Status of SRM/dCache v2.1 Implementation

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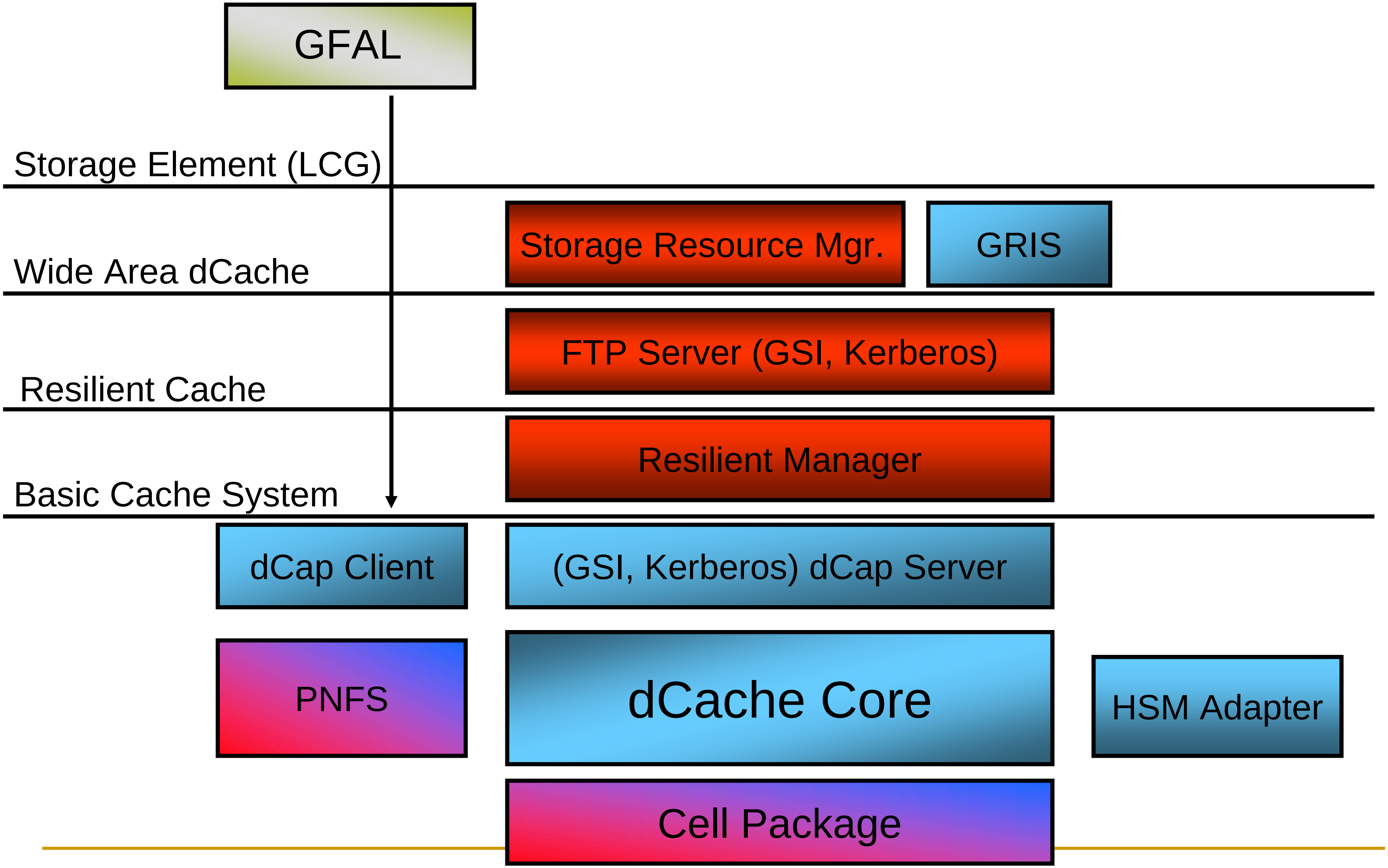
DESY

Example: dCache Functionality Layers



GFAL

Storage Element (LCG)

Wide Area dCache

Storage Resource Mgr.

GRIS

Resilient Cache

FTP Server (GSI, Kerberos)

Basic Cache System

Resilient Manager

dCap Client

(GSI, Kerberos) dCap Server

PNFS

dCache Core

HSM Adapter

Cell Package

Enhancements required by Experiments

- ❶ Pin/Unpin Functionality
  - Pins have a lifetime
    - Operational issue when explicit pin is used by average user who could interfere w/ the rest of community, especially in an HSM environment w/ Migration capabilities
  - Implementation Plans
    - SRM/dCache: "Implicit (triggered by srmPrepareToGet) pins and unpins always part of SRM/dCache implementation
    - Explicit pinning is not part of the SRM v2.1 specification. Planning to make it part of the SRM v3 specification

Enhancements required by Experiments

2. Relative Path in SURLs
   - Requirement as we understand it
     - Client does not have to query information system for site specific information the server should know about
   - Developers have mixed feelings about this request
     - SRM/dCache Developer: We do not believe these are needed, SRMs do not support “home directory concept”
   - Implementation Plans
     - Currently no plans to implement Relative Path

Enhancements required by Experiments

❸ Permission functions: All experiments would like the permissions to be based on roles & DN’s. SRM should be integrated with VOMS

- (At least) two major issues
  - Standardization of VOMS functionality w.r.t. Authorization and respective Interfaces (LCAS, LCMAPS)
  - Implementation of this largely depends on the support from the underlying storage system and availability of effort to implement it (i.e. support for ACLs vs. UNIX permissions only)
- Implementation Plans
  - SRM/dCache: W.r.t. SRM first version implemented & has been tested. More work required at level of underlying storage system
    - has been done the same way as for GridFTP, gateKeeper
    - first release has been tested within USCMS
      - Currently using local accounts
      - ACLs need to be implemented in pnfs

Enhancements required by Experiments

4. Directory functions (with the exception of “mv”)
    - Developers agree that this is useful functionality – with one caveat
        - (Some) Developers need more input as to why experiments need “ls” Is it more of a bookkeeping issue? If yes, why required to bother SE?
        - “ls” – Directory listing can easily create severe problems
            - Sheer data volume (w/ n*100k files/directory)
            - If “cookie model” used would have to maintain state / consistency
    - Implementation Plans
        - SRM/dCache: In the process of implementing them
            - have recently added ‘srmls’

Enhancements required by Experiments

- ❺ Global Space Reservation
  - ❑ File based reservation part of the implementation since beginning
  - ❑ Allows a user to reserve space in advance
  - ❑ Reservation has a lifetime
    - Operational issue when used by average user who could interfere w/ the rest of community
  - ❑ SRM v2.1 Interface definition vague
    - No granularity (i.e. file size) attached to request
  - ❑ Developers view: Not useful in HSM environment with MSS
    - Useful in Disk-only environments (i.e. Tier2 Centers)
  - ❑ Implementation Plans
    - SRM/dCache: Working on implementation design according to use cases
    - Static vs dynamic space allocation
      - ❑ Initial goal of having a first implementation ready by late Fall 2005 did not materialize
      - ❑ Start of development activities expected in Q1 2006

Summary

- Status of Implementation of requested functionality varies
  - SRM/dCache developers are already working on some items or consider implementing them soon
    - Frame/Infrastructure for v2.1 implementation ready
  - Likely not everything in SRM/dCache will be available by March 06
  - See no showstopper but need more time than had anticipated