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**eDEISA**  
**EXTENDED DISTRIBUTED EUROPEAN  
INFRASTRUCTURE FOR  
SUPERCOMPUTING APPLICATIONS**

**European Community Sixth Framework Programme**  
**RESEARCH INFRASTRUCTURES**  
Integrated Infrastructure Initiative

**Status and Activity Report of Operation Team**

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<b>PU</b>	Public	<b>X</b>
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

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## 1. Introduction

### 1.1 *Executive Summary*

The eSA2 activity, named "Operation of the DEISA Grid", is responsible for a smooth operation of the DEISA/eDEISA [1] research infrastructure integrating 11 leading HPC centres in Europe. The first deliverable reported on the formation of the Operation Team, a synonym for the persons working in the eSA2 activity, and the setup of the activity. The second deliverable now is a status report of the ongoing activities of the Operation Team. It is shown, that the activity is working as expected and that it is a required but also useful institution in DEISA. As all service activities of DEISA and all HPC centres participating in DEISA are covered, this document is of global interest to everybody involved with DEISA.

### 1.2 *References and Applicable Documents*

- [1] DEISA project homepage, <http://www.deisa.org>
- [2] Deliverable eDEISA-D-eSA2-1
- [3] Operation Team Status Report, "Report on Current Status and Agreements of Operation Group", Version 2007-04-26,  
<http://work.deisa.org/bscw/bscw.cgi/d30517/Status-Report.doc>
- [4] Operation Team License Serving Proposal, "Evaluation of possible strategy for DEISA dedicated License Server",  
<http://work.deisa.org/bscw/bscw.cgi/d70667/License-DEISA-solution.doc>
- [5] Operation Team Workload and Maintenance Proposal  
[http://work.deisa.org/bscw/bscw.cgi/d33177/LL-MC\\_maintenance-and-workload\\_management.doc](http://work.deisa.org/bscw/bscw.cgi/d33177/LL-MC_maintenance-and-workload_management.doc)
- [6] Operation Team Rerouting Proposal  
<http://work.deisa.org/bscw/bscw.cgi/d23953/Rerouting.txt>
- [7] Operation Team Minutes of the Videoconferences (named by date),  
below <http://work.deisa.org/bscw/bscw.cgi/0/17741> as YYYY-MM-DD.txt

### 1.3 *Document Amendment Procedure*

The initial document amendment procedure is via communication between members of eDEISA eSA2 team. The document is then submitted for review to the DEC and an internal DEISA reviewer appointed by the DEC. After that the document is amended according to comments received from the DEC and the internal DEISA reviewer. It is subsequently re-submitted to the DEC for submission to the EU.

### 1.4 *List of Acronyms and Abbreviations*

<b>AIX</b>	Advanced Interactive eXecutive (IBM's derivative of UNIX OS)
<b>Altix</b>	Multi-Processor compute node from SGI
<b>ATASKF</b>	Application Task Force in DEISA

<b>DCPE</b>	DEISA Common Production Environment
<b>DEC</b>	DEISA Executive Committee
<b>DECI</b>	DEISA Extreme Computing Initiative
<b>DEISA</b>	Distributed European Infrastructure for Supercomputing Applications
<b>GPFS</b>	General Parallel File System
<b>HPC</b>	High Performance Computing
<b>IBM</b>	International Business Machines (Computer Manufacturer)
<b>Linux</b>	Free UNIX-like Operating System
<b>MC-GPFS</b>	Multi-Cluster GPFS
<b>PPC</b>	PowerPC (a CPU chip type)
<b>SA</b>	Service Activity
<b>SGI</b>	Silicon Graphics Incorporated (Computer Manufacturer)
<b>WAN</b>	Wide Area Network

## 2. The Operation Team

### 2.1 *Members of the Operation Team*

During the second half year of this activity, a few members of the Operation Team have been exchanged. The current members are:

<b>Site</b>	<b>Operation Team Member</b>
BSC	Sergi Girona
CINECA	Stefano Martinelli
CSC	Pekka Lehtovouri
ECMWF	Ricardo Correa
EPCC	Jeremy Nowell
FZJ	Klaus Wolkersdorfer
HLRS	Thomas Bönisch
IDRIS	Philippe Collinet
LRZ	Herbert Huber
RZG	Andreas Schott (team-leader)
SARA	Vincent van Elzen

### 2.2 *Videoconferences and General Work*

Between December, 1<sup>st</sup>, 2006 and May, 31<sup>st</sup>, 2007, the current reporting period, there have been 12 regular videoconferences, which is in accordance to the intended bi-weekly timetable. For all these videoconferences minutes have been taken and can be found on the BSCW server, which is used for the internal communication and exchange of documents in DEISA.

