Overview of CCM activities

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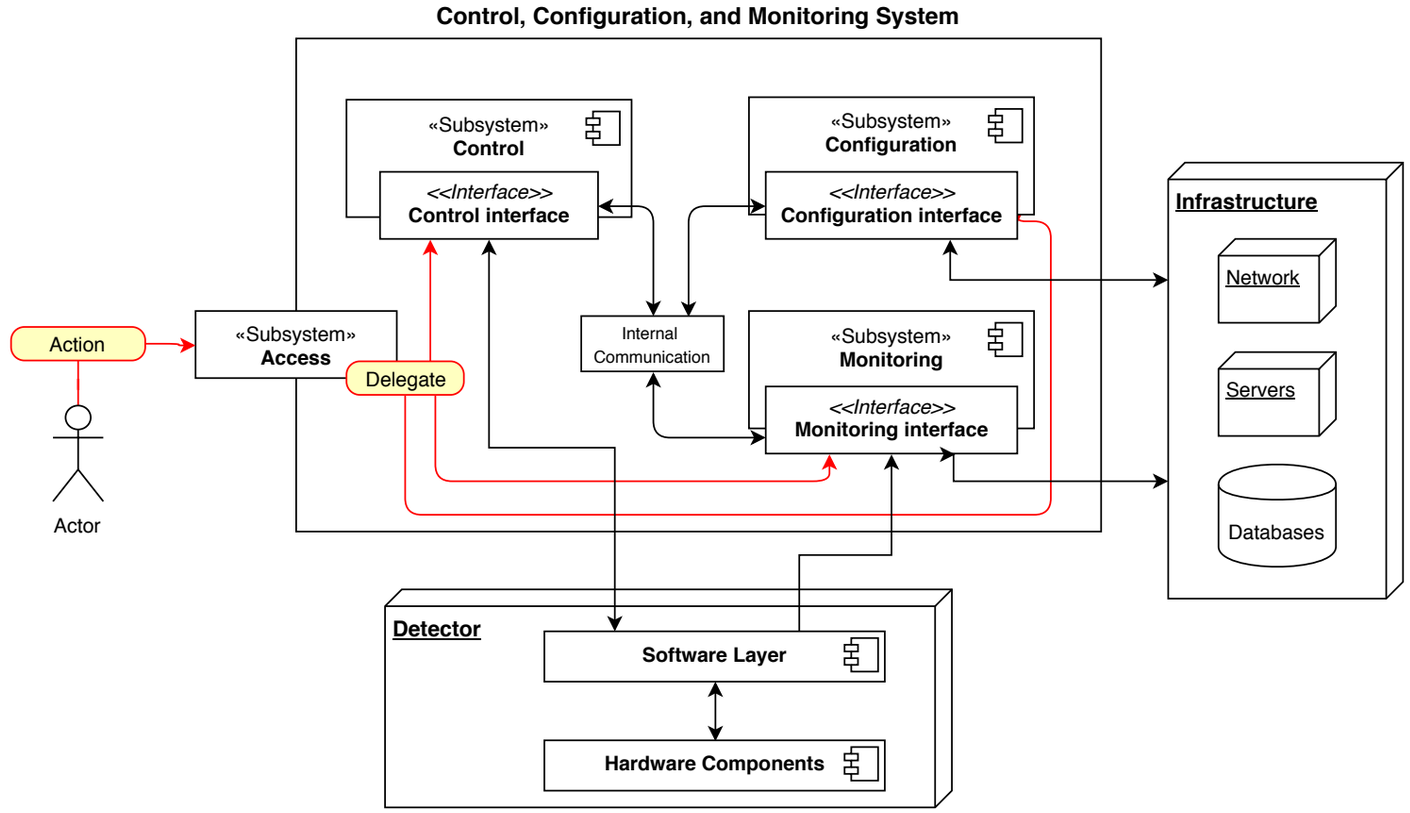
February 15th 2021

