



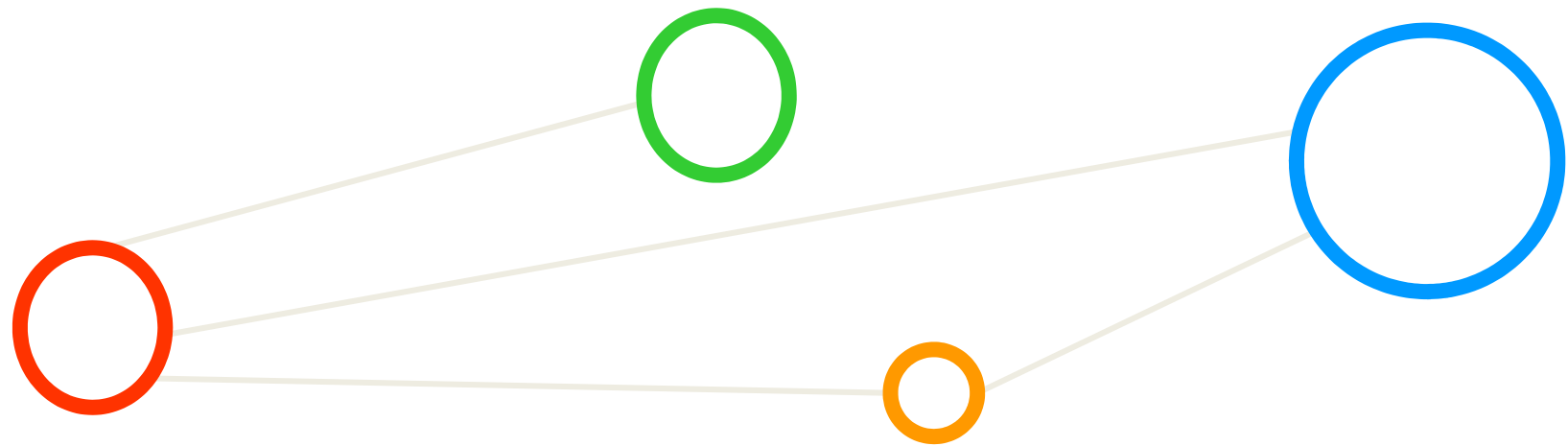
EMI Standard Adoptions

Morris Riedel
Jülich Supercomputing Centre
EMI Strategic Director

Open Grid Forum 32
Salt Lake City, 15th July 2011



Outline



Outline

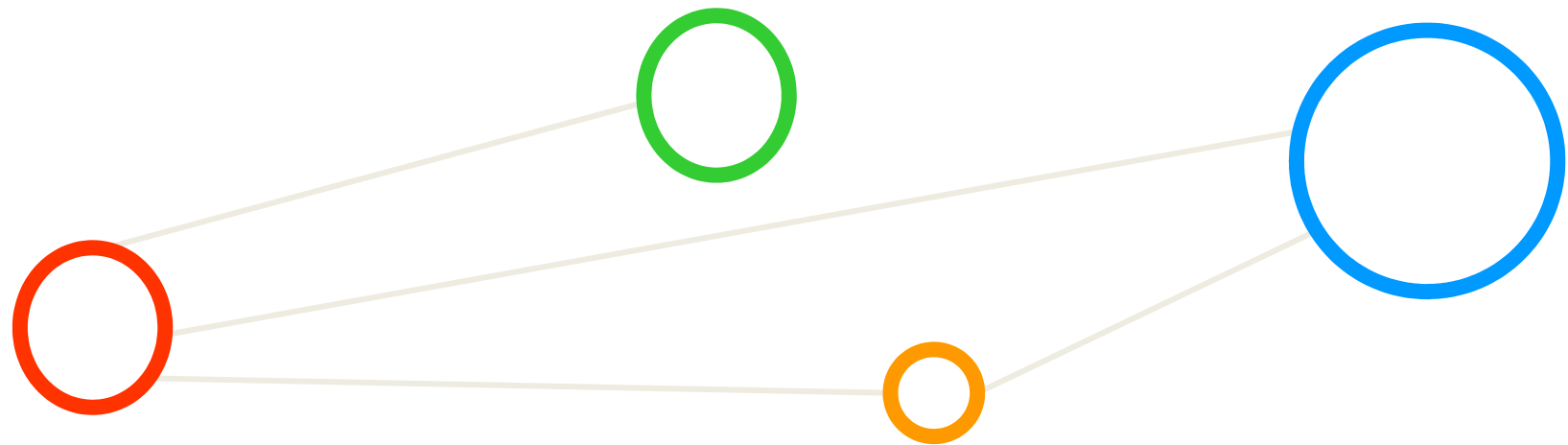


- Standard Adoptions
 - Overview
- Standards in Use
 - Major Services in Technical Areas
- Participation in OGF
 - Adoptions & Positions
- Outlook
 - Increased Activities

