



WLCG HTTP* Deployment TF

DPM workshop

* + HTTPS + WebDAV + S3 ++

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Why?

- All the pieces are now in place for HEP exploitation of the HTTP protocol.
- Atlas and LHCb (at least) are developing their HTTP infrastructures.
- The majority of storage systems are able to offer an HTTP interface.
- ROOT support is available via davix, and studies have shown that this can allow HTTP to reach a performance comparable with that of the xroot protocol.
- Projects are exploring how cloud data resources could be exploited, and in many scenarios this involves HTTP (S3), so the time is right to shake out the last problems.
- At the moment there are many site misconfigurations and instabilities which could be tracked and fixed at the WLCG level for all experiments

Mandate

- Define the minimum set of useful functions which must work for a site to "support HTTP for WLCG". Document what further functionality is desirable over HTTP, under what circumstances, and with what priority.
- Put in place the necessary monitoring and validation tools.
- Summarise advice for sites on deployment. Create baseline version information for the storage systems. Identify necessary changes to supporting services.
- Track and support the deployment on the infrastructure until the point where maintenance is transferred to standard experiment operations.

Status

- Twiki & mailinglist set up
 - <https://twiki.cern.ch/twiki/bin/view/LCG/HTTPDeployment>
- Membership
 - Experiments - Atlas, CMS & LHCb
 - Sites/Infrastructures - ASGC, BNL, CERN, GridPP, KIT, PIC & TRIUMF
 - Storage systems - dCache, DPM, EOS, StorRM, xrootd
 - WLCG monitoring is represented
- 5 meetings have occurred
 - 1st – setup, scope
 - 2nd – functional description of necessary interface
 - 3rd – strategy for monitoring & validation
 - 4th & 5th – finalising steps required to start contacting sites

Functionality

- Full text
 - <https://twiki.cern.ch/twiki/bin/view/LCG/HTTPTFStorageRecommendations>
- TOC
 - Basic Methods
 - Authentication and Authorisation
 - Space Reporting
 - Checksums
 - 3rd party copy
 - ACL Management
 - Traffic Monitoring
 - BDII Integration

Access monitoring

- Transfers and access using gridftp and xroot are currently monitored on the infrastructure
 - <http://dashb-wlcg-transfers.cern.ch/ui/#>
- HTTP will have to be represented here too.
- The TF agreed on two valid approaches:
 - A properly formatted UDP stream, as implemented in the xrootd f-stream.
 - Access summaries conforming to a documented json schema delivered over the messaging system
 - <http://wdtmon.web.cern.ch/wdtmon/dash/http.html> (under review)
- DPM (and xrootd of course) support the xrootd f-stream solution. dCache and StoRM will consider their options.

Monitoring/Validation

- A shared probe has been provided for integration with the experiments' SAM instances
- Tests reflect the functionality identified as “required” by the TF (more detail in twiki)
 - Plus auxiliary checks to aid operational debugging
 - A failed PUT, ie read-only access, is acceptable (ie green) but visible

Site validation

- GGUS Support Unit and all the necessary lists have been set up
- Monitoring is happening, fed by endpoint lists from the experiments
 - https://etf-atlas-preprod.cern.ch/etf/check_mk/index.py
 - https://etf-lhcb-preprod.cern.ch/etf/check_mk/index.py
 - Above LHCb link may not yet be active...
- An operational plan has been drawn up and some test tickets have been dispatched

A view of the LHCb endpoints

All hosts 25 rows /DC=ch/DC=cern/OU=Organic Units/OU=Users/CN=okeebla/CN=609355/CN=Oliver Keeble (guest) 15:52 MK

