EMI JRA1 Data Management

With kind contributions by

Alex Sim (BeStMan, OSG)

EMI JRA1 Data Management

The group as of now.

Component/ Middleware	Staff
gLite (LFC,FTS,DPM,GFAL)	Oliver Keeble, Jean-Philippe Baud, Ricardo Rocha
ARC	Jon Kerr Nilsen, Zsombor Nagy
UNICORE	Ralph Müller-Pfefferkorn
StoRM	Riccardo Zappi, Michele Dibenedetto
dCache	Patrick Fuhrmann, Tigran Mkrtchyan

Partners : DESY. CERN, CINECA, JUELICH, INFN, NIIFI, TUD, UIO,UH , KISTI(korea, unfunded)
Product team not yet 100% clear. Maybe 1 – 1 (as above)
Mostly JRA1

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Content

Actions : What did we do yet ?

Hot topics for the first year

Plan (deliverables and milestones)

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Actions (already done)

✓CHEP Abstract

✓Presentation of data management issues during security kick off

 ✓ Slides are appended.

✓Data management kick off (yesterday)

Hot topics for the first year

Discussed during our kick off (not necessary complete)

- ✓ Keeping current infrastructure running

- ✓ Security (in collaboration with security group)

- ✓ Storage Resource Manager (SRM) consolidation

- ✓ Standardization of (mass) data access (local, wide area)

- ✓ Catalogues

- ✓ Testing interoperability (not general testing)

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Milestones

MS41   3 MJRA1.16 - Recommendation of a common set of standards relevant to EMI
MS30   5 MJRA1.5 - Agreement on common security methods for data systems
MS44 10 MJRA1.19.1 - Integrated EMI Major Release Candidates
MS31 15 MJRA1.6 - File Catalogue common front-ends
MS42 16 MJRA1.17-Test suites of compliance checks in place
MS32 24 JRA1.7 - First implementations of POSIX compliance and HTTP support
MS37 24 JRA1.12 - Common Security Architecture Assessment
MS33 30 MJRA1.8 - Full standard compliance and POSIX support

Security I

Getting rid of GSI

- ✓ What do we actually want to get rid of (Globus or GSI) ?
- ✓ Obvious answer :
  - ✓ As the goal is to talk standard protocols
  - ✓ don't care so much which library to use in order to achieve this.
  - ✓ Especially because EC is funding IGE
- ✓ Issues :
  - ✓ Open SSL and proxies
  - ✓ SRM
    - ✓ Separate delegation service
    - ✓ No delegation at all (how about SRMcopy)
  - ✓ How about gsiFtp
  - ✓ Smooth migration

Security II

- Authentication

  ✓Interoperability between UNICORE and ARC/gLite

    ✓ SAML Assertions versus X509 Proxies

    ✓Again delegation

- Single sign-on (not discusses yet, depends on the sec-group findings)

- Authorization/mapping/login

  ✓Integration of Argus

    ✓Different complexity for different services

      ✓Starting with 'blacklist dump'

      ✓Ending with full integration (login/mapping)

SRM consolidation

✓ SRM 3.0 : No Way

✓ SIPMLIFICATION

✓ Instead

    ✓ Using the OGF definition of SRM 2.2, WLCG & Addendum

    ✓ Collecting implementation issues (partially already done)

    ✓ Fix if needed

    ✓ Two major topics

        ✓ How to handle Space Tokens

        ✓ SRM copy ?

        ✓ How to do delegation w/o GSI ?

Standardization of data access

Direct POSIX access

- ✓ Depending on Storage System

  - ✓ GPFS, Luster, NFS 4.1

  - ✓ Integration with UNICORE (no problems expected)

Standard Web Access

- ✓ Different importance for different SE's (depending on current customers)

  - ✓ https (read only) or WebDAV to be used with

    Mac OS, Windows and Linux (KDE, Gnome)

Catalogues

Catalogues synchronization

Poor mans solution

Defining exchange format and do frequent sync

Better

Permanent information exchange between cat. and SE.

