

# Federated ATLAS Xrootd - Overview

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# Overview

- Idea: Use xroot protocol as common interface to federate storage systems at T2 and T3 sites (and T1)
- Retrieve data on demand (pull/cache model)
- This requires a uniform way of referring to files (“global namespace”).

# Motivation

- 1) Simplify data access for T3, reduce data management burden (ToA, FTS, DDM, etc)
- 2) Allow T3 sites to share data
- 3) Provide flexibility for T2 sites, especially complex T2 sites which are “internally federated” (spanning several physical locations)
- 4) Support dCache, xrootd, GPFS, Hadoop, etc as storage backends

# Implementation

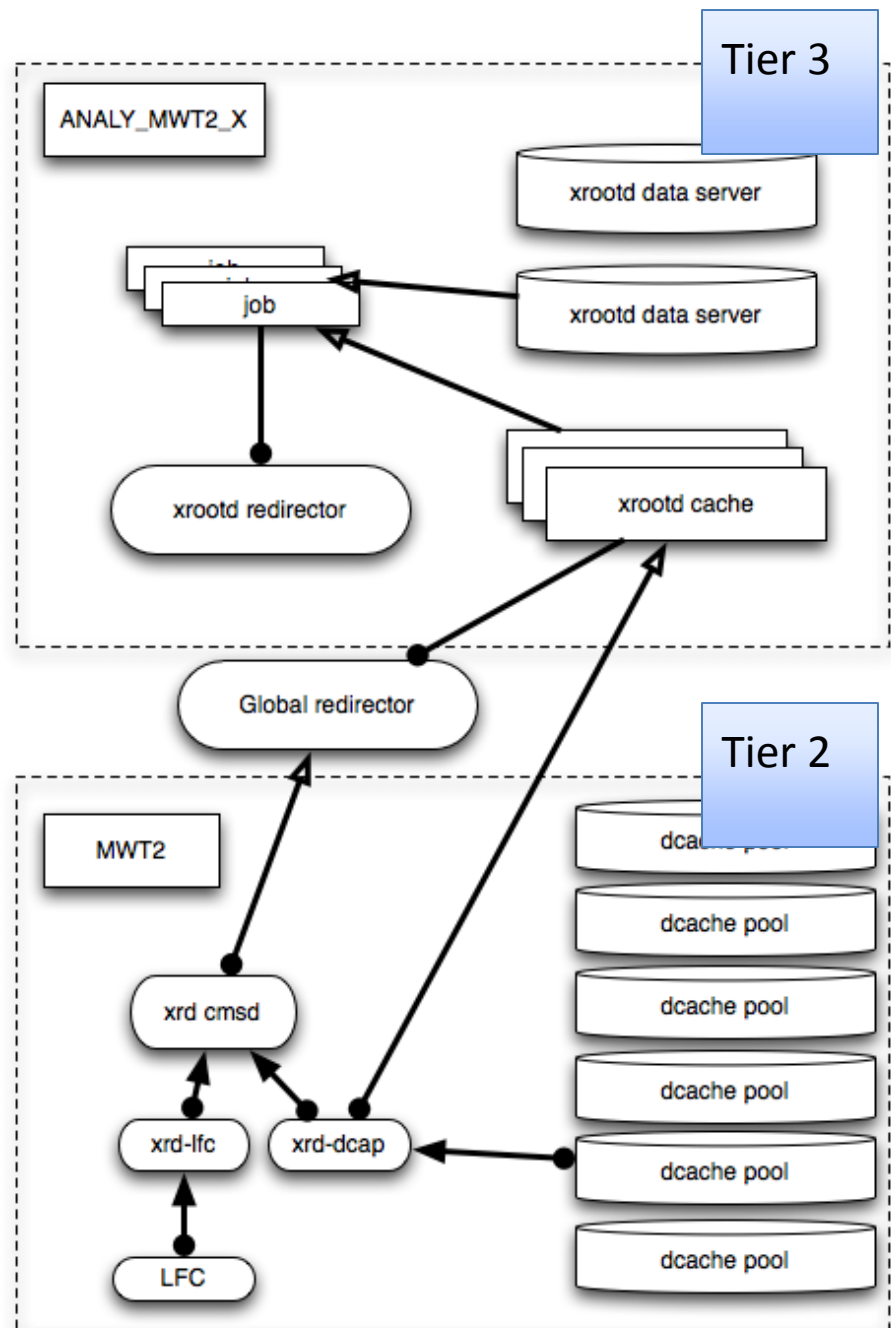
Use Xrd plug-in architecture to read from non-xroot storage (“fslib”), and also to map global namespace to local storage paths (“Name2Name”)

