EMI Data, AHM Summary

Padova, 19.10.2011

EMI Data AHM Structure

- Mad session on Monday with 'short' presentations.

- Q&A plus discussion for selected topics on Tuesday

- Slightly too many topics

- Interesting and important discussions

- All product teams were represented

- A lot of work was done since last AHM

Timetable 'mad' session

Topic	Who
Overview	Patrick
Storage Accounting	Jon
Library Consolidation	Jon
GFAL 2 (basis for FTS 3)	Adrien
SE and Catalogue synchronization	Fabrizio
pNFS in EMI	Ricardo, Patrick
UNICORE and LFC/SRM/AMGA	Christian
GLUE 2 status	Zsolt
WebDav fontend for LFC/SE	Alejandor
ARGUS Integration	Karsten,Ricardo

Timetable for working session

Topic	Leader
StoRM and all EMI activities	Riccardo
FTS 3	Zsolt
SRM over SSL (no delegation)	Paul
Catalogue Synchronization	Fabrizio
WebDAV frontend to LFC and SE's	Alejandro
Global Data Access Services	Patrick
GFAL 2	Alejandro
Data Library Consolidation	Jon

EMI INFSO-RI-261611

Improving existing
Components

Standardization

Data

Integration

Improving user satisfaction

Objectives in a nutshell

❑ **Improving existing infrastructures**

➢ GLUE 2.0

➢ FTS 3 (next generation File Transfer Services)

➢ Storage element and catalogue synchronization

❑ **Integration**

➢ ARGUS integration

➢ UNICORE integration

➢ EMI Common data library

❑ **Standardization**

➢ **SRM over SSL including delegation**

➢ POSIX file access and integration into SRM (File://)

➢ WebDAV for file and catalogue access

➢ Storage Accounting Record implementation
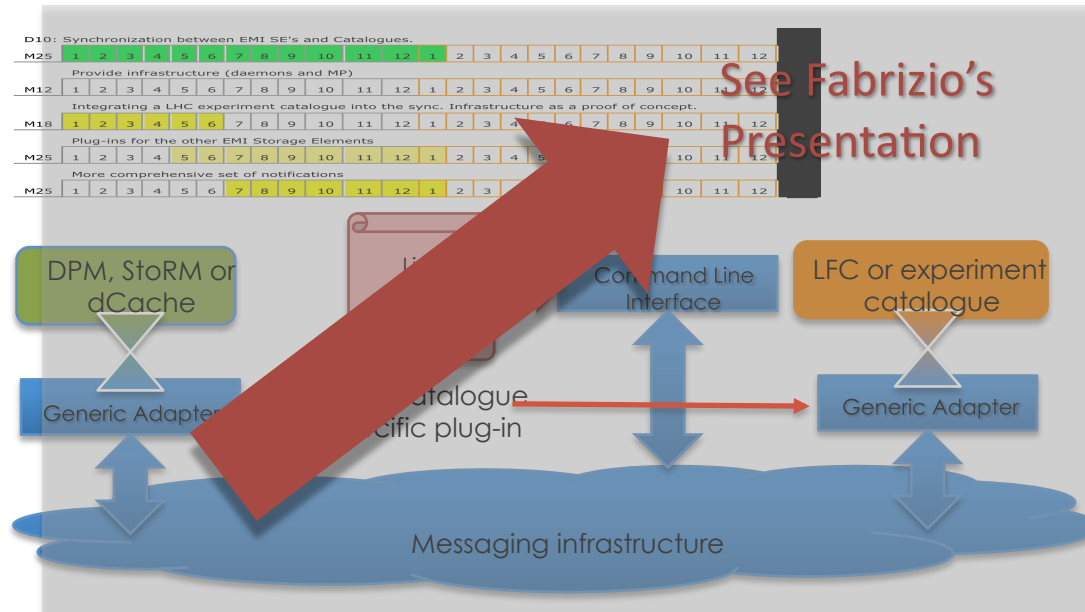
➢ EMI Data clouds

Objectives in a nutshell (cont)

❑ **Improved user satisfaction**

➢ Adhering operating system standards for service operation and control,

regarding configuration, log, temporary file location and service start/status/stop

➢ Providing and supporting monitoring probes for EMI services

➢ Improving usability of client tools, based on customer feedback by ensuring
- better, more informative, less contradictory error messages
- coherency of command line parameters.

