LCG - The Worldwide LHC Computing Grid

Collaboration Board
CERN
29 January 2007

Les Robertson
LCG Project Leader

- This CB meeting is embedded in a week long workshop
- So I am assuming that you have all heard enough about the status of the project

LCG Organisation – Phase 2

LHC Committee - LHCC
Scientific Review

Computing Resources Review Board - C-RRB
Funding Agencies

Collaboration Board – CB
Experiments and Regional Centres

Collaboration Board – chair Neil Geddes

- One person from each Institution or federation of Institutions that is a member of the Collaboration
  → all Tier-1s and Tier-2s
- Spokespersons of each LHC Experiment
- CERN Chief Scientific Officer (CSO)
- CERN/IT and CERN/PH Department Heads
- Scientific Secretary

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Physics Applications Software

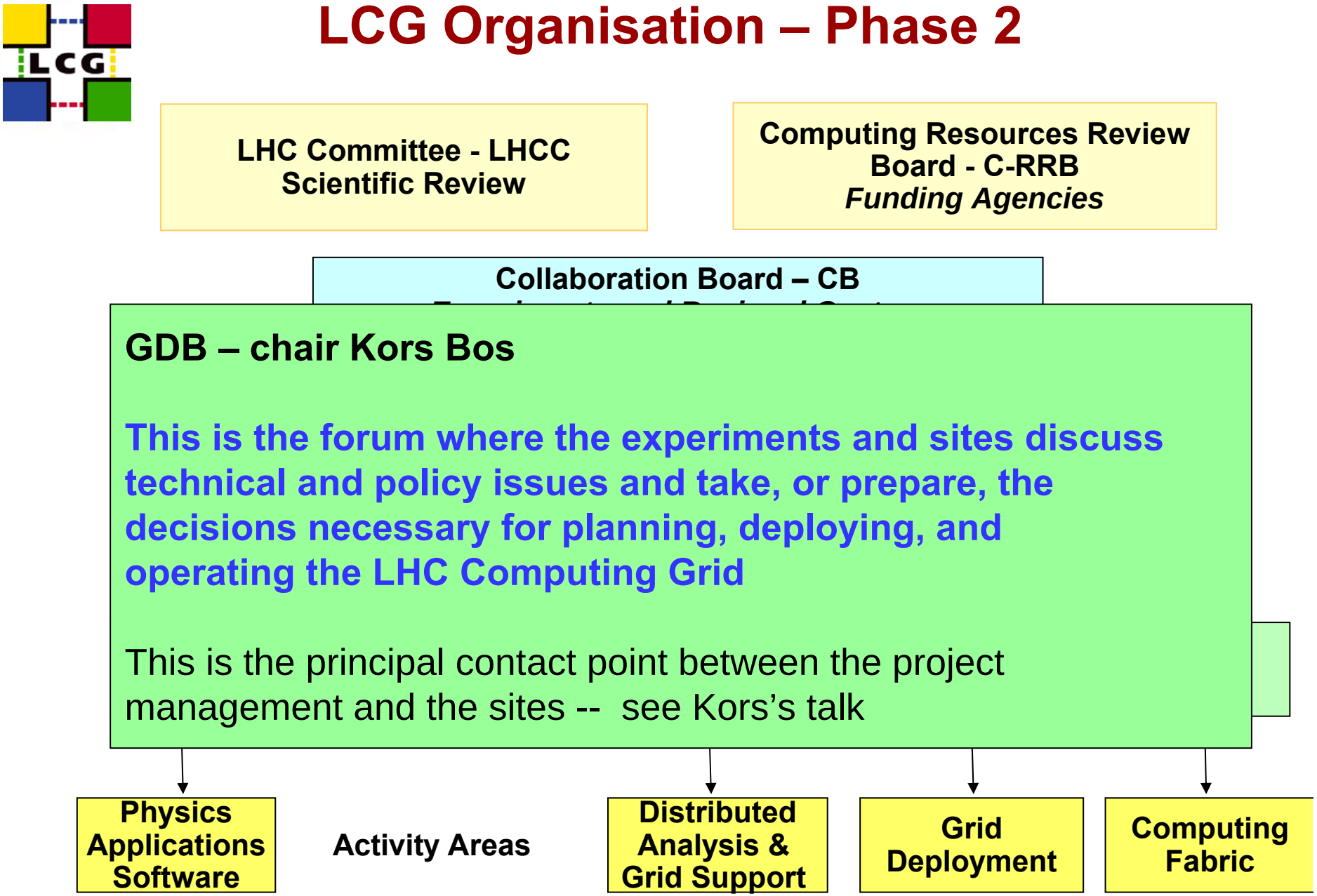
Activity Areas

Distributed Analysis & Grid Support

Grid Deployment

Computing Fabric

LCG Organisation – Phase 2



LCG Organisation – Phase 2

LHC Committee - LHCC
Scientific Review

Computing Resources Review Board - C-RRB

Management Board – chair Project Leader

The executive board of the project
- **organises and oversees the work of the project**
- **sets priorities and direction**
- **prepares the project plan**
- **monitors progress, service levels, resource usage**
- **initiates corrective actions**
- **meets weekly**