Imperial College London

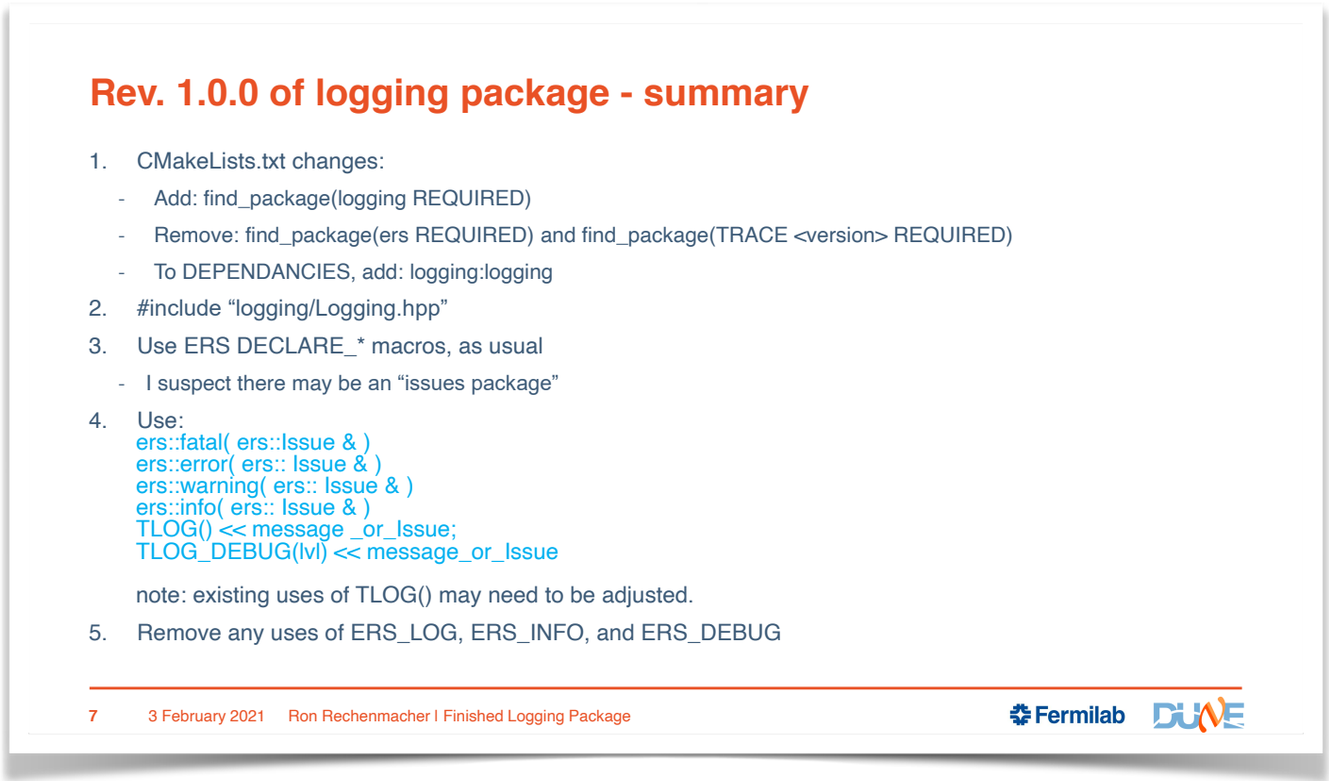
Outline

- Logging
- Operational monitoring
- Configuration
- Run Control
- GUI



Logging

- Chose to use the functionality of both ERS and TRACE packages
  - ERS provide highly structured information
    - with time, issue distribution, subscription and archiving, visualisation, searching and analysing issues, also basis for automatic procedures
  - TRACE to provide local logging and fast memory-based debug



Rev. 1.0.0 of logging package - summary

1. CMakeLists.txt changes:
   - Add: find_package(logging REQUIRED)
   - Remove: find_package(ers REQUIRED) and find_package(TRACE <version> REQUIRED)
   - To DEPENDANCIES, add: logging:logging
2. #include “logging/Logging.hpp”
3. Use ERS DECLARE_* macros, as usual
   - I suspect there may be an “issues package”
4. Use:
   ers::fatal(ers::Issue &)
   ers::error(ers:: Issue &)
   ers::warning(ers:: Issue &)
   ers::info(ers:: Issue &)
   TLOG() << message _or_Issue;
   TLOG_DEBUG(lvl) << message_or_Issue

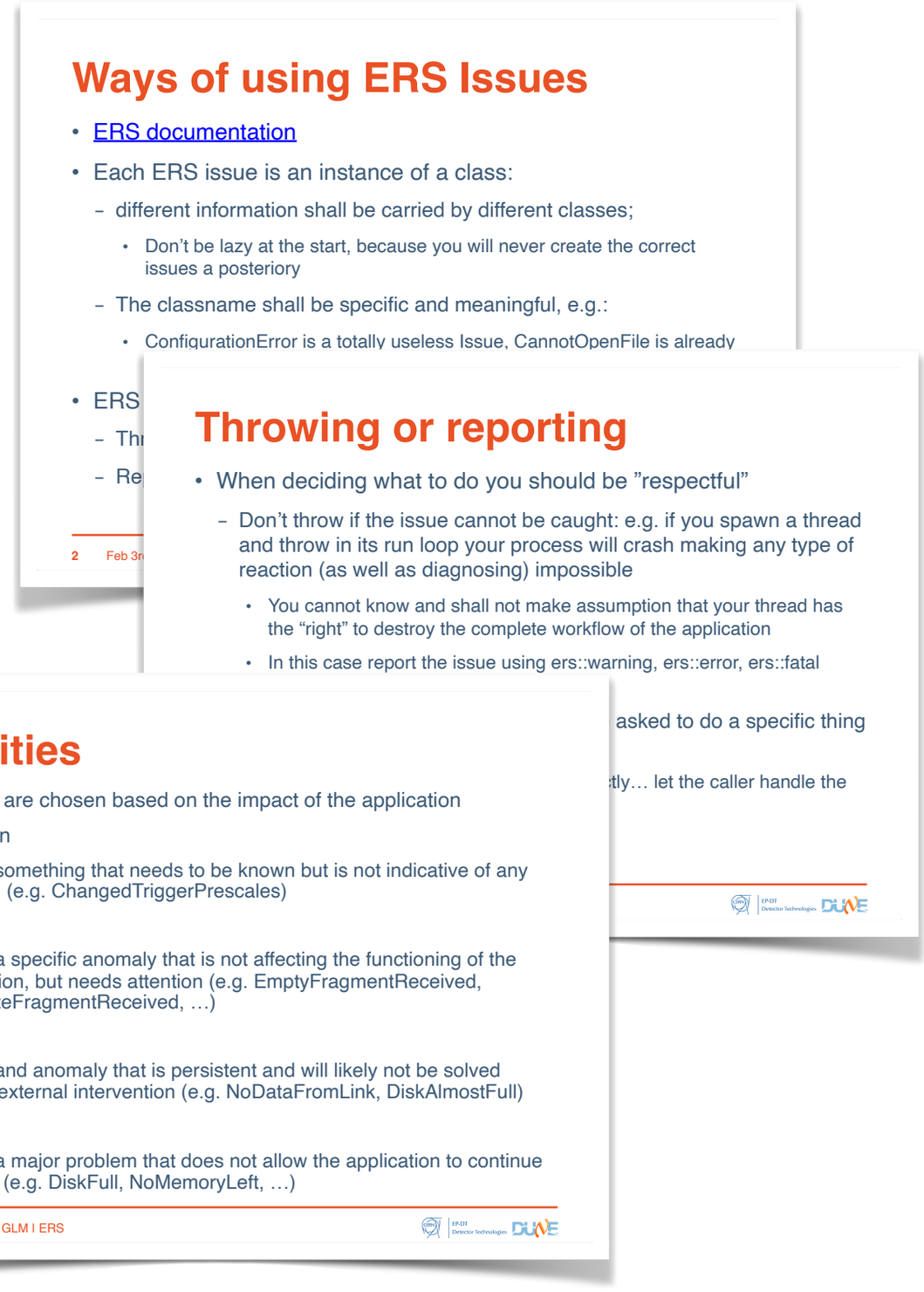
   note: existing uses of TLOG() may need to be adjusted.
5. Remove any uses of ERS_LOG, ERS_INFO, and ERS_DEBUG

