dCache

LCG Review 2006

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for the dCache People

Roadmap

Organisational Overview

    The Team

    The Funding

    Agreement with LCG deployment

    dCache support

Technical Overview

    Automated Packaging

    Installation and configuration (YAIM)

    VOMS support

    Extended Protocol Support

    Support of huge installations

Short/Medium term plans

The Team

Responsibility, dCache

Patrick Fuhrmann   Rob Kennedy

Core Team (Desy and Fermi)

Jon Bakken

Ted Hesselroth

Alex Kulyavtsev

Birgit Lewendel

Dmitri Litvintsev

Tigran Mrktchyan

Martin Radicke

Owen Synge

Elena Tews

Vladimir Podstavkov

Responsibility, SRM

Timur Perelmutov

External

Development

Nicolo Fioretti, BARI

Abhishek Singh Rana, SDSC

Support and Help

Maarten Lithmaath, CERN

dCache.ORG

Development and support

Fermi Lab.	3 FTE	(includes operation)
OSG	2.5 FTE	(In preparation)
		SOURCE : Eileen Berman, FNAL

DESY Lab.   2   FTE

D-Grid   1.5   FTE

LCG   0.5   FTE

Agreement with LCG deployment

dCache.ORG

Stable dCache release in CERN apt repository

Evaluation dCache release in DESY apt repository

LCG Deployment group performs dCache installation verification

gLite interoperability verification by LCG deployment against
dCache instance at DESY

dCache contact person at CERN (in LCG deployment group)

- 1 full FTE responsible for dCache support

     means

          Support ticket system behind : support@dCache.ORG

          User mailing list : user-forum@dCache.ORG

          Contact to LCG and grid PP

          Near future : The Book

- dCache source code available at dCache.ORG

     Special license

     Support only for RPM from dCache.ORG

Packaging

Focus on automated testing and packaging

code in cvs

compilation   (tiggered by 'cvs commit')

RPM generation   (Still manually triggered)

Automated Test Suite   (Partially done)

into APT (unstable, testing)

web page

Significantly improved YAIM installation

Customization and tuning in just one setup file (dCacheSetup)

(for experts : no need to change XXX.batch files any more)

First goal reached :

Single host installation and configuration in 10 minutes

(including all necessary LCG components and info provider)

Next Step :

Installation and configuration part of dCache

YAIM justs points to dCache internal installation mechanisms

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VOMS support

DCache 1.7.0 supports Extended Certificates (voms-proxy-init) including VO's and Roles

Migration path

   dcache.kpwd on each host

   With 1.7.0

      dcache.kpwd (centrally)

      extended gridmap file (centrally)

         DN may be in different VO's

         DN may have a role

         All DN of a VO allowed (exclude list)

xRoot protocol support

xRoot natively supported by dCache (including load balancing)
(Has been positively tested at various sites already)

Supports ALICE security model (Catalog based authorization)

(DESY tests ok, CERN tests will be done soon)

gsi xRoot : we need more information on this

passive dCap

dCap protocol now supports passive transfers to
handle NAT and firewalls

Support of huge installations

The feature below need to be manually configured

Multiple I/O queues (already in use at USCMS sites and IN2P3)

