Middleware Evolution in EMI

Francesco Giacomini (INFN/CNAF)
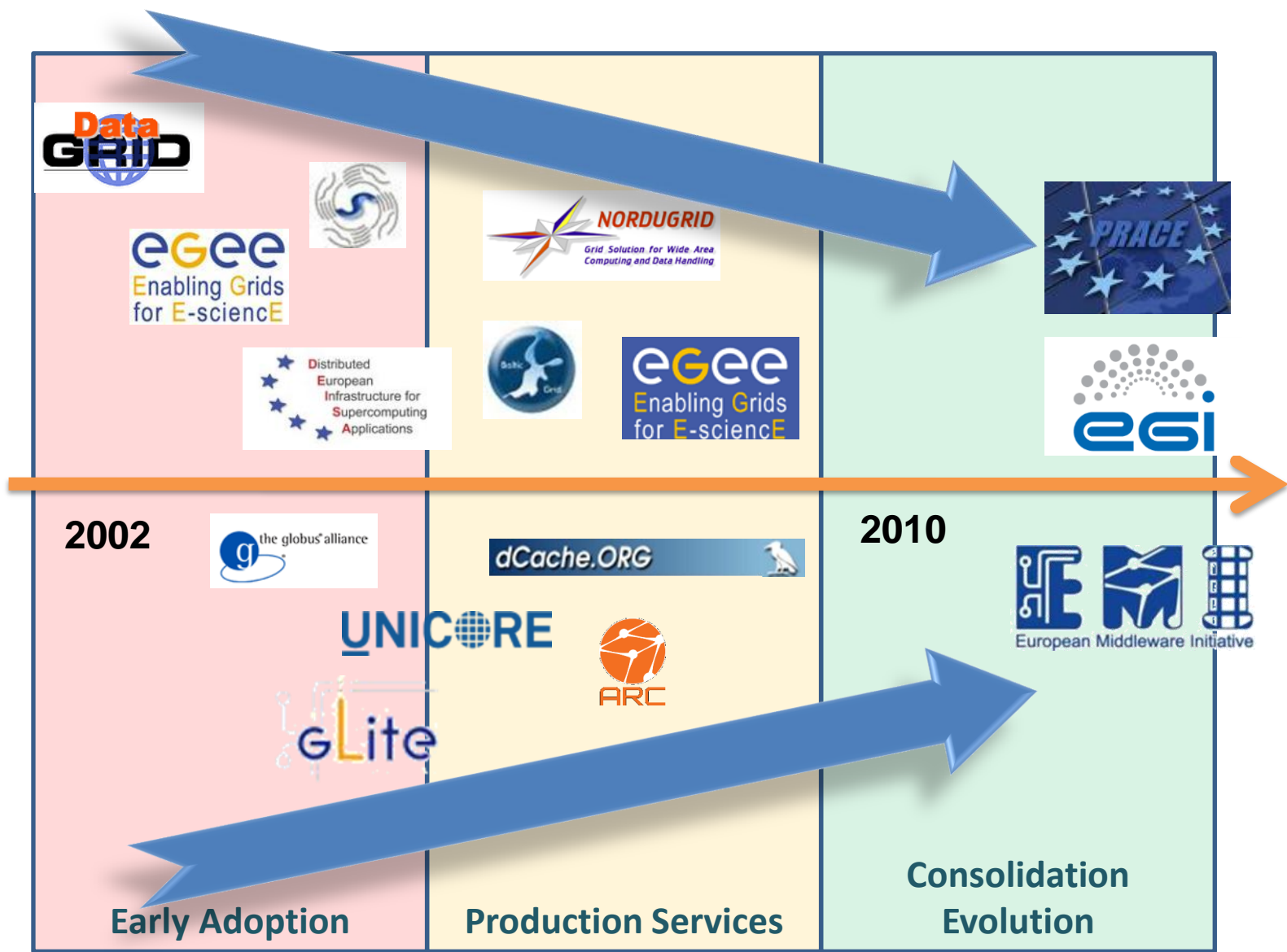
SuperB Computing Workshop