7 3 February 2021 Ron Rechenmacher I Finished Logging Package Fermilab DUNE

R. Rechenmacher: https://indico.fnal.gov/event/47519/contributions/207429/attachments/139699/175431/DUNE_finished_logging_package.pdf

Logging

- Making effective use of logging requires thought and work from developers
- Discussion started a few weeks ago
- Example will be provided alongside documentation



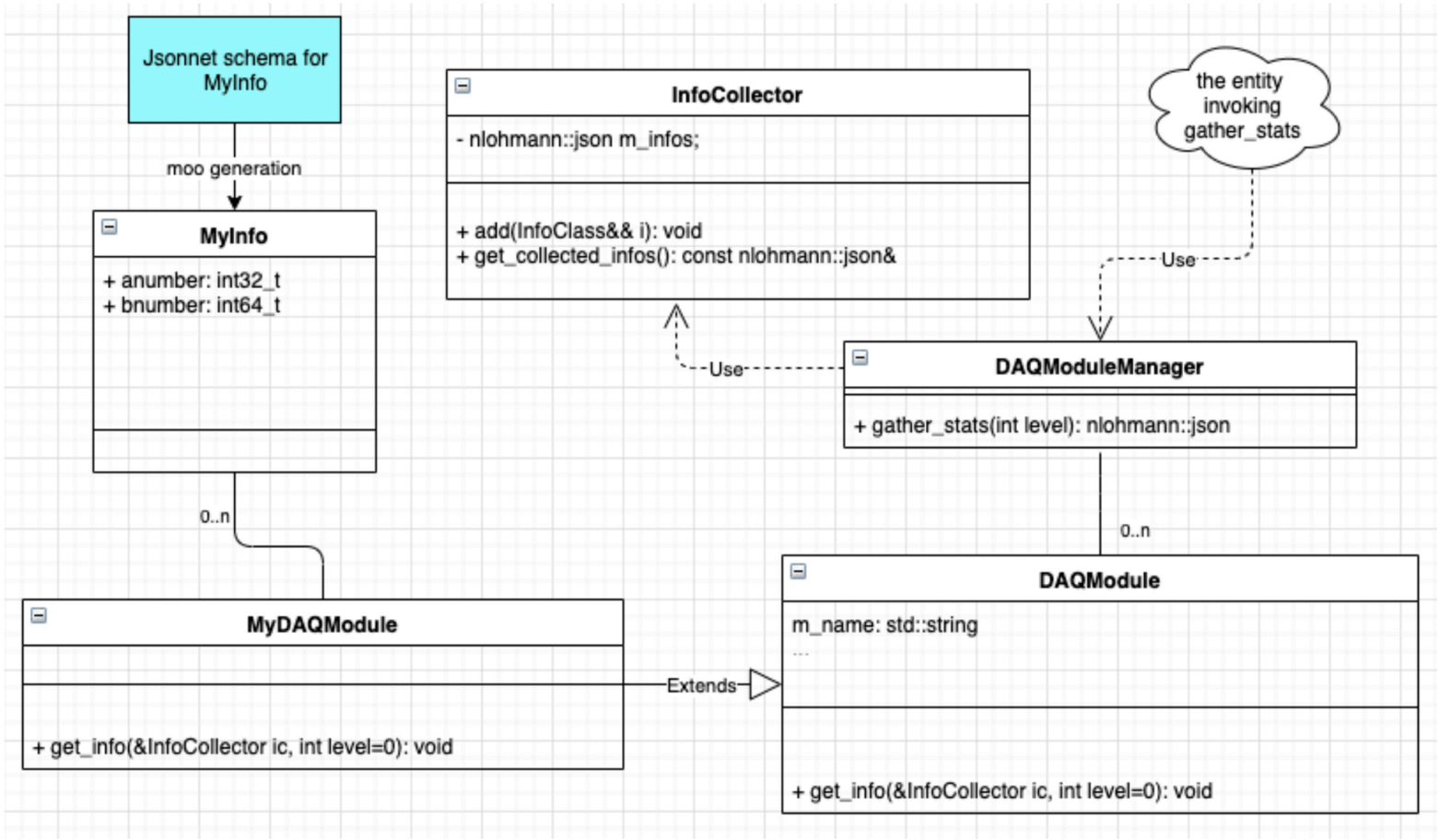
G. Lehmann: https://indico.fnal.gov/event/47590/contributions/207746/attachments/139701/175428/ERSConventions.pptx