Experiment Computing Coordinators
One person fromTier-0 and each **Tier-1** Site
GDB chair
Project Leader, Area Managers
EGEE Technical Director (Erwin Laure)
OSG Executive Director (Ruth Pordes)

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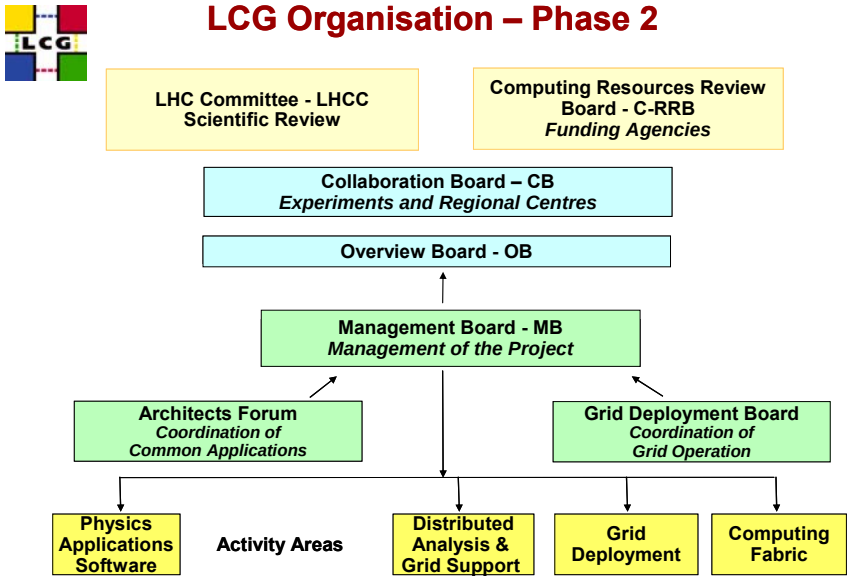
Tier-2 Representation in WLCG

- Member of the Collaboration Board
- Technical discussion, evolving strategy, security policy …. → **GDB**
  - Tier-2s should be pro-active about ensuring that they are involved in this process .. ..
    .. .. direct participation, through national federations
  - Monthly whole day meeting – often preceded by a technical day on a specific topic
- Operationally through the grid infrastructures
  - EGEE – regional ROC
  - OSG – US Tier-1s
  - Nordic sites – NDGF
- Input to the Management Board
  - via national Tier-1 if it exists
  - via the GDB chair for countries without a Tier-1
  - directly to me



MoU Commitments

- Resources are committed through the MoU
  - MoU defines delivered capacity,
    service level – response time, reliability
  - The TDRs define how the resources are used –

    -- with key parameters extracted for each site into the *MegaTable* (see talk by Chris Eck) -- network/data transfer performance, data storage classes

- The MB has to oversee how the resources are being delivered

  preparing reports for the Overview Board, Computing Resource Review Board

Site Reliability

- Have been monitoring site reliability daily for CERN and Tier-1 sites since May 2006
- Reliability is measured for all EGEE sites through the Service Availability Monitoring (SAM) framework
- A subset of the basic tests have been agreed to define site availability – as seen from the grid
  - CE, SE, local BDII
  - All tests work – site is available
  - One test fails – site is not available
  - Reliability – excludes scheduled down times
  - Clearly this is simplistic – but it is a start
- SAM includes many other tests, and the framework also supports experiment specific tests
- The availability/reliability test set will evolve
- SAM sensors being developed also for OSG, NDGF
- During 20007 – progressively extend the reliability monitoring to Tier-2s

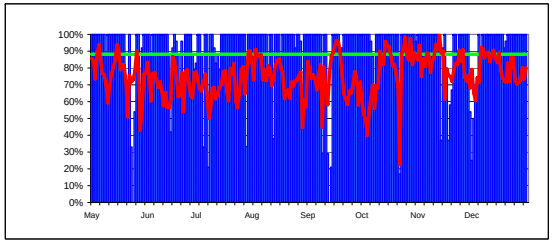
Reliability of WLCG Tier-1 Sites + CERN 2006

Data from SAM monitoring. Site availability and reliability as agreed in WLCG MB on 11 July 2006 (scheduled interruptions are excluded when calculating reliability)

