



WLCG Demonstrator

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

Project motivation

- The project addresses two related topics
 - Exploitation of cloud storage (AWS S3, Ceph S3, MS Azure)
 - Existing storage consolidation via a local federation
 - within a single site, OR
 - between a few ‘friend’ sites showing up as one
 - Even both: a few consolidated sites plus cloud storage
- How?
 - Using Dynafed + a coalition of participants with existing plans related to the technology

The teams

- ATLAS Canada: UVIC and others
 - Evaluated dynafed in the last 2-3 years with small pilot projects
 - Got approval for funding a regional/national project involving 3rd party Cloud storage
- Belle-II
 - R&D project on HTTP and federations
 - Also UVIC is involved
- ATLAS Italy: Naples+Frascati
 - Previous experience (using PROOF+Dynafed) described at CHEP 2015

The experiments

- Belle-II : The R&D has full endorsement, some results have already been circulated
- Some ATLAS teams participate with their own funding, likely to increase
 - ATLAS central ADC is an observer, will work with the new macro-sites

Why a demonstrator?

- Promote the visibility of the participating projects
 - Attract other contributions and create a focus for related work
- Publically (and definitively?) address the relevant questions
- Why should experiments care?
 - Help projects which are trying to help them
 - Low-cost initiative (will in fact attract resources)

Targets

- Understand if local HTTP federations can be advantageous
 - Usual fed advantages in a robust and user friendly way
 - Storage efficiency, fallback, redundancy, regional consolidation
 - Non-intrusive; no need to reconfigure participating endpoints, which can also be accessed as before
 - Very low cost for joining sites or remote services
- Understand how cloud storage can be exploited
 - Following the model of a bridge which makes it look like any other (HTTP-enabled) grid storage
 - No need to change applications
 - No distribution of sensitive keys
 - Could support site or in-cloud CPU
- Focus on 'opportunistic' storage, can change at the pace of shorter term contracts



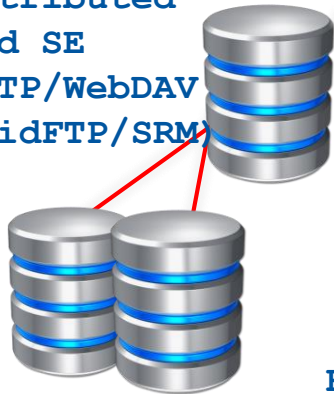
★ Somehow volatile

Regional/National multi-tier HTTP storage

Regular Grid SE
(HTTP/WebDAV
+GridFTP/SRM)



Distributed Grid SE
(HTTP/WebDAV
+GridFTP/SRM)



Demonstrate how to accommodate a wide range of services

Third party Cloud storage (REST) ★



Site local Cloud storage (REST)



Future Automatic cache
(HTTP/WebDAV)



Manually Managed repo
(HTTP/WebDAV) ★



Document reference