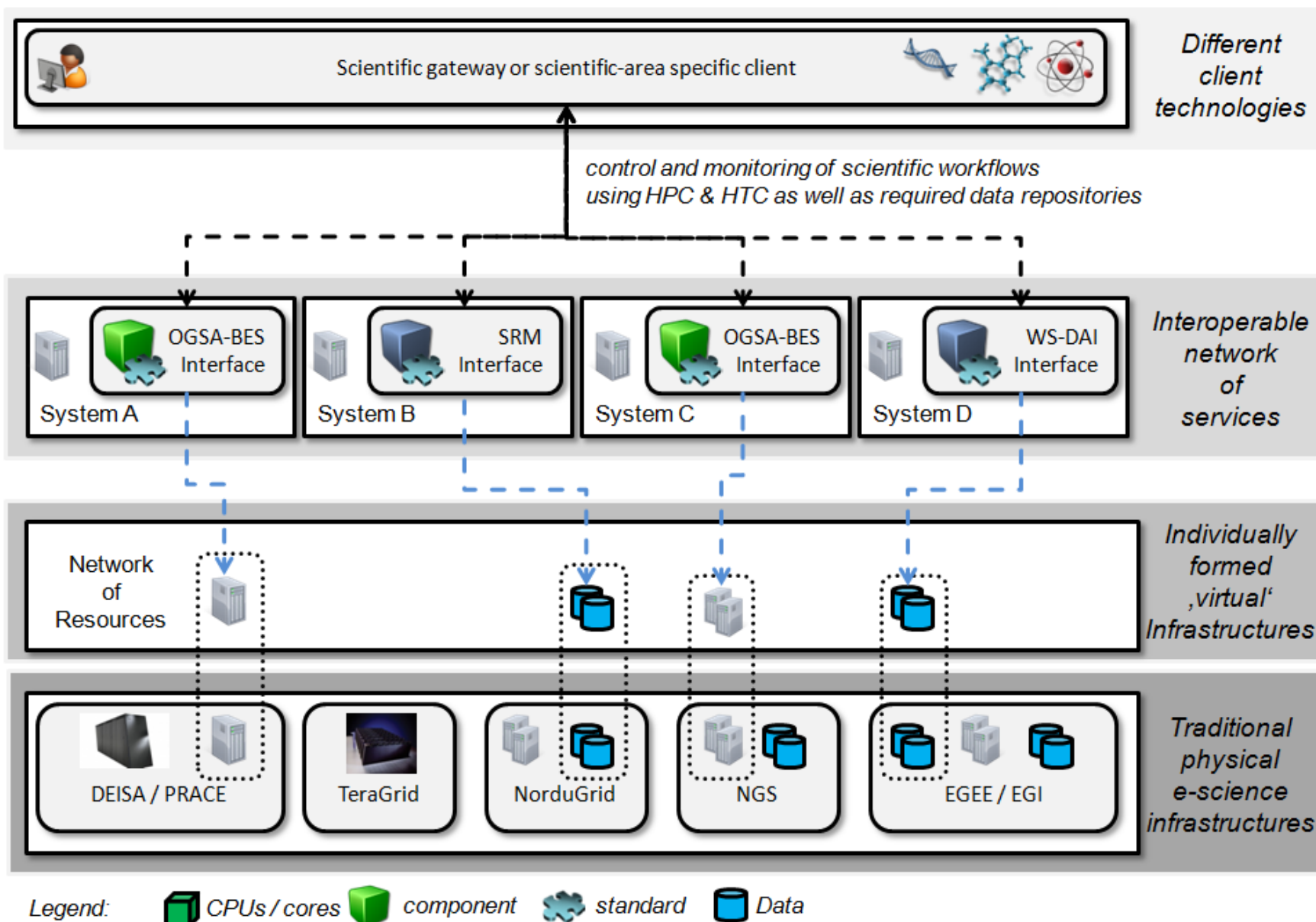


[1] www.eu-emi.eu

Standard Adoptions Overview



Standardization to access multiple DCIs



Standardization Adoptions at a Glance

	A-REX	ARC Info System	ARGUS	BDII	CREAM	dCache	DPM	EGIS	FIS	LFC	SAGA-SD-RAL	SToRM	UNICORE	WMS	VOMS
PGI (EMI-ES)	Y2				Y2								Y2	Y2	
GLUE2			Y2					Y2						Y1	Y2
GridFTP															
HTTPS (not GSI)	Y3				Y3	Y3	Y3					Y3		Y3	
JSDL															
NFS4.1 / pNFS															
OGSA-BES	Y3				Y3										
POSIX/IO							Y1								
SAGA-ISN															
SAML															
SRM													Y2		
UR (Compute)	Y3				Y3								Y3		
UR (Storage)						Y2	Y2		Y2			Y2			
WebDAV							Y2					Y2			
WSRF															
XACML	Y2														

Major Standard Adoptions of Services



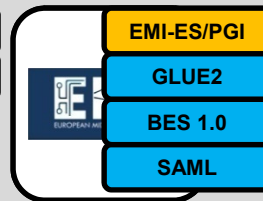
WMS (Broker)



CREAM CE



ARC CE

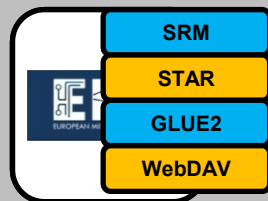


UNICORE

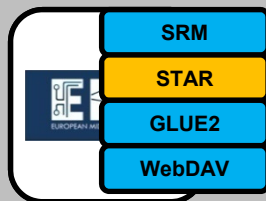


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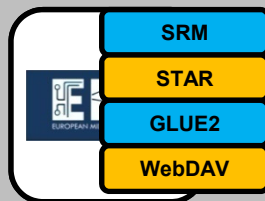
Major
Compute
Services



DPM SE



dCache SE

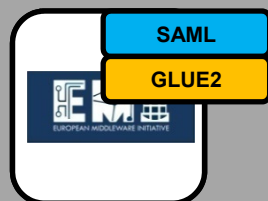


StoRM

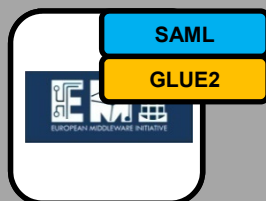


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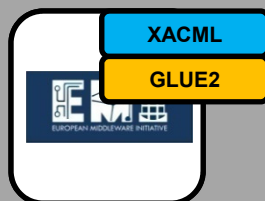
Major
Data
Services



VOMS



UVOS



ARGUS



More...

Major
Security
Services



BDII



More...