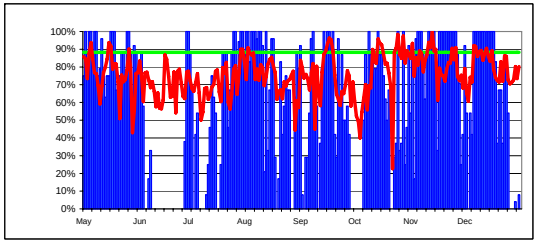
Availability is plotted May through August, reliability is plotted from September on. Availability means tests passed, reliability means test passed or site scheduled down.

target (90% of MoU) 88% site average colour coding: **< 90% of target ≥ 90% of target ≥ target**

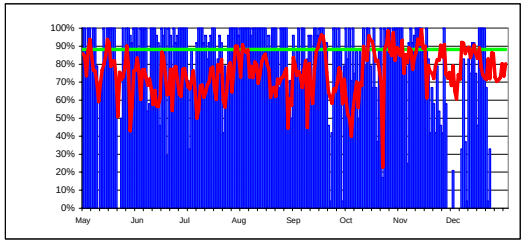
average (all sites) 79% **8 best sites 84%** **# sites: ≥ target 2 ≥ 90% of target 7**



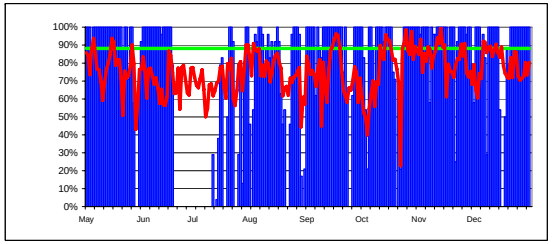
CERN-PROD average 93%



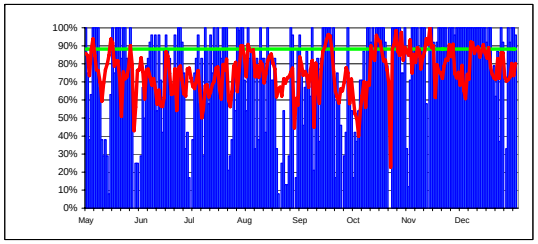
FZK-LCG2 average 67%



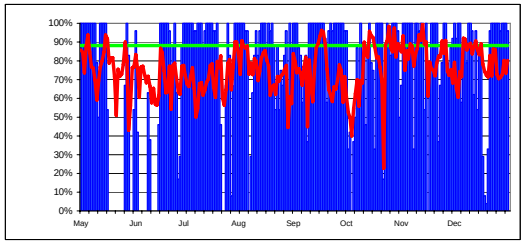
IN2P3-CC average 64%



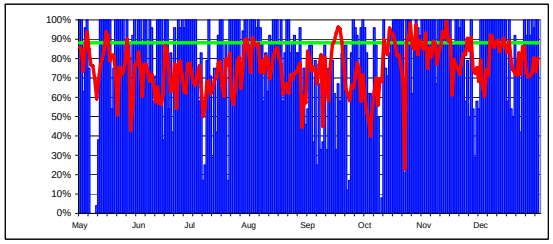
INFN-T1 average 88%



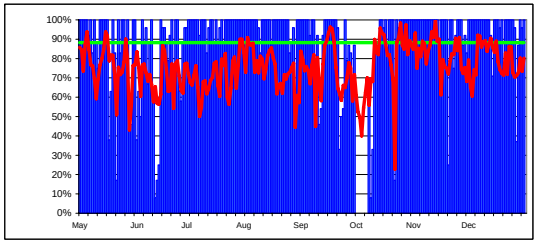
RAL-LCG2 average 85%



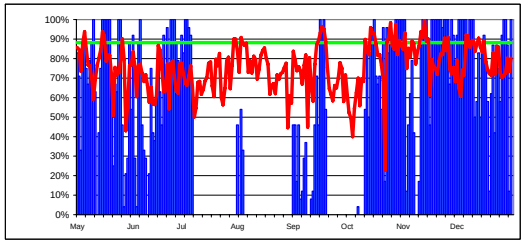
SARA-MATRIX average 80%



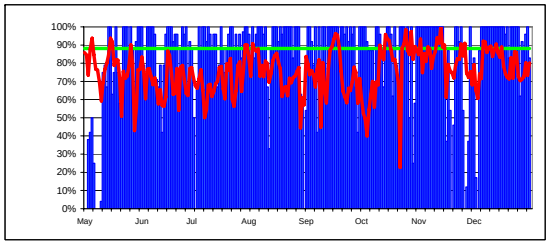