Operational monitoring

- Previously presented operational monitoring prototype:
  - Register independent (atomic) variables to some service and let it worry about collecting, processing, packaging, etc
- New approach now being pursued:
  - Define information structures via schema that are filled by the user code on request and returned as structured data
  - Data structure forms a contract for what the application will provide as information and what listener should expect

L. Stankovic: https://indico.fnal.gov/event/45866/contributions/199349/attachments/135926/168961/Operational-monitoring-roadmap.pdf

Operational monitoring



- Implementing user side of the diagram using timing service as the guinea pig — backend also being implemented

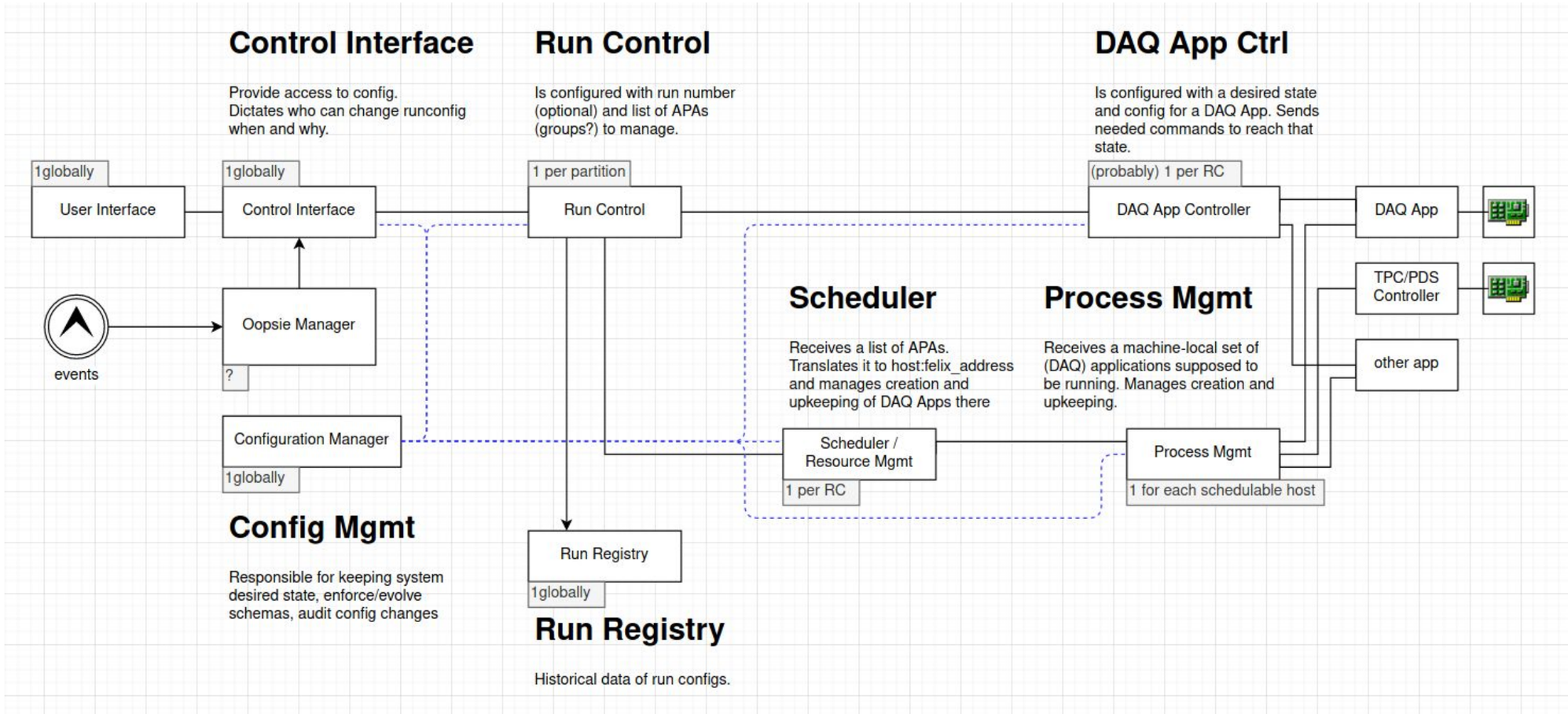
G. Lehmann et al.: https://indico.fnal.gov/event/47519/contributions/207430/attachments/139703/175430/022021_opmon.pptx

Configuration

- Several presentations on code-gen and configuration
  - No time/need for a reminder here …
- Configuration data is sent to modules from Run Control in json format according to a defined schema
- Schema are specified in jsonnet which uses moo to generate json, C++ and python corresponding to schema
- Currently discussing configuration generation
  - Factorise configuration data into logical chunks, act as templates which can be reused, edited etc.
  - For example: process information (host, env etc.), init information (modules, queues), commands
  - Likely to be separate files for upcoming release for ease of use