Or

Integrating LFC into SE

Common Web based interface

Very interesting but not highest priority

Solutions : Web Service versus RESTfull

Cloud Storage

✓Interesting but no clear signals from industry yet (no standards)

✓Maybe through collaboration with Google

✓Other possibility : CDMI (Oracle, Sun)

✓PF7 Project on the horizon (next year)

✓Not highest priority

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Testing

✓In addition to deployment testing

✓Continues check for interoperability

✓Completely unclear yet :

    ✓Central test infrastructure (EMI or EGI)

    ✓Or just individual test suits ?

Detailed plan (internal milestones)

Detailed plan (internal milestones)

In preparation

Issues :

Don't know the PM split between the different JRA1 activities yet.

Coordination with other JRA1 activities

EMI Data Management meets security

With contributions by Alex Sim (OSG)

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Topics

Replacement of GSI

Motivation

Possible Showstoppers, Open issues

Migration

Goal

Identity Management

Single Sign-on

Call-outs to Authentication/Authorization services

Replacement of GSI

Motivation

Will be a big/expensive effort -> Good Justification

First discussion on this (in storage) started 2 years ago in the context of the SRM (DESY SRM workshop)
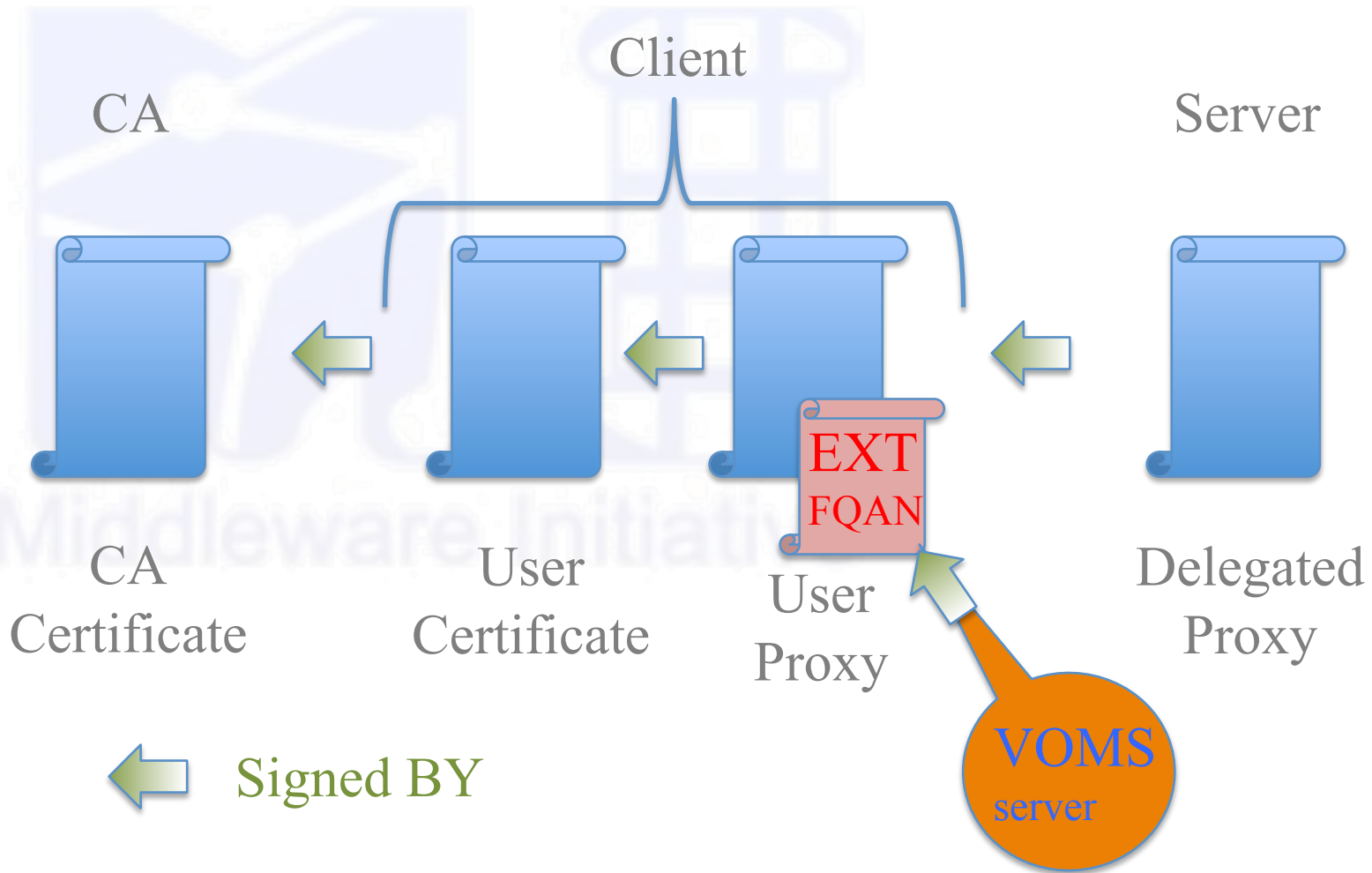
(How) would we profit from a GSI replacement ?