TRIUMF-LCG2 average 86%



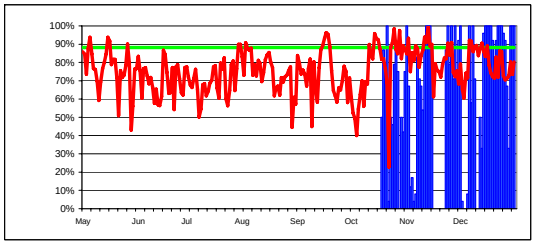
Taiwan-LCG2 average 85%



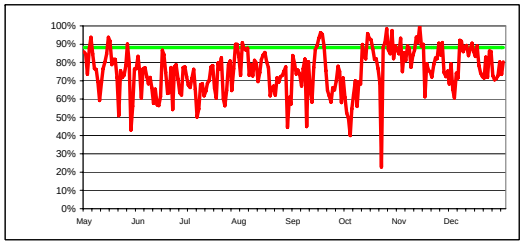
USCMS-FNAL-WC1 average 70%



PIC average 85%



BNL-LCG2 average 51%



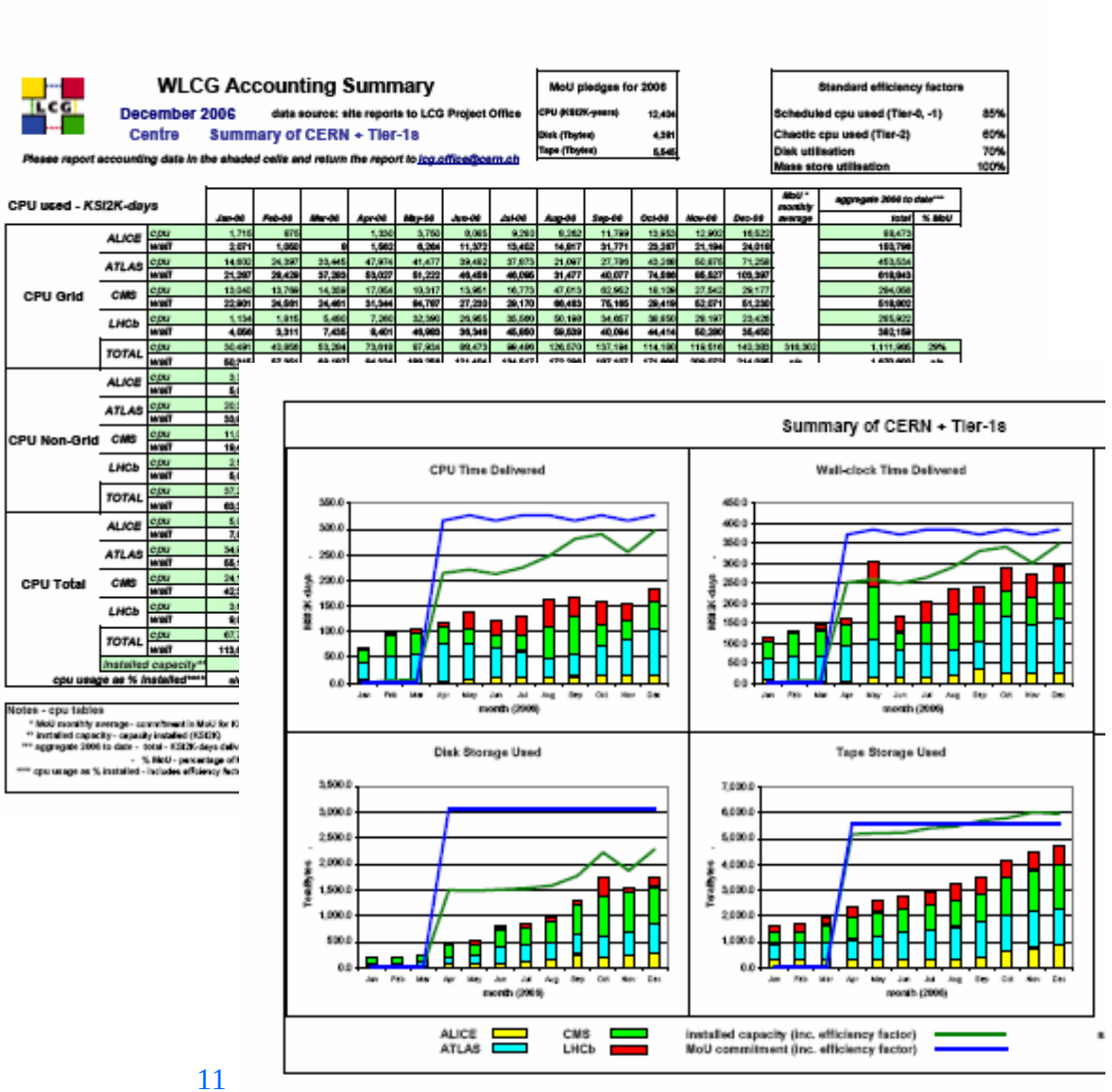
NDGF average n/a

Other metrics

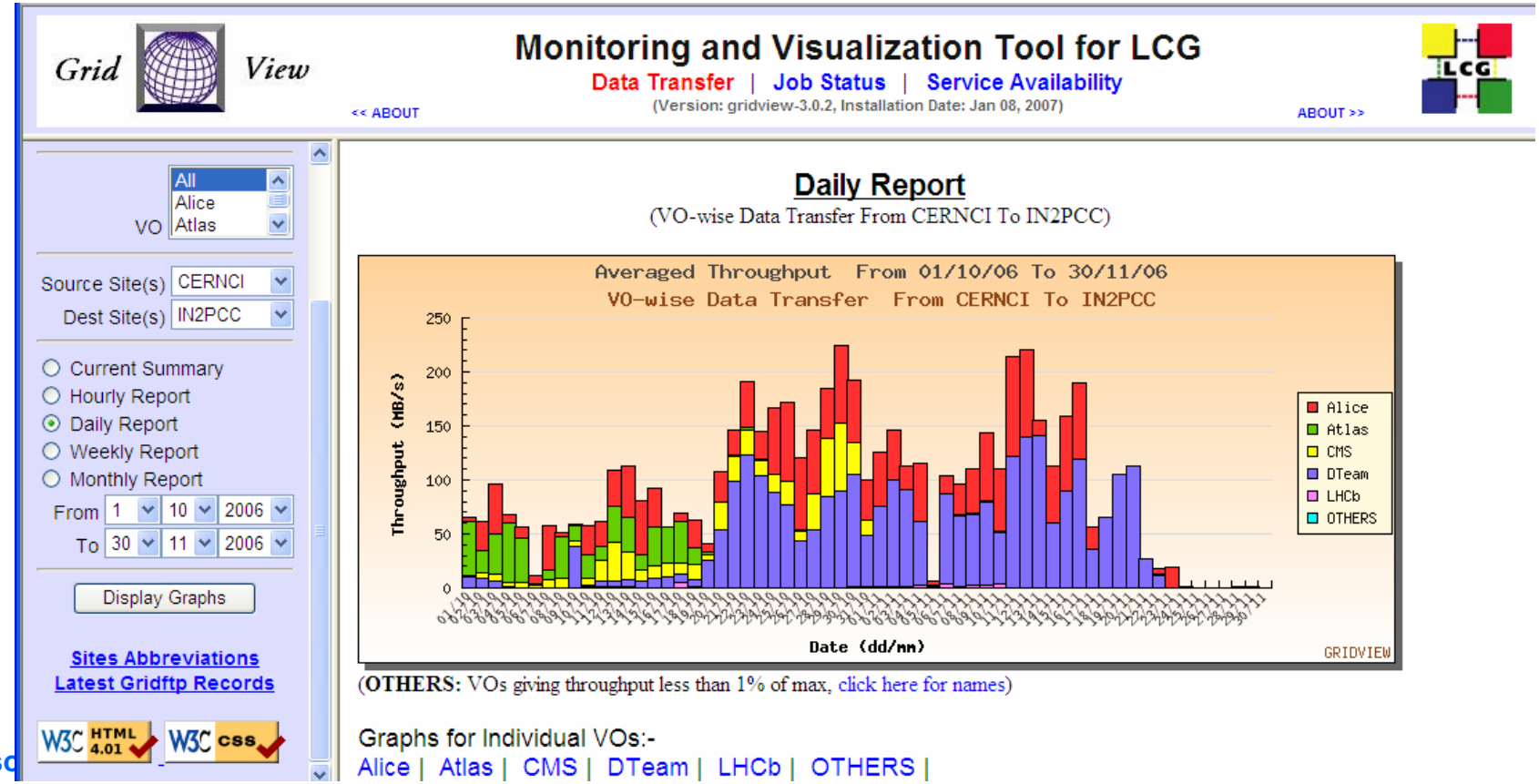
- Resource provision and usage (accounting)
- Network data throughout, quality
- Job reliability