Run Control

- Just started to think about concrete implementation



- For upcoming release focus on DAQ App Ctrl

G. Dirkx: https://indico.fnal.gov/event/47774/contributions/208291/attachments/139919/175753/10-feb-21_run_control_discussion.pdf

Run Control

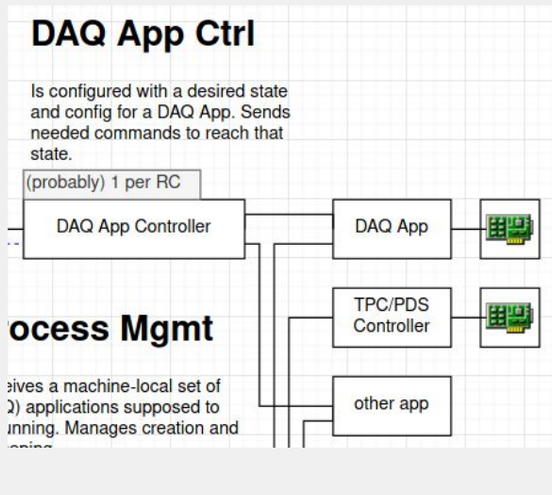
- Just started to think about concrete implementation

DAQ Application Manager

Supplements Process Manager
→ Provides DAQ-specific process management (the DAQ state machine)

Goals: given a (list of) application(s) and their desired state
→ perform needed state transitions to achieve desired state.

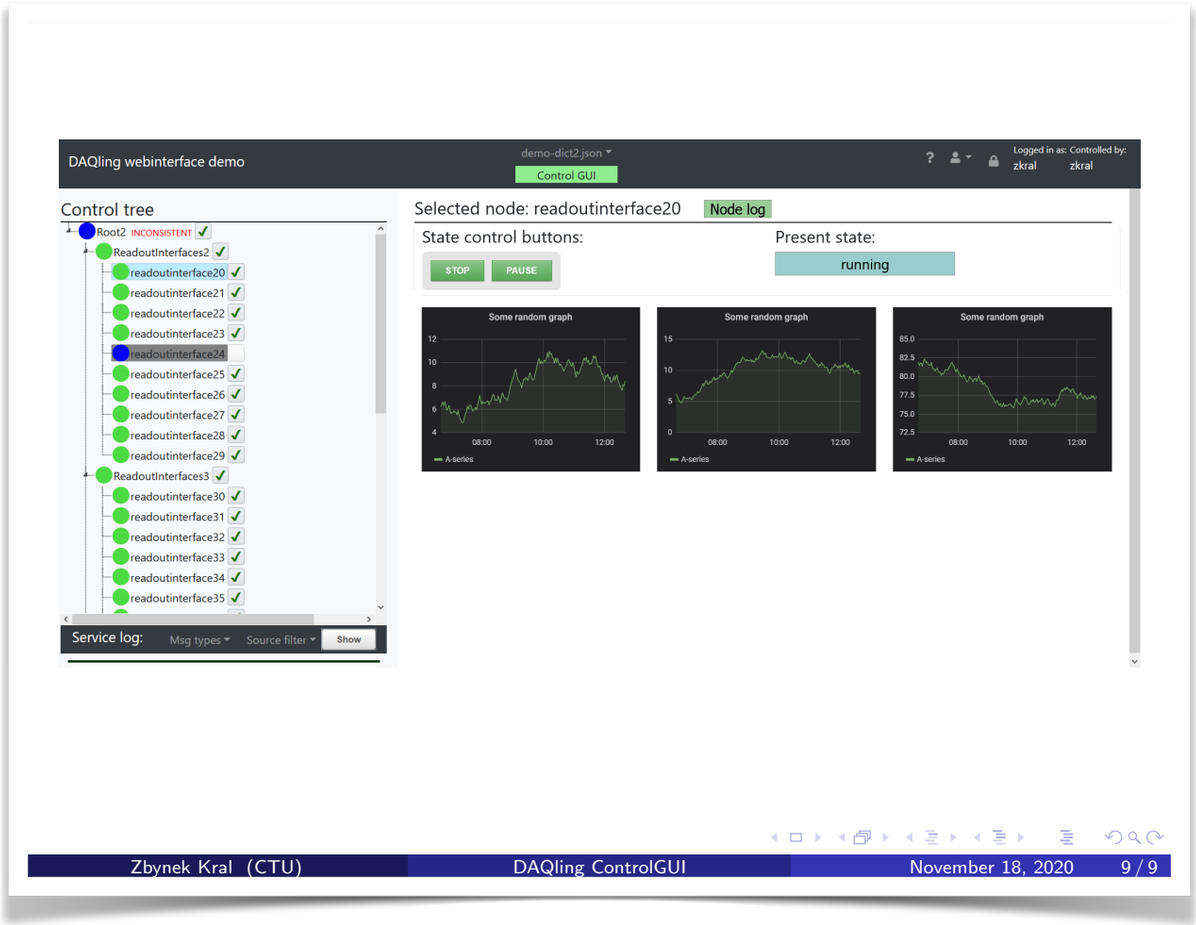
Manages
→ DAQ-specific lifecycle
→ First-Aid failure procedures
→ Basic health checks



