Testbed1
Integration & Deployment Status

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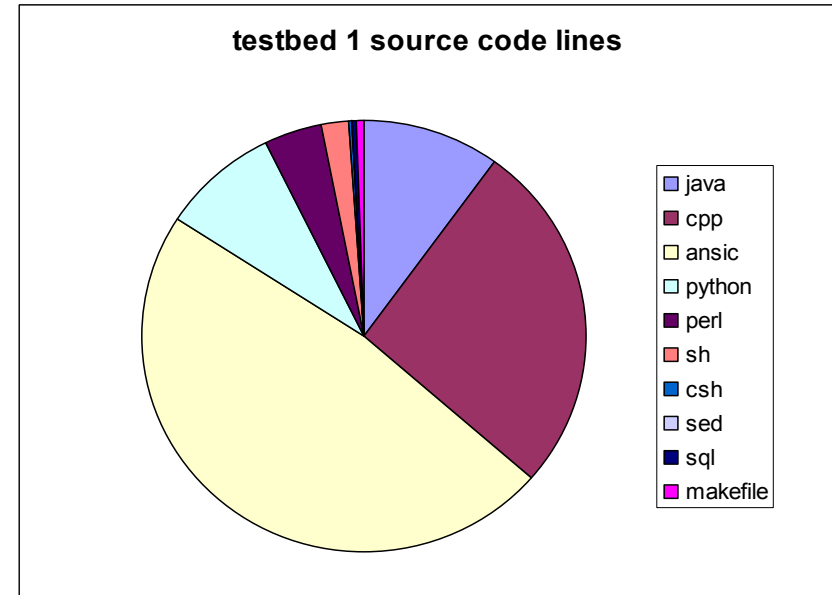
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Testbed1 Goals

◆ Create functioning computational grid from DataGrid software.

  ▪ integration of components (including Globus2)

  ▪ provision and management of grid infrastructure

◆ Evaluate the design and implementation of components.

  ▪ Developers, ITeam members, system administrators, end-users.

◆ Expose the technology to end-users.

  ▪ Will see end-user applications using DataGrid software in afternoon.

◆ Facilitate interaction between end-users and developers.

Testbed is collaborative effort involving all partners and WPs.

Software Development Infrastructure

- ◆ **CVS Repository**
  - management of DataGrid source code
  - all code available (some mirrored)

- ◆ **Bugzilla**

- ◆ **Package Repository**
  - public access to packaged DataGrid code

- ◆ **Development of Management Tools**
  - statistics concerning DataGrid code
  - auto-building of DataGrid RPMs
  - publishing of generated API documentation
  - more to come...

testbed 1 source code lines

Legend:
- java
- cpp
- ansic
- python
- perl
- sh
- csh
- sed
- sql
- makefile

140506 Lines of Code
10 Languages

Authentication/Authorization

- ◆ **Authentication (CA Working Group)**
  - 11 national certification authorities
  - policies & procedures ➔ mutual trust
  - users identified by CA's certificates

- ◆ **Authorization (Authorization Working Group)**
  - Based on Virtual Organizations (VO).
  - Management tools for LDAP-based membership lists.
  - 6+1 Virtual Organizations

CA's
CERN
CESNET
CNRS
DataGrid-ES
GridPP
Grid-Ireland
INFN
LIP
NIKHEF
NorduGrid
Russian DataGrid

VO's	
ALICE	Earth Obs.
ATLAS	Biomedical
CMS	
LHCb	Guidelines

Software Integration

- ◆ **Integration Team**
  - consists of ~20 people from WP1-10.
  - charged with integrating the DataGrid, Globus2 software
  - releasing & deploying software

- ◆ **Schedule**
  - significant external & internal delays
  - testing period consequently compressed

- ◆ **Releases of DataGrid software**
  - test new code on "development" grid ➔ release to "production" grid
  - current release is v1.1.2.

