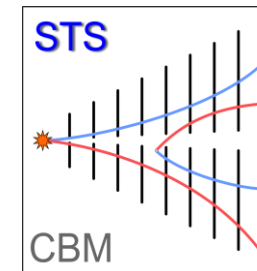
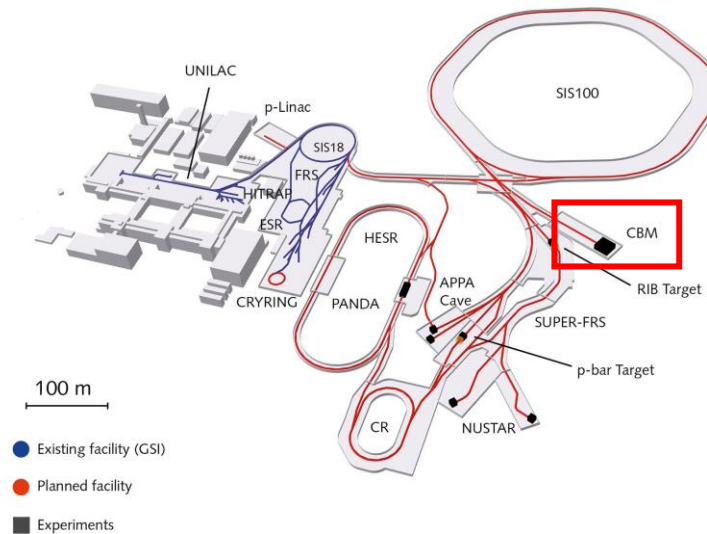


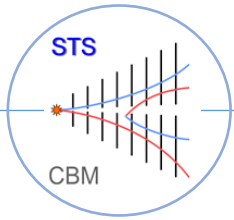
Containerized EPICS-based Detector Control System for the mini-Compressed Baryonic Matter (mCBM) experiment

[Marcel Bajdel](#)^{1,2}, [Florian Feldbauer](#)³, [Peter Zumbruch](#)¹

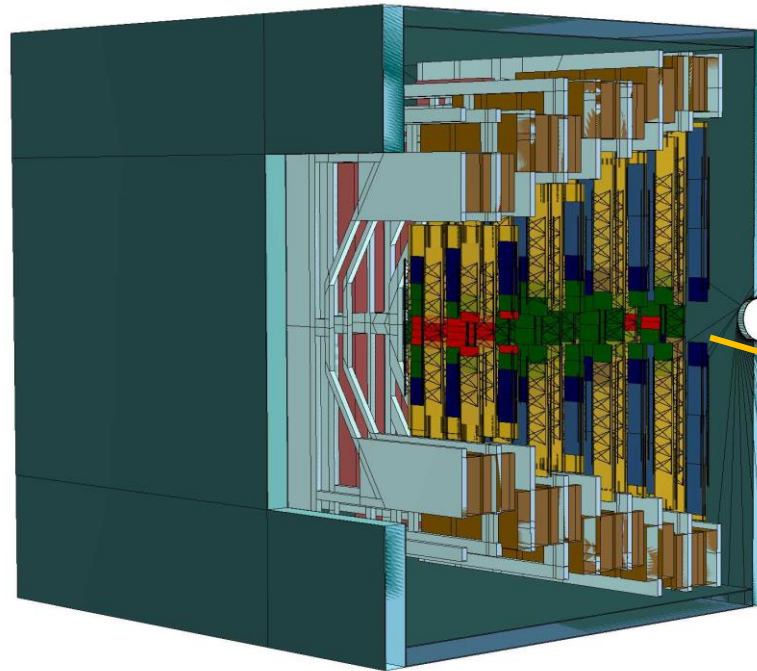
¹ GSI Helmholtz Centre for Heavy Ion Research, Darmstadt, Germany, ² Goethe-Universität Frankfurt am Main

