

## Memorandum of Understanding

among

the University of Birmingham (hereinafter referred to as “Birmingham”),  
the University of Bristol (hereinafter referred to as “Bristol”),  
the University of Cambridge (hereinafter referred to as “Cambridge”),  
the University of Oxford (hereinafter referred to as “Oxford”),  
the Council for the Central Laboratory  
of the Research Councils (hereinafter referred to as “CCLRC”),  
hereinafter referred to collectively as “SouthGrid” and individually as the “Partners”.

### Whereas

1. The GridPP Collaboration submitted a proposal (“The GridPP2 Proposal”) to the Physics and Astronomy Research Council (PPARC) for funding to build a UK Production Grid for Particle Physics, involving the construction of a Tier-1 UK Regional Centre, support of four UK Regional Tier-2s, support for the Large Hadron Collider Grid Project (LCG), development of Middleware, Networking and Security, support for the development of Particle Physics Applications and participation in the EU FP6 Enabling Grids for e-Science in Europe (EGEE) Project;
2. PPARC has approved the project and has undertaken to provide funding for the project from 1st September 2004 till 31st August 2007;
3. The Partners have substantial computing resources that they wish to contribute towards SouthGrid and the UK Production Grid in return for manpower support with which to operate those resources;
4. GridPP has agreed, according to its Memorandum of Understanding with the Tier-2’s
  - (a) to support a number of Hardware Support Staff to be deployed at the Tier-2s to support the hardware and software at the institutes that is being contributed towards the Grid, and that 1.0 FTE has been initially allocated to SouthGrid based upon resources being contributed towards the Grid;
  - (b) to provide a specified set of Front End machines to each Partner as agreed by the Tier-2 Board;
  - (c) to provide monitoring software to the Tier-2s subject to the agreement of the Tier-2 Board;
  - (d) to provide a set of Grid software releases as defined by the Deployment Board;
  - (e) to provide Network Monitoring software so that the connectivity between each Partner and the Tier-1 Centre can be monitored;

5. The Partners wish to document the structure and administrative arrangements thereof;

**now therefore the Partners hereby agree as follows:**

1. Definitions

In this Memorandum of Understanding,

- “The Grid” means the UK Grid for Particle Physics as defined by the GridPP Project.
- “CB” means the GridPP Collaboration Board.
- “PMB” means the GridPP Project Management Board.
- “Deployment Board” means the GridPP Deployment Board.
- “LHC” mean the Large Hadron Collider at CERN.
- “LCG” means the LHC Computing Grid.
- “EGEE” means the EU FP6 Enabling Grids for e-Science in Europe Project.
- “KSI2K” means a measure of CPU power in 1000s of SpecInt 2000 CPU equivalents.
- “TB” means useable disk storage space in TeraBytes.
- “VO” means Virtual Organisation, an abstract entity grouping Users, Institutions and Resources (if any) in the same administrative domain, e.g. a particle physics collaboration.
- “Worker Node” means the computers at the institutes where the jobs actually run excluding gateway and server machines.
- “Front Ends” means the standard set of computers provided by GridPP to each institute to act as gateways between the institutes and the rest of the Grid.
- “Target Shares” means the minimum share of a particular resource to be made available via the Grid to an approved VO in a specified time frame.
- “SouthGrid website” means [www.southgrid.ac.uk](http://www.southgrid.ac.uk) and its content.

2. Purpose and Duration

- (a) The purpose of this Memorandum of Understanding is to record the arrangements for the management, support and use of the resources of SouthGrid by GridPP.
- (b) This Memorandum of Understanding is not intended to constitute a legally enforceable contract or to create any rights or obligations which are legally enforceable. It is intended to be binding in honour only.
- (c) The Partners acknowledge that the terms of this Memorandum of Understanding may be varied by unanimous written agreement only.

- (d) This Memorandum of Understanding shall enter into force at the date of the last signature of all the parties and shall, subject to the provisions of Clause 11, continue in force until 31 August 2007.

### 3. Management Board

- (a) A Management Board shall be established and meet regularly to act as a forum for discussion amongst the Partners.
- (b) The Terms of Reference of the Management Board shall be agreed by the Management Board and posted on the SouthGrid website. The Terms of Reference shall be updated as necessary with the agreement of the Management Board.
- (c) Each Partner shall nominate one person to represent the Partner on the Management Board.
- (d) The SouthGrid Technical Coordinator shall be a non-voting member of the Management Board.
- (e) Other persons shall be co-opted onto the Management Board as required with the agreement of all the Partners.
- (f) The Management Board shall be chaired by a member (the “Chair”) of the Board by agreement of all the Partners.
- (g) The Management Board shall constitute other committees as it sees fit to carry out the functions of SouthGrid and to fulfill its Terms of Reference.
- (h) The Partners shall report on their activities via the Management Board to the Tier-2 Board, the Deployment Board, PMB, and to the PPARC Grid Steering Committee as appropriate.
- (i) The Management Board shall report to the Tier-2 Board through its Chair.
- (j) The Chair will represent SouthGrid on the Tier-2 Board, and will vote in accordance with decisions by the Management Board.
- (k) A meeting of the Management Board shall be declared quorate for voting purposes when each representative, or a designated deputy, is present at any scheduled meeting (in person, by phone, or by videoconference) for which proper notice shall have been given.
- (l) Decisions of the Management Board shall normally be by unanimous assent.

