



WLCG Tier-2 Asia Workshop

TIFR, Mumbai

1-3 December 2006



Goals of the Workshop

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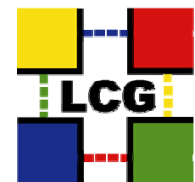




Only one year before the accelerator starts

- All dipoles delivered (28 Nov)
- Two thirds of the 1,706 magnets have been installed
- Cryogenics distribution line completed (19 Oct)
- Sector 7-8 completed on 10 Nov. – now under test

The accelerator is well on the way to produce the first collisions within the next year





The final year for the Indian teams responsible for testing the magnets



The last Diwali in SM18





The race is on to complete the detectors before the ring is closed

- ATLAS barrel toroid tested at full strength early November
- CMS solenoid reached full strength in September – components being installed now in the cavern
- ALICE sub-detector installation has been going on steadily since July





7 months to prepare the system
11 months before the first collisions

LCG Computing Service Commissioning Schedule

Tier-0 → Tier-1 data distribution

Continuous testing of computing models, basic services

Integrating the Tier-2s for analysis as well as for simulation – -- building up end-user analysis support

Exercising the computing systems, ramping up job rates, data management performance,

2006

2007

2008

LCG initial service in operation, from the end of SC4

Introduce residual services
Full FTS services; 3D; SRM v2.2; VOMS roles

Service commissioning – increase reliability, performance, capacity to target levels, experience in monitoring, 24 X 7 operation,

01jul07 - service commissioned - full 2007 capacity, performance

first physics

Experiments

Sites & Services

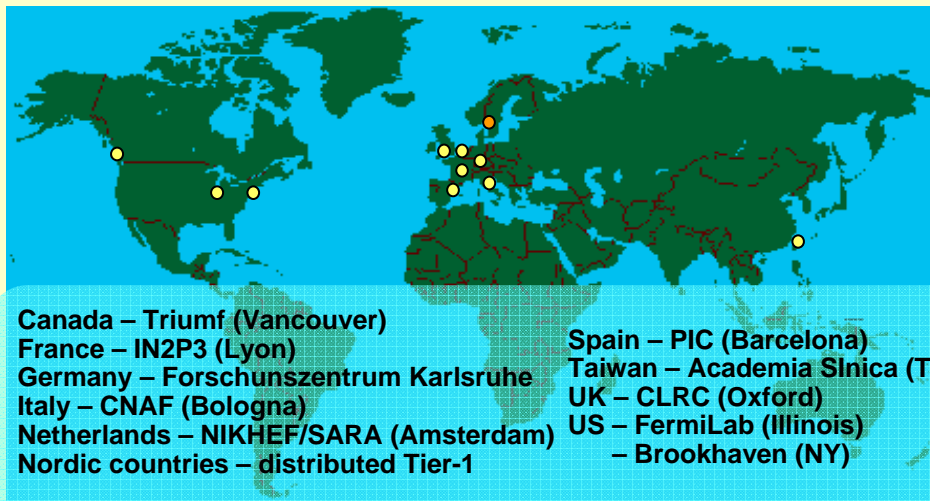




LCG Service Hierarchy

Tier-0 – the accelerator centre

- Data acquisition & initial processing
- Long-term data curation
- Distribution of data → Tier-1 centres



Tier-1 – “online” to the data acquisition process → high availability

- Managed Mass Storage –
→ grid-enabled data service
- Data-heavy analysis
- National, regional support

Tier-2 – ~120 centres in ~35 countries

- Simulation
- End-user analysis – batch and interactive





LCG Service Hierarchy

Tier-0 – the accelerator centre

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-



The distributed computing environment is essential for making the data available to physicists

- there will be only a small fraction of the computing at CERN
- the data is distributed immediately to the Tier-1s
- the Tier-2s are where the physicists will be working

Canada – Triumf (Vancouver)
 France – IN2P3 (Lyon)
 Germany – Forschungszentrum Karlsruhe
 Italy – CNAF (Bologna)
 Netherlands – NIKHEF/SARA (Amsterdam)
 Nordic countries – distributed Tier-1

