

# Review of MPE activities during LS1 and outlook for LS2/LS3

## View from BE/CO

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*On behalf of the BE/CO APS, DA, DO and FE Sections*

# Agenda

- Application Software
- Development Tools
- Extension of QPS WorldFIP Infrastructure

# Feedback from CO/APS (Application SW)

- Collaboration for PMA and HWC Sequencer
- General assessment
  - The collaboration (mainly with TE/MPE/MS) is very good
  - No difference between LS1 or any other period
  - Good planning - No unexpected/unplanned work items imposed on BE/CO/APS

# CO/APS: Desirable improvements for QPS

- Standardize QPS PM data format
  - QPS PM data format is different from all the other PM data
  - Other systems (PCs, BIs, etc.) have coherent/consistent format
  - Special treatment (development) needed for QPS PM data
- Simplify interactions with QPS from the controls system:
  - We do not have documentation on how to interact with QPS systems we always need to ask QPS expert how to do it
  - The proposed solutions by QPS experts do not always work: involves several iterations of trying, with help from OP people
  - Controls interactions not intuitive and/or too low level (e.g. waiting for PM-data-sending-finished requires 3 steps as opposed to one status flag, SEQ-930) -> specific code needed to compensate for this

# Agenda

- Application Software
- **Development Tools**
- Extension of QPS WorldFIP Infrastructure

# Feedback from CO/DO (Dev Tools + SUWG)

- Collaboration for software development tools
- CO/DO provides development tools to the acc sector
  - Atlassian tools (Wikis, JIRA, Bamboo, Crucible)
  - Tools: Eclipse IDE, Java build tool (CBNG), SW Repositories
- MPE/MS contributes and extends and helps out
  - Customizes Eclipse and helps with support and validation
  - Provides SONAR Quality Assurance tool for BE/CO
  - Early adoption and collaboration on CBNG Build tool (c.f. next slide)
- Smooth upgrade WG (headed by Vito Baggiolini)
  - Timely announcements of planned MPE/MS changes before TS
  - Efficient and reliable upgrades during Technical Stops
- Generally excellent collaboration, mutual respect and trust!

# CO/DO: Bumpy collaboration on CBNG tool

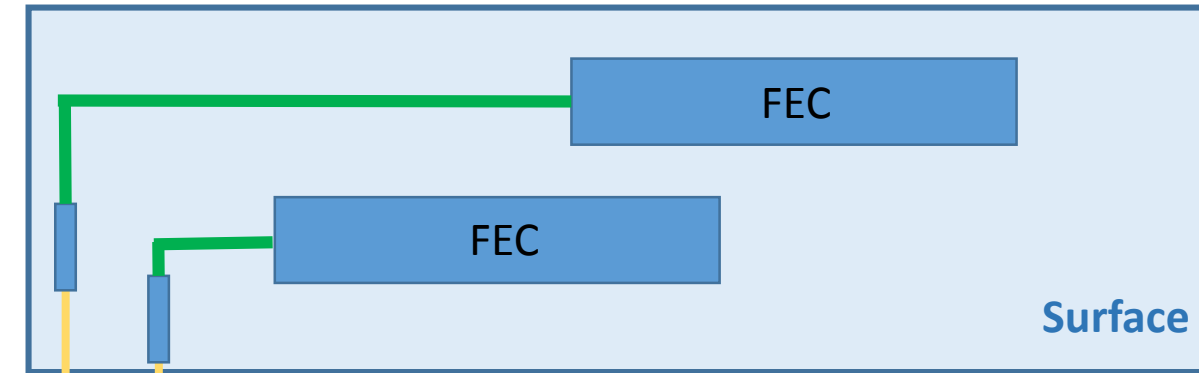
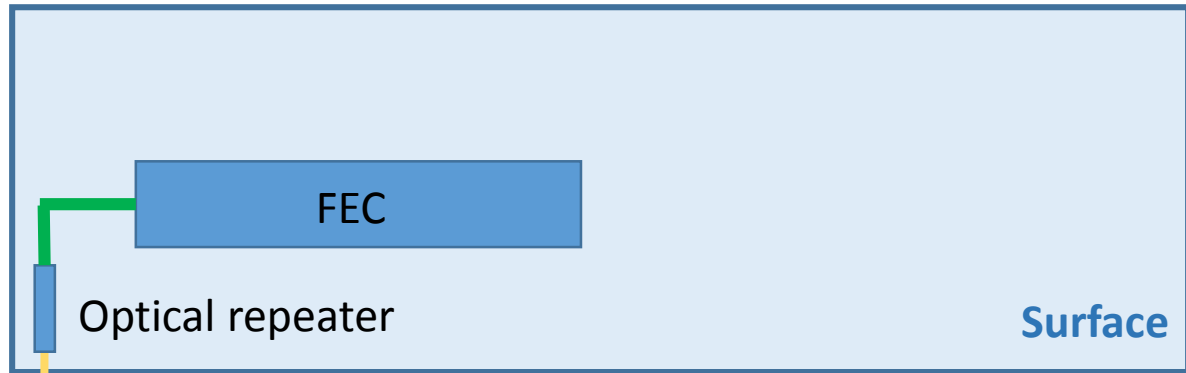
- Started collaboration on CBNG build tool in Summer 2013 for acc-testing, looked like win-win:
  - DO provides a new tool, MS can use new functionality
  - Acc-testing team validates gives early feedback
- ... but in late 2013
  - Technical difficulties lead to delay and suffering for acc-testing team
  - “Overwhelming” contribution from acc-testing team destabilized CO/DO team
  - Different priorities and objectives lead to some frustration
- Since April 2014 problems mostly solved

