits and Pieces

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New features in dCache 1.9.12 (emi-1)

- GLUE 2.0
- JMS
- P2p transfers
- SRM
- NFS, Non-ROOT, New Pin Manager



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Bits and pieces - Christian Bernardt - dCache (DESY HH)



GLUE 2.0 (EMI Global effort)

- Motivation – GLUE 2.0 standard
 - No duplication of entries (SE, Service, SRM)
 - More flexibility in publishing data (future proof) → e.g. which endpoints are allowed to use what kind of resource
 - Hierarchical structures → Inheritance
 - Validation service for published data (external script, querying all grid info)
- Migration:
 - both are published simultaneously in different LDAP root



GLUE 2.0 - Configuration

- Site-info.def concept still there
 - /opt/d-cache/share/defaults/info-provider.properties
info-provider.publish=[1.3 | 2.0 | both]
- glue-1.3.xml
 - Sufficiently descriptive to alter directly in the file
 - Problem: template file gets updated at instance update, but not the glue-1.3.xml
 - Solution: separating the untouched xml in the file from the site specific information
 - site specific file + template file = published data
 - /opt/d-cache/etc/infoprovider.xml (site specific)
 - /opt/d-cache/etc/info-provider/glue... (static data)
 - Please let us know if YOU need change in the static data

JMS

JMS – Why!

- Beta status → DO NOT use in production
- Why should you switch to JMS?
 - Better setup of messaging (SSL)
 - Auto discovery (no central message broker)
 - Redundant communication infrastructure (no central point of failure - dCacheDomain)
 - NDGF – coping better with DNS mapping changes (connection to old IPs)
 - Future benefits:
 - Redundant service deployment

JMS – How!

- How to switch?
 - broker.scheme=hybrid (in dcache.conf for all nodes)
 - Mixed installation possible:
 - dCache domain need to have hybrid defined (serves as hub, gateway for old and new transport)



JMS – Scale out

- How to scale out? – Deploy redundant setup with multiple brokers
 - as soon as message broker is outside of dCacheDomain
 - Then just configure:
broker.scheme=jms
broker.amq.url=<ActiveMQ connection URI>



Log System

- Easier
 - More flexible
- Mattias Wadenstein dedicated talk



p2p Transfer



p2p Transfer

- Cost cut calculation (Jon's algorithm)
 - Situation before the change
 - Costcut depends queue length
 - Situation after the change
 - Dependency on now resolved: Look at x busiest pools → only do a transfer when request lands on them
 - Disadvantages:
 - If you have a lightly loaded machine, you always have p2p transfers → only works good on heavily loaded machines (this needs fixing)



Picture showing costcut

SRM

SRM

- Jetty instead of Tomcat – Why?
 - Jetty can be a component of dCache (Tomcat can only run a cell)
 - Better logging (NO CATALINA.OUT!!!)
 - Better memory footprint
 - better scalability for connection with long idle time
 - Less CPU cache for servlet container, more for execution

SRM – SSL (EMI Global Effort)

- SSL instead of GSI
 - Why are we doing this?
 - No *dependency* on globus
 - GSI not well specified only one implementation
 - SSL well tested lib code → move towards standards
 - Dedicated hardware acceleration
 - You can not run both on the same port
 - Client support: one switch
 - How to configure?
 - Endpoint config to GSI or SSL (manual switch)
 - What is missing?
 - Prototype stage, but available
 - Not currently possible to run both on same port

SRM

- Synchronous getTURL
 - Advantages
 - No reconnect
 - Asynchronous: polling until succeeded
 - Synchronous: one connection open per query
 - How to configure?
 - Default switch from synchronous to asynchronous after 1 second
(/opt/d-cache/share/defaults/srm.properties,
...SwitchToAsynchronousModeDelay)

SRM - Spacemanager

- Multiple Link Groups
 - Granularity for space management in link group level
 - SpaceManager need to communicate to PoolManager (Links for writing) → no write link problem



Other dCache news

NFS, Non-ROOT, Non-ROOT, New
Pin Manager, ...



Other dCache News

- No NFS mount point needed anymore
 - Srm needed to interact with namespace (srmls)
- How to run as non-root
 - Domain that hosts ChimeraNFS server needs to run as root (run the server on a separate node)
- Details on single port per protocol per pool
 - For xrootd, nfs, webDAV
 - Firewall friendly
- Progress bar for dccp (-H option)



Other dCache News

- Important fixes since 1.9.5
 - Pin Manager
 - Faster
 - More robust
 - Important bug fixes (stuck file transfer)



Conclusions

- dCache is moving towards:
 - More future proof technologies (SRM Jetty, GLUE 2.0, JMS)
 - Increased flexibility (Messaging, JMS)
 - Increased security (SRM SSL, one port per protocol per pool)
 - Easier maintainability, debugging (new logging)



Thank you

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