³ Ruhr-Universität Bochum

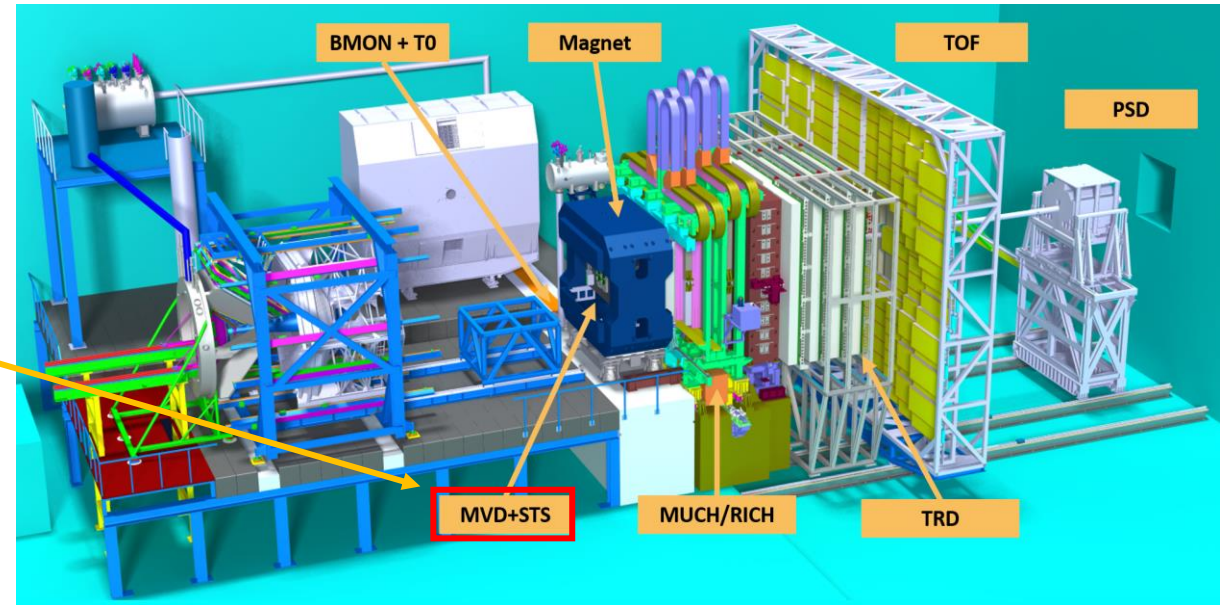




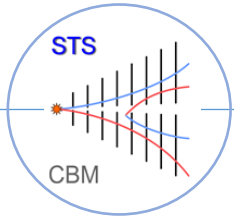
mSTS as the DCS pathfinder for the STS



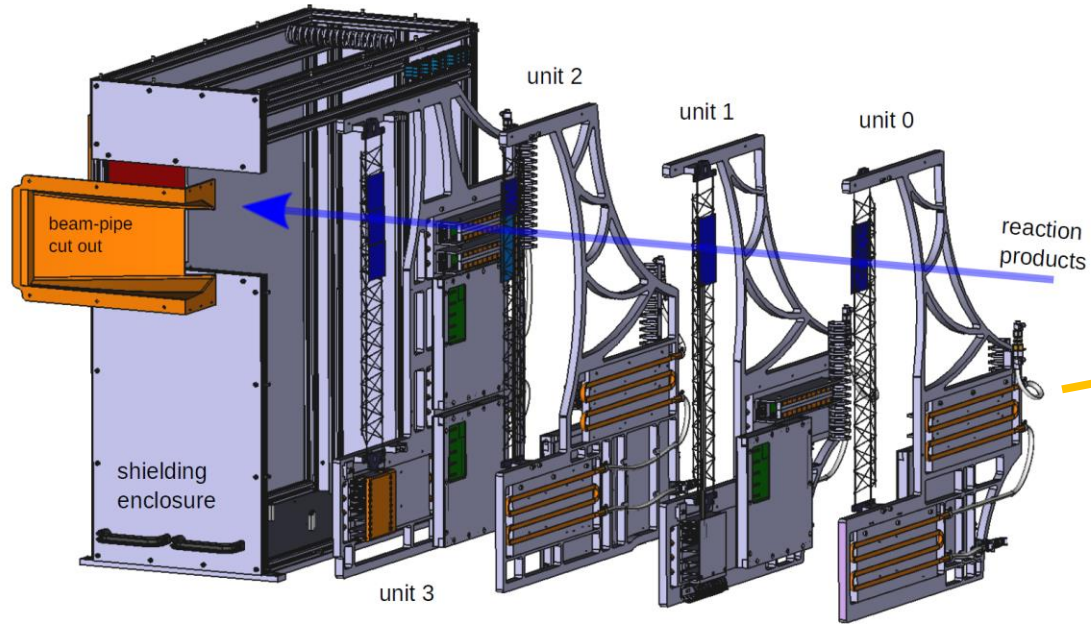
Silicon Tracking System (STS) – 876 modules
(up to 500 000 PVs)