Global View of Testbed Elements

User Interface

Certification Authorities

Resource Broker

Testbed Sites (5)

CC-IN2P3, CERN, CNAF, NIKHEF, RAL

VO Replica Catalog

Network Monitoring

VO Membership

Typical Testbed Site

Computing Element

Gatekeeper → Worker Nodes

Storage Element
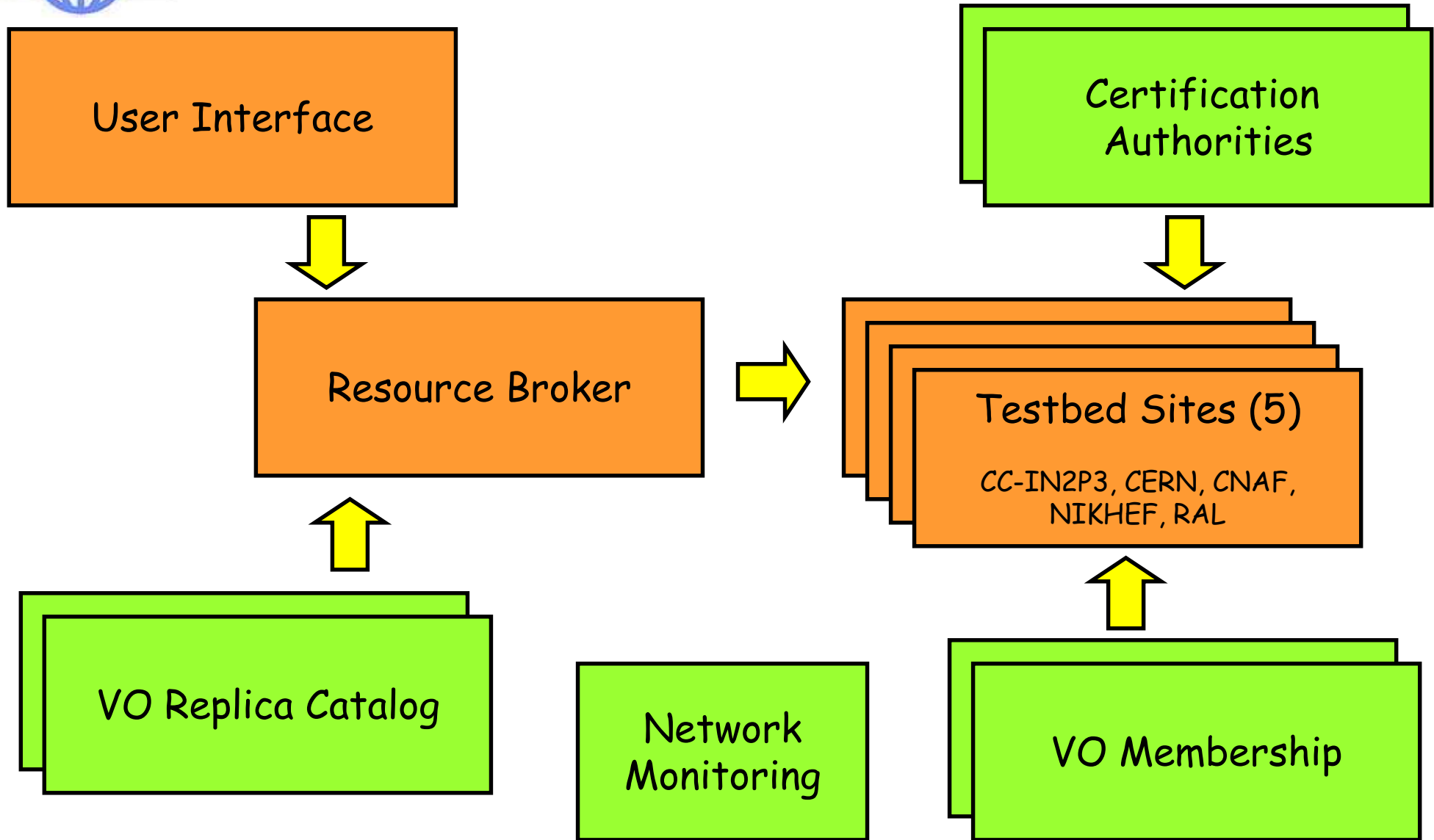
Mass Storage
HPSS, Castor ↔ Disk Storage
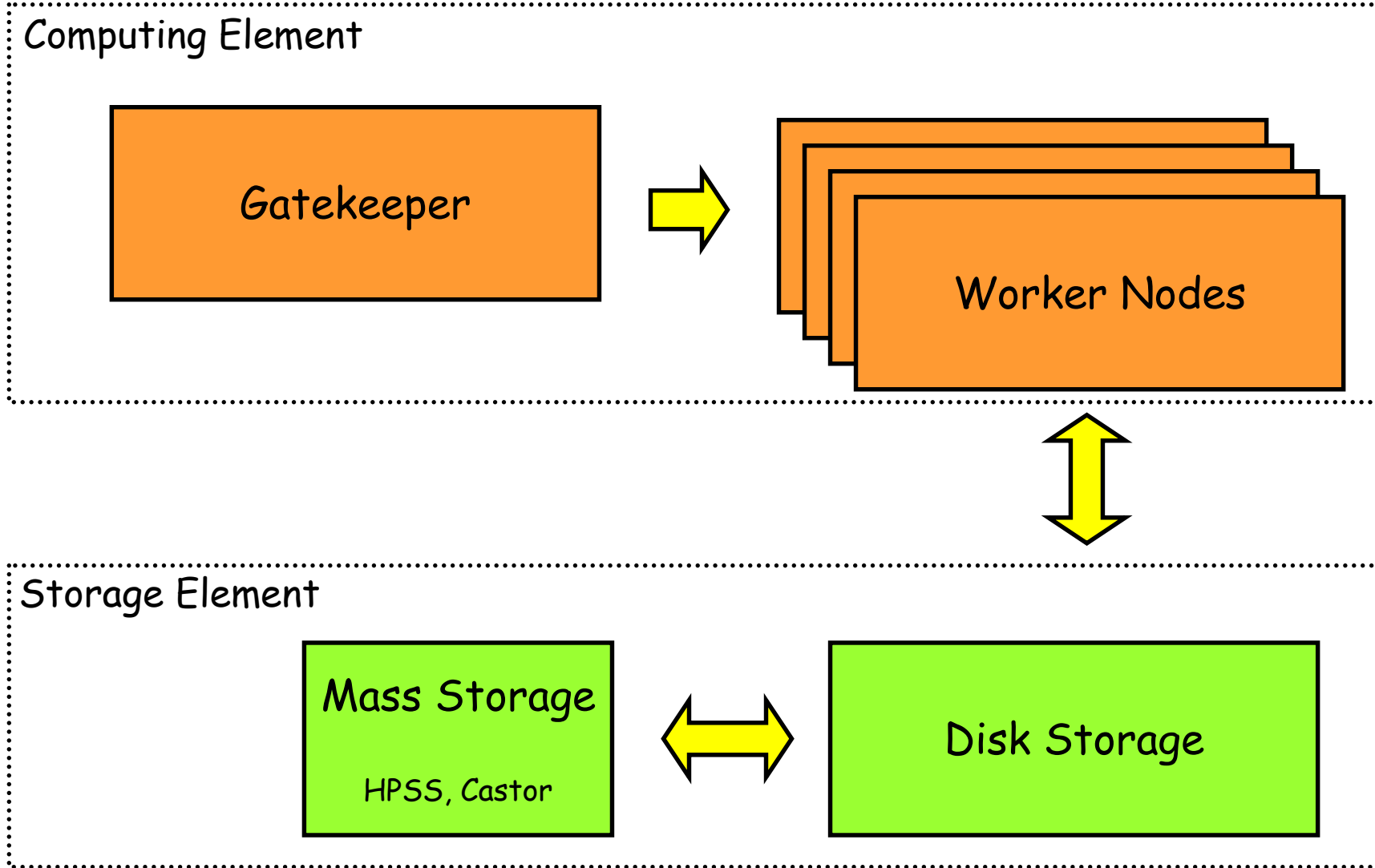
Software Evaluation

