WLCG Demonstrator

WLCG storage, Cloud Resources and volatile storage
into HTTP/WebDAV-based regional federations

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CERN CERN

UVIC group runs a distributed cloud computing system for Belle2 and ATLAS
(typically 10-15 clouds, 5000 cores)

Goal is use the opportunistic clouds for I/O intensive applications

We plan to create a regional (read-only) federation.
Each job retrieves the data from the nearest-SE and staged in locally for processing.
The output is written to a single SE (which is then added to the federation).
Cloud storage will be evaluated as a subsequent step

Storage element

Data federation service

HTTP/WebDav: Dynafed

Multiple copies distributed around the world

Status at UVic

- Installation of dynafed was easy, and so far federated two canadian sites on the westcoast, SFU and UVic. Adding more is merely uncommenting lines in a configuration file

- Discussing with CERN of how to do tests in production setup

- Did few tests and comparisons of different protocols vs. different network latencies

- Web location: CERN CERN
  https://dynafed01.heprc.uvic.ca:8443/myfed/

DPMbox demo

https://dynafed01.heprc.uvic.ca:8443/myfed/browseatlas/rucio/data16_13TeV/01/00/

Search

Disk Pool Manager

dynafed01.heprc.uvic.ca:8443 > myfed > browseatlas > rucio > data16_13TeV > 01 > 00 >

Workspace
DYNAFED01.HEPRC.UVIC.CA:8443
− ▪ myfed
▪ data16_13TeV
− ▪ browseatlas
SAM
dumps
rptaylor
− ▪ rucio
21
NULL
data10_7TeV
data10_cos
data10_hi
data11_2p76TeV
data11_7TeV
data11_hi
data11_hip
data12_8TeV
+ ▪ data12_hip
data13_2p76TeV
data13_hip
data15_13TeV
data15_5TeV
data15_comm
data15_cos
data15_hi
− ▪ data16_13TeV
00
− ▪ 01
00

Data

New directory   Delete directory   Upload   Download

All Fields   Search...   Delete

Metalink	Filename	Size	Modified
	AOD.09390224._000282.pool.root.1	878.4 MB	10/09/2016, 05:45:07
	DAOD_EGAM6.09517413._000106.pool.root.1	1.3 GB	01/10/2016, 22:38:15
	DAOD_JETM6.09630658._000023.pool.root.1	1.8 GB	16/10/2016, 08:24:03
	data16_13TeV.00303560.physics_Main.merge.AO...	2.1 GB	13/10/2016, 19:09:43
	log.09636573._000021.job.log.tgz.1	605.0 KB	18/10/2016, 06:07:57

Search took 0 sec   1-5 of 5

Properties
Collection
Name: 00
Route: /myfed/browseatlas/rucio /data16_13TeV/01/00/
Children: 0
Files: 5

Federated ATLAS data at UVic and SFU Accessible e.g. via curl, aria2c, and also davix-get/put requires valid x509 cert

temporarily stored some ATLAS data locally on web server (Was) accessible via http(s), xrootd and ssh and was used for some comparisons of transfer rates for different protocols removed now

Switch back to old UI

Plans

- Utilize a local test queue and a test storage element. ATLAS analysis queue is more flexible with input and output data than the production system. With this we can test access to local and federated data, ATLAS DDM does not need to be involved

- next, test things closer to production: use test storage element. Possibly copy data locally and in dedicated space on other storage elements (details still under discussion with ATLAS DDM)

- First tests will be reading only, writing to storage element later

- Further investigations needed on how does production system know what data is on storage elements ? Currently unclear and under discussion with ATLAS DDM (own copy of data, federate all data on many SEs, ...)