The Compressed Baryonic Matter (CBM) Experiment

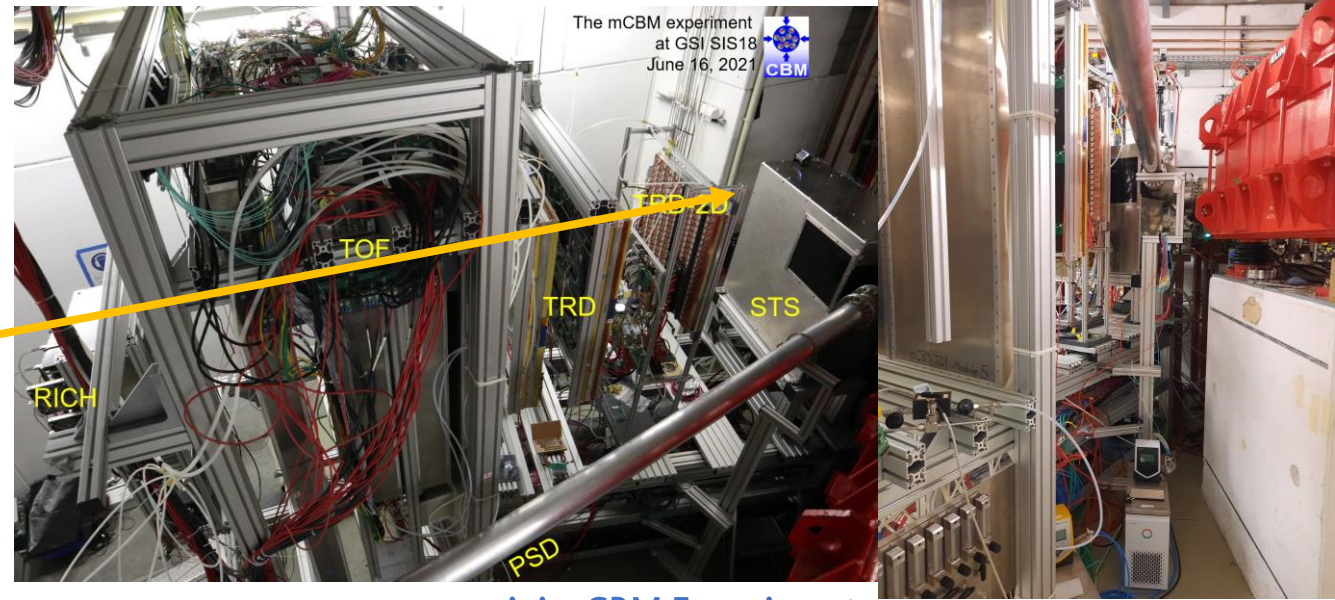


mSTS as the DCS pathfinder for the STS

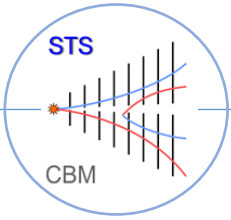


mini - STS - 11 modules

About 5000 PVs



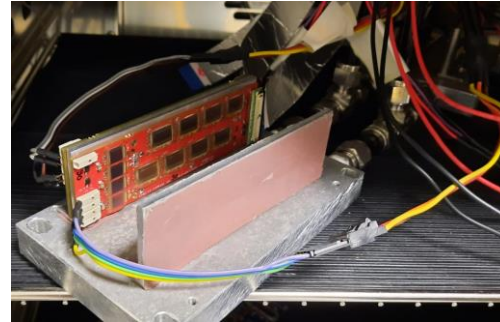
mini - CBM Experiment



Objectives



RH + T Fiber Optic Sensors testing (100 PVs)