### 4. Hardware Support Staff

- (a) The allocations of the Support Staff to the Partners shall be agreed within the Management Board and shall be notified to the GridPP Project Manager.
- (b) The Support Staff shall produce Quarterly Reports on their activities which shall be passed to the Tier-2 Board via the Tier-2 Technical Coordinator and reported to the GridPP Project Manager through the Tier-2 Board Chair.
- (c) The Quarterly Reports shall conform to the proforma and guidance issued by GridPP Project Manager.

- (d) The Partners recognize that there shall be an annual review of SouthGrid by the Deployment Board that will inform any future staff resource allocations.

## 5. Hardware Resources

- (a) The Partners shall make CPU and Disk Data Storage resources, plus their associated infrastructure and software, available on the Grid subject to Security and Availability policies as described in Clause 10. The definition of available is described in Clause 6.
- (b) The Partners agree that the amount of CPU and Disk Space made available (as defined in Clause 6) should be that used to determine the overall resource commitments from SouthGrid to GridPP as specified in the relevant Memorandum of Understanding.
- (c) The Management Board will periodically review resource availability and usage.
- (d) The Partners shall report resource availability and usage via the Technical Coordinator to the Deployment Board and LCG.
- (e) Permissions necessary for the Technical Coordinator and Hardware Support Staff to perform their duties shall not be unreasonably withheld by the Partners.

## 6. Availability of Resources

- (a) The Partners shall make their resources available subject to a level of service and operating efficiency agreed between the Deployment Board and the Tier-2 Board.
- (b) The Partners shall provide a suitable environment for their supported VOs as agreed with the Deployment Board.
- (c) It is not the responsibility of the Partners or SouthGrid to install and maintain the experiment specific software at the Partners.

## 7. Monitoring

- (a) The Partners shall run the provided monitoring software, subject to Security policies as described in Clause 10, such that the performance and resource usage can be collated by GridPP.
- (b) Monitoring information from each Worker Node is not required and only aggregated results from each Partner need be made available.
- (c) The Partners shall maintain up-to-date websites with general information about SouthGrid, and monitoring and other information as agreed by the Tier-2 Board.
- (d) The Partners shall report site problems to GridPP via the Technical Coordinator, Production Manager, Deployment Board or Tier-2 Board as appropriate.

## 8. Target Shares

- (a) The overall Target Shares for SouthGrid shall be set by the Tier-2 Board.
- (b) The Target Share at each Partner shall be set in the first instance by the Management Board Chair and subsequently by the Management Board.
- (c) The Partners shall provide a statement of Target Shares for all VOs and that those for the LHC experiments will be reported via the Technical Coordinator to LCG.

## 9. Software

- (a) The provided Grid software shall have been tested on the Front End machines but shall not necessarily have been tested on all hardware configurations.
- (b) The Partners shall implement and update the Grid software on the Front End machines.
- (c) The timescale for implementation of each new release shall be set by the Tier-2 Board, and the Partners shall implement the software on that timescale.
- (d) The Partners shall run the Network Monitoring software subject to security policies as described in Clause 10.

## 10. Security and Availability Policy

- (a) The Partners shall implement a Security and Availability Policy. The policy will be defined in a set of documents, one of which will define a policy of Acceptable Use.
- (b) The Security and Availability Policy documents shall be available on the Tier-2 area of the GridPP Website.
- (c) The objective of the Security and Availability Policy is to:
  - i. present an agreed set of statements which define the attitude adopted by the Partners towards security and availability;
  - ii. give authority for certain defined actions which may be carried out by individuals and bodies such as the Institutes, Tier-2s, Grid Operations Centres and VOs;
  - iii. place responsibilities on Tier-2s, individuals and bodies participating in GridPP.
- (d) The Partners will autonomously own and follow their own local Security Policies with respect to the system administration and networking of all the resources they own, including resources which are part of LCG. The adoption of the LCG Policy should not be regarded as replacing or over-riding these local Policies; it acts as a supplement to them by setting out additional LCG-specific requirements and the minimum standards for sites participating in LCG.
- (e) Initially the Security and Availability Policies will be the LCG Security and Availability Policy as agreed by the LCG Grid Deployment Board.

- (f) Future updates to the Security and Availability Policy shall be agreed by the Management Board after consultation with the persons responsible for Partners' local policies, and the decision conveyed to the Tier 2 Board via the Chair.
- (g) Access to resources at the institutes can be temporarily suspended at any time without notice in case of security breaches or non-compliance with the Security and Availability Policy.

## 11. Termination

- (a) Any Partner shall be entitled to terminate its participation in this Memorandum of Understanding on giving to the Partners at least twelve month's prior written notice of its intention to so terminate.
- (b) In the event of such termination, the Hardware Support posts at that Partner may be reallocated to the remaining Partners as agreed by the Management Board.

**IN WITNESS WHEREOF** these presents consisting of this and the preceding **6 pages** are signed by the Partners as follows:

Signed for and on behalf of Birmingham by:

Position:

Date:

Signed for and on behalf of Bristol by:

Position:

Date:

Signed for and on behalf of Cambridge by:

Position:

Date:

Signed for and on behalf of Oxford by:

Position:

Date:

Signed for and on behalf of CCLRC by:

Position:

Date: