LCG RTAG 12:
Collaborative Tools for the LHC

Steven Goldfarb
ACCU
CERN - 14 Jun 2006
LCG RTAG 12

What is an LCG RTAG?

- **LHC Computing Grid “Requirements and Technical Assessment Group**
  - Proposed by the LCG PEB (Project Execution Board)
  - Seek Common Ground, Solutions to Problems Shared by the LHC Collaborations

What is RTAG 12?

- **Focus on Collaborative Tools**
  - Video Conferencing, Phone Conferencing, Document Sharing, Application Sharing, Lecture Archiving, Webcasting, Conference Management, etc.

- **Assembled Spring 2004**
  - Final Report Spring 2005

**Mandate**

- Assess the needs for collaborative tools of all collaboration members, located at CERN, major labs or smaller institutes, including isolated ("laptop") users.
- Survey the existing technologies and consider costs, performance, hardware and bandwidth requirements, interconnectivity.
- Make concrete proposals about how CERN videoconferencing facilities and support organization might be consolidated, improved and better supported in the immediate future, with strong emphasis on the performance as perceived by remote users.
## RTAG 12 Composition

<table>
<thead>
<tr>
<th>Participant</th>
<th>Institute</th>
<th>Representing</th>
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<tbody>
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<td>Les Robertson (ex-officio)</td>
<td>CERN-IT/DI</td>
<td>LCG-PEB Chair</td>
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- **LHC Collaboration Representative**
- **CERN Representative**
- **Collaborative Tool Expert**
- **Recipient of Final Report**

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RTAG 12 Activities

Investigation
- weekly, **in-depth discussions between representatives of the LHC collaborations and experts in the field (RTAG participants, invited guests)**;
- **discussions with the CERN video and phone conferencing staffs**;
- **analysis of formal and informal surveys of LHC collaboration members**;
- **basic tests of equipment and video conferencing systems using the facilities installed in various CERN conference rooms**.

Documentation

- **Report to PEB (1 Jun 2004)**
- **Report to PEB (30 Nov 2004)**
  [http://cern.ch/muondoc/rtag12/Presentations/PEB/20041130/ProgressReport.ppt](http://cern.ch/muondoc/rtag12/Presentations/PEB/20041130/ProgressReport.ppt)
RTAG 12 Findings

From the Executive Summary

The RTAG has found a large and growing gap between the requirements of the LHC Collaborations for high quality, robust collaborative tools, and the availability of these tools at CERN and at the participating institutes. This gap is the result of increasing need for and growing popularity of the tools, as the experiments enter the critical stage of commissioning, assembly, and software development, and a lack of dedicated resources on the part of CERN and the collaborations to address this demand.

Let Me Put It Bluntly

- No Single, Central Organization within CERN
- No Real Coordination or Dialogue Between CERN, Collaborations
- Existing CERN Facilities In Minimal Maintenance Mode for 5 Years
- Nowhere Nearly Enough Facilities at CERN
- No Common Guidelines for External Labs, Institutes
- Existing Services Lacking Support, Clear LHC Requirements
- No Decision On Which Services To Use Or How To Integrate Them
- Nevertheless, Some Bright Points (InDiCo, VRVS, WLAP) & Good Ideas
LHC Demand for Collaborative Tools

Meetings

Video Conferences

VRVS/ECS Monthly Hours Ports/Connections

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### Primary Recommendations of RTAG 12

1. We recommend that CERN establish and maintain a Collaborative Tool Service to support the needs of the LHC collaborations.

2. We recommend that the CTS maintain and support VRVS as a standard video conferencing service for the LHC collaborations.

3. We recommend that the CTS establish, maintain and support an industry standard H.323 MCU-based video conferencing service for the LHC collaborations, complementary to and interoperable with VRVS.

4. We recommend that the CTS provide user support for desktop/laptop phone and video conferencing for LHC collaborators situated at CERN, at their home institutes or elsewhere, as appropriate.