Accounting

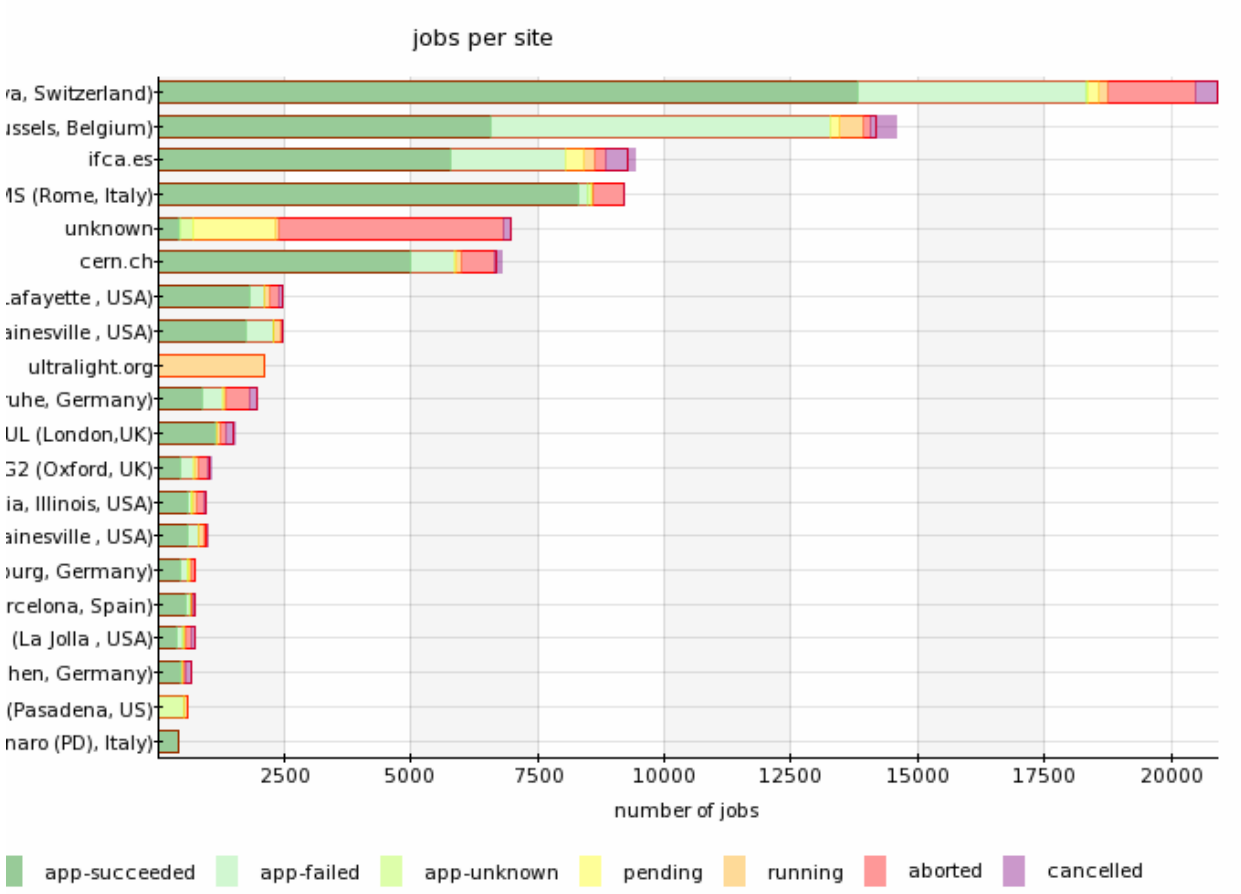
- Accounting data for CERN and Tier-1s reported to OB since April 2006
  -- and to the C-RRB from last October
- User-level accounting will be introduced over the next few months
- Reporting will be progressively extended to Tier-2s during 2007



- Network data throughout, quality
  - Focus of the 2006 Service Challenge was on CERN → Tier-1s
  - Defining now milestones for Tier-1←→Tier-2
    Data rates specified in the MegaTable
  - Measurements -- driven by experiments (tests and production)
  - Reporting at the project level by GridView



- Job reliability –
  - ATLAS and CMS dashboards – measure job success rates for certain classes of job
  - being extended also to ALICE, LHCb
  - Working on defining appropriate metrics



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Inter-Site Rates – Revised Megatable

Centre	T0->T1	T1->T2	T2->T1	T1<->T1
	Predictable – Data Taking	Bursty – User Needs	Predictable – Simulation	Scheduled Reprocessing
IN2P3, Lyon	220	286.2	85.5	496.0
GridKA, Germany	220	384.9	84.1	395.6
CNAF, Italy	190	321.3	58.4	583.8
FNAL, USA	110	415.0	52.6	417.0
BNL, USA	300	137.7	24.8	358.0
RAL, UK	120	108.3	36.0	479.4
NIKHEF, NL	160	34.1	6.1	310.4
ASGC, Taipei	120	126.5	19.3	281.2
PIC, Spain	100	167.1	23.3	294.5
Nordic Data Grid Facility	60	-	-	62.4
TRIUMF, Canada	60	-	-	59.0

