

Software Integration, Deployment & Evaluation

WP6: Integration Testbed



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Objectives



❖ Integration

- Integrate the basic Grid middleware software, obtained from external sources (such as the Globus project) and from the various middleware work packages of the project (WP1-WP5), and co-ordinate problem determination and bug fixing.
- Collate, package and manage the production of each major software and documentation release during the project.

❖ Deployment

- Enable and manage the construction of Data Grid testbeds initially across Europe and subsequently worldwide. This involves the integration of national facilities provided by the partners and their associates, comprising five to seven large computing systems (processors, disk, and mass storage) and fifteen to twenty smaller installations.

❖ Evaluation & feedback

- Act as the focal point of all testing as and when the various software components from each development work package become available.
- Provide and manage feedback from early users of the software to the development work packages.

SW Development Infrastructure



❖ Source Code Management (CVS)

- 135 EDG Modules
- 108 MB of source
- 184 developers

❖ Autobuild

❖ Package Repository

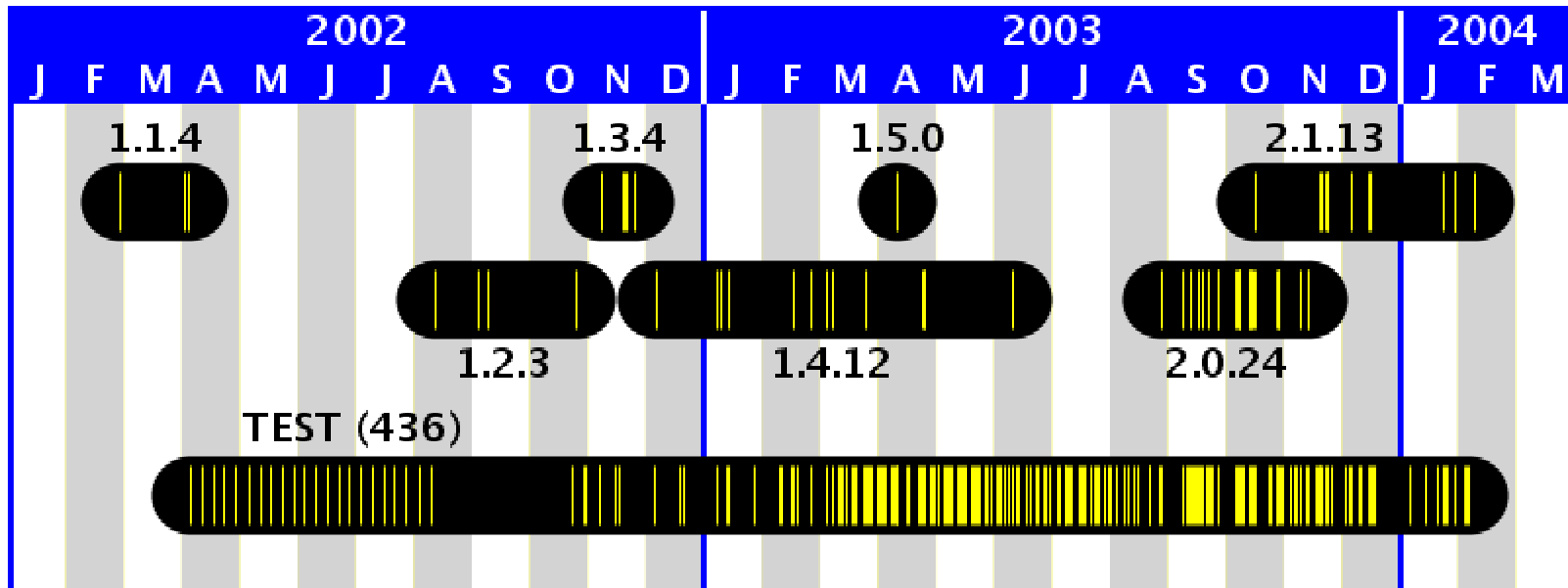
❖ Testing Framework

❖ Bugzilla

- >2500 bugs

	Pkg. Rep.		EDG 2.1.13	
	Pkgs.	GB	Pkgs.	MB
EDG	43326	13.6	412	197
VDT	8915	2.1	12	44
Linux	4217	4.8	551	449
Extern.	874	1.0	104	204
Apps.	255	4.6	111	1498
Total	57587	26.1	1190	2392

EDG Release Management



❖ Integration Team

- Contributions from all work packages.
- Centralized release management.

❖ System Administrators

- Efficient installation.
- Exemplary operation.

Application Testbed

Site	Country	CPUs	Storage (GB)
ASCC	Taiwan	21	8
Birmingham	UK	4	34
Cambridge	UK	5	16
CC-IN2P3	FR	3	348
CNAF	IT	4	15
CPPM	FR	2	16
FZK	D	4	1034
Imperial Coll.	UK	2	16
IFAE	ES	4	88
IPSL	FR	3	417
NIKHEF	NL	32	1752
Oxford	UK	2	35
Padova	IT	4	71
Queen Mary Coll.	UK	2	48
RAL	UK	6	57
RAL-PP	UK	10	28
SARA	NL	0	10000
Sheffield	UK	16	217
SRCE	HR	2	16
UCL	UK	2	5
Wuppertal	D	5	34
Total	8	133	14255

❖ Geographically Distributed

- 21 different sites
- 8 different countries

❖ Users

- 12 different VOs
- 100 regular users
- 500 registered users

❖ Other projects

- CrossGrid, LCG, DataTag
- National Projects

Security Infrastructure



❖ Certificate Authorities

- 21 CAs span:
 - Europe
 - North America
 - Asia
- Independent administration
- Backbone of present & future global grid projects

❖ VOMS

- Expect experiments to take over operation of VO servers
- Work to include certificate requests into standard registration procedures

ArmeSFo	Armenia	HellasGrid	Greece
ASGCCA	Taiwan	INFN	Italy
CERN	Switzerland	LIP	Portugal
CESNET	Czech Rep.	NIKHEF	Netherlands
CNRS	France	NorduGrid	Nordic Countries
CyGrid	Cyprus	PolishGrid	Poland
ESNet	USA	Russia	Russia
FNAL	USA	SlovakGrid	Slovakia
GermanGrid	Germany	Spain	Spain
GridCanada	Canada	UKeScience	UK
Grid-Ireland	Ireland		

Support

❖ User Support

- Users' Guide
- ITeam mailing list
- Service ticketing system exists

❖ System Administrator Support

- Installation Guide
- Tutorials
- ITeam/SysAdmin mailing lists

Evaluation

❖ Formal Evaluation (D6.8)

- Release procedures
- Operations
- EDG Middleware

❖ Reality: Everyone Tests

- Developers
- Integrators
- Testers
- “Loose cannons”
- End-users

❖ Testing Suite

- Developed internally; shared with LCG.
- Growing body of tests.

Lessons

❖ Software Development

- Need service-oriented design
- Strict code, packaging, configuration standards
- Test framework to incorporate all levels of tests

❖ Operations

- Installation/configuration tools mandatory
- Need to minimize/decentralize infrastructure
- Need to provide diagnostic tools

❖ Fragmentation of Resources

- Don't have "webs" should *not* have "grids".

Future



❖ Software

- Code & Support → owners/future projects
- Infrastructure → limited, continued support until taken over
- Package Rep./Web → frozen; available “forever”

❖ Resources

- App. TB → development/demonstration testbed for EGEE
- CA Infrastructure → continues with coordination under EGEE
- VO Support → Expect experiments to take over infrastructure

❖ Experienced People

- Developers, integrators, etc.
- System administrators

Questions