- For upcoming release focus on DAQ App Ctrl
  - Send commands with appropriate configuration where necessary to multiple Apps
  - Drive applications through state transitions

GUI

- Discussions on Graphical User Interface
- Potential to build on work done for DAQLing →
- Possibly start with configuration generation



Z. Kral: https://indico.fnal.gov/event/46474/contributions/202129/attachments/137517/171473/DAQling_ControlGUI_11182020.pdf

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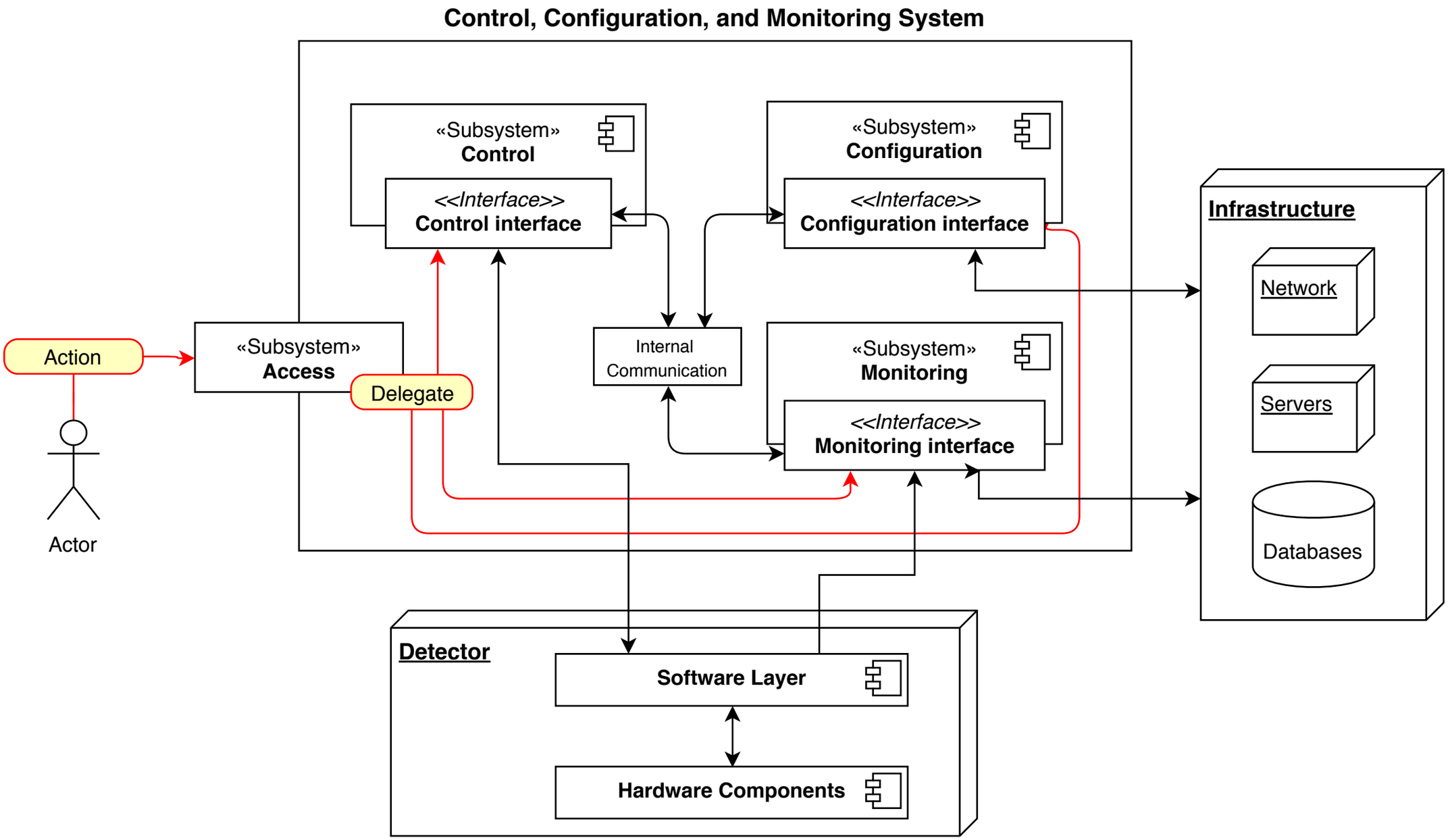
Summary

- Making progress on key items for DAQ release v2.3
- (small) team coming together — new contributions welcome!

