



# SA1 REPORT DSA1.2

## CENTRAL SERVICES

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### Abstract:

This report is to show that the Central Services for BalticGrid are up and operational. We present the current usage statistics and a web page for that purpose.





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## 1. INTRODUCTION

### 1.1. PURPOSE OF THIS DOCUMENT

The purpose of this document is to provide an overview of BalticGrid central services available and the current known usage statistics for the relevant services. To best illustrate that the services are actually available to all BalticGrid users a number of measurables is provided.

### 1.2. ABBRIVIATION LIST

- **BDII** – Berkeley Database Information Index. Is a service which keeps information about available resources, users and other relevant information.
- **CE** – Computing element. A resource that is used for computation. Usually this means a computing cluster or a HPC system.
- **HPC** – High Performance Computing. Usually a big computer with parallel computing capabilities.
- **RB** – Resource Broker. A service that takes user jobs and finds available resources, which satisfy the necessary requirements of the users job. It also manages job submission, resubmission and access on behalf of the user.
- **SE** – Storage Element. A storage element is a system either having large internal data storage capacity or is connected to an external storage system to provide data hosting for Grid jobs.
- **VO** – Virtual Organization. Is an organization, which unites people with common interests across any region. Examples are BalticGrid VO that unites people who live in BalticStates and have interest in Grids. CMS VO, which unites people who are working at the CMS experiment at CERN.
- **VOMS** – Virtual Organization Management System. This is a service, which is used to manage a VO-s membership and roles.
- **CA** – Certificate Authority. Is an institution, which validates peoples/services authenticity and guarantees that the entity is who it claims to be. This is accomplished through PKI using digital certificates.
- **PKI** – Public Key Infrastructure. A mathematical system where every involved party has a private and a public key, which are related through a mathematical algorithm. Every transaction is signed with the private key and can be verified using the public key.
- **LFC** – Logical File Catalog. A service which allows users to register their datafiles in this catalog using some logical names instead of actual filenames and paths. This allows for centralized management of data without having to worry about exact paths.
- **GridIce** – a monitoring tool which gives an useful overview of services and resources available.
- **LDAP** – Lightweight Directory Access Protocol. A data query protocol. Is mostly used in information services to query all kind of information about services and users.
- **MyProxy** – a service that hosts users Grid proxy and allows for authenticated services to renew the proxy. This allows the user to supply a long lasting proxy to a trustable server while jobs always use only short lived proxies.



## 2. CENTRAL SERVICES

### 2.1. WHAT ARE CENTRAL SERVICES

Central services are services that are used by most if not all users of a Grid. They provide site information, job brokering, proxy holding, file registering etc. No Grid can be built without a certain number of central services.

### 2.2. CURRENT CENTRAL SERVICES IN BALTICGRID

The current hosts and respective partners providing the central services are listed in Table 1. The measurable data for the first three months of the project is provided in Table 2. As can be seen although we are still in the early phase of the project there is already considerable use of the central services. Both for test purposes as for actual usage.

The latest information about central services in BalticGrid can be found at [http://www.balticgrid.org/Grid\\_Operations/](http://www.balticgrid.org/Grid_Operations/)

**Current hosts/partners providing central services to BalticGrid**

Service	Host providing the service	Partner hosting the service
Primary BDII	grid3.mif.vu.lt	VU
Primary Resource Broker	grid3.mif.vu.lt	VU
Secondary BDII	voms.balticgrid.org	EENet
Secondary Resource Broker	broker.eenet.ee	EENet
VOMS server	voms.balticgrid.org	EENet
BalticGrid CA	N/A	EENet
LFC server	voms.balticgrid.org, grid3.mif.vu.lt	EENet, VU
MyProxy server	voms.balticgrid.org, broker.eenet.ee, grid3.mif.vu.lt	EENet, VU
GridIce monitoring	voms.balticgrid.org	EENet

**Table 1 Central Services**



Available measurables from the first three months of the project

Service	Measurable name	Measurable	Month in operation
Primary BDII	Number of sites in LDAP (not only BG sites)	202	M2
Primary Resource Broker	Number of scheduled jobs	1144	M2
Secondary BDII	Number of sites in LDAP (BG only)	10	M2
Secondary Resource Broker	Number of scheduled jobs	2176	M2
VOMS server	Number of VO-s supported	2	M3
VOMS server	Number of users registered	21	M3
BalticGrid CA	Number of certificates issued	110	M1
BalticGrid CA	Number of revoked certificates	5	M1
LFC server	Number of files registered	0 <sup>1</sup>	M3
MyProxy server	Number of proxies registered	0 <sup>2</sup>	M2
GridIce server	Number of sites monitored	10	M3

Table 2 Central Service measurables

<sup>1</sup> No files registered yet, but has been tested to work

<sup>2</sup> No proxies registered, but has been tested to work



### 3. CONCLUSIONS

The current central services (BDII, RB, Proxy, VOMS, CA, LFC, GridIce monitoring) can provide an adequate infrastructure upon what to build a fully functional Grid. Most of essential services for job scheduling like BDII and RB are doubled to allow for failsafe situations where one site is unable to process the full load. Also by the end of the project our estimate is to have all central services at least to some extent available in all Baltic countries to allow for fully functional uninterrupted Grid operations even in case of major network outages.