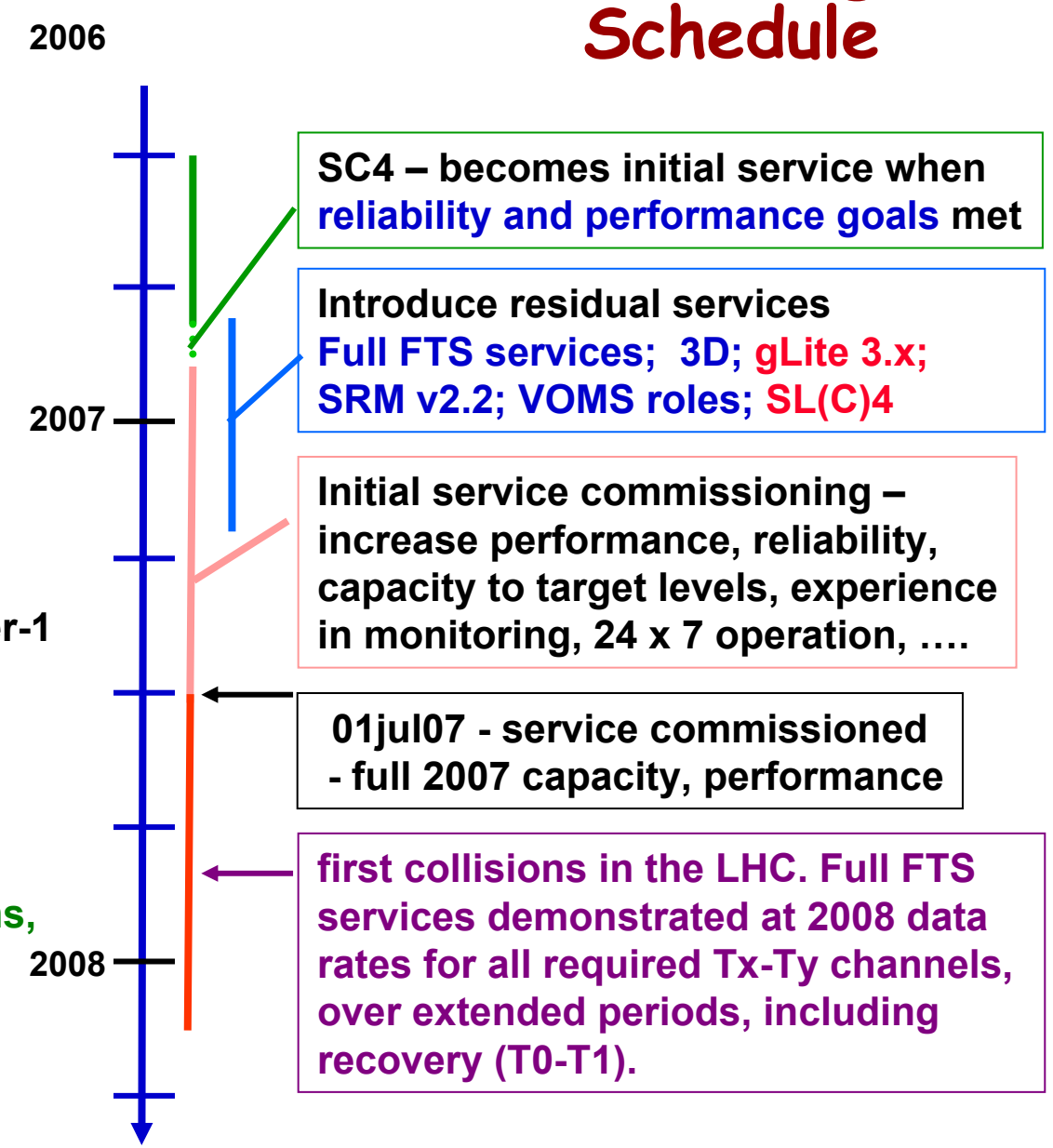
Continued testing of computing models, basic services

Testing DAQ→Tier-0 (??) & integrating into DAQ→Tier-0→Tier-1 data flow

Building up end-user analysis support

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

WLCG Commissioning Schedule



The first collisions

- The accelerator schedule foresees first collisions in November

- So the experiments will have the first interesting data by the time of CERN's scheduled closure on 22 December