➢ Porting, releasing and supporting EMI components on identified platforms (full

distribution on SL6 and Debian 6, UI on SL5/32 and the latest UBUNTU)

➢ Introducing minimal denial of service protection for EMI services via configurable

resource limits.

➢ Providing optimized semi-automated configuration of service back-ends (e.g.

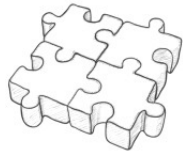databases) for standard deployments.

SE and catalogues Synchronization

❑ Storage element and catalogue synchronization

➢ Event based synchronizing of data location information between SE's and catalogues.

➢ NOT CLEAR : Synchronizing access permission information between SE's and catalogues.

FTS 3

❑ Next generation File Transfer Services, FTS 3 [Zsolt]

➢ Redesign based on experience of last years

➢ **Prototype ready in April '12**

➢ Many interesting new approaches

- Support of http

- Feedback of real resource utilization (Storage element and network)

- **Zsolt is organizing a AHM on F**

See Zsolt's Presentation

18.0	D14: Next generation FTS																								
	M30	1	2	3	4	5	6	7	8				3	4	5	6	7	8	9	10	11	12
18.1	High level design, new conf... emote, and stored in DB)																								
	M16	1	2	3	4	5	6		12	1	2	3	4	5	6	7	8	9	10	11	12
18.2	New Language C+... , load feedback from SE's and Network; http(s); testing																								
	M20	1	2	3	4			10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
18.3	Providing ... ice for EMI-2																								
	M23	1	2	3			8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
18.4	Job queues mo... messaging. SE and Network interaction with FTS finalized; pilot service																								
	M30	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12

EUROPEAN MIDDLEWARE INITIATIVE

Integration
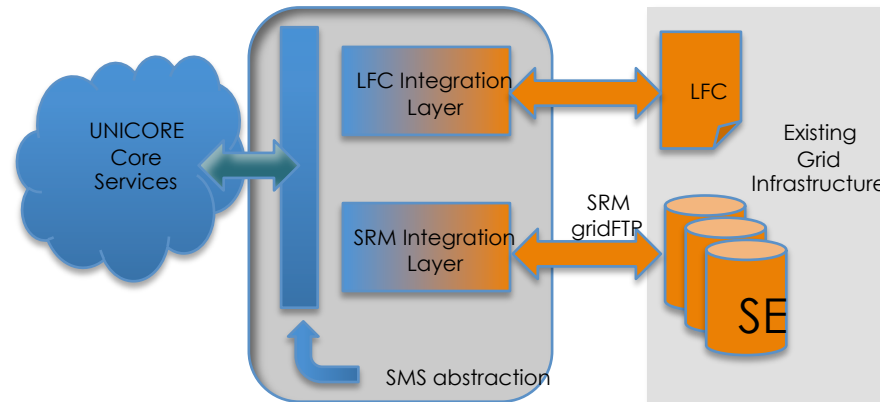
- ☐ ARGUS integration
- ☐ UNICORE integration
- ☐ EMI common data client library

UNICORE Integration

❑ UNICORE access to SRM and LFC

5.0	D7: Providing UNICORE access to SRM																							
	M22	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12

EMI common data client library

- ❑ EMI Common data library [Jon]
  - ➢ Merging common ARC and gLite data client library components to ... EMI Data client library.
  - ➢ **Using GFAL ...**
  - ➢ **1 ½ ho... ...ssion on Tuesday**

See Jon's Presentation

D5: Com... ...ss libraries

| M22 | | | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

...olutions

| | | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

...menting agreed solution

| M22 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

D15: Migrating to the EMI Data Access Libraries.

| M32 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

Internal testing of implementation

| M28 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

Testing of EMI components dependencies

| M32 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

EUROPEAN MIDDLEWARE INITIATIVE

Standardization

- ❑ SRM over SSL including delegation
- ❑ POSIX file access and integration into SRM (File://)
- ❑ WebDAV for file and catalogue access
- ❑ Storage Accounting Record implementation
- ❑ EMI Data clouds

Why Standardization in EMI-Data / EGI

❑ Goal of EMI : Support as many communities as possible with the same middle-ware stack. E.g. recommendation of the first EMI review : "Appoint a Strategy Director to the project (…) so he/she can build bridges between the various User Groups as well as deploying a more Pro-Active partnering approach with the other projects in the DCI ecosystem"

❑ Goal of EGI : Support as many communities as possible with the same infrastructure.