- ➤ 'Well maintained' security libraries (e.g. fast security bug fixes)
- ➤ Session re-use. Would clients benefit (FTS) ?
- ➤ Avoid generating delegated 'proxies' if not needed.
- ➤ Relevant services
  - ➤ SRM
  - ➤ How about gsiFtp ? Should we use FTPS(implicit/explicit) or https?

Would 'fixing GSI' give us similar benefits w/o too much hassle ?

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Replacement of GSI

Certificates and Proxies with GSI

Client

CA

Server

CA
Certificate

User
Certificate

EXT
FQAN

User
Proxy

Delegated
Proxy

VOMS
server

Signed BY

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Replacement of GSI

Open questions, if we would move to SSL

Proxies (voms-proxy-init)

➢ Would we use RFC compliant proxies only ?

➢Are proxies (certificates not signed by a CA) accepted by SSL libraries?

➢Do SSL libraries make 'extensions' available at the server side (FQAN) ?

➢Is this true for non CC/C++ frameworks (java, python ?)

Replacement of GSI

Open questions, if we would move to SSL

Delegation Proxies

➤ Do we need delegation (FTS, SRM-copy, myProxy) ?

➤ How can we achieve delegation w/o GSI ?

  ➤ Common interface or common service ?

  ➤ GridSiteDelegation(https://twiki.cern.ch/twiki/bin/view/EGEE/GridSiteDelegation)

  ➤ Globus MyProxy Delegation (http://grid.ncsa.illinois.edu/myproxy/delegation)

  ➤ They don't inter-operate

  ➤ Are there any other options ?

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Replacement of GSI

Migration

- ➤ Does migration has to be globally coordinated, or can this be smoothly.

  - ➤ Europe vers. US : VDT, BeStMan

- ➤ Can GSI and non GSI services be run at the same time (different addr.) ?

- ➤ What would be the implications for e.g. catalogues ?

- ➤ Are there any other implications e.g. order of FQANs in proxy ?

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Replacement of GSI

GOAL

➢X509 over https would be desirable for

　➢WLCG

　➢Other Certificate bases communities

➢Other/Easier approaches for other communities (see next section)

　➢OSG/Alex would be very interested

　➢Who do we find out (EGI/NGI customers)

Identity Management

Single Sign-On

➢ Single Sign-on mechanisms

  ➢ X509

  ➢ Kerberos

  ➢ OpenID

  ➢ Shibboleth

  ➢ US : DOE Entrust, HSPD-12 (Govt)

➢ UNICORE using SAML-Assertion

➢ Do we have any experience with non X509

➢ E.g. : OSG using OpenID for one community

➢ Do we have any policy/services for mapping between X509 and others.

Identity Management

Identity services

- How important are central identity services for SE's ?

- GUMS and SCAS moving away from SAML and XACML

- Migration should be completed this year. (2010)

- SAML/XACML : Only partially supported by EMI SE's

- ARGUS

  - What are the benefits.

  - We need to investigate : speed and other technical issues.

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