



LHC Controls Project

Conclusions

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Scope

- What has been achieved?
- What has come up?

Follow up of the First LHC-CP Workshop

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Major Issues

- The Project **mandate** should be formalized and a **PDR** written up based on the COOP Forum and the LHC-CP Workshop
- Project **links to LHC** division must be tightened & interfaces to other projects defined e.g. SPS2001, LTI; several groups prefer a **CERN wide approach** to Control System Strategies.
- **Time scales** are tight: QRL installation in March 2003, a need for a control system for hardware commissioning and a large part of the infrastructure for the Sector Test.
- **String 2** should be used to gain experience on operation without beam.
- Clarification of the controls requirements for hardware installation, the **T1 8 / Sector Test** and octant commissioning, is a pre-requisite to Project Planning
- The project should embrace PS/SL **Middleware WG** and the **LDIWG** and review these activities in the light of LHC requirements and resources.
- The project should initiate the clear specification of the **Real Time** services and then create a sub-project for design and construction.



Major Issues

(from SLTC of 10/5/00)

Mandate and PDR

A debated mandate, no PDR

Links to LHC

Core team extended, regular project meetings. LCC a clarification

CERN-wide approach

Time scale conflicts, line management issues

Tight time scales

Still true

String 2

Involvement increasing

Tl8/Sector Test

Embryonic

Middleware and LDIWG

Involved with Cryo, ST and CMW. LDIWG still premature

Real Time

We have set performance aims and architecture is being defined

More Issues

- **SCADA** guidelines are required within 12 months.
- The project should create a sub-project to address the guidelines and support required by groups integrating **industrial solutions**.
- There is a perceived risk that the project will not win control of **resources** and manpower.
- **Power and Beam Abort** triggering will not depend on the control system, there may however be a soft abort and post mortem is important.
- Results of **Radiation Tests** may have considerable impact on groups.
- Will the Controls system contain **EIS** as defined in **INB** regulations?
- A formal **top-down** approach must be launched - specification of high level requirements.
- Several groups are requesting guidance on **naming conventions; data management** should be addressed.
- The approach for **LHC Alarms** should be reviewed.
- The project should “adopt” the **Future Front Ends** working group.
- The need for **timing** events and the associate services needs clarification.
- A common approach for **waveform acquisition** is required



Major Issues

(from SLTC of 10/5/00)

SCADA Guidelines

On products, yes. On integration, no.

Industrial Solutions

Some progress on architecture and fieldbus. Resource conflicts.

Resources

Very difficult to win resources from the groups

Power and Beam Abort

Clear responsibilities, post mortem work currently stalled

Radiation Tests

Big impact on BI. Leave this to

Top-Down

RADWG

EIS for INB

Delayed by LEP commitment. KEY activity!

Where are we here?



Major Issues

(from SLTC of 10/5/00)

Naming, data management

Do not expect unique naming scheme, data issue delayed by INB commitment

LHC Alarms

Strong collaboration with ST and JCOP. In hand

Future Front Ends

Reported to project. Another report when appropriate.

Timing

Requirements presented via SLTC. Solutions being discussed

Waveform Acquisition

Report from PS and SPS system. A solution has not been found.

Work for 2000

- **Middleware**
 - Look for standard approach (inter, intra ...)
 - Check LHC needs being met
- **Real Time Control**
 - Establish requirements and milestones
 - Initiate technical preparation
- **Start Formal Requirements Analysis**
- **Industrial Systems Integration**
 - Look at turnkey and CERN developed activities
 - Organize guidelines and Support
- **Establish slow timing philosophy for LHC**



Work for 2000

(from SLTC of 10/5/00)

Middleware

Emergence of PVSS is important.

Real Time

PS/SL solution still a prototype

Requirements Analysis

Requirements detailed, converging on a global architecture with groups.

Slow Timing

Various beam scenarios studied and documented.