❑ Only standard data access and control mechanisms allow middle-ware providers and sites to support a variety of communities (VO's) at the same time with a minimum of effort. (sharing of resources)

❑ Neither EMI nor EGI can effort to support esoteric computing models.

EUROPEAN MIDDLEWARE INITIATIVE

NFS 4.1 / pNFS for EMI storage

❑ **Why pNFS**

   ❑ We no longer have to support proprietary data access protocols and libraries for EMI storage elements. (DMP, dCache and StoRM)

   ❑ EMI Data can compete with IBM, EMC and other big shots.

   ❑ Simplicity of mountable file system.

❑ **Status SE's**

   ❑ **DPM/pNFS beta : evaluation at UK sites and large instance in Taipei**

   ❑ dCache/pNFS evaluated in Germany and the US

   ❑ **dCache/pNFS in production at DESY for photon science**

   ❑ StoRM already POSIX, will become pNFS with GPFS supporting pNFS.

NFS 4.1 / pNFS for EMI storage

EUROPEAN MIDDLEWARE INITIATIVE

❑ **Status Linux clients**

   ❑ pNFS fully supported in 2.6.39

   ❑ Fedora 16 supports 2.6.39

   ❑ **Available in RH 6.2**

   ❑ 2.6.39 is ok for most communities, WLCG needs transition to SL 6 first, which is in the EMI
      pipeline anyway.

❑ **Evaluation results**

   ❑ See DPM presentation by Ricardo including first result on wide area bahaviour

   ❑ Plenty of results reported for dCache in previous conferences done at DESY/GridLab

❑ **Next steps**
   ❑ Wide area transfer evaluation
   ❑ Building federations with NFS 4.1 / pNFS
   ❑ Overcoming pNFS "vector read" deficiencies with ROOT.