Overview of CCM



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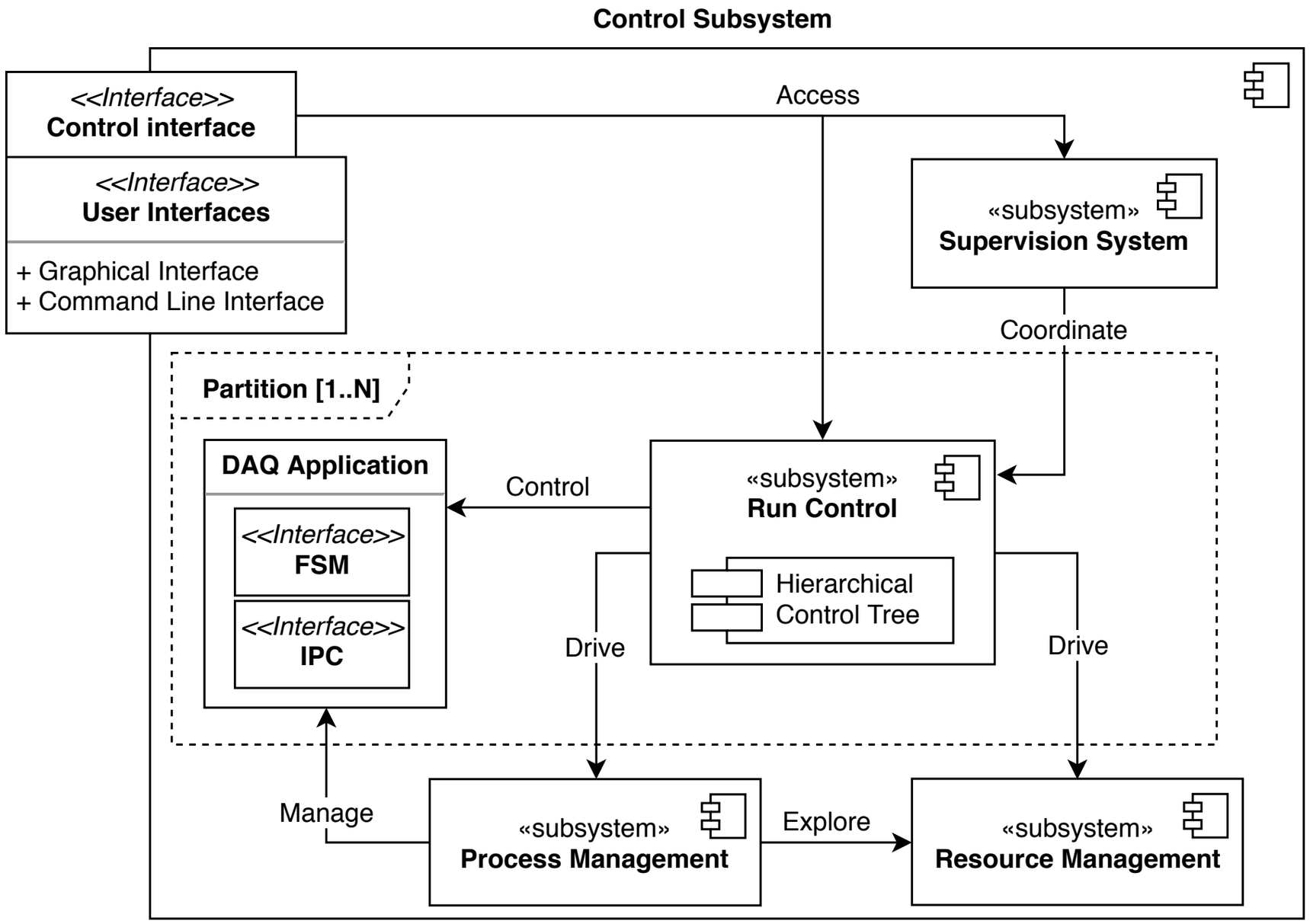
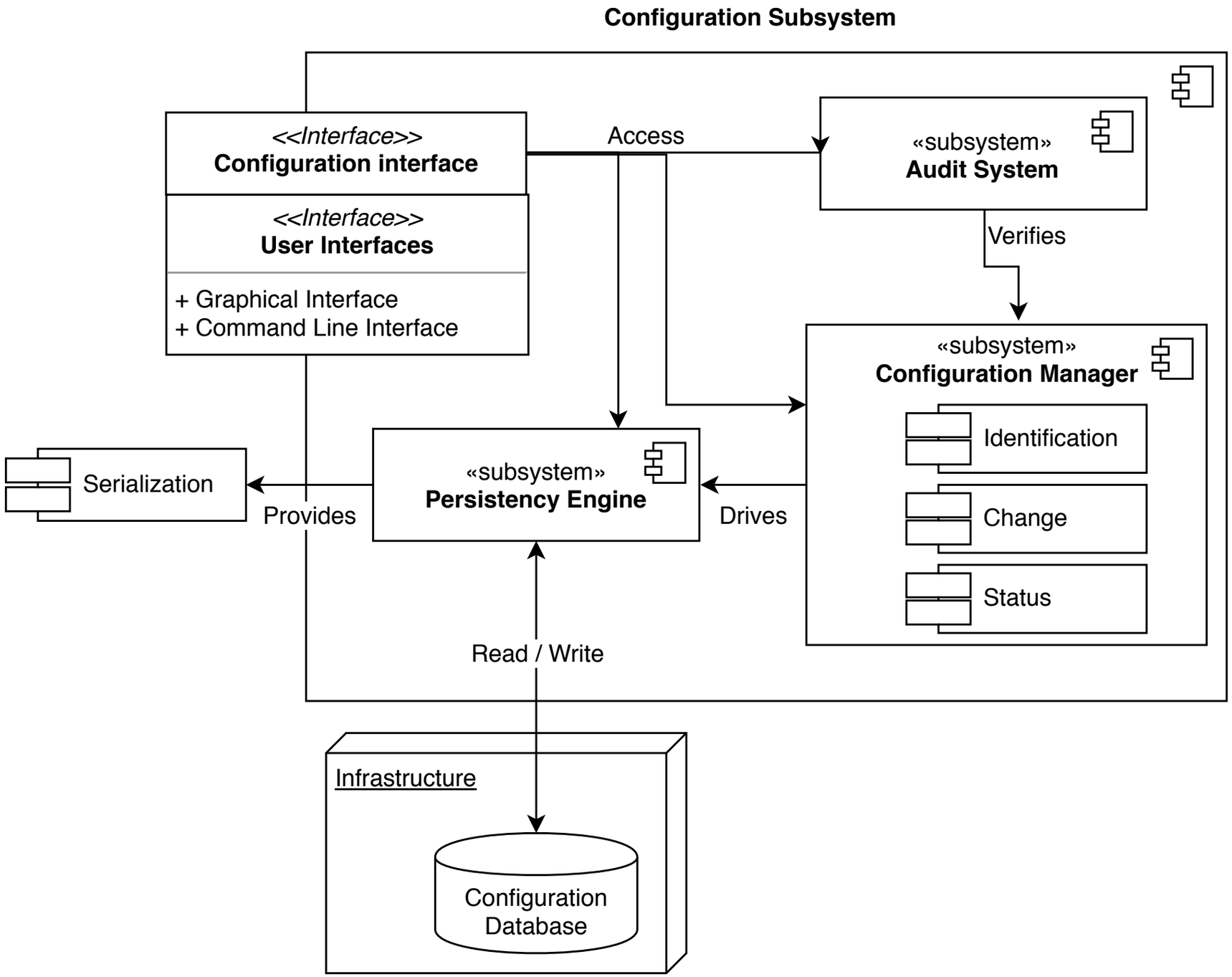