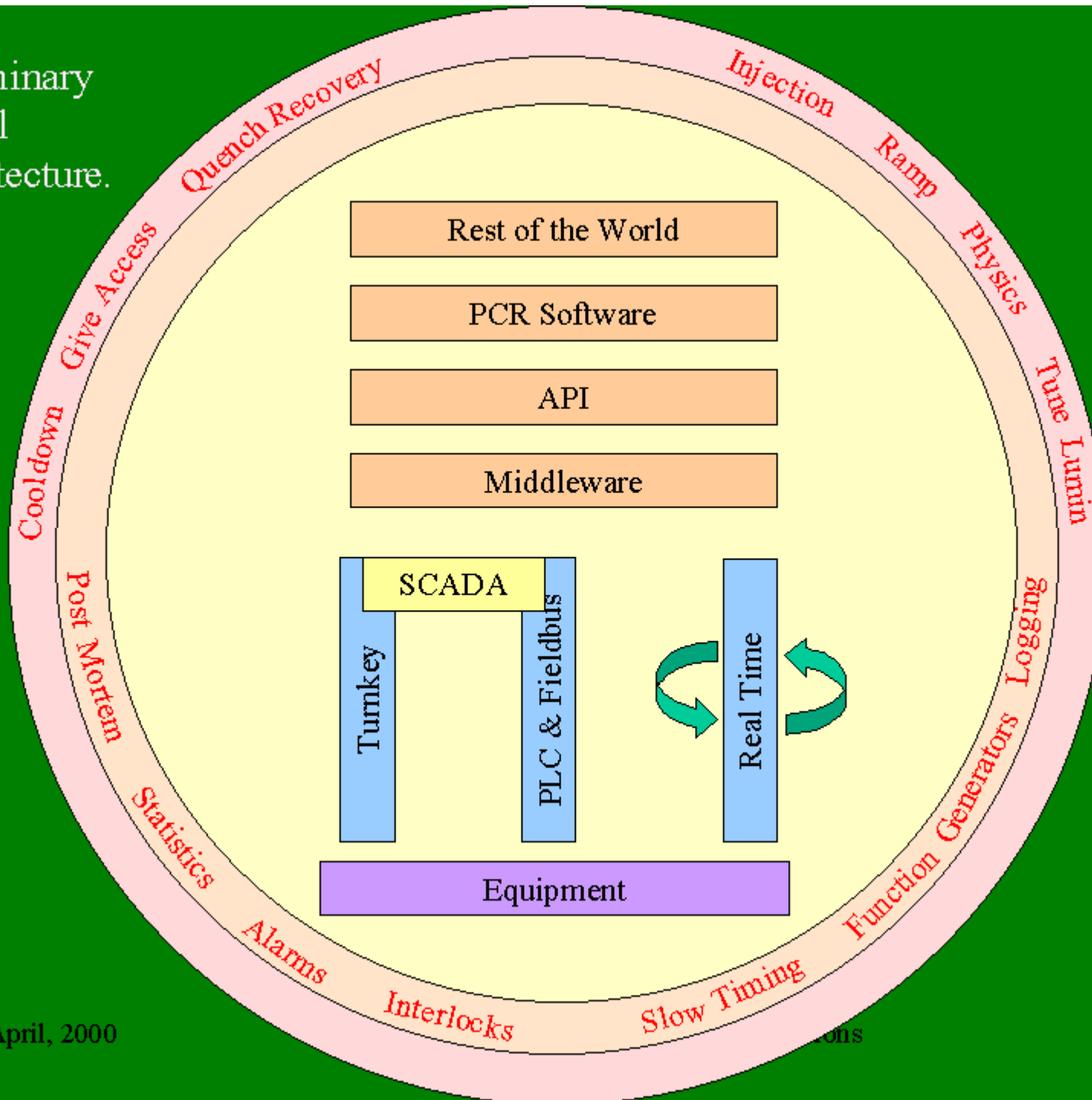
Requirements presented via SLTC.
Solutions being discussed.



Conclusions

- **Meat was in the reports from Sub-Projects and Working Groups. These are driving the project - good!**
- **Top level Use Case and Analysis is the obvious and only way to proceed on solid ground!**

Preliminary
Model
Architecture.





Conclusions

- **Meat was in the reports from Sub-Projects and Working Groups. These are driving the project - good!**
- **Top level Use Case and Analysis is the obvious and best way to proceed on solid ground!**
- **Parallel initiatives to advance on well understood high level services such as Alarms and Timing has been useful.**
- **I have the impression that we might find other “islands” such as Analogue Acquisition, Timing Modules, CMW deployment and prototypes ...**
- ! **Hard to man sub-projects, despite their clear utility. Groups are struggling to fulfill basic needs**
- **Planning is the cement to bond activities. I hope QRL will clear the way for free and creative discussions on complex issues.**



Conclusions

- **Safety checks as mentioned by Rüdiger is an important design / implementation issue.**
- **Our technology requirements are not an issue**
- **Technology evolution - use standards**
- **Bottom up priorities and resources is a concern**
- **Progress frustrated by (the right) resources**
- **We're going down the right road!**