EUROPEAN MIDDLEWARE INITIATIVE

HTTP/WebDAV/REST/ Cloud

Standardization

❑ **Objective : WebDAV front-end for EMI storage (SE's plus LFC)**

LFC

storage element

WEB DAV

storage element

storage element

Alejandro and Ricardo presented the first working prototype

Standardization

❑ **WebDAV front-end for EMI storage (SE's plus LFC)**

❑ **Possible Implementation**
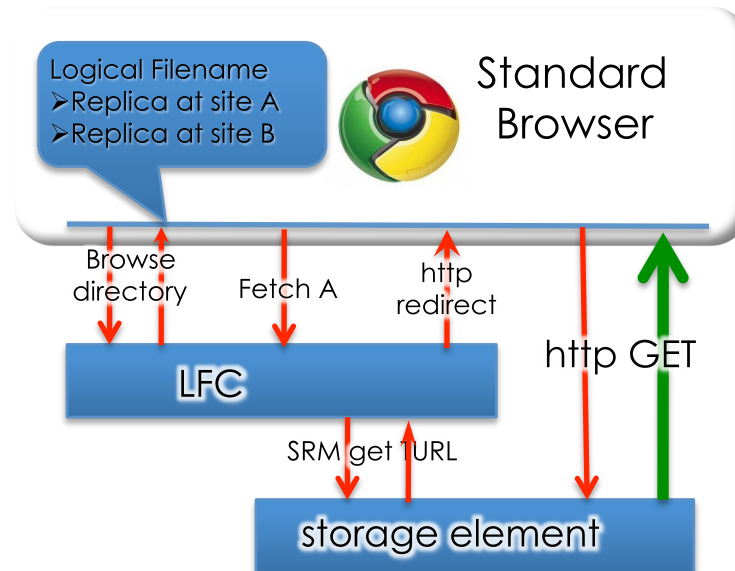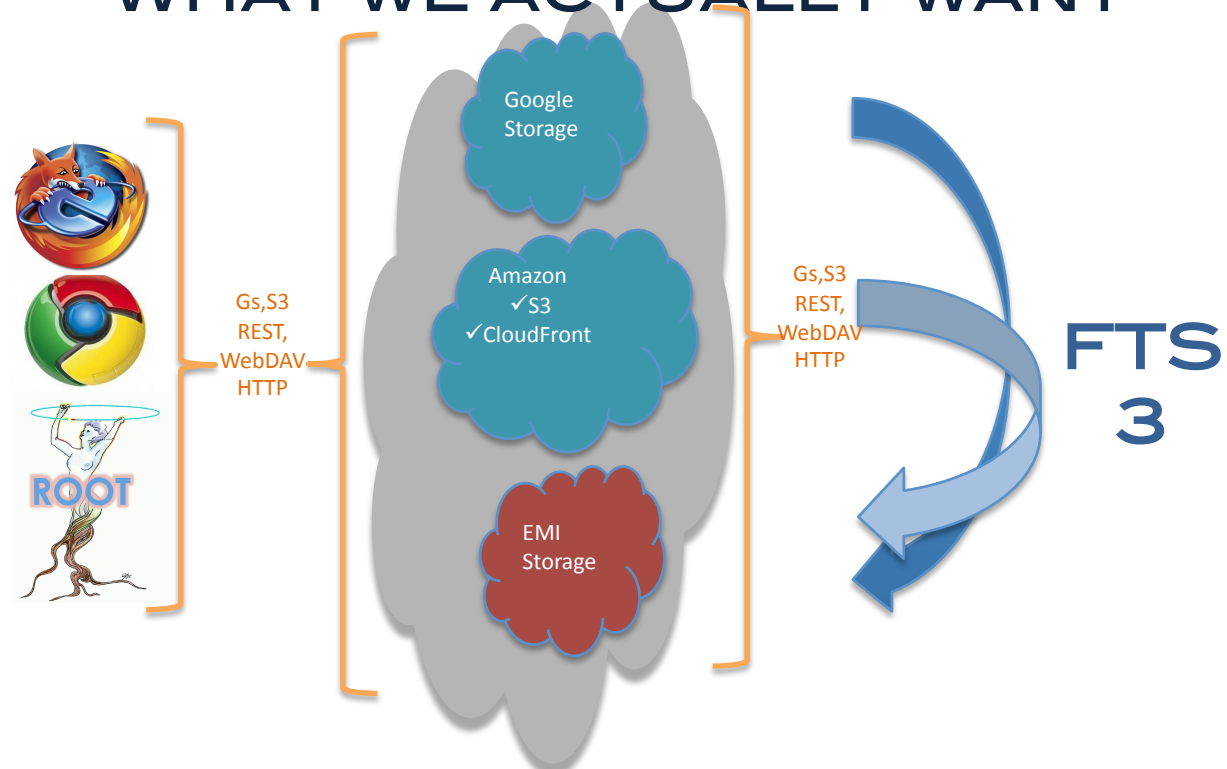
New EMI-http group

❑ EMI Data will propose a new activity : HTTP

   ❑ Propose an OpenSource WebDAV client, which covers most of our use cases.

   ❑ Contribute to that client if features are missing, which we need.

   ❑ Evaluate 3rd party copy with http/WebDAV for FTS-3

   ❑ EMI Objective : Investigates in

      ➢ GS (Google Storage)

      ➢ Amazon S3

      ➢ Amazon Cloud Front

   ❑ Stays in contact with ROOT people on different ROOT supported client interfaces.

      ➢ http done

      ➢ GS and S3 done

      ➢ http(s) resp. WebDAV missing

Summary

❑ EMI achieved essentially all our goals in the first year .

❑ We got a lot of feedback from EGI/WLCG which we integrated into the objectives of the second year.

❑ Too many objectives have been added to the work plan

❑ We observe the first significant delays in the plan for various reasons.

   EMI Data people are still very eager to achieve EMI goals and to do useful work, but for how how long ?

   ✓ Too many objectives

   ✓ Change in management of the product teams

   ✓ Only 1 ½ year to go and future of all this is not clear.

More summary

❑ Got a 'good' review with some interesting remarks on how to proceed:

"We should concentrate on commonalities among the communities"

❑ Which is simplified by focusing on standard protocols and procedures.

    ❑ POXIS file access

    ❑ http/WebDAV/Cloud storage

❑ Cloud is approaching EMI – Data, however strategy is still under

investigation. Was not discussed at all during the meeting.

❑ As many other important topics haven't been discussed.

❑ But, we are still doing ok.

Cheers

EMI is partially funded by the European Commission under Grant Agreement INFSO-RI-261611