Detector and Run Control Systems for the NA62 Fixed-Target Experiment at CERN

Piotr Golonka1, Valeri Falaleev2, Riccardo Fantechi1, Manuel Gonzalez-Berges1, Nicolas Lurkin2, Ryan Frank Page1, Fernando Varela1

NA62 Detector Control and Run Control Systems
- operated and developed separately, with very limited resources
- same approach, technologies and infrastructure
- smaller than LHC experiments, yet not less complex
- policy: maximize the use of existing supported technologies, services and infrastructure

Requirements
- Diagnostic and expert tools as well as overall homogeneous UI experience need further improvement.
- Maintenance and development need to be assured throughout the lifetime of the system with minimal effort.
- Reuse of standard technologies and solutions with component-based development allowed to build large parts of the system with minimal effort.

Detector and Run Control Systems for the NA62 Fixed-Target Experiment at CERN

Development and maintenance lifecycle

Challenges:
- Requirements
  - Often incomplete or impossible to formalize
  - Evolving very dynamically, to accommodate changes in controlled hardware
  - Sometimes leading to major redesigns
  - Only come with experience of operation
- Hardware
  - Available late
  - Non-standard items
  - Often leading to major redesigns
  - Sometimes leading to major redesigns
  - Often incomplete or impossible to formalize

Conclusion and outlook
- Control systems delivered for the first runs with beam in 2014 and 2015
- Reuse of standard technologies and solutions with component-based development allowed to build large parts of the system with minimal effort
- Maintenance and development need to be assured throughout the lifetime of the experiment
- Diagnostic and expert tools as well as overall homogeneous UI experience need further improvement