Ferrara, 4-7 July 2011
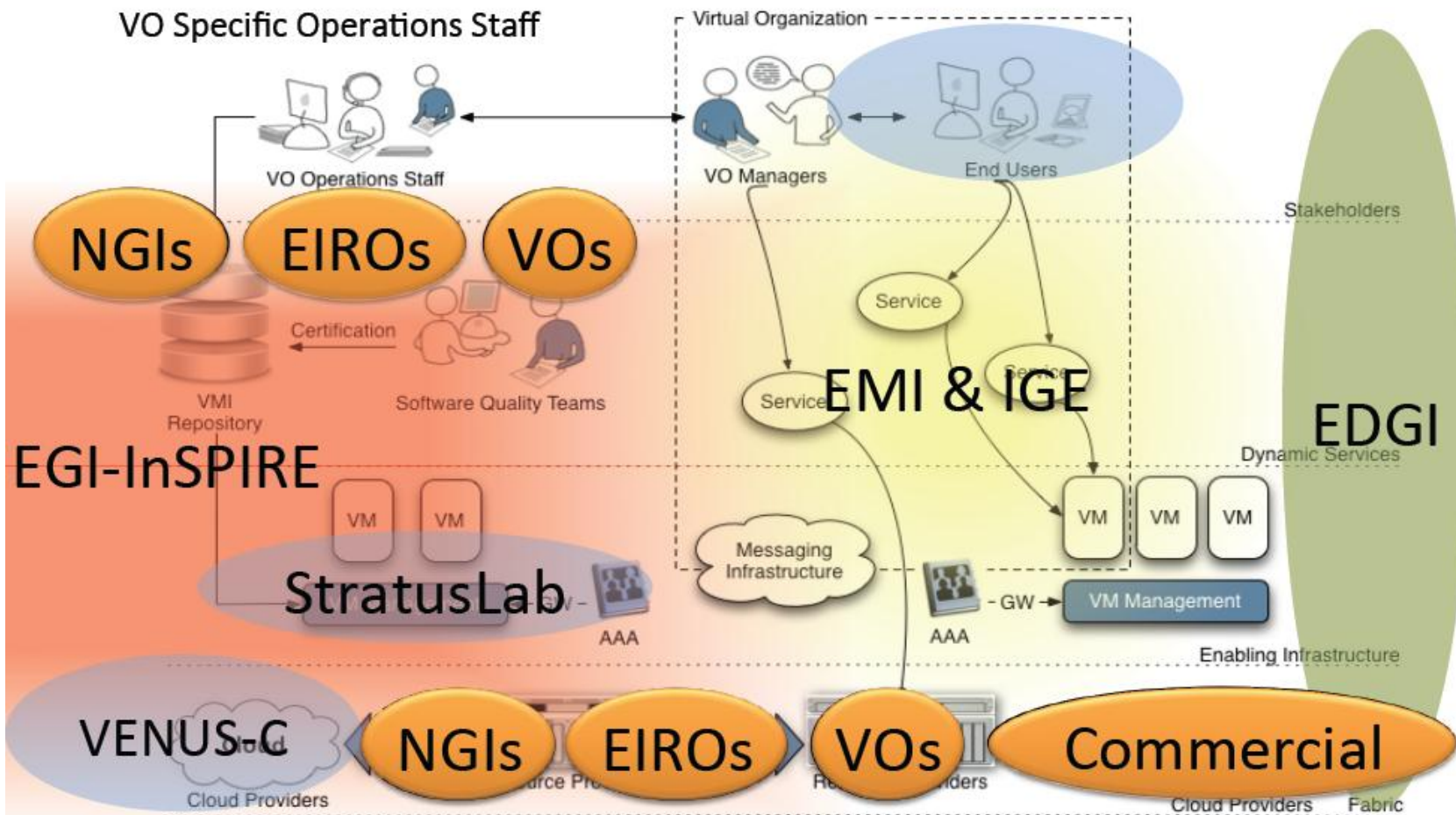
Outline

- What is EMI

- EMI 1 – Kebnekaise

- What's coming

EMI in the EU Grid Ecosystem

2002

2010

Early Adoption

Production Services

Consolidation Evolution

Primary Objectives

Consolidate

Simplify the middleware services by delivering a streamlined, coherent, tested and standard compliant