Major
Infrastructure
Services

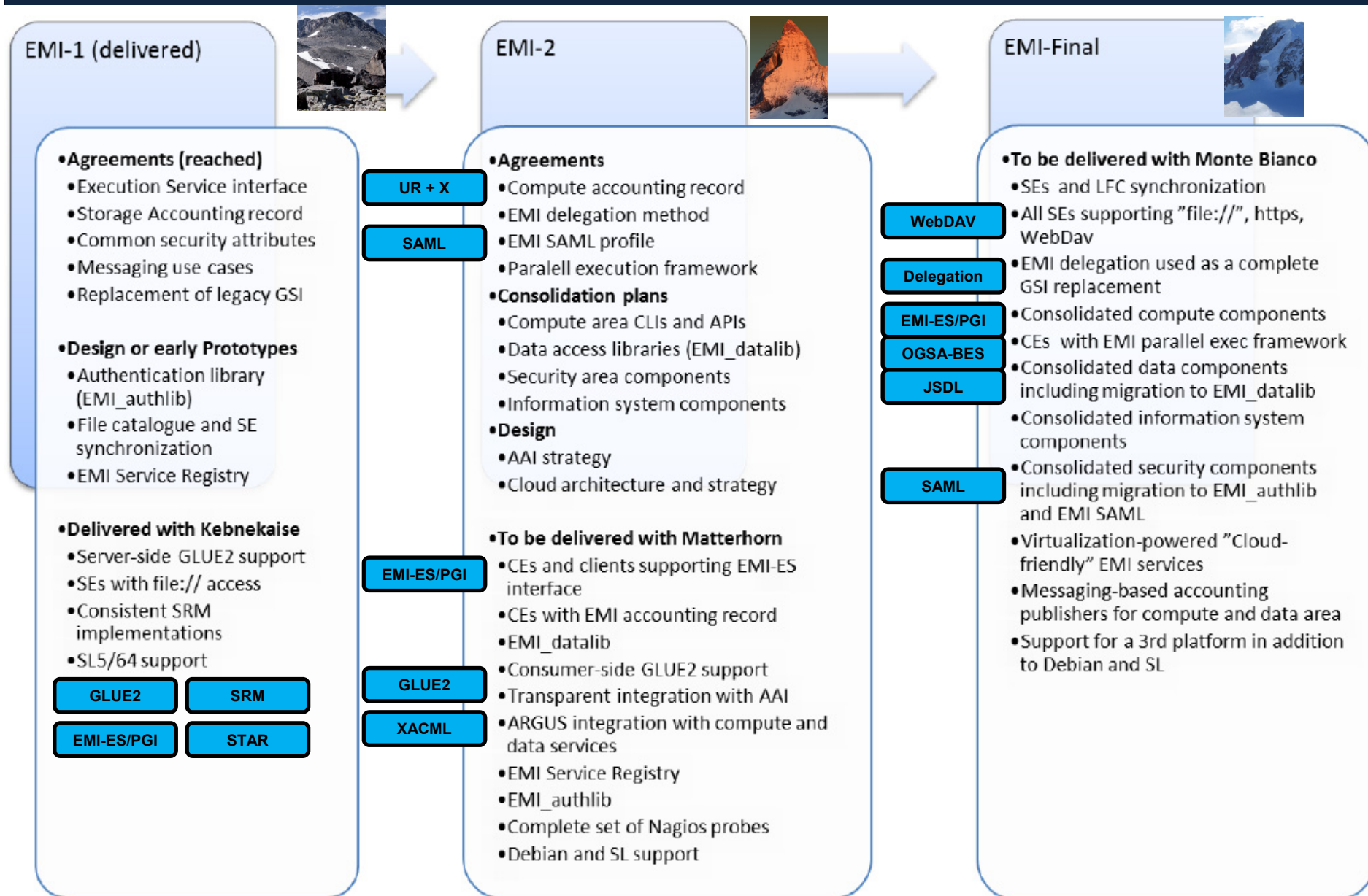
In Progress

Adopted

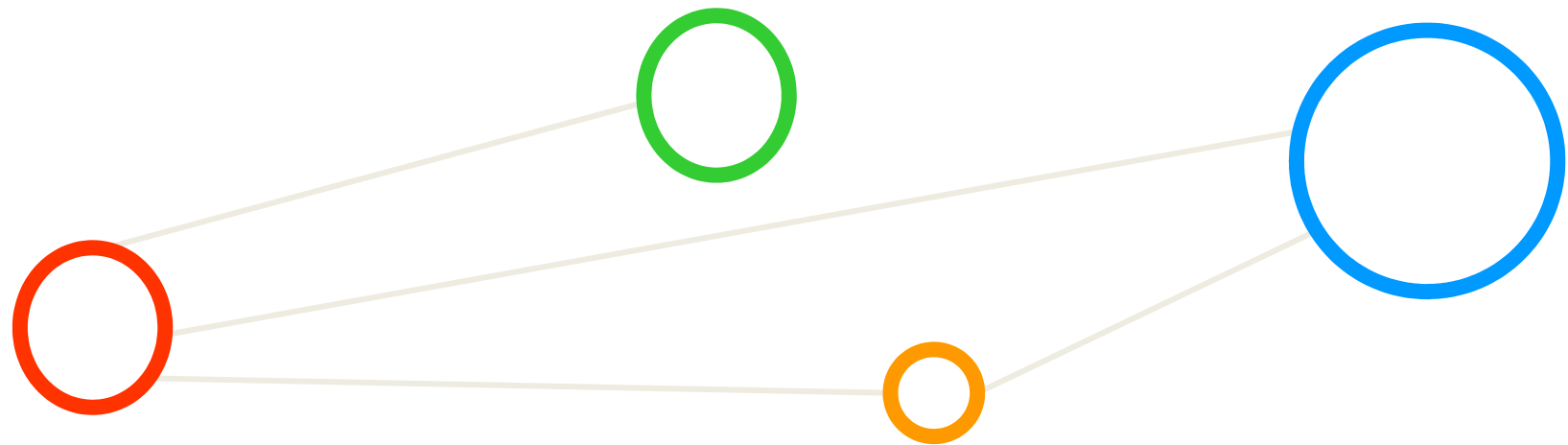
Middleware Roadmap At a glance



Standards in Context of EMI Roadmap



Standards in Use



Major Standard Adoptions of Services



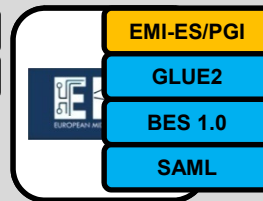
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CREAM CE



ARC CE

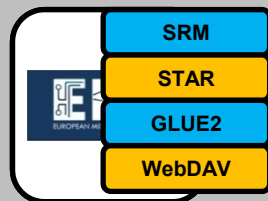


UNICORE

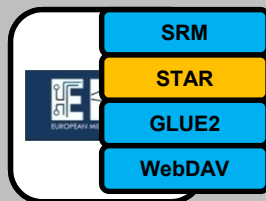


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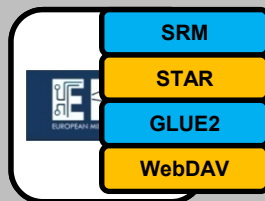
Major
Compute
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dCache SE

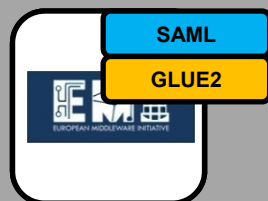


StoRM

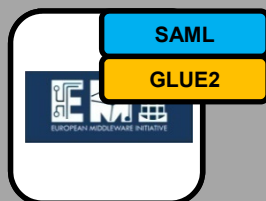


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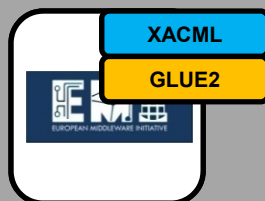
Major
Data
Services



VOMS



UVOS



ARGUS



More...

