



A brief history of gLite Past, present and future

Maria Alandes Pradillo, CERN ESAC E-Science Workshop '10

www.eu-egee.org



EGEE-II INFSO-RI-031688

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- What is gLite?
- Origins of gLite
- gLite architecture
- gLite tools
- gLite releases
- gLite development process
- gLite deployment on EGEE
- User communities
- The future of gLite
- Summary
- Some links



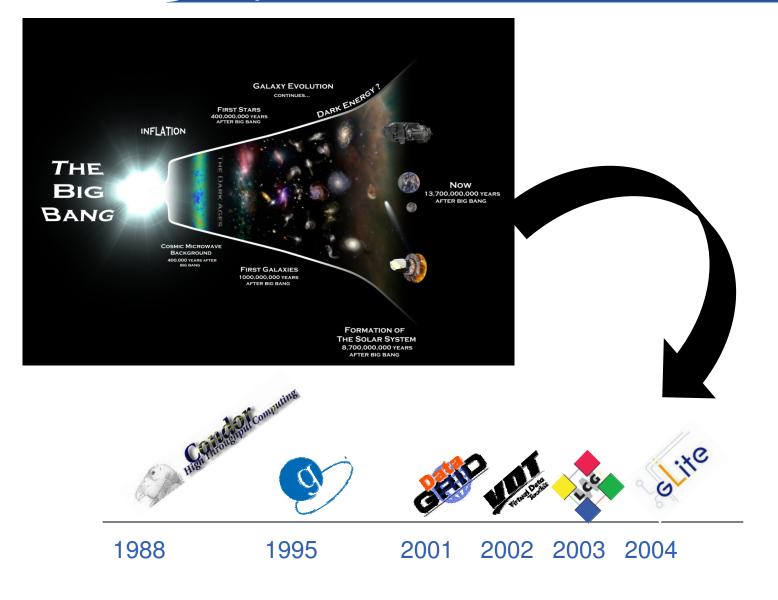
- Middleware for grid computing
- Developed, integrated, certified and distributed by EGEE
- Developed by more than 80 people in 12 different institutes
- Deployed in more than 250 computer centers in over 30 countries
- Open source
- Scientific Linux