distribution meeting the requirements of EGI, PRACE and other distributed computing infrastructures and their user communities.

Evolve

Increase the interoperability, manageability, usability and efficiency of the services by developing or integrating new functionality following existing and new requirements
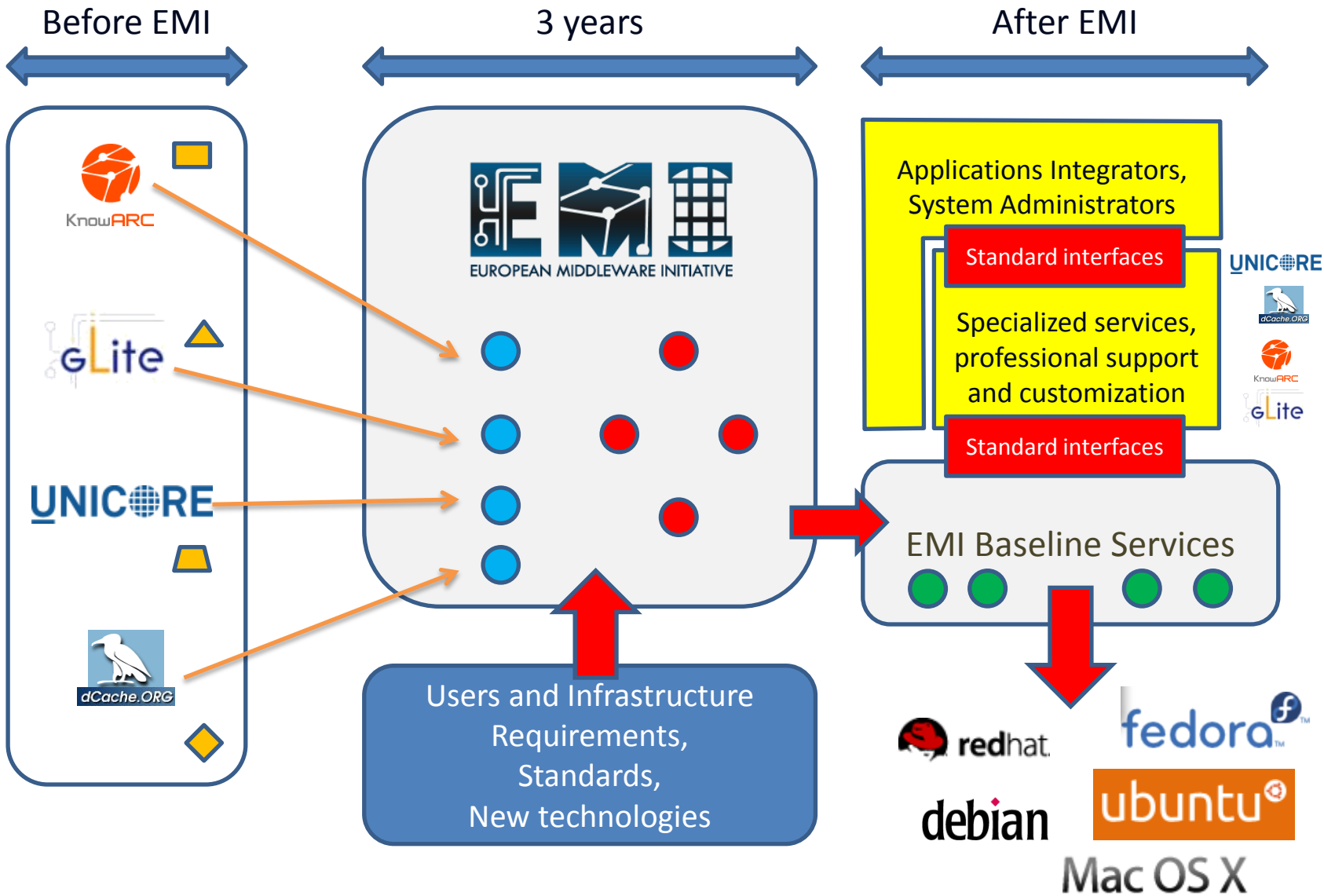
Support