Major
Security
Services



BDII



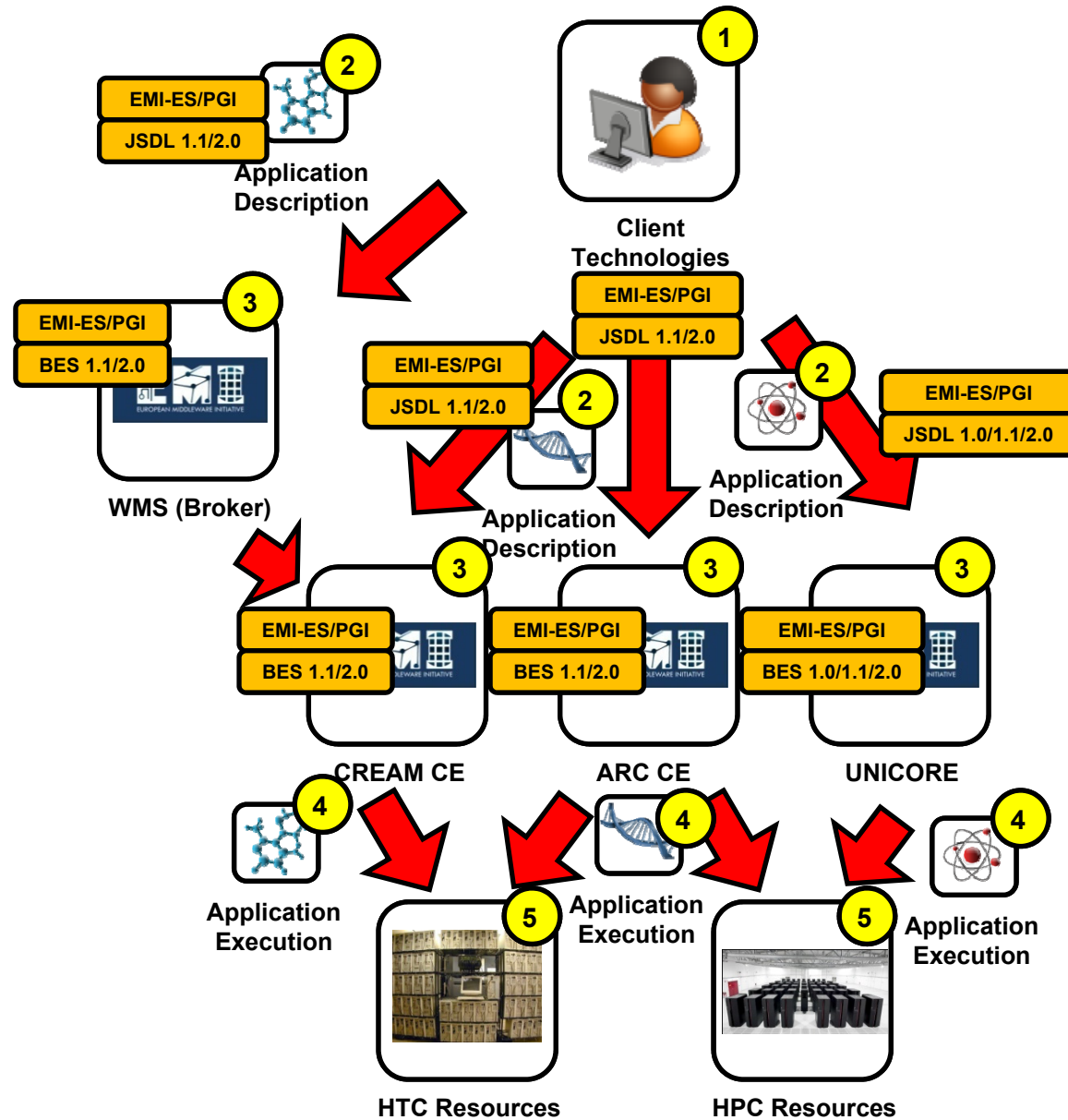
More...

Major
Infrastructure
Services

In Progress

Adopted

EMI Services for Compute Resources



Major Standard Adoptions of Services



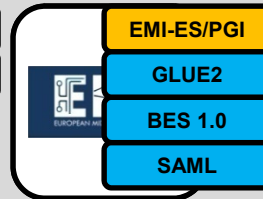
WMS (Broker)



CREAM CE



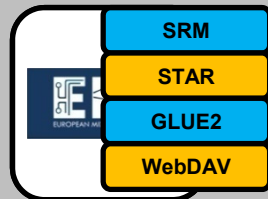
ARC CE



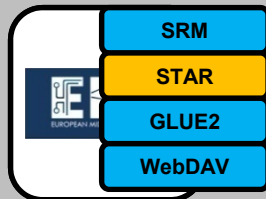
UNICORE



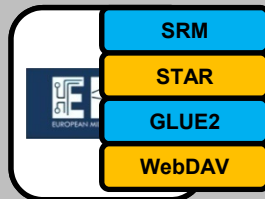
Major
Compute
Services



DPM SE



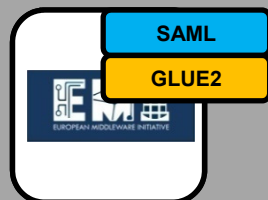
dCache SE



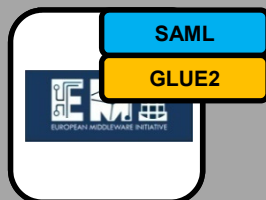
StoRM



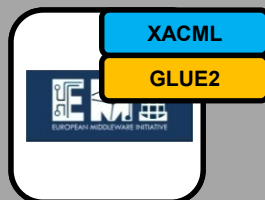
Major
Data
Services



VOMS



UVOS



ARGUS



Major
Security
Services



BDII



Major
Infrastructure
Services

In Progress

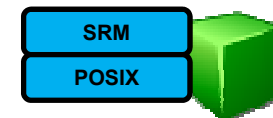
Adopted

New Functionality: File:// Access



Enable effective and efficient operations of the DCIs like EGI and PRACE by improving the existing middleware services with new required functionality focusing on usability, manageability and service operations... [DOW]