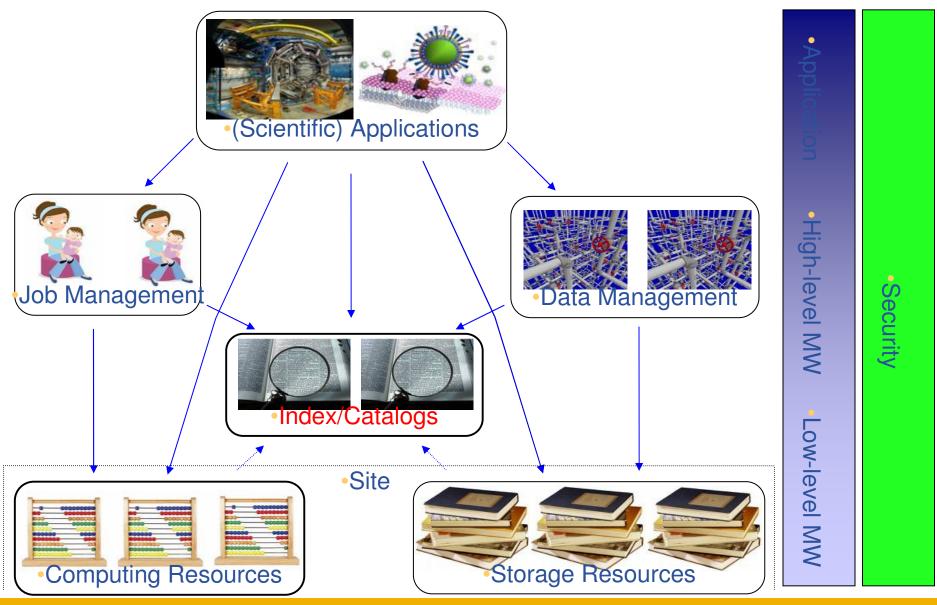
Origins of gLite

Enabling Grids for E-sciencE



gLite architecture

Enabling Grids for E-sciencE

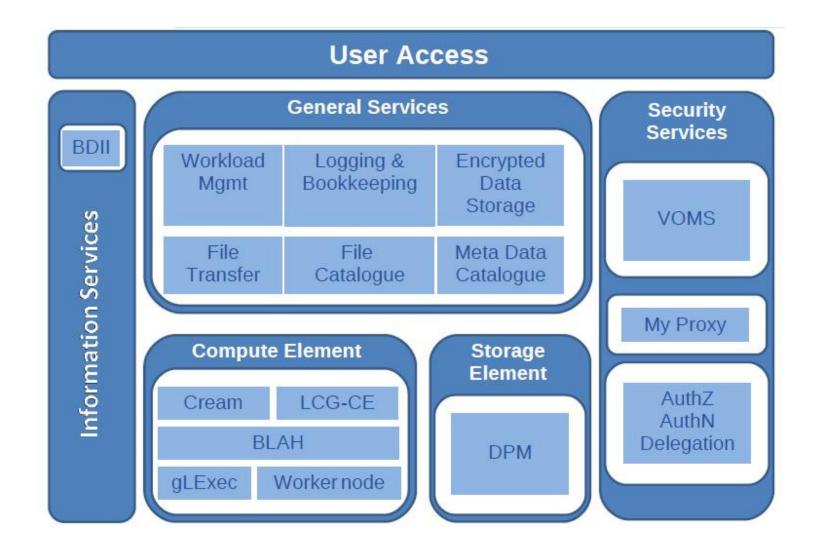


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gLite architecture

- General services
 - Logging and bookeeping: LB
 - File catalogs: LFC, Fireman
 - Data management: GFAL, lcg_utils, gLitel/O
 - Data transfer: FTS
 - Metadata catalogs: AMGA, Hydra
 - Workload management: WMS
- Information Services
 - BDII, MDS, Glue Schema, RGMA
- Security services (Based on GSI from globus)
 - Argus, VOMS, SCAS, MyProxy



gLite architecture

Compute Element

- WN, CREAM, BLAH, lcg-CE, glite-CE
- gLexec
- Storage Element
 - DPM
- Accounting
 - APEL, DGAS
- User Access
 - CLI: UI, VOBOX
 - API

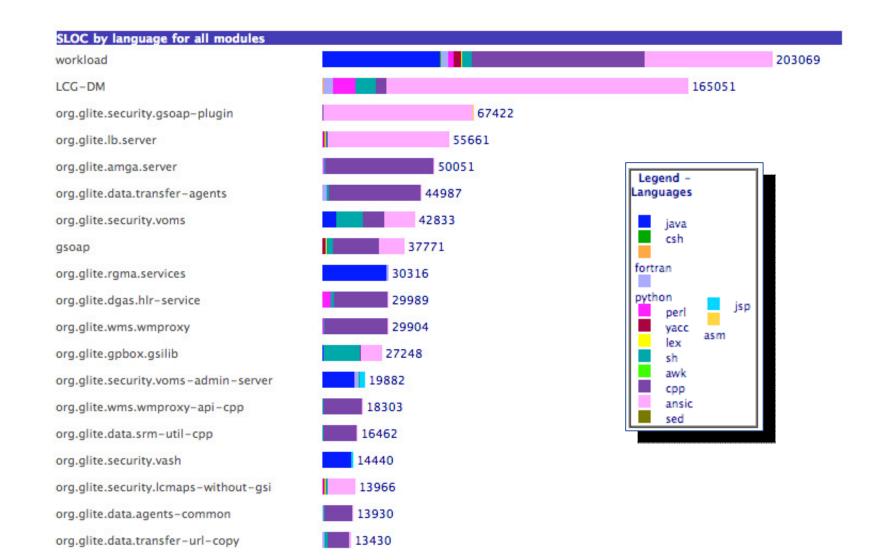


- ETICS is the SW configuration management system
- Savannah is the bug tracking system
- YAIM is the tool we use to configure gLite

