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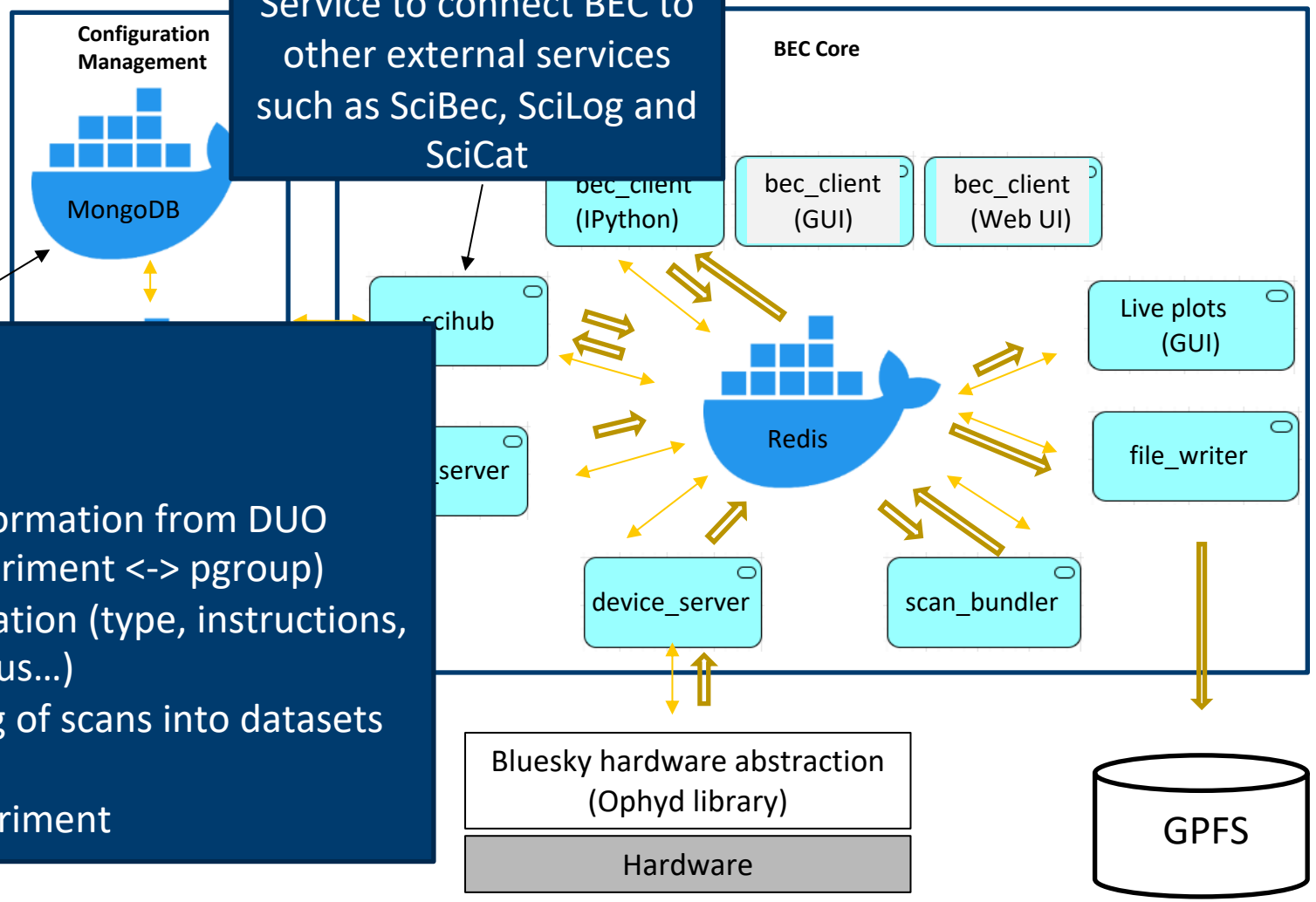
PSI

Beamline Experiment Control (BEC) Update

July 24, 2023

BEC prototype architecture

scihub service
Service to connect BEC to other external services such as SciBec, SciLog and SciCat



BEC database
- Device data
- Session data

\+ Populated with information from DUO (beamline <-> experiment <-> pgroup)