- Storage elements with file:// access in EMI 1
 - NFS clients are able to use EMI SEs in an easy manner
 - Support for NFS4.1/pNFS makes SEs industry competitors
 - dCache supports NFS4.1/pNFS (production)
 - DPM supports NFS4.1/pNFS (experimentally)
 - StoRM supports this functionality via the corresponding underlying file system if available

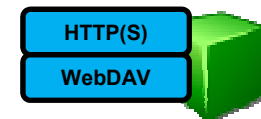


New Functionality: HTTP & WebDAV SEs

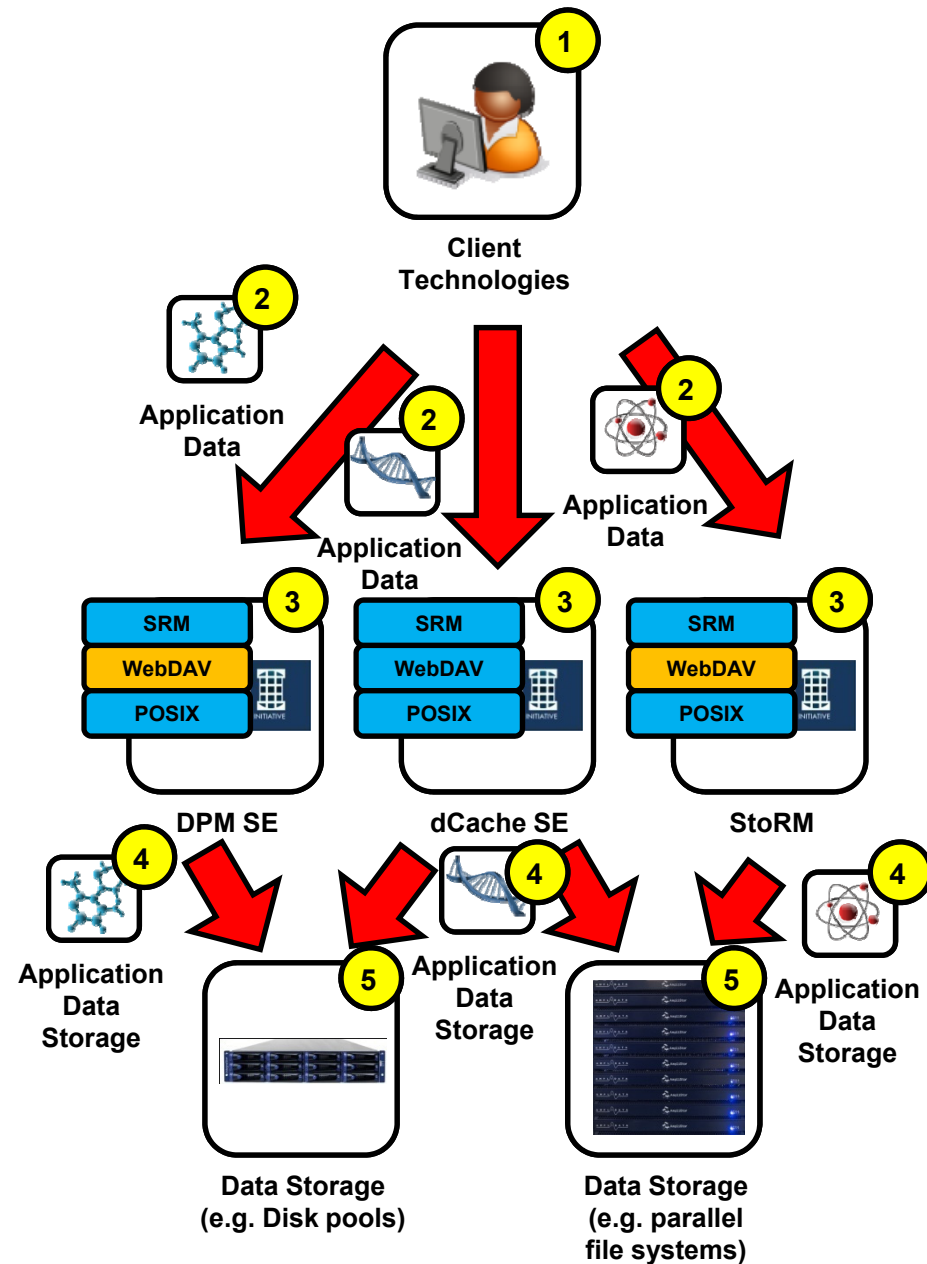


Enable effective and efficient operations of the DCIs like EGI and PRACE by improving the existing middleware services with new required functionality focusing on usability, manageability and service operations... [DOW]

- EMI 1 Storage elements support HTTP(S) (+ WebDAV)
 - HTTP(S) as most widely used standards in the Web & DCIs
 - Adoption of WebDAV makes EMI SEs 'fit for business'
 - dCache offers HTTP(S) (and additionally WebDAV) in EMI 1
 - DPM offers HTTP(S) in EMI 1
 - StoRM offers support very soon (next release)
- Complete adoptions with WebDAV across storage elements planned for EMI 2



EMI Services for Data Resources



Major Standard Adoptions of Services



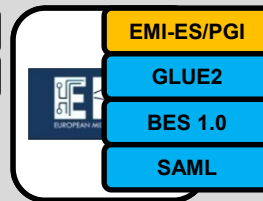
WMS (Broker)