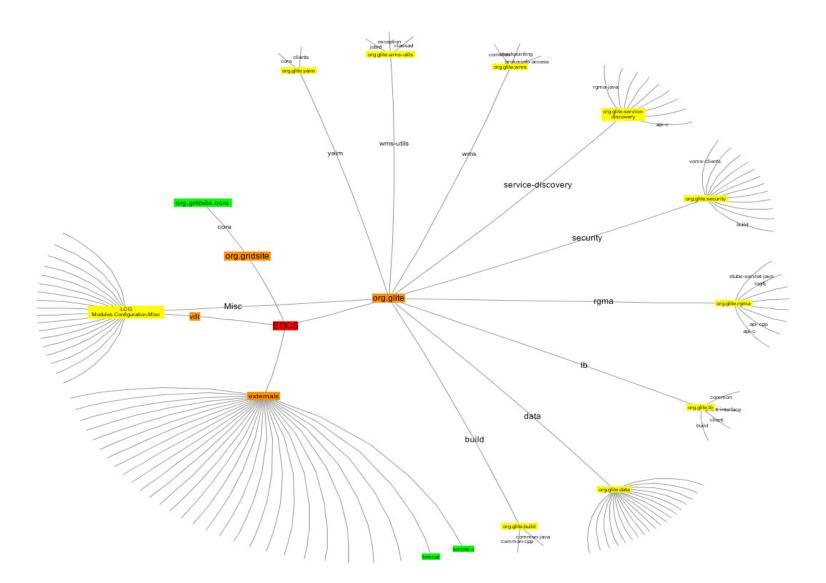


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igurations found				#63250	W4ChN: Source and destination editable through specific action
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				#63247	WI4ChannelManagement: direct contact with the server
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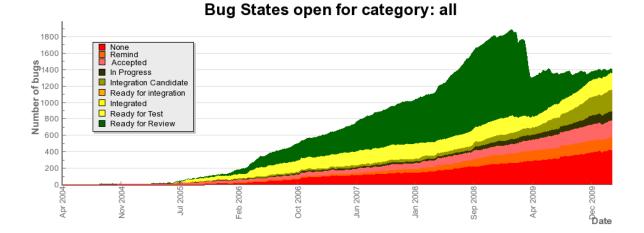








Enabling Grids for E-sciencE

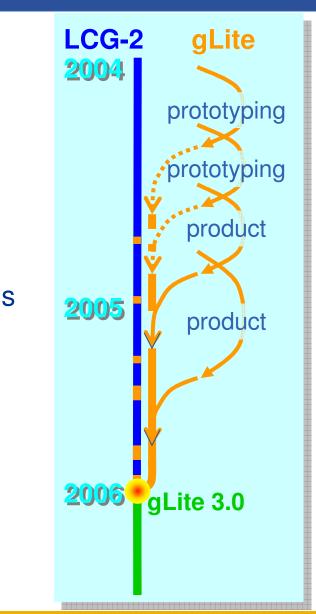


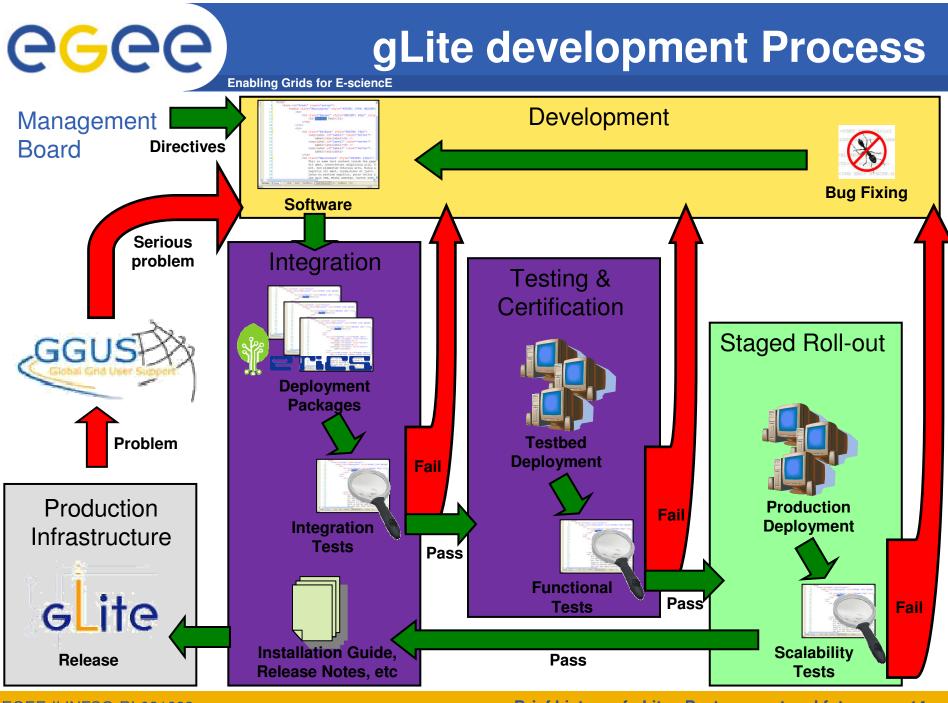
Bug Open/Closed over time All bugs 9000 Open bugs 8000 **Signature** 7000 6000 500⁻ 400 30 2000 1000 Apr 2009 Jan 2008 Sep 2008 Jul 2005 Feb 2006 Oct 2006 Jun 2007 Dec 2009 Apr 2004 Nov 2004 Date