Spain – PIC (Barcelona)
 Taiwan – Academia Sinica (Taipei)
 UK – CLRC (Oxford)
 US – FermiLab (Illinois)
 – Brookhaven (NY)

Data heavy analysis
 National, regional support

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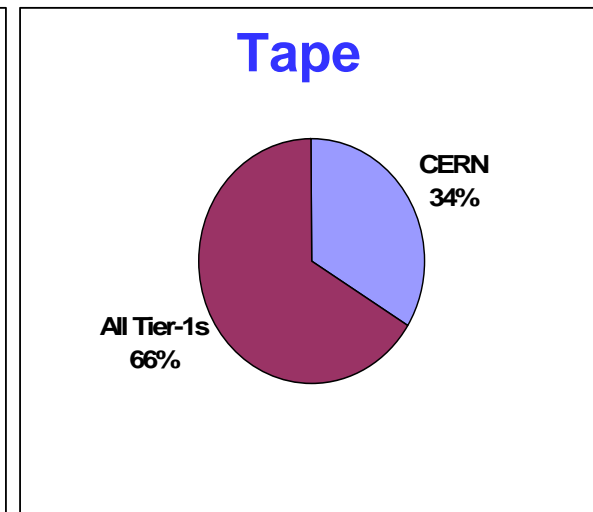
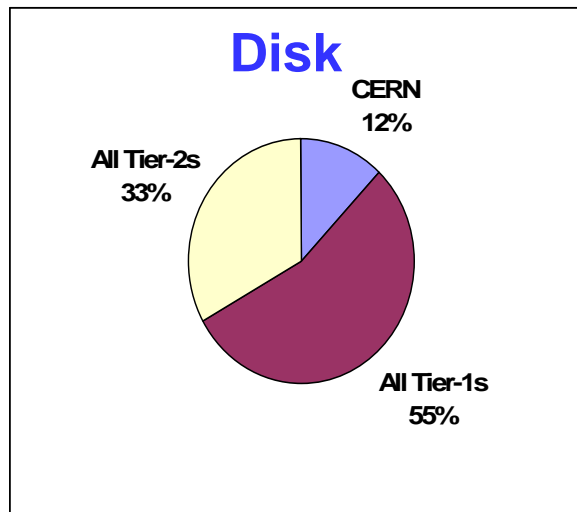
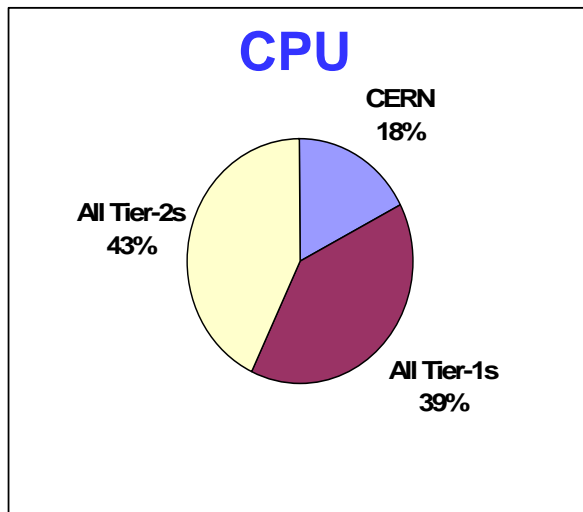
Distribution of Computing Services