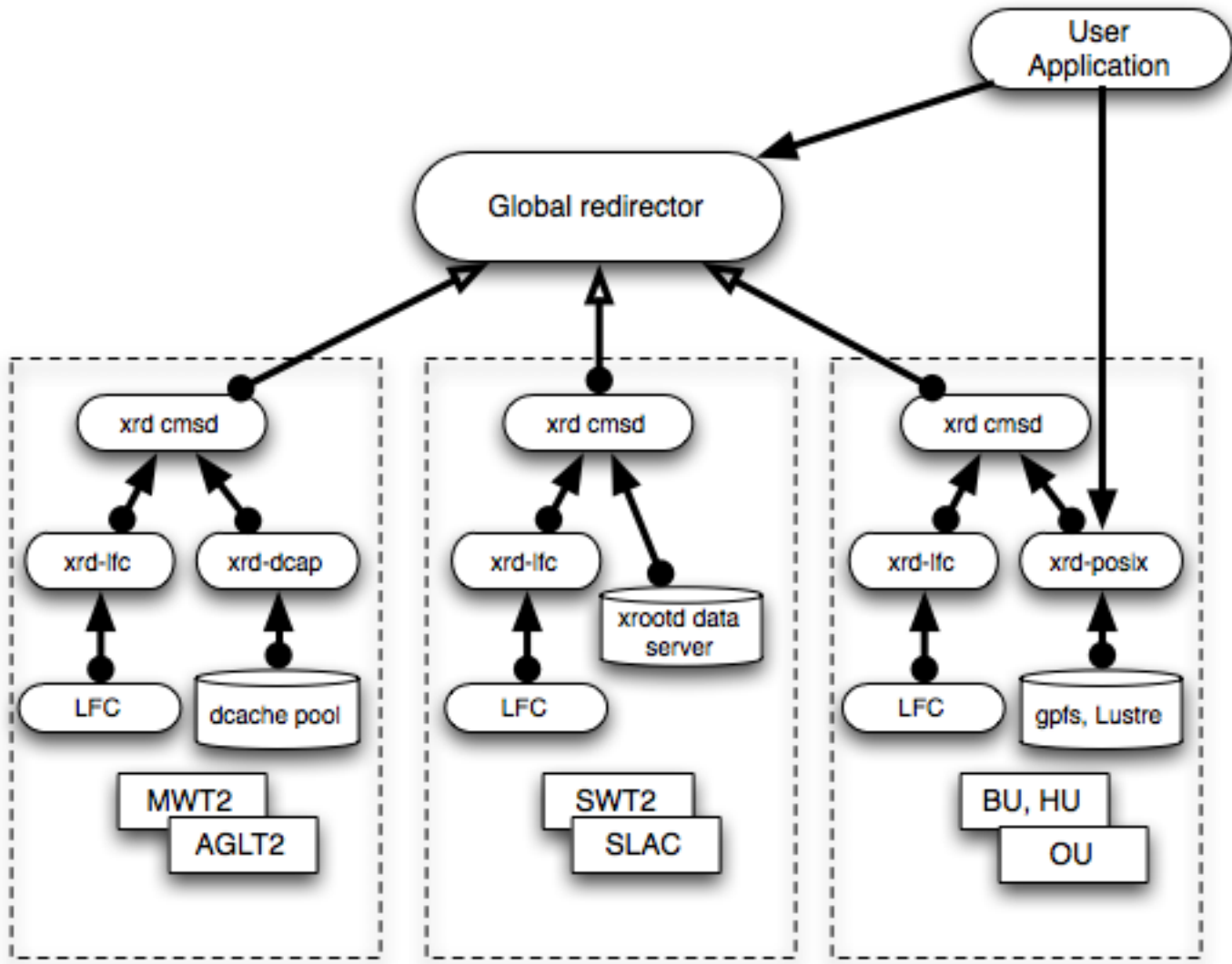
T3s will store files according to global namespace (no LFC)

Code (dev)