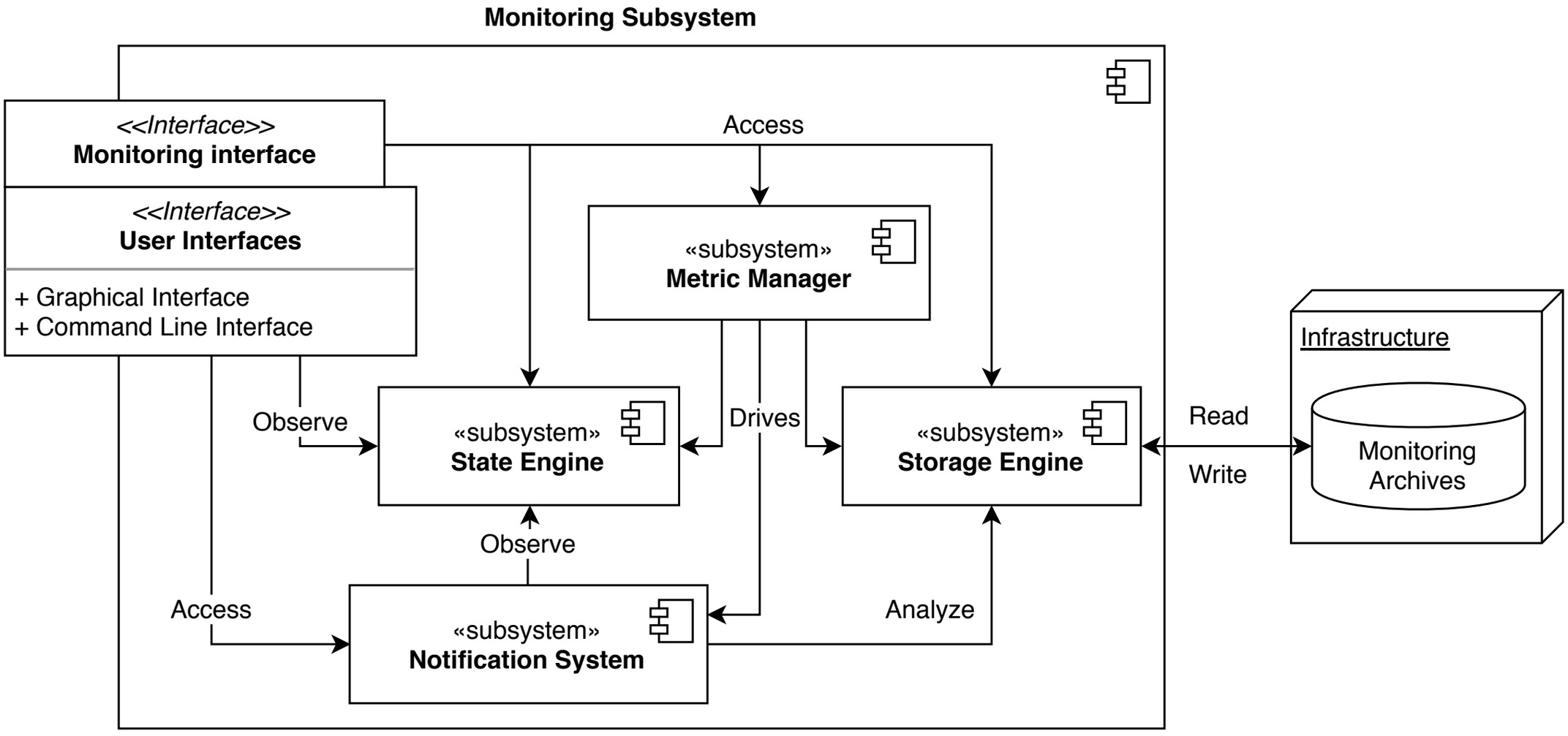
Overview of Control



Overview of Configuration



Overview of Monitoring



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