Readout and Thermal cycling of the Front-End Boards and detector modules (up to 1000PVs)

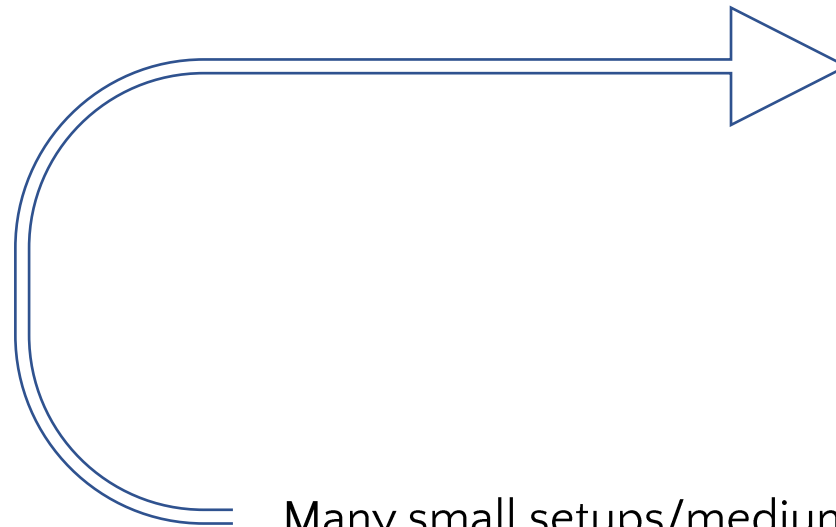


The mSTS (up to 5000 PVs)

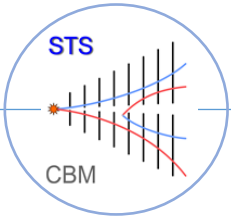
9/14/2022

Requirements:

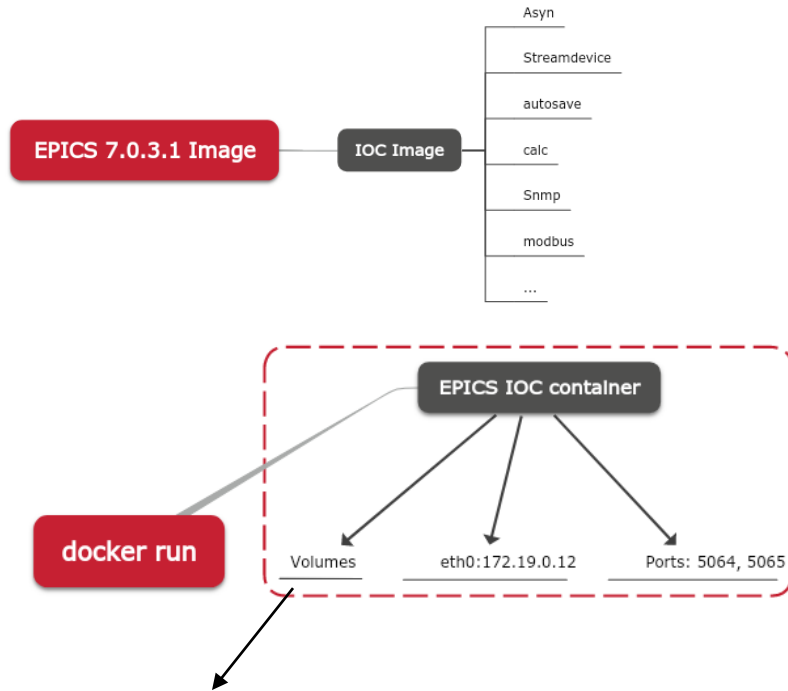
- Easy and fast to implement and maintain
- cross-platform compatible (mostly Unix based machines)
- easily scalable EPICS related applications stack