Support DCIs operations by reactively and proactively supporting and maintaining the middleware distribution

Collaborate

Strengthen the participation and support for user communities in the definition and evolution of middleware services by promoting the EMI achievements, objectives and plans in collaboration with diverse programs and partners

EMI Middleware Evolution

Before EMI

3 years

After EMI

KnowARC

gLite

UNIC❂RE

dCache.ORG

EUROPEAN MIDDLEWARE INITIATIVE

Users and Infrastructure Requirements, Standards, New technologies

Applications Integrators, System Administrators

Standard interfaces

Specialized services, professional support and customization

Standard interfaces

EMI Baseline Services

UNIC❂RE

dCache.ORG

KnowARC

gLite

redhat.

fedora

debian

ubuntu

Mac OS X

EMI INFSO-RI-261611

Release Cycle

Requirements

Software & Services

Requirements
Technical Plans

Defines

Process definition

Release
Maintenance
Support

QA

Development
and Test Plans

Certifies

Process monitoring

Implements

Certification
Validation

Development
Testing
Certification

Release Candidate

EMI INFSO-RI-261611

EMI Release and Software Timeline

Start — EMI 1 — EMI 2 — EMI 3

Major releases

Supp. & Maint.

Support & Maintenance

Support & Maintenance

Support & Maintenance

01/05/2010   30/04/2011   30/04/2012   28/02/2013

EMI INFSO-RI-261611
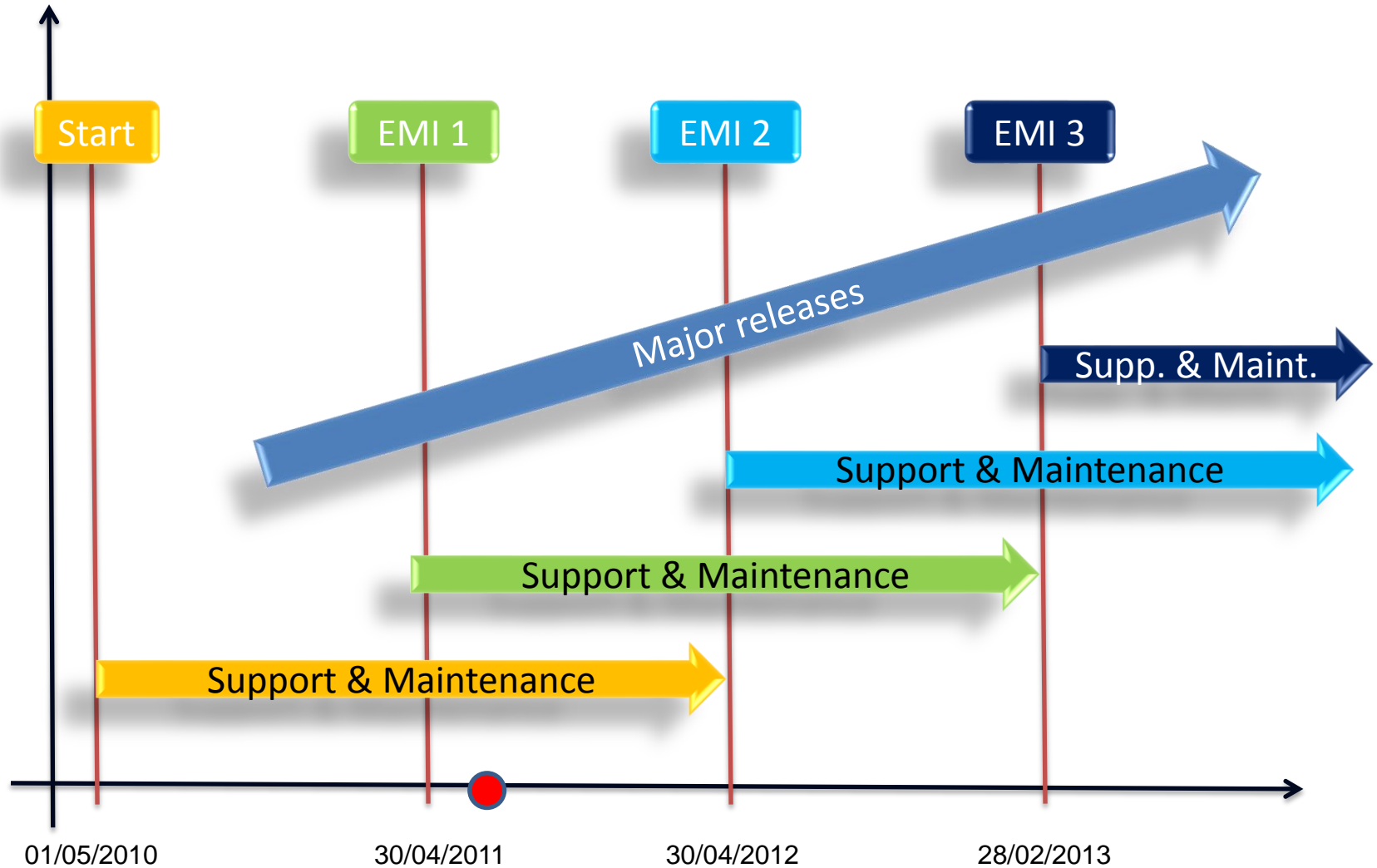
EMI 1 - Kebnekaise

Released on May 12th, 2011

- 54 products from ARC, dCache, gLite, UNICORE