Summary of Computing Resource Requirements

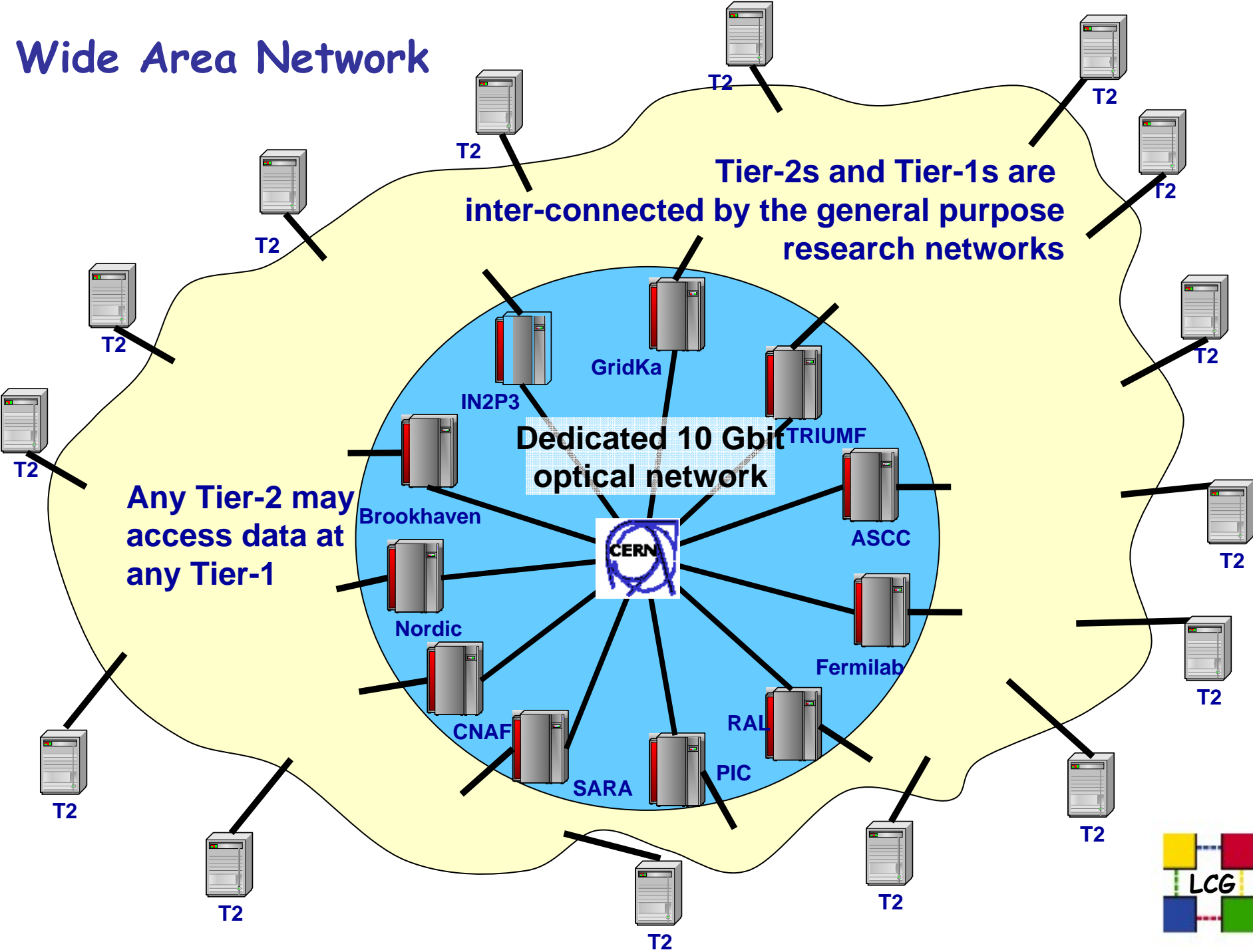
All experiments - First full year

From LCG TDR - June 2005

	<i>CERN</i>	<i>All Tier-1s</i>	<i>All Tier-2s</i>	<i>Total</i>
CPU (MSPECint2000s)	25	56	61	142
Disk (PetaBytes)	7	31	19	57
Tape (PetaBytes)	18	35		53



Wide Area Network





Goals of the Workshop

- There are very many components and people involved, and all of this must work together reliably ..

.. and so it is essential that the whole complicated environment (data distribution, job scheduling, user access, ..) is fully tested out and operating

.. well before the first data comes

- The purpose of the workshop is
 - to foster communication among you, the people who are going to run the regional centres in Asia, the Tier-1 and the Tier-2s
 - to discuss and understand how the experiments will make best use of the resources
 - to uncover any particular difficulties and problems that have to be addressed and overcome
 - to start the planning for 2007 ..

in order to make that all is in place within the next 12 months