5. We recommend that the CTS install, maintain and support a 24/7 operator-free phone conferencing system at CERN.

6. We recommend that the CTS equip and maintain all auditoria and meeting rooms in building 40, as well as those located elsewhere at CERN, commonly used by the LHC collaborations, for integrated phone and video conferencing.

7. We recommend that the CTS extend current web casting and web archiving services to include all auditoria and meeting rooms in building 40, as well as those located elsewhere at CERN, commonly used by the LHC collaborations.

8. We recommend that the CTS take on the leading role in the development of a global Computer Supported Collaborative Work Environment for the LHC community.

9. We recommend that the CTS support development to equip IP-based tools used by the LHC collaborations, such as VRVS, with a Grid certificate authentication and authorization mechanism.
A Few Notes On The Recommendations

They are CERN-Centric

- **Most Events Occur At CERN**
  - Typical Meeting Scenario
    - *CERN Meeting Room or Auditorium* + Remote Participants
  - Many Pure Remote Meetings, As Well
    - *CERN Phone System, VRVS*
  - Most Lecture Recordings Made At CERN
    - *CERN Auditorium, Meeting Room*

- **CERN is the Host Laboratory**
  - Much of What is Needed is Infrastructure
  - Expect CERN to Take the Lead in Coordination

Participation from the East

- **RTAG Lacked Representation from Japan, Other Eastern Nations**
  - My Apologies - Hard to be Completely Inclusive
  - Their Concerns Were Recognized and Discussed
    - Time-Zones are a difficult -- but not unsolvable -- problem
CERN Follow-Up

Immediate (CERN Staff On the RTAG, After All)
- Some Action Taken Before Final Report

Activities
- Audio Conferencing System (24/7 - No Operator) Under Beta Test
- Video Conferencing Facilities in Building 40
  - 40-4-C01, 40-R-B10
- Lecture Archiving System
  - New Infrastructure in Main Auditorium, Software & Database Development
- HERMES Collaboration
  - MCU Operated in Partnership: IN2P3, CNRS, INSERM and CERN
- CERN Organizational Restructuring
  - Collaborative Tool Activity Under One Roof (IT)

Most Importantly!
- Creation of the RCTF (Remote Collaboration Task Force)
  (Essentially the same as the CTS in the Report)
  - Chaired by Thomas Baron of CERN IT
  - Representatives of LHC Experiments
  - Three Meetings since March 21, 2006
Resources

Resources Needed

- Very Very Rough Estimates
  - 1-2 MCHF for Equipment Installations (Phased In Over Several Years)
  - 3-4 New Full-Time Hires

Cost to Experiments if We Ignore Problem

- Report Also Makes Very Very Rough Estimates of Losses
  - Poor Tools Causing Lost Time In Meetings (Few Percent of Meeting Time)
  - Extra Travel for Experts Providing Live Tutorials (Rather than Recording)
  - Communication Failure for Key Items of Coordination (Not Really Quantifiable)

- Integrating Over LHC: Losses of ~2 MCHF / Year!
Funding Scenarios

Where the Resources Could Come From

- **CERN**
  - Networking and Long-Term Infrastructure, Support
    - *Not Just LHC Benefits*
  - Part of the Responsibility of the Host Lab
    - *Like a Phone*
- **LHC Collaborations**
  - Have the Most to Gain (or Not Lose)
  - Already Displayed Willingness
    - *Previous R&D Projects (VRVS, WLAP)*
    - *ATLAS, CMS Budgets for 2006 Include Collaborative Tools*
- **Individual Users**
  - Specialized Services
    - *Operator for Important Video Conferences*
    - *Lecture Recording for Student Mentoring*
    - *Etc.*
  - Simply Require a Budget Code

*Steve’s Guesses Only !!!*

- ~400 kCHF/year
- ~400 kCHF to manpower
- ~400 kCHF to material

Probably small