As expected, the videoconferences turn out to be a useful source for information exchange between the sites far beyond simply coordinating DEISA. Much information about local issues like minor software changes in GPFS or LoadLeveler of the AIX sites have been exchanged, helping in avoiding problems on other sites, thus improving even the local stability and availability of the systems.

The evolution of software levels and agreements, not fixed in separate documents are integrated in the Status Report document, which is updated regularly containing current information valid for DEISA. It can be found on the BSCW-server [3].

There have been discussions about how a License Management system could be implemented in DEISA, conforming to local policies and usable in the whole DEISA cluster. Finally, an agreement could be reached, which is documented in the report "Evaluation of possible strategy for DEISA dedicated License Server", which can be found on the BSCW-server [4].

Several proposals and agreements concerning parameters to be used in the LoadLeveler, the rerouting and the maintenance are also documented in separate files, found in the Proposal subdirectory of Operation on the BSCW-server [5,6].

The Operation Team is also defined to be an Emergency Response instance. Since there has been no known incident, no work was necessary. The principle reaction on a possible incident is defined in three steps. First locally all possible ways to propagate problems are disabled. Then the other sites are informed. In a last step a coordinated analysis of the incident will take place.

The following section describes in short the work done by the Operation Team split up onto the different service activities. Further details can be found in the minutes of the videoconferences, located in the BSCW-server [7].

### **2.3 *Coordinative Work concerning other DEISA and eDEISA SAs***

In the first half year the Operation Team had to face the challenge of upgrading the GPFS, which in principle is a SA2 task, but involved global system changes, thus coordination was necessary beyond the GPFS software. This is documented in the first deliverable [2]. The second half year of the work was heavily influenced by the work of the SA1 activity concerning the upgrade of the networking infrastructure from a 1Gbit/s network to a 10Gbit/s dedicated network. Changes in the network infrastructure have naturally a direct influence in the operation of the cluster structure, affecting the global file systems as well as the batch systems. This huge impact on the overall operation of DEISA was reflected by the fact, that in some videoconferences, the SA1 leader and the SA1 members of the site currently being upgraded have been attending.

Another highlight covered again the global file system activity of SA2: the full productive integration of the SGI-Altix system of LRZ in December 2006. In March 2007, the machine at LRZ was upgraded, thus the planned outages and their influences to the overall operation have been discussed in the Operation Team. Since the GPFS of LRZ is hosted at RZG, the automatic creation of directories for users, which is covered by the User Administration task of SA5 required some additional coordination.

The SA3 activities mainly concerned configuration issues for the common batch system of the AIX cluster. Here, the coordinated upgrade of the DEISA filters, providing more and more features for job migration, was one major task. The resource deployment in the batch systems, part of SA3, for the DECI projects, which are treated by eSA4, has been handled with the responsible people. The deployment of the LoadLeveler Test Suite and testing of the co-allocation features have been another task accompanied.

Together with SA4 there was mainly coordination work done by the Operation Team. Most of the issues have been handled inside the service activity, but the Operation Team had been informed about the progresses made in the development of the user environment, since this affects the complete operation of DEISA, and the work towards an upgrade of the INCA Monitoring System, which is used by the Operation Team to get information about the system status in DEISA, to a new major release status.

Accounting data is now completely handled by SA5 internally after all required tools have been installed in each site. The Operation Team cared about the policies for storing of such data in a synchronous way between the sites, fulfilling the legal requirements of the participating countries. It also organized the sampling of required data for the DECI projects in the time the global accounting was not fully operational.