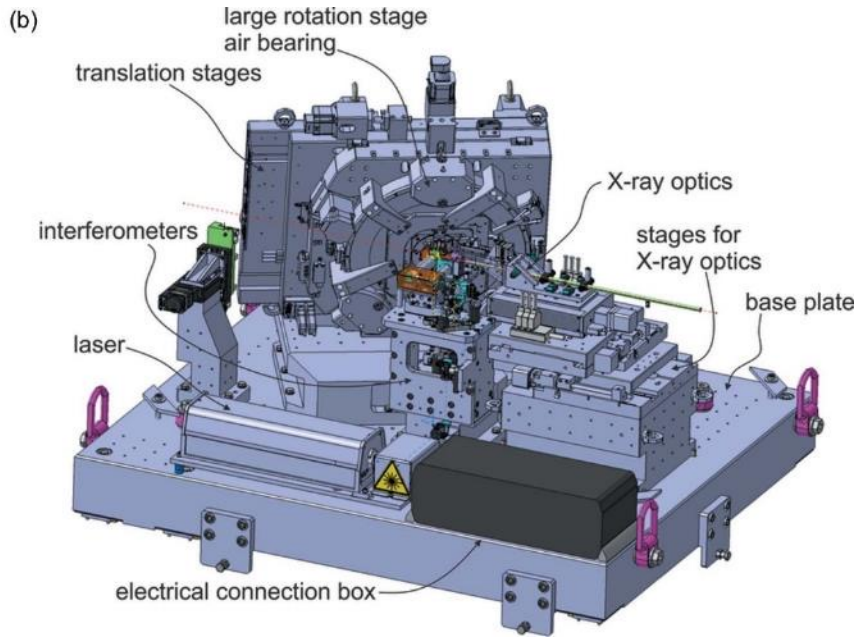
\+ Stores scan information (type, instructions, metadata, exit status…)

\+ Stores the mapping of scans into datasets (for SciCat export)

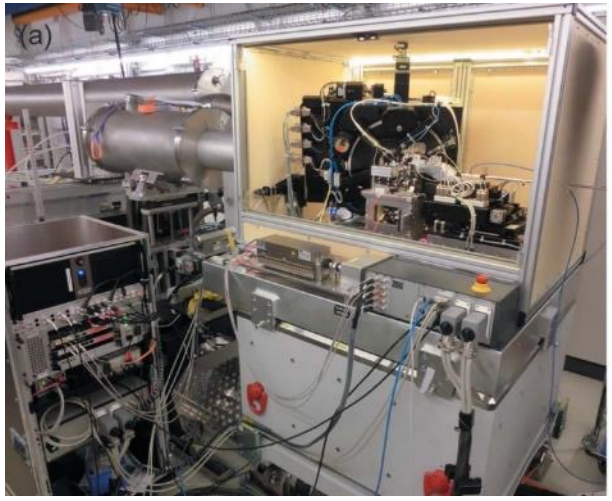
\+ Set the active experiment

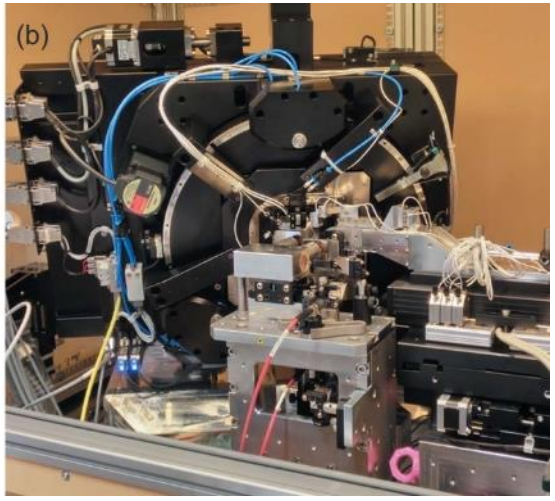
BEC at cSAXS

- Apr. 13-Apr. 17: hierarchical imaging for brain connectivity mapping
- Apr. 20-Apr. 24: topological magnetic defects
- Apr. 26-Mar. 01: quasi-static behaviour of a topological point defect - Bloch point
- May. 04-May. 08: Data-driven X-ray laminography for high-throughput 3D inspection of integrated