CREAM CE



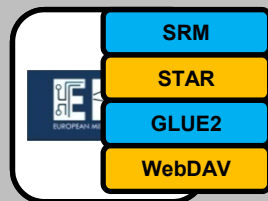
ARC CE



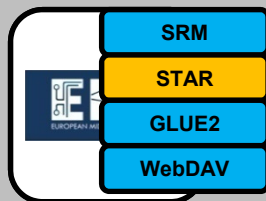
UNICORE



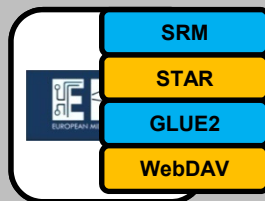
Major
Compute
Services



DPM SE



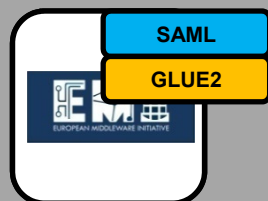
dCache SE



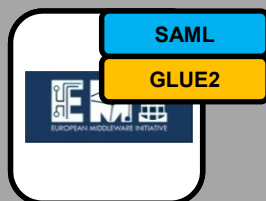
StoRM



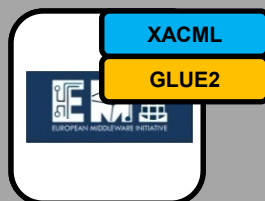
Major
Data
Services



VOMS



UVOS



ARGUS



Major
Security
Services



BDII



Major
Infrastructure
Services

In Progress

Adopted

New Security Developments

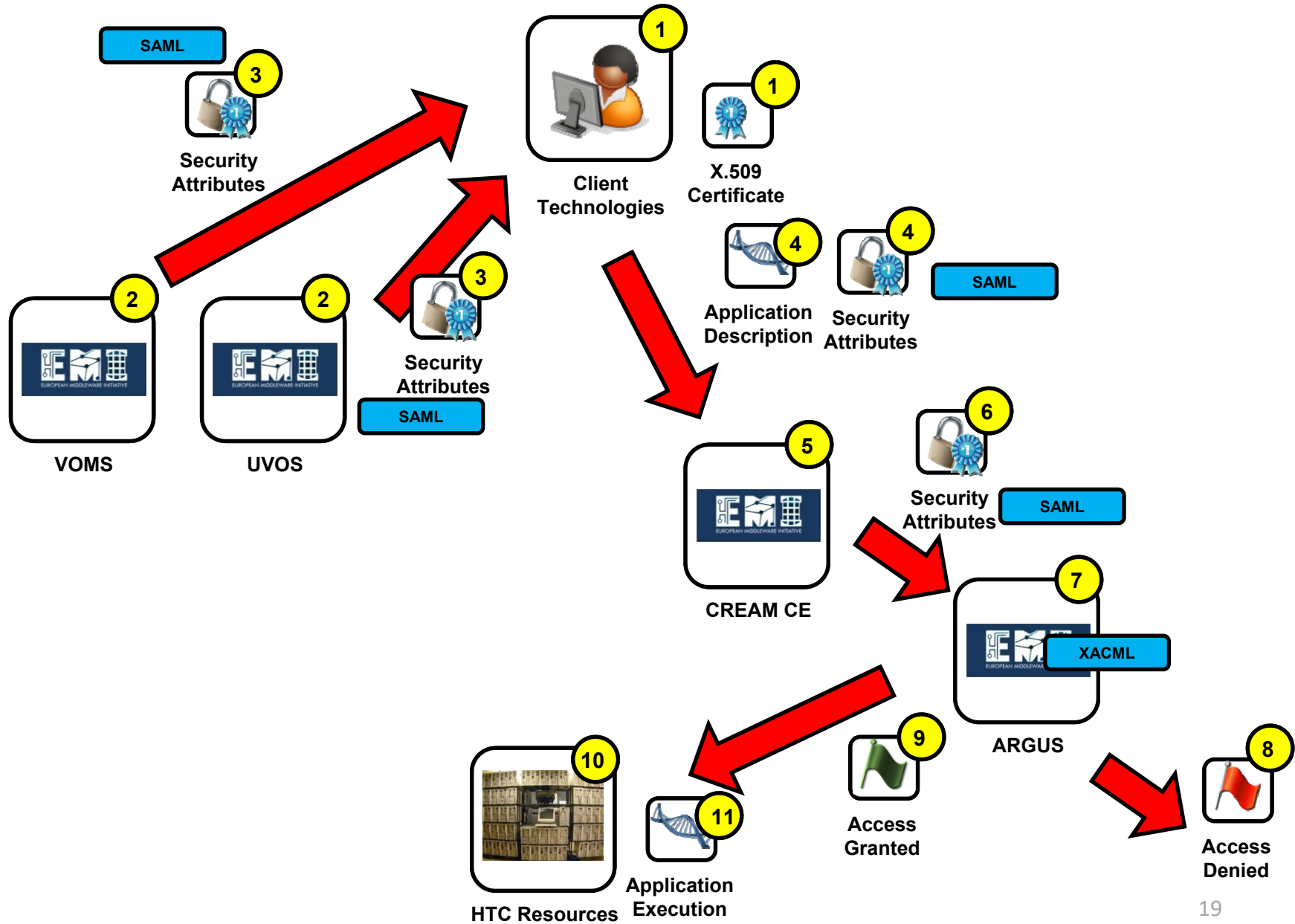


Enable effective and efficient operations of the DCIs like EGI and PRACE by improving the existing middleware services with new required functionality focusing on usability, manageability and service operations... [DOW]

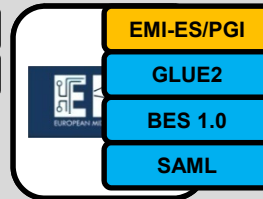
- VOMS 2.0 / VOMS-Admin
 - SAML-based access (VOMS-admin)
 - RESTful interface to obtain attributes
 - GSI removal
 - Good progress with VOMRS convergence
- ARGUS 1.2
 - CREAM CE & UNICORE work together ARGUS
 - ARGUS PDP handler prototype for ARC service container
 - Blacklisting already used by DPM, dCache and LFC



EMI Security Services

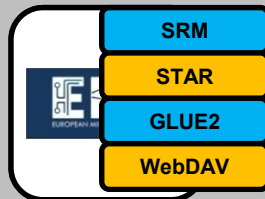
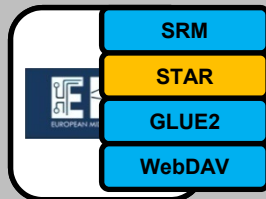
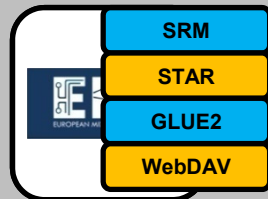


Major Standard Adoptions of Services



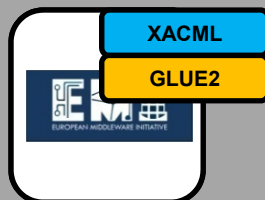
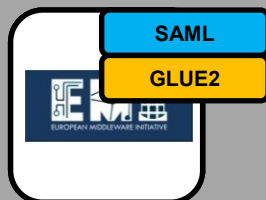
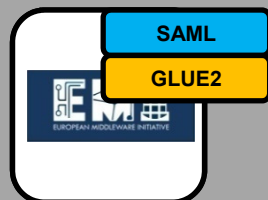
*Major
Compute
Services*

More...