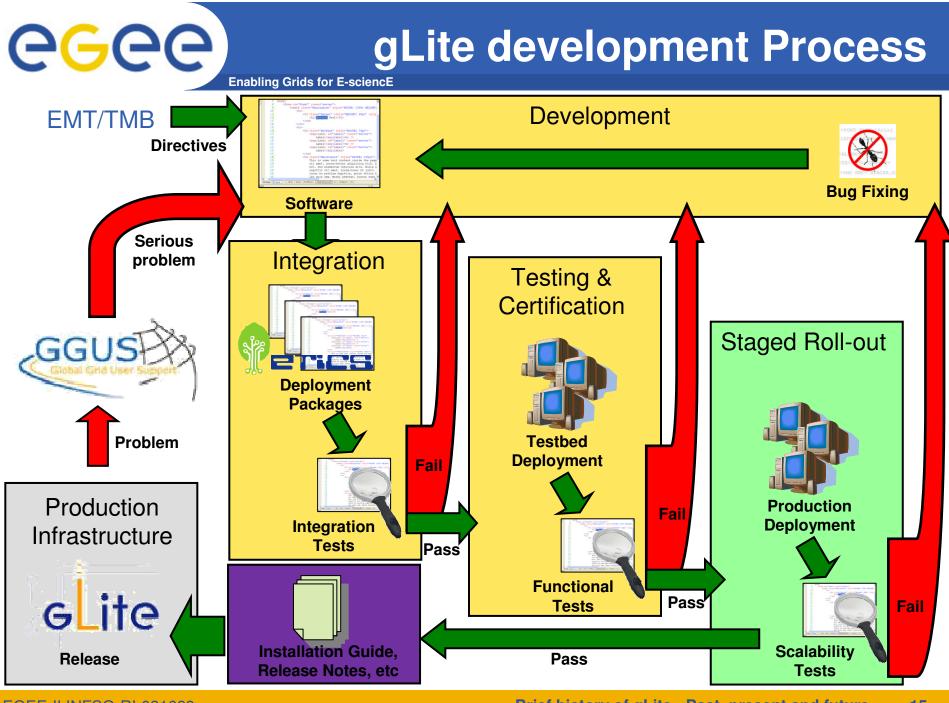
- gLite 1.0 April 2005
 - prototyping phases
 - Scientific Linux 3
- gLite 3.0 May 2006
 - convergence with LCG-2
 - Scientific Linux 3
 - legacy ANT-based and LCG build systems
 - APT installation tool
- gLite 3.1 June 2007
 - Scientific Linux 4
 - ETICS build system
 - YUM installation tool
- gLite 3.2 March 2009
 - Scientific Linux 5







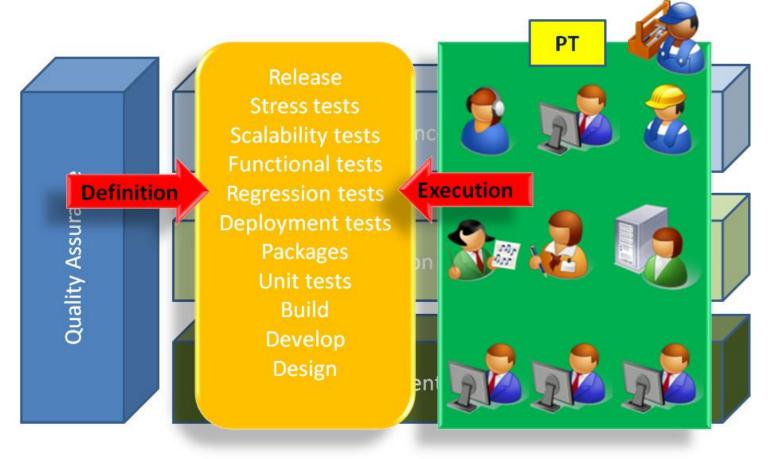
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Software Engineering in EMI



GGCC gLite deployment on EGEE

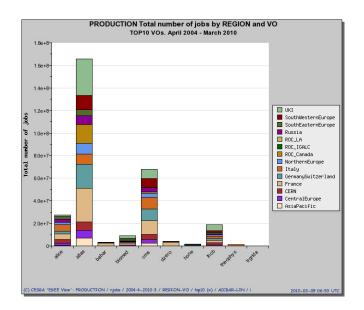
- gLite releases announcements are broadcasted to all EGEE sites through the Operations Portal
- User support is done through the Global Grid User Support (GGUS)