- Scientific Linux 5 (augmented with EPEL5), 64 bit, fully supported platform
  - Selected products for SL5, 32 bit, available
  - Porting to SL6 starting soon
- 333 binary packages
  - 86% of source packages
  - Digitally signed
- 192 external dependencies
  - 165 from SL5/EPEL5, 27 managed by EMI

Technical Achievements

- New functionality
  - Server-side GLUE2
  - https in place of httpg for SRM
  - Initial support for https/webdav access in SEs
  - Posix access to storage , via GPFS (StoRM) or NFS (dCache, DPM)
  - Argus integration in CREAM
  - Web Service interface to VOMS
- Design:
  - EMI Authentication Library
  - EMI Registry
- Agreements:
  - EMI Execution Service
  - Storage Accounting Record
  - GSI replacement
  - SAML profile for common attributes
  - XACML profile for attribute-based policies
  - Messaging use cases

Towards EMI 2 - Matterhorn

- Compute:
  - Implementation of the EMI Execution Service
- Data:
  - EMI Data Access Library design and implementation
  - Storage Element and catalogue synchronization
- Security:
  - Simplified management of security credentials (AAI)
  - EMI Authentication Library implementation
  - EMI delegation agreement
  - Full Argus integration in Compute and Data services
- Infrastructure:
  - EMI service registry implementation
  - Cloud strategy
  - Delivery of service monitoring via NAGIOS
  - New accounting records in compute and storage
  - Full GLUE2 support in compute and data services

EMI INFSO-RI-261611

Thank you

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