Many small setups/medium setups

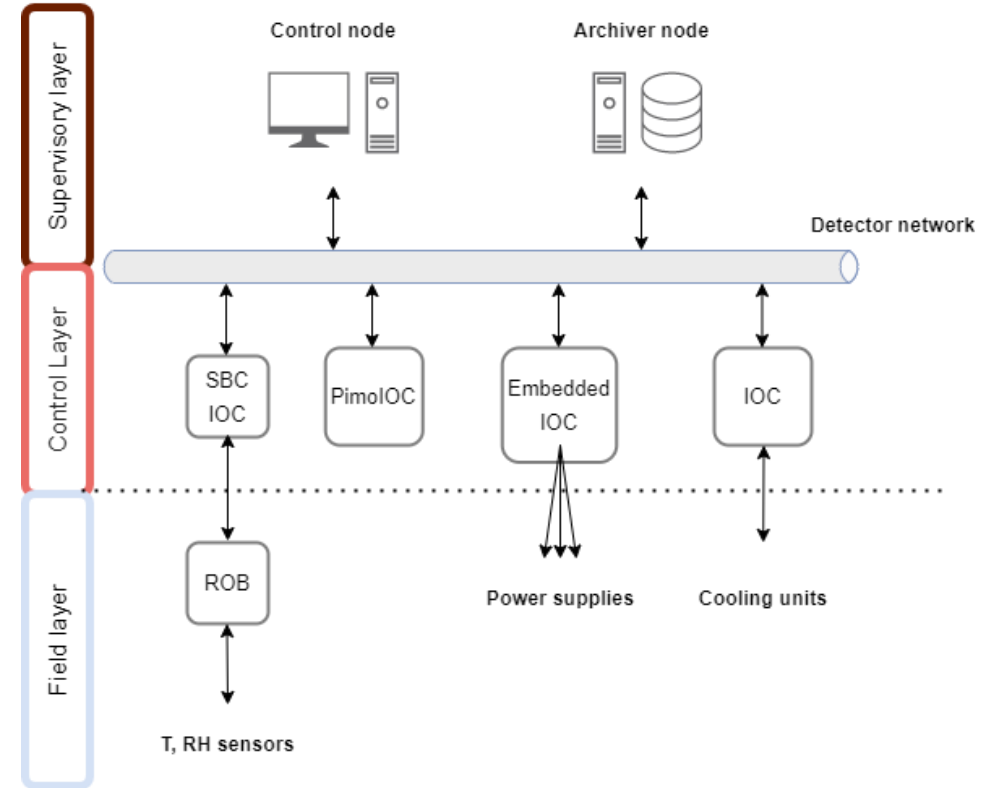


Architecture

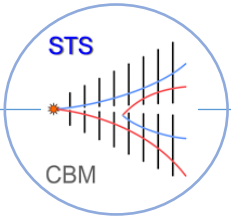


Hardware and bus specific changes:

- Custom st.cmd
- Protocol file (if needed)
- Database
- Other...