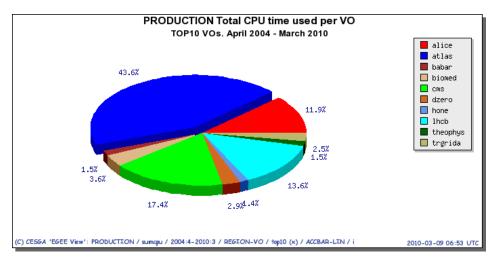




gLite deployment on EGEE

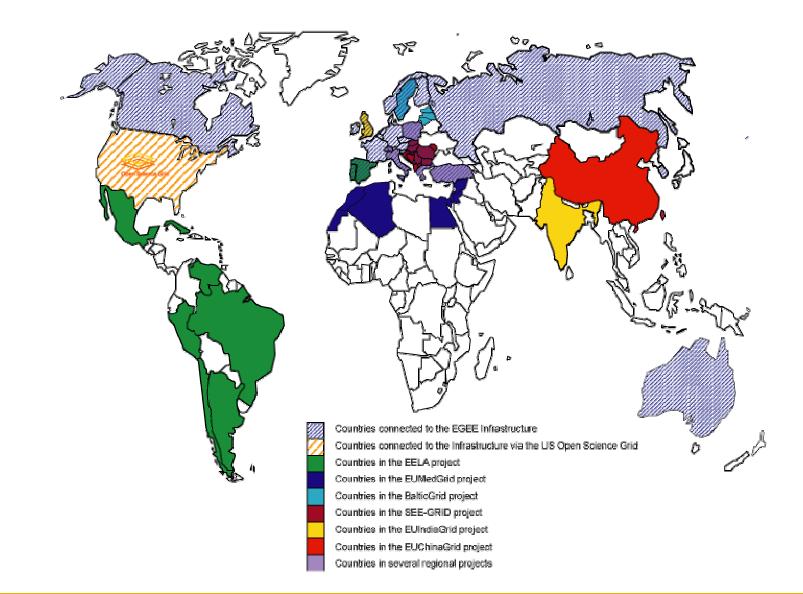
- 316 sites
 - 132 sites: gLite 3.2
 - 164 sites: gLite 3.1
- ~140K CPU cores
- ~25 PB disk, ~38PB tape
- ~400 Kjobs/day





gLite deployment in EGEE

Enabling Grids for E-sciencE



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User Communities

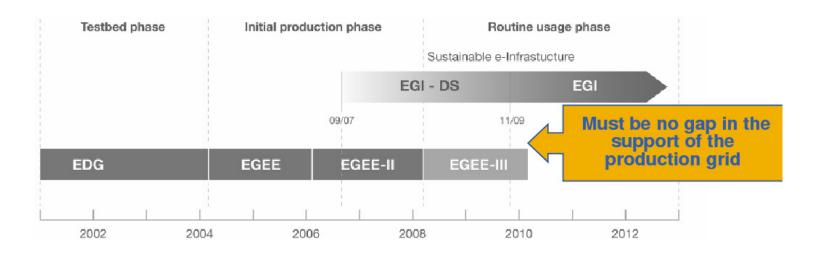
- Most of gLite services (FTS, CREAM, WMS, VOBOX)
 - High Energy Physics
- Workload Management system (WMS, LB and Icg-CE)
 - Life Sciences: also AMGA, DPM, Hydra and LFC
 - Astronomy and Astrophysics: also using gateways like Ganga and Diane
- Other user communities
 - Civil Protection
 - Computational Chemistry
 - Earth Sciences
 - Finance
 - Fusion: also using gateways like Ganga and Diane
 - Geophysics
 - Multimedia
 - Material Sciences
 - Archeology

Domain	S	Users
AA	20	373
CC	4	347
CS	4	21
ES	7	142
F	2	68
HEP	36	8577
LS	9	379
MV	26	1658
OTH	28	1816
TOTAL	136	13381



The future of gLite

- The future is EMI
 - Address the needs of scientific communities in EGI together with ARC, UNICORE and others
- Standardization
- Interoperability
- Sustainability





Summary

• After six years of gLite...

- It provides a distribution of middleware components that allows to build a Grid to enable global science
- It focus on production quality, interoperability/standardization and security
- It makes the EGEE infrastructure a reality
- EGI and EMI are the first step towards a really sustainable model for a Grid infrastructure in Europe (and outside)



- gLite home page: http://glite.web.cern.ch/glite/
- EGEE project home page: <u>http://www.eu-egee.org/</u>
- EGI project home page: <u>http://web.eu-egi.eu/</u>
- EMI presentation in the EGEE 09 conference:
 - <u>http://indico.cern.ch/getFile.py/access?contribId=382&sessionId</u>
 <u>=4&resId=1&materiaIId=slides&confId=55893</u>
- UMD: http://knowledge.eu-egi.eu/knowledge/index.php/UMD