Frameworks & Technology
2021 Challenges and Opportunities

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FT Section Meeting
CERN, 12th January 2021
The most important things first: the TEAM

**Opportunities**

- LD2IC Exercise
  - Stability for the NGA and new Alarm Screen
  - Awaiting with impatience the incorporation of a highly competent AP engineer in the team -> called to play an important role in the development of the frameworks
- Hopefully LD post in the section in 2021
The most important things first: the TEAM

**Challenges**

- Loss of two *heavy-weights* in the section and lots of accumulated critical knowledge
- Important loss of human value
  - Departure of many friends which have helped to build an incredible work environment over the years
  - Unfortunately, a recurrent situation at CERN
- SCADA firepower in the FT section reduced to a strict minimum
  - Excluding ICs, most of the team will end their contracts in 2021
Lots of knowledge transfer required

To a large extend, a (quasi)-full renovation of the team (except ICs)

Impacted activities:

- WinCC OA Service will be looking for another father/mother
- Development (CI/CD) and testing platforms
- SCADA Components for Power Supplies
  - Together with most expertise in debugging problems at all levels of the OPC chain
- Access Control & Security
- NXCALS transfers and Logging DB comp.

- WinCC OA -> Laser transfers
- All DIP-based components of the Frameworks
- A 30% FTE hole will be created in CPC SCADA
- NGA
- Installation tool, trending, JSON Serializer, etc.
Presently on a cross-road

*Many Technical challenges also await us in 2021*

- **Schneider M580 crashes**
  - Issue must be understood and resolved before RUN3
- **Export Control regulations and new contract for WinCC OA**
  - Definition and regular execution of checking procedures -> Overhead?
  - Definition of new procedures for WinCC OA licensing
- **Obsolescence of CENTOS7 and unclear roadmap for Linux at CERN**
  - Upgrades to 3.18 during LS2 likely to be cancelled
  - Should this be the case, we will go **full-steam into the Consolidation & Redesign of the Frameworks**
- **LS3 Upgrades**: Work to be identified and planned now
Joint Controls Project

Sector re-organization triggered some nervousness among the experiments

- The Experiments to face the LS3 upgrades -> Increase of the workload expected
- Restored the constructive environment of the project and the trust between different parties
- Contributions to the project will be closely monitored
- Re-balance the project and possibly find new resources
2021 Priority

Transition year with very high turn-over of people -> Priority giving to minimizing knowledge loss

- Need to reduce the number of fronts we are fighting at the same time, concentrate forces and choose very well our next battles
- Priority to finishing off tasks and projects over starting new ones
- Priority to knowledge transfer and documentation
Next Immediate Actions

• Ensure team stability: Extension of contracts in the section whenever possible
• openlab agreement
• Participating in Linux Certification Committee to define the Linux roadmap at CERN
• Continue the validation of WinCC OA 3.18
• Go/non-Go decision on upgrades to WinCC OA 3.18 during LS2
  • Presentation of the final decision and strategy to move away from CENTOS7 to LMC
• Define procedures for compliance to Export Control Regulation & new contract with ETM
Next Immediate Actions

- Finalization of upgrades to 3.16 (including DSS and GCS)
- Definition of action list for mitigation of Schneider M580 crashes based on the EMC report
  - Presentation at GUAPI and LMC
- Preparation of the PoW for JCOP and UNICOS CPC for 2021
- Presentation of the PoW results 2020 to JCOP Steering Committee and UNICOS Advisory Committee
- Validation of new S7+ TSPP driver
- Collaboration with Siemens for the development of the Fast Reaction Modules
Mid-term actions

- Work with Schneider users to implement the required mitigation actions
- Finalize OPC UA migration
- Finalization of Access Control adaptations to new IT standards
- Finalize Logging DB (NXCALS) component
- FW Licensing: Ship all necessary info to KT and HR
- WinCC OA
  - If upgrade to WinCC OA 3.18 during LS2: Priority will be put on the upgrade
  - If not, Consolidation and Redesign of the Frameworks will become the top priority
Mid-term actions (still 2021)

- Finalize documentation and handover of DSS Back-end
- Finalize CAN Common Module v2.0
- Finalization of new Alarm Screen for deployment in LS2
- Finalization of fwTrending redesign
- Finalization of new UNICOS HMI
- Knowledge transfer and documentation of all other activities affected by turn-over
- Integration of new team members
LS3 Upgrades

- Known Work
  - Massive deployment of the NGA
  - Deployment of a new interface WinCC OA <-> NXCALS
  - DSS hardware upgrade

- Unknown work
  - In LS3, the big upgrades for ATLAS and CMS happen
    - New subdetectors will be built and installed, new services will be implemented and therefore, new controls systems will be required
  - Same applies to the accelerator services
    - Likely that major upgrade campaigns will have to be conducted due to obsolescence of technologies

- The work needs to be identified, planned and even, be started now
Outlook

• A year ahead full of well-defined human and technical challenges as well as opportunities...and also unknown ones that await us down the road
• Last sector re-organization also opened some injuries that is important to heal and to restore the trust
• Priority in 2021 to minimize the impact of the large turn-over in the section and to finalize ongoing projects over starting new ones
• The renovation of the PLC and WinCC OA contracts in 2020 paved the road to face the coming years with optimism
Back up slides
The most important things first: the TEAM

- Last LD2IC exercise
  - Rafal and Lukasz got the post
  - Jonas and Riku will not be continuing with us
- With the exception of the IC in the team, Manuel’s contracts go beyond 2021
  - Lots of effort in extension of contracts
  - Still a lots of turnover in 2021
- Giulio’s presence at CERN will also fade out

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A new organisation

*Three controls groups in the Department: CEM, CSS and ICS*

- ICS as a small group compared to the others
- Strong dependencies on services provided by CSS (formerly CO)
  - UAB, an integral part of the Frameworks will be developed by CSS
  - Many pieces in our development infrastructure rely on services provided by CSS

**Challenges**
- Defining the procedures to interact with these two groups
- Minimize the impact of these changes on our work and clients
- Defend the identity of Industrial Controls in the Department
- Will have to take over some of the activities presently done by TI
A potential new internal re-organisation

ICS a group with only two big vertical sections

- Is this the ideal configuration? What would be the impact of a new reorganization?
- The input you provided through the survey will help to answer these questions
  - Answers to the survey presently analyzed
- Go/non-Go decision in Q1 2021