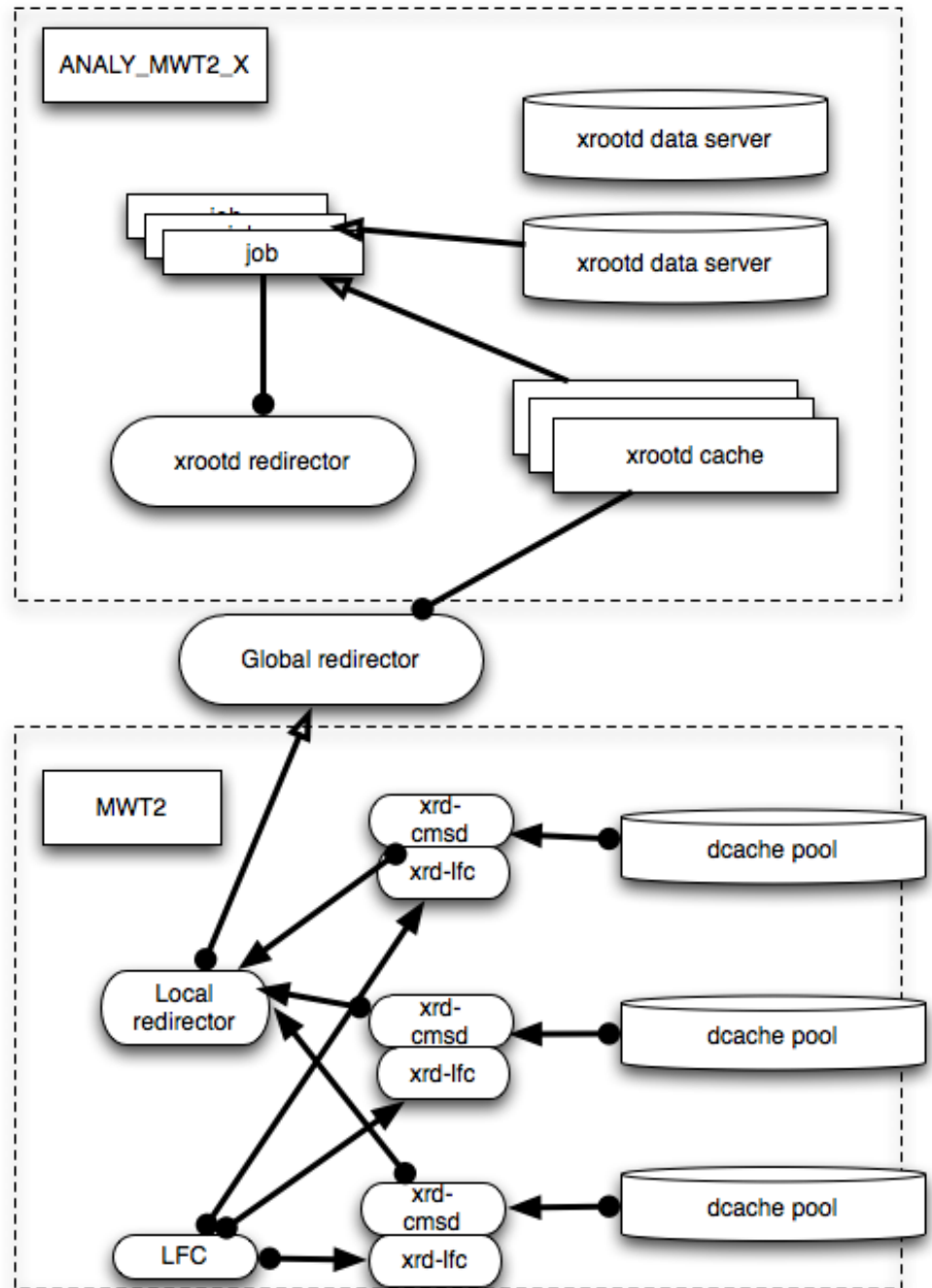
<http://repo.mwt2.org/viewvc/xrd-lfc>

Getting data  
from T2  
dCache to a  
T3 with  
xrootd





# Direct Pool Access



# Issues

- Lack of real “global namespace”. We are using modified version of LFC path for this, but
  - Conventions have changed
  - Complications with `_dis`, `_sub`, etc
  - Future of LFC is in doubt
  - LFC lookup cannot be avoided due to `_DQ2` timestamps (can we get rid of these please?)
- DSN/filename identifies file, but LFC does not allow this to be searched directly
- Xrd does not support passing GUID, unless file will be stored under this name (xrd dev required)



# Questions

- How does this fit with future plans for LFC?
  - Is the global namespace == LFC?
  - Can we use GUID, DSN, etc to identify files?
    - xrd “opaque data”, in development
  - Will a single central LFC work?
- What is impact on T2 (or T1) site?
  - Minimal additional services required
  - Bandwidth allocation – use dedicated door, or eg. bwctl to control resource use.

# Status

- Deployed services at three Tier 2's
  - MWT2(dCache), SLAC, SWT2 (XRootd)
- Functional testing successful:
  - Xrd-native
  - Xrd-dcap
  - Xrd-direct pool
- Performance testing started

# Next Steps

- Additional Tier2's and backends: NET2 (GPFS), AGLT2 (dCache)
- Resolution of LFC-Global namespace convention
- Extend client tests to include job-clients: ANALY\_MWT2\_X queue  HammerCloud
- Testing in the Tier 3 environment – sites, FRM (cf. Wed Tier 3 session)

# Thanks

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