Availability

state	Host	Icons	OK	Wa	Un	Cr	Pd	state	Host	Icons	OK	Wa	Un	Cr	Pd	state	Host	Icons	OK	Wa	Un	Cr	Pd
DOWN	arc-ce04.gridpp.rl.ac.uk		10	0	0	1	0	UP	bohr3226.tier2.hep.manchester.ac.uk		0	0	6	5	0	UP	cccreamcell05.in2p3.fr		9	0	0	2	0
UP	cccreamcell06.in2p3.fr		9	1	0	1	0	UP	codavlhcb.in2p3.fr		0	0	6	5	0	UP	ds-203-03-05.cr.cnaf.infn.it		2	0	6	3	0
UP	ds-203-03-07.cr.cnaf.infn.it		2	0	6	3	0	UP	eoslhcb.cern.ch		0	0	6	5	0	UP	etf-lhcb-dev.cern.ch		25	0	0	1	0
UP	f01-080-124-e.gridka.de		8	0	2	1	0	UP	f01-080-126-e.gridka.de		8	0	2	1	0	UP	fly1.grid.sara.nl		2	0	6	3	0
UP	gbtizes-t1.cern.ch		0	0	6	5	0	UP	gfe02.grid.hep.ph.ic.ac.uk		11	0	0	0	0	UP	grid05.lal.in2p3.fr		11	0	0	0	0
DOWN	heplnx237.pp.rl.ac.uk		0	2	6	3	0	UP	lpnse1.in2p3.fr		2	0	6	3	0	UP	marsedpm.in2p3.fr		2	0	6	3	0
UP	se.cat.cbpf.br		9	2	0	0	0	UP	se.cis.gov.pl		0	0	6	5	0	UP	se0003.m45.ihep.su		0	0	6	5	0
UP	srmilhcb.pic.es		7	0	0	0	0	UP	storage01.lcg.cscs.ch		11	0	0	0	0	UP	tbit00.nipne.ro		2	0	6	3	0
UP	webdav-lhcbf1.pic.es		0	0	6	5	0																

refresh: 30 secs

Well done LAL!

Services of Host grid05.lal.in2p3.fr 11 rows /DC=ch/DC=cern/OU=Organic Units/OU=Users/CN=okeeble/CN=609355/CN=Oliver Keeble (guest)

Availability

grid05.lal.in2p3.fr

State	Service	Icons	Status detail	Age	Checked	Perf-O-Meter
OK	webdav.HTTP-All-/lhcb/Role=production		OK: all tests successful	47 hrs	43 min	
OK	webdav.HTTP-DIR_GET-/lhcb/Role=production		OK: GET on dir	2015-11-30 09:08:24	43 min	
OK	webdav.HTTP-DIR_HEAD-/lhcb/Role=production		OK: HEAD on dir	2015-11-30 09:08:24	43 min	
OK	webdav.HTTP-FILE_DELETE-/lhcb/Role=production		OK: DELETE on file	47 hrs	43 min	
OK	webdav.HTTP-FILE_GET-/lhcb/Role=production		OK: GET file	47 hrs	43 min	
OK	webdav.HTTP-FILE_HEAD-/lhcb/Role=production		OK: HEAD on file	47 hrs	43 min	
OK	webdav.HTTP-FILE_HEAD_ON_NON_EXISTENT-/lhcb/Role=production		OK: HEAD on a path that does not exist, should return 404	47 hrs	43 min	
OK	webdav.HTTP-FILE_MOVE-/lhcb/Role=production		OK: MOVE file to another path	47 hrs	43 min	
OK	webdav.HTTP-FILE_OPTIONS-/lhcb/Role=production		OK: OPTIONS on file	47 hrs	43 min	
OK	webdav.HTTP-FILE_PROPFIND-/lhcb/Role=production		OK: PROPFIND on file	47 hrs	43 min	
OK	webdav.HTTP-FILE_PUT-/lhcb/Role=production		OK: PUT a file	47 hrs	43 min	

The DPM perspective

- DPM has had a particular mission to be HTTP friendly
- We want it to be possible to support HEP and other sciences with the leanest possible system
 - This means HTTP
- DPM HTTP checklist;
 - Access – functionally complete, good performance, even with ROOT analysis thanks to Davix
 - Transfer – 3rd party copy supported, even to S3
 - Reporting – space used available via DAV
- Sylvain will start testing such a system, with only HTTP and GridFTP interfaces

DPM & the HTTP TF

- A large part of the motivation behind the HTTP initiative in WLCG is to make site management easier
- The aim of the TF is to give the experiments a chance to fully embrace HTTP
 - That depends upon the quality of service they find on the infrastructure
 - If they adopt it, this will permit much simpler services to be run at sites
- ...so please help when we send you a ticket!!

Next Steps for the TF

- Finalise visualisation of test results
 - Check_MK interface
 - SAM3 interface
- Approve the operational plan
- Start ticketing sites
- Complete the docs the TF will deliver
 - Required HTTP functionality
 - How to implement transfer monitoring feeds