

The service phase is scheduled to operate for four months from September to December 2005.

#### Service Challenge 4

Service Challenge 4 aims to demonstrate that all of the offline data processing requirements expressed in the experiments' Computing Models, from raw data taking through to analysis, can be handled by the Grid at the full nominal data rate of the LHC. All Tier-1 sites will be involved, together with the majority of the Tier-2s. The challenge must complete at least 6 months prior to first data taking, when it will become the production service for LHC and is made available to the experiments for final testing, commissioning and processing of cosmic ray data.

As for Service Challenge 3, it consists of both a setup and service phase. The setup phase ends with a throughput demonstration sustaining for three weeks the target data rates at each site as defined in the following table. The throughput is measured network-tape at each Tier-1, and disk-network at CERN. The target date for completing the throughput test is end April 2006.

<i>Centre</i>	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>	<i>Target Data Rate MBytes/sec</i>
<i>Canada, TRIUMF</i>		X			50
<i>France, CC-IN2P3</i>	X	X	X	X	200
<i>Germany, KIT</i>	X	X	X	X	200
<i>Italy, CNAF</i>	X	X	X	X	200
<i>Netherlands LHC/Tier1</i>	X	X		X	150
<i>Nordic Data Grid Facility</i>	X	X	X		50
<i>Spain, PIC Barcelona</i>		X	X	X	100
<i>Taipei, ASGC</i>		X	X		100
<i>UK, RAL</i>	X	X	X	X	150
<i>USA, BNL</i>		X			200
<i>USA, FNAL</i>			X		200
<i>Target data rate at CERN</i>					1,600

**Table 1 – Nominal Network/Tape Data Rates by Site**

The service phase of Service Challenge 4 will include the basic software components required for the initial LHC data processing service, as defined in the LCG Technical Design Report. The service must be able to support the full computing model of each experiment, including simulation and end-user batch analysis at Tier-2 centres. The service phase is scheduled to operate for four months from May to September 2006.

#### Initial LHC Service

The initial LHC service is scheduled to enter operation by end-September 2006, capable of handling the full nominal data rate (see Table 1). The service will be used for extended testing of the computing systems of the four experiments, for simulation and for processing of cosmic data. During the following six months each