Handles fast and slow transfers differently

File hopping

Arrival of files triggers further transfers to other pools or HSM
Improves disk performance on HSM restore (Used by Jon Bakken)
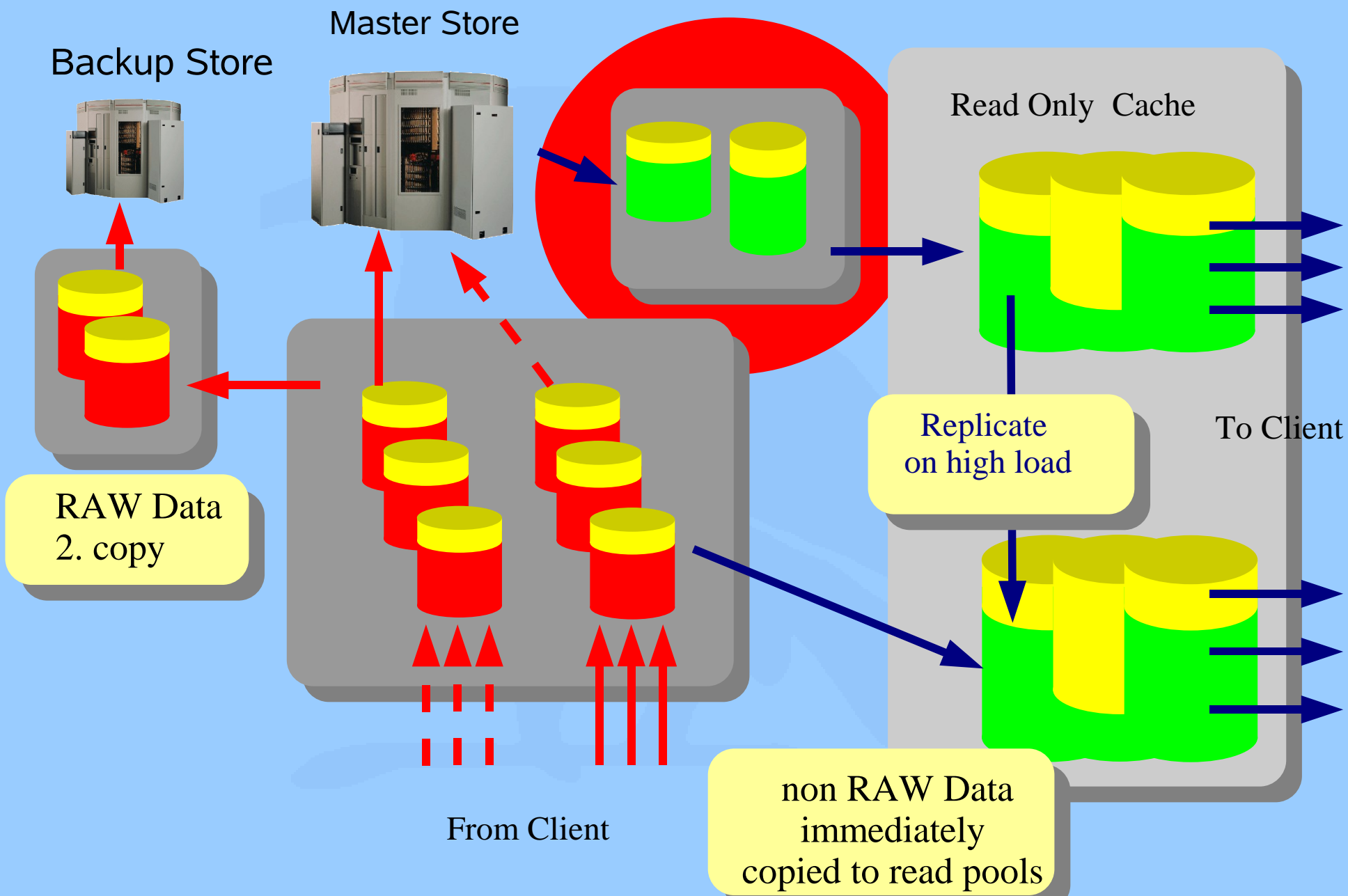
Central Flush Management

Flush to HSM is centrally managed to improve
Tape drive throughput

Still missing : Improved HSM restore optimization

Hints to HSM before files are actually requested from HSM

See release notes at : http://www.dCache.ORG/manuals/Book

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Enormous consumption of human resources

Full consequences of SPEC not clear

Significant changes in dCache kernel required

We are still in time :-)

Some space transitions are hard to implement but needed

  e.g: Tape 0 Disk 1   ----> Tape 1 Disk X

For details see Maartens talk.

Chimera (improved file system)

Allows to integrate ACLs

Allows to integrate Quotas

Chimera is in beta testing

Deployment postponed to spring 2007

More on protocols

FTP (2)

Hope to have this integrated soon

NFS4.1

Spec still undergoes changes

HSM Connectivity

Optimizing for Restore (as we did for store)

In Use at

Tier I centers :

- FNAl
- BNL
- IN2P3
- SARA
- Triump
- Nordu grid
- gridKa
- (still RAL)

Tier II centers :

Germany

LCG : Aachen, DESY, Freiburg, Dortmund,Darmstadt(GSI)

d-Grid : Juelich(ZAM), Berlin(ZIB)

UK

Italy

30 % of gridPP, UK

INFN : Bari, Torino

US

Poland, Bulgaria, Spain

CMS : 7 sites
ATLAS 7 sites in preparation

Canada

dCache, the Book

www.*dCache.ORG*

need specific help for you installation or help
in designing your dCache instance.

support@*dCache.ORG*

dCache user forum

user-forum@*dCache.ORG*