  and presumably they will want to start analysing it right away

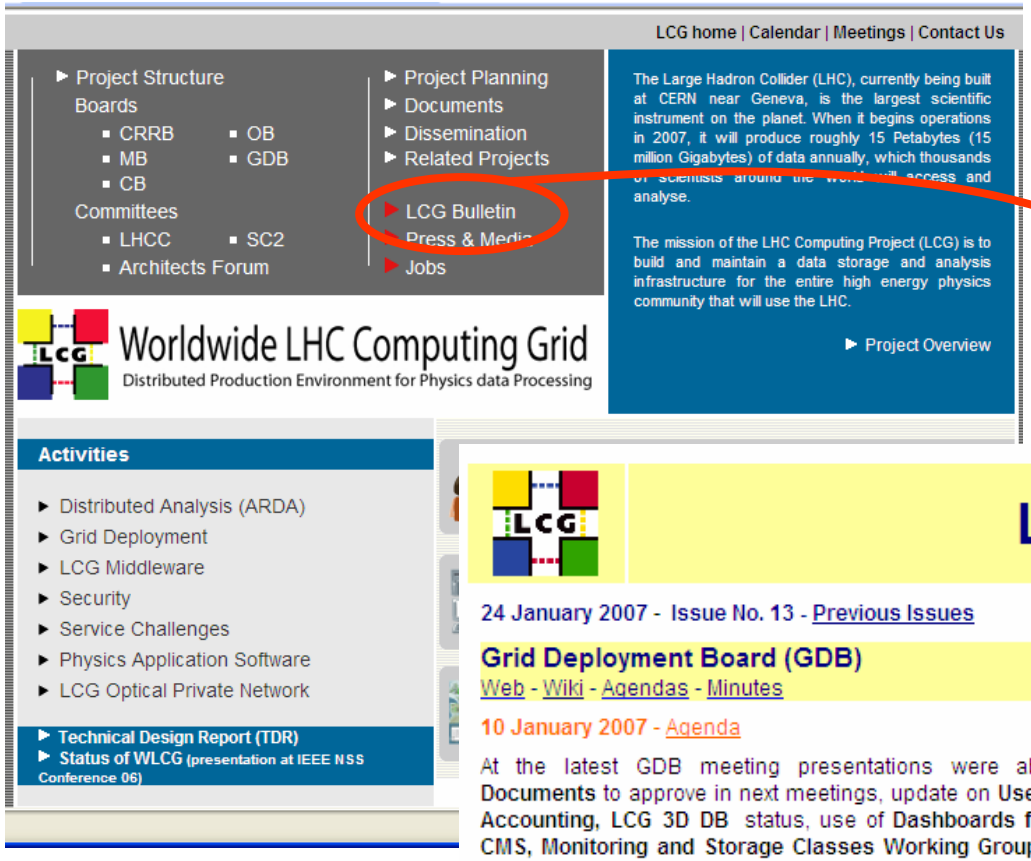
- If there are delays in the start-up the current intention is to continue setting up over the year-end

In both cases →

Sites need to plan flexible coverage over the end of this year

Planning Page
formal resource data, reports, milestones

MB, GDB
agendas, minutes



LCG Bulletin

24 January 2007 - Issue No. 13 - Previous Issues

Sites Availability - Accounting Summary - LCG Planning

Grid Deployment Board (GDB)

Web - Wiki - Agendas - Minutes

10 January 2007 - Agenda

At the latest GDB meeting presentations were about: **Security Documents** to approve in next meetings, update on **User and Storage Accounting, LCG 3D DB** status, use of **Dashboards for ATLAS and CMS, Monitoring and Storage Classes Working Groups, Plans from Experiments and Sites.**

The "pre-GDB" meeting discussed the status and mandate of the **Working Group on Storage Classes.** pre-GDB 9 Jan

WLCG-OSG-EGEE Operations (OPS)

Agendas - Action List

15 January 2007 - Agenda, Minutes

ALICE on SL4 - ALICE testing their software on SL4 on the Pre-Production Service. A small incompatibility was found in the ALIROOT libraries but the fix for this issue is expected very soon.

Monitoring File Transfers and SRM Endpoints - LHCb raised issues concerning the reliability of data transfers between Tier-1 sites. ROCs and sites should use the prototype of the FTS monitoring tool to check on the status of their services frequently.
Also the grid operators and the ROCs should actively monitor the FTS services and the SRM endpoints (through SAM). Initially this will be carried out at the CERN Tier-0 site. When adequate experience is gained (2-3 weeks) a request will be sent to the grid operators in order to monitor for the FTS/SRM services at all Tier-1 sites. Link.

Management Board (MB)

Web - Wiki - Members - Agendas - Minutes

16 January 207 - Agenda

GSSD Working Group - Mandate and attendance of the GSSD (Grid Storage Systems Deployment) working group was approved by the MB.

Targets for 2007 Update - J.Shiers presented the progress, since the previous week, on defining milestones and targets for 2007.

9 January 2007 - Agenda, Minutes

Decisions on Accounting - As follow-up to the previous meeting, the MB agreed on how and when accounting data will become be collected automatically and when it will be extended also to the WLCG Tier-2 sites.

Update on VOMS Roles/Groups and Priorities - J.Templon presented the status of the work done, and what is still needed, in order to implement Job Scheduling Priorities at the WLCG Tier-1 sites.

Targets for 2007 Update - J.Shiers presented the progress on defining milestones and targets for 2007.

Long-Term Planning for the CERN CC - L.Robertson presented initial ideas about the organization of long-term future computing resources and asked for input from the LHC experiments.

Architects Forum (AF)

Minutes - Web

11 January 2007 - Minutes

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