*Major
Data
Services*

More...



*Major
Security
Services*

More...



*Major
Infrastructure
Services*

More...

In Progress

Adopted

New Functionality: GLUE2

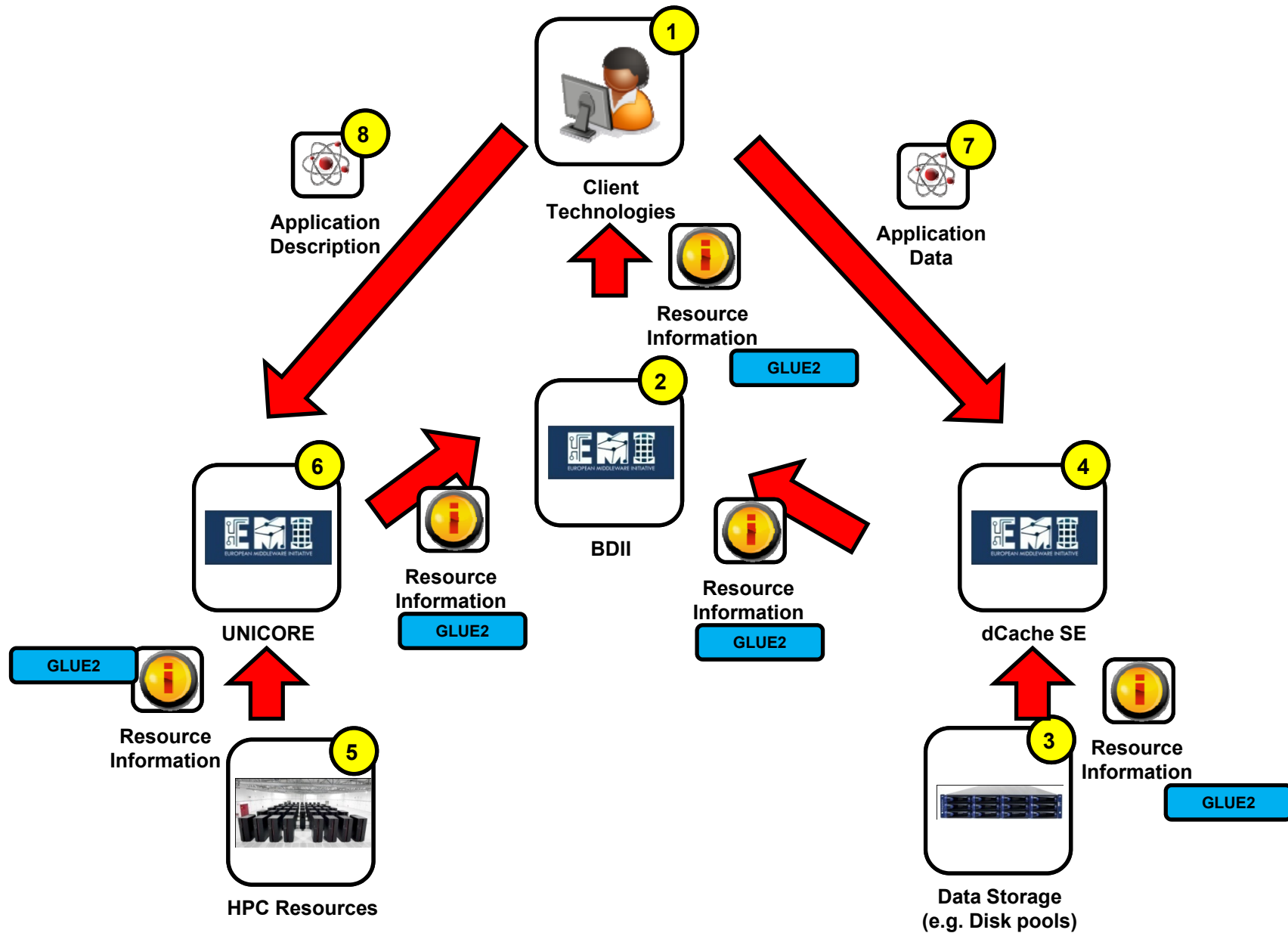


Enable effective and efficient operations of the DCIs like EGI and PRACE by improving the existing middleware services with new required functionality focusing on usability, manageability and service operations... [DOW]

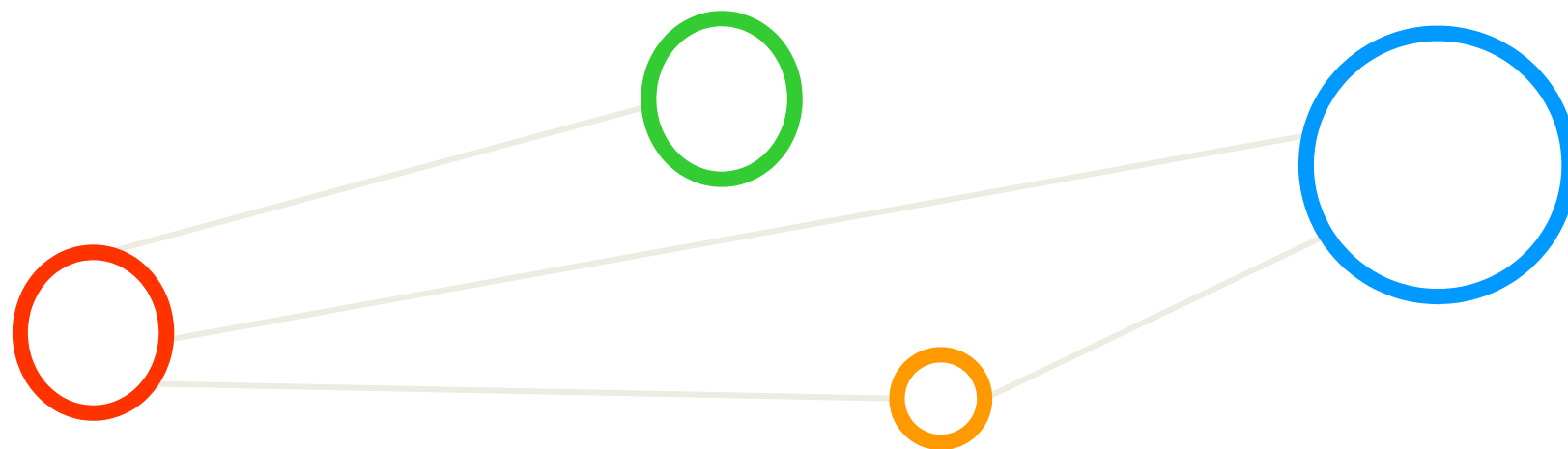
- Consistent information ecosystem in EMI 1
 - Avoids adapter-based transformations & semantic loss across EMI components; easier operations in EGI
 - Decision to use standard-based information model GLUE2
 - LDAP and XML renderings
 - GLUE2 support in job management services
 - CREAM CE, ARC CE, and UNICORE
 - SEs publishing initial GLUE2 storage information
 - dCache, DPM, and StoRM
 - Production support for GLUE1.3 kept where available