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# Extension of the QPS WorldFIP Infrastructure



# Extension of QPS WorldFIP Infrastructure

## What was your groups' contribution to MPE work? and the other way round?

- BE/CO took responsibility for
  - Design of the new WorldFIP segments
  - Procurement of the components (repeaters, FECs, etc.)
  - Cable/Fiber installation requests
  - Preparation, assembly and installation in LHC surface and underground areas
  - Network Qualification
  - Global LS1 Planning with other partners (power distribution, cabling, fibers, Ethernet, etc.)

# Extension of QPS WorldFIP Infrastructure

## What was the impact of MPE work on your own activities?

- Main BE-CO LHC Hardware activity during LS1:
  - QPS extension
  - R2E relocation
  - all other efforts on the Injector Complex in the context of ACCOR
- BE-CO resources involved for QPS extension:
  - Infrastructure (preparation, installation, qualification)
    - 2 FSU 100%
    - 1 CO-FE Staff 80%
  - Data Bases
    - 4-5 weeks of 1 FTE

# Extension of QPS WorldFIP Infrastructure

**What were the interfaces (Material, Personnel...) with MPE work? Please define limits of responsibilities**

- Planning of QPS Tests: Bruno Puccio
- Hardware questions : Knud Petersen, Reiner Denz
- Software integration, Layout DBs : H.Milcent
  
- BE/CO responsibility
  - Provision and qualification of WorldFIP low-level HW infrastructure
  - Timing distribution
  - FESA3 Framework
  - Layout DBs

# Extension of QPS WorldFIP Infrastructure

## What worked well?

- Planning : we appreciate the flexibility and good communication of the QPS team for all aspects related to the qualification and testing
- Qualification :
  - In general the results were good
  - The few problems encountered during the qualification process (number of agents not well balanced, change of agent location) could easily be fixed thanks to a good collaboration between the teams

# Extension of QPS WorldFIP Infrastructure

What went wrong? ... I would rather say “What can be improved”

- BE/CO not involved in QPS hardware changes, which had an impact on the WorldFIP infrastructure:
  - Remove of 220V socket in QPS crates used for the repeaters
  - Switch of the Bus Arbiter cycle from 200ms to 100ms
  - Upgrade of QPS to double UPS
- Synchronization of the work on the WorldFIP bus:
  - WorldFIP connectors dismantled by QPS team due to new QPS crates
  - need for a second qualification by BE/CO
- Feedback:
  - BE/CO suppressed the unused repeaters asking if any performance issue, no return (no problem?) – *we are at the max number of agents/segment*

# Extension of QPS WorldFIP Infrastructure

## Conclusion

- LS1
  - Both QPS and BE/CO teams performed an important work during LS1
  - Both teams showed good flexibility and collaboration, in particular during qualification
- Lesson for LS2,3
  - The WorldFIP infrastructure is shared and any important modification deserves some **better formal upfront specifications** involving BE/CO