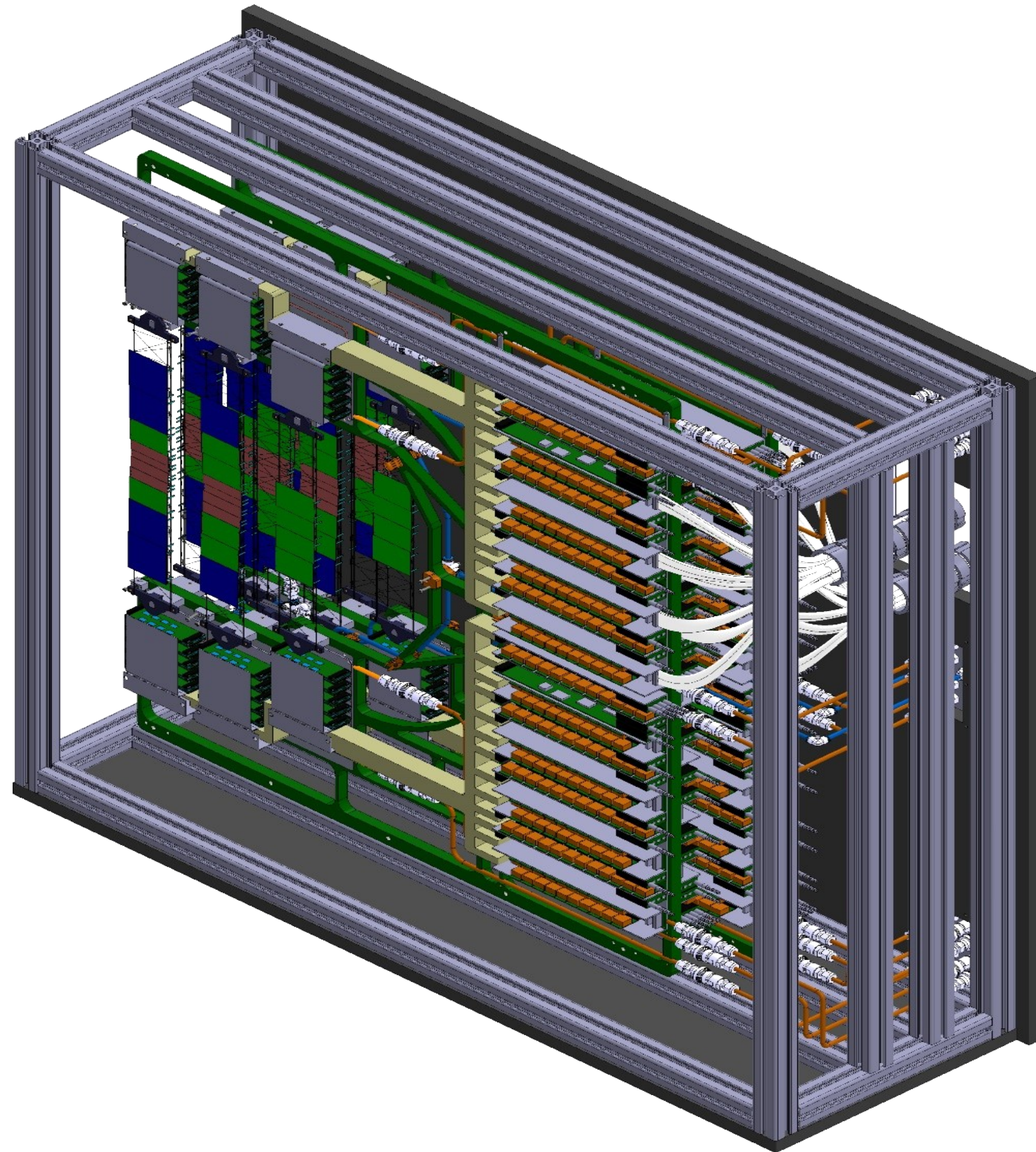


Detector Control System for the Thermal Demonstrator

Marcel Bajdel

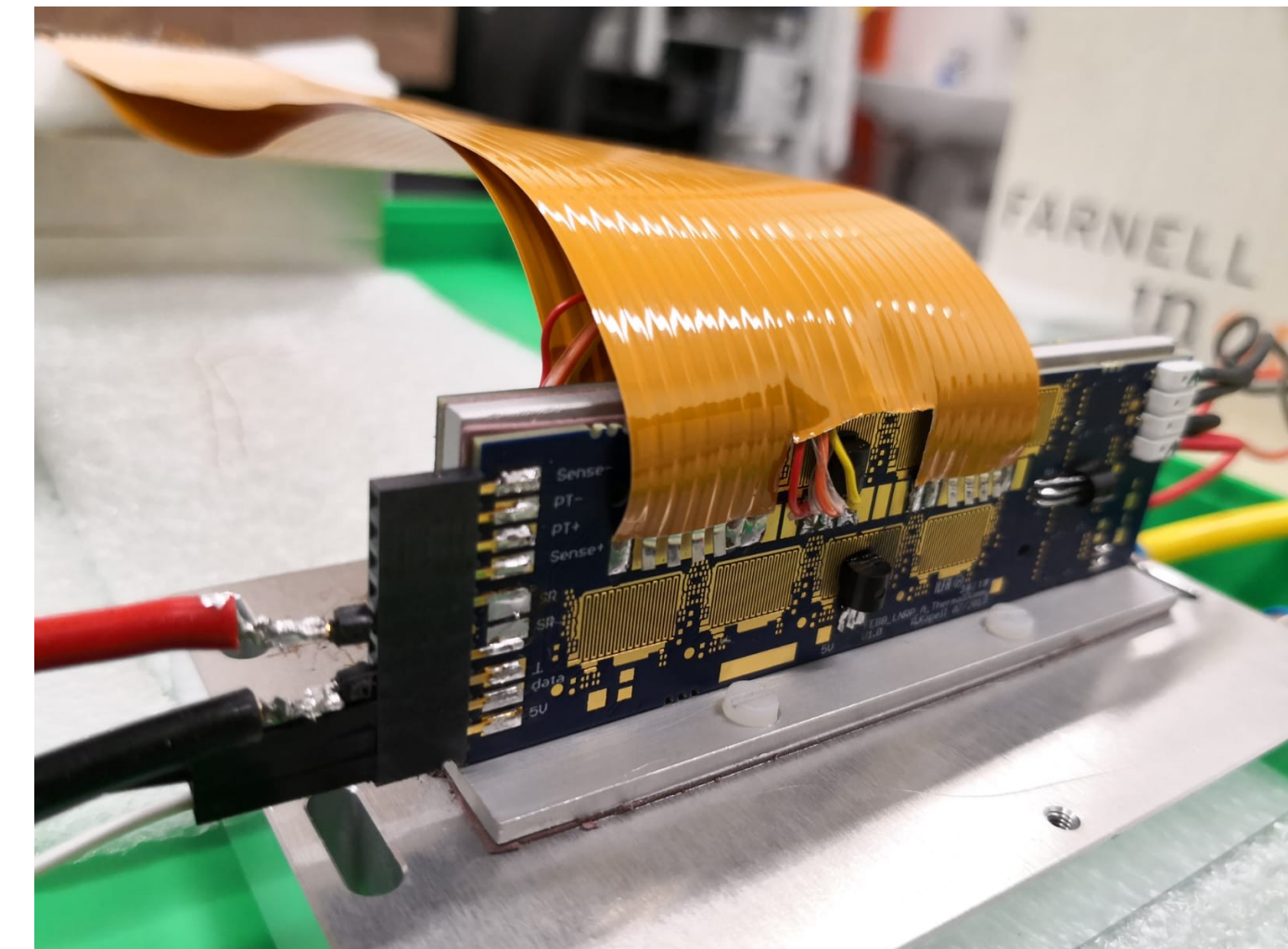
Joint DCS meeting, 19 August 2020

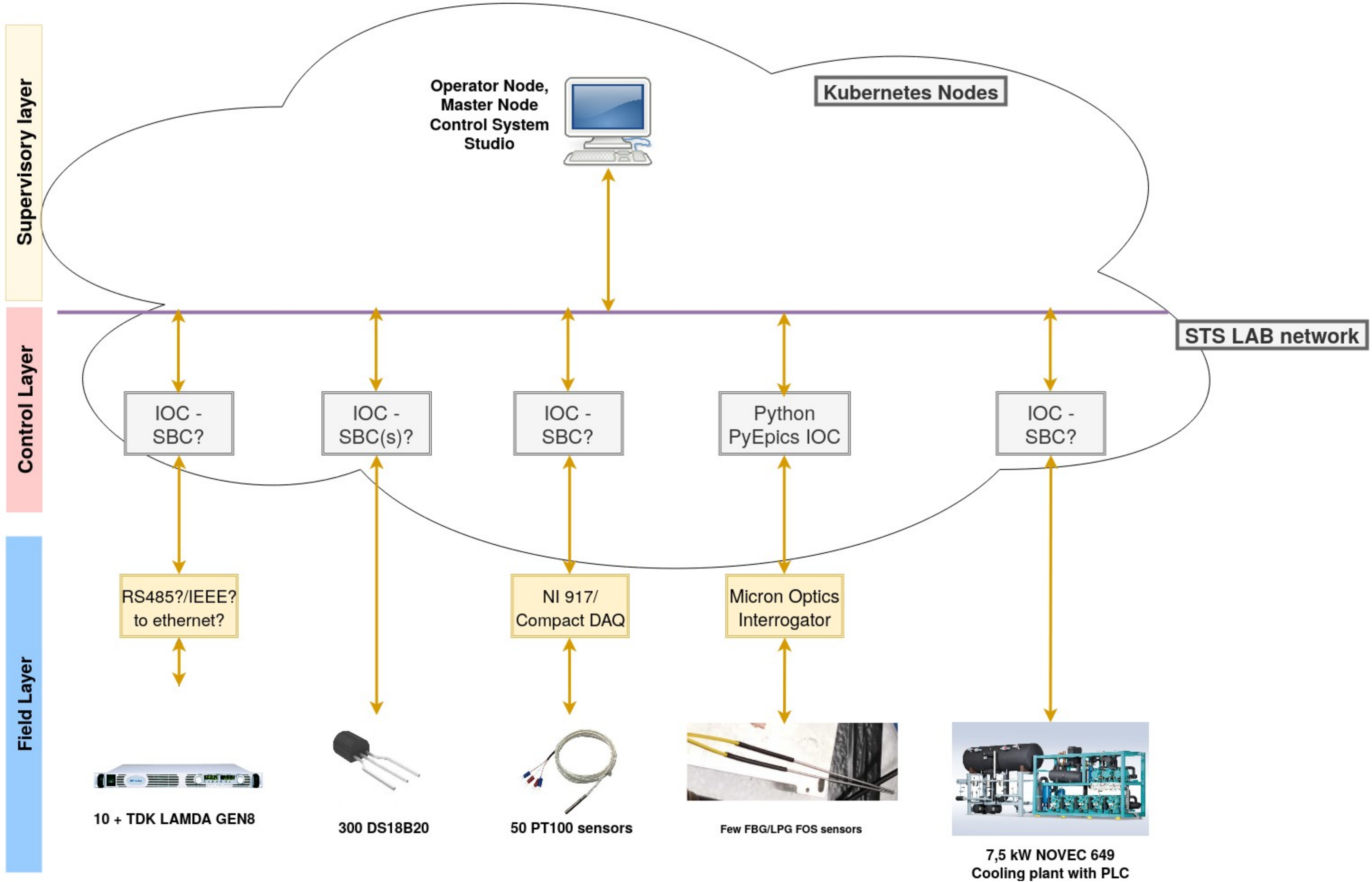
Thermal Demonstrator



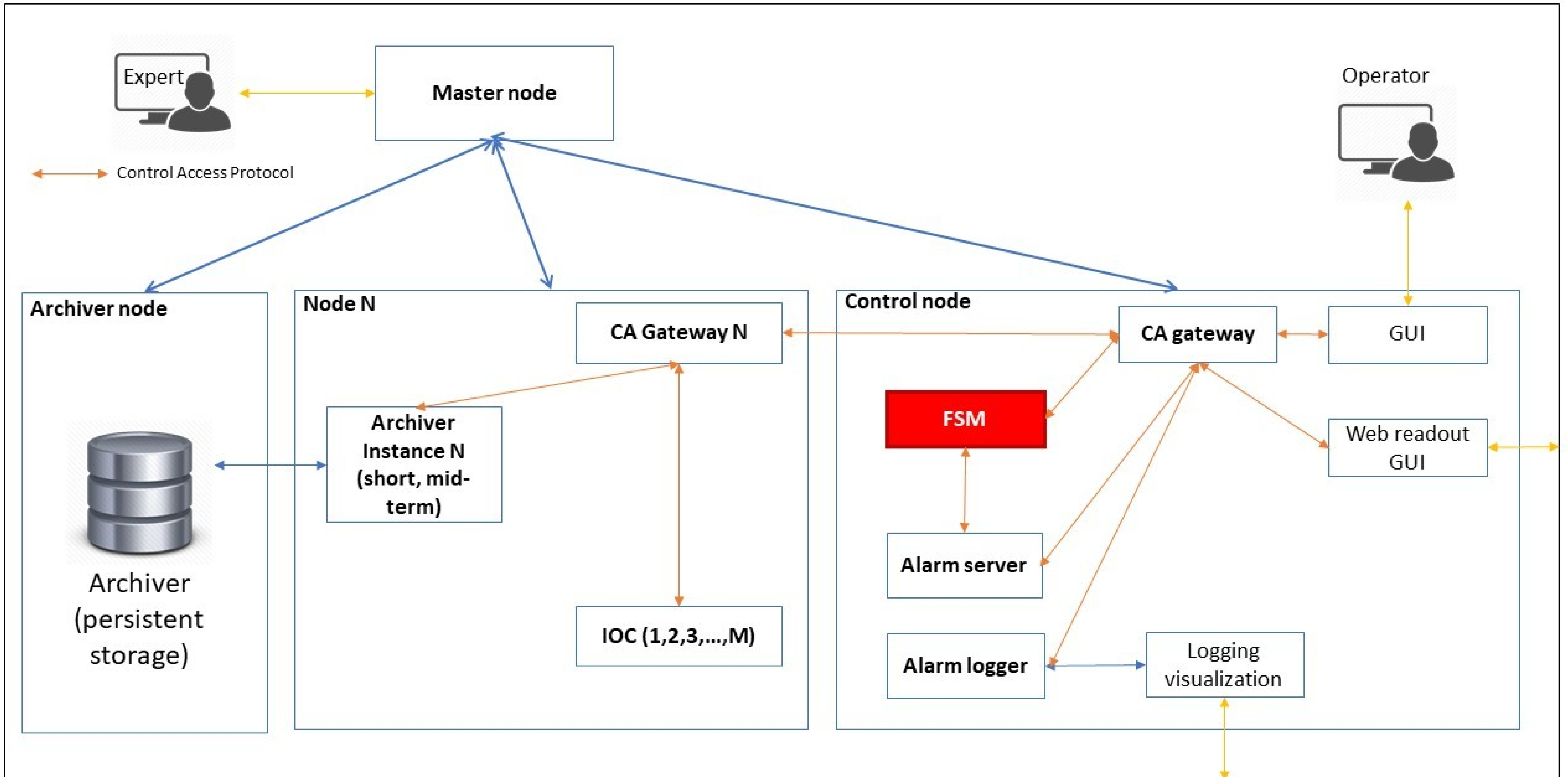
Main features:

- Coolant temperature -40C
- Ambient temperature -10C
- Target for water content ~35ppm, frost point -50C





DCS world



General Considerations

Software side

- Use of PANDA-IOC or → GSI/FAIR IOC?
- Need for CA-gateway (Cooling Plant/Power Supplies)?
- Archiver choice → AA (Redis? distributed appliances?)/Archiver Engine (PostgreSQL/GSI support)
- FSM → EPICS Sequencer → where to run it?
- Kubernetes → not straight forward transition from Docker-compose → general safety considerations

Safety considerations

- Services should be only accessible by an expert (hidding crucial services from operator(s))
- Limit SSH access to nodes (authorization plugins to control user access)
- Network segmentation setting defined communication between services
- Proper security context for all the services (e.g. root privileges)
- Logging all the changes in the cluster
- Kubernetes provide Transport Layer Security for all API traffic
- Preventing containers from loading unwanted kernel modules

General Considerations

Devices

- Powering for SBCs using PoE switch?
- E.g. Raspberry Pi 3 B+ has (40-pin GPIO header unpopulated for Pi Zero and Pi Zero W, 27 pins for the 3 B+) → up to 30 DS18B20 per one pin? Powering requirements? Readout time?
- NI CompactDAQ interface to EPICS?