- Evaluation based on selected requirements from DataGrid deliverables.
    - Prototype for first year will not meet all requirements.
    - Specifically left stress, performance tests for future.

- Unit Testing
    - Manual & Automatic testing done by developers.

- Integrated Testing
    - Integration & configuration testing by ITeam and "Loose Cannons."
    - Functional testing by end-users.

- Evaluation is a snapshot of the status; software and testbed evolving continuously.

Software Evaluation

Component	ETT	UT	IT	NI	NFF	MB	SD
Resource Broker	❖	❖	❖		●		
Job Desc. Lang.	❖	❖	❖			●	
Info. Index	❖	❖	❖			●	
User Interface	❖	❖	❖		●		
Log. & Book. Svc.	❖	❖	❖			●	
Job Sub. Svc.	❖	❖	❖		●		
Broker Info. API		❖	❖				●
SpitFire		❖	❖				●
GDMP						●	
Rep. Cat. API		❖	❖			●	
Globus Rep. Cat.		❖	❖			●	

WP1

WP2

ETT	Extensively Tested in Testbed
UT	Unit Testing
IT	Integrated Testing
NI	Not Installed
NFF	Some Non-Functioning Features
MB	Some Minor Bugs
SD	Successfully Deployed

Software Evaluation

Component	ETT	UT	IT	NI	NFF	MB	SD
Schema	❖	❖	❖				●
FTree		❖	❖				●
R-GMA		❖	❖				●
Archiver Module		❖	❖		●		
GRM/PROVE		❖	❖				●
LCFG	❖	❖	❖				●
CCM		❖			●		
Image Install.		❖			●		
PBS Info. Prov.	❖	❖	❖				●
LSF Info. Prov.		❖	❖				●

WP3

WP4

Software Evaluation

	Component	ETT	UT	IT	NI	NFF	MB	SD
WP5	SE Info. Prov.		❖	❖				●
	File Elem. Script					●		
	Info. Prov. Config.		❖	❖				●
	RFIO		❖	❖				●
	MSS Staging				●			
WP6	Mkgridmap & daemon			❖				●
	CRL update & daemon			❖				●
	Security RPMs			❖			●	
	EDG Globus Config.	❖		❖				●

Software Evaluation

WP7

Globus

Component	ETT	UT	IT	NI	NFF	MB	SD
PingER		❖	❖				●
UDPMon		❖	❖				●
IPerf		❖	❖				●
Globus2 Toolkit	❖		❖			●	

Testbed Logistics

- ◆ Administrative Changes
  - ▪ better articulated guidelines for developers
  - ▪ formalized, automated testing procedures

- ◆ Communication
  - ▪ better information on the state of the testbed
  - ▪ better information on the parameters necessary to use resources
  - ▪ improved documentation & support
  - ▪ presentations for users and for system administrators helpful

- ◆ Tool Development
  - ▪ automatic build/packaging tools
  - ▪ package distribution

Summary

- Testbed1, though limited in scope, met its primary goals.

    - created computational grid with DataGrid software
      (5 sites: CC-IN2P3, CERN, CNAF, NIKHEF, RAL, …)

    - evaluated of middleware design and implementation

    - exposed DataGrid technology to end-users

    - facilitated interaction between end-users and developers

- Testbed will be maintained, upgraded with periodic releases, and tested through the next official Testbed in October 2002.

- Testbed1 (and frank evaluation of it) will improve the quality of future DataGrid testbeds.