mSTS architecture

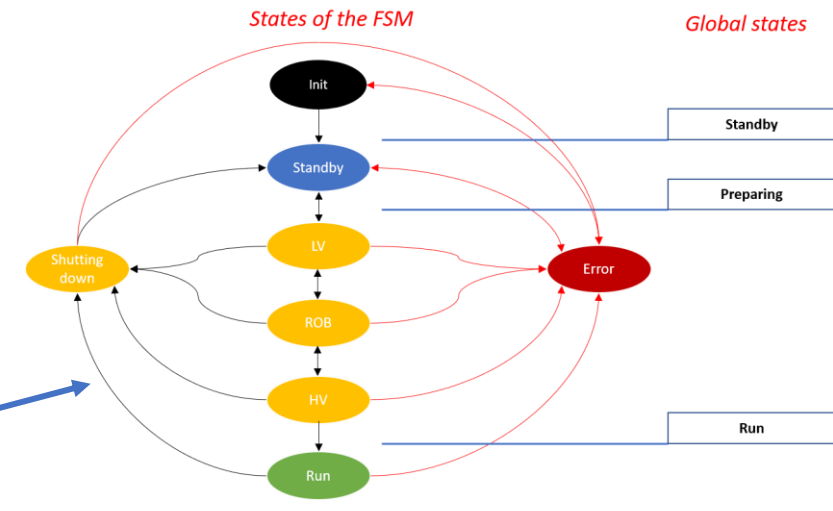
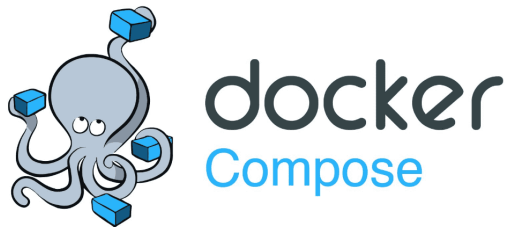
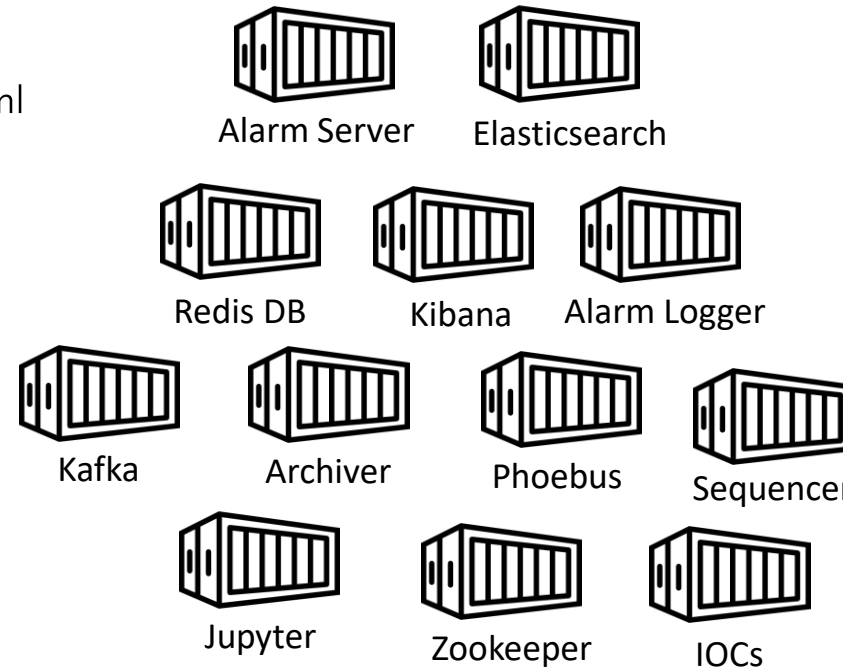


Detector Control System

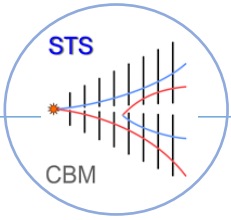


Compose your services

- Quick and easy configuration – proper yml file configuration to connect containers
- Single host deployment
- High productivity
- User-defined volumes to store data and ensure persistency
- Restart mechanisms



! Software interlock to prohibit operation if the ambient temperature is too close to the dew point



Monitoring and outlook



Containers monitoring:

- Weavescope – Access, Control, Metrics, Metadata, Automatic topologies and intelligent grouping

IOC monitoring:

- Pimo IOC (ping monitor) – scripts for regular checking via ping the network status of DCS related network devices
- IOC heartbeat

Outlook:

- Full orchestration for the entire CBM experiment