EMI Infrastructure Services



Participation in OGF



Participation in OGF (1)



Guide and validate the open standard adoption process in EMI and participate in standardization bodies in order to promote and drive standards that are relevant to the EMI project ... [DOW]

- Grid Interoperation Now (GIN) CG
 - Early cooperation in GIN led to the creation of EMI
 - EMI and international Grid interoperability
 - Chair position
- Production Grid Infrastructure (PGI) WG
 - EMI input via EMI ES around job management
 - Production experience feedback to OGSA-BES 1.1/2.0 and JSDL 1.1/2.0
 - Chair position



Participation in OGF (2)



Guide and validate the open standard adoption process in EMI and participate in standardization bodies in order to promote and drive standards that are relevant to the EMI project ... [DOW]

- Usage Record (UR) WG
 - EMI input via storage accounting StAR specification
 - Compute experience contributions to UR 2.0
 - Chair position
- Storage Resource Manager (SRM) WG
 - EMI provides implementation feedback from three major adoptions
 - EMI provides production experience through use within production Grids over a long period of time



Participation in OGF (3)



Guide and validate the open standard adoption process in EMI and participate in standardization bodies in order to promote and drive standards that are relevant to the EMI project ... [DOW]

- GLUE2 WG
 - EMI implements specs and provides feedback & XML rendering
 - Chair position(s)
- Job Submission and Description Language (JSDL)
 - Key contributions to JSDL 1.1/2.0 via PGI
 - Several implementations in EMI exists
- OGSA – Basic Execution Services (BES)
 - Key contributions to OGSA-BES 1.1/2.0 via PGI
 - Several implementations in EMI exists



Participation in OGF (4)

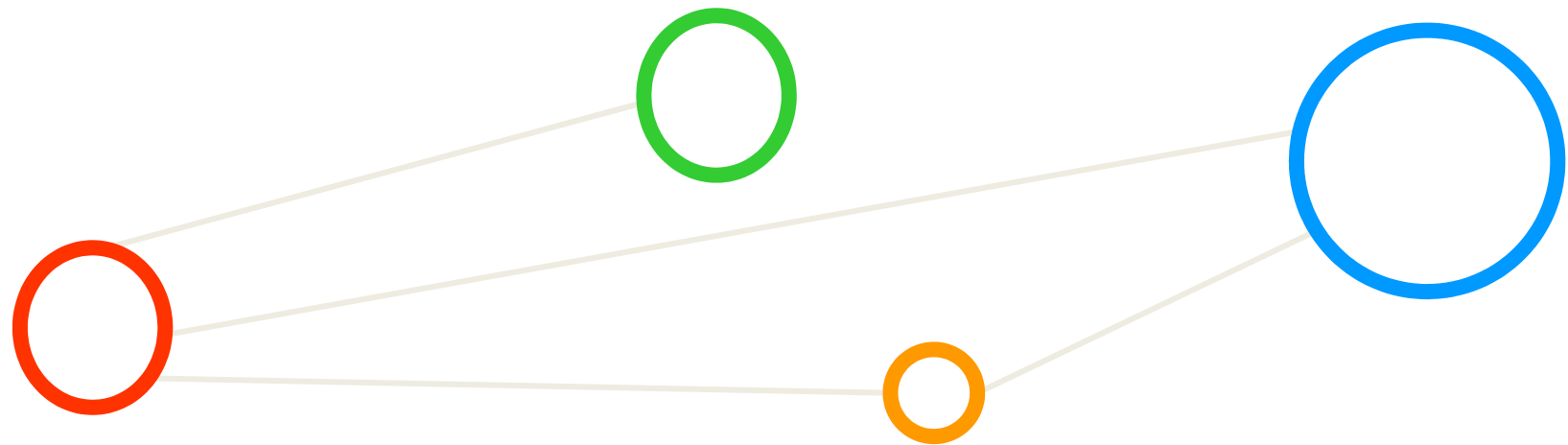


Guide and validate the open standard adoption process in EMI and participate in standardization bodies in order to promote and drive standards that are relevant to the EMI project ... [DOW]

- Emerging Delegation Working Group
 - Key contributions and driver of delegation standardization attempt
- Open Cloud Computing Interface (OCCI)
 - Observation and evaluation for use in context of EMI
- Others in consideration
 - DCI Federation
 - DRMAAv2



Outlook



Increased Activities



Guide and validate the open standard adoption process in EMI and participate in standardization bodies in order to promote and drive standards that are relevant to the EMI project ... [DOW]

- EMI Year 1
 - Building a good ‘basement’ of collaboration between traditional middleware partners with different interests
 - Aligning views and concepts of traditional middleware partners with standardization studies
 - Focus on software integration issues rather than direct standardization activities
- EMI Year 2 and 3
 - Increased Standard adoptions & product harmonization
 - More efforts and new roles for supporting standardization



Thank you

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

Participation in OGF (4)



Guide and validate the open standard adoption process in EMI and participate in standardization bodies in order to promote and drive standards that are relevant to the EMI project ... [DOW]

- NGI requirements
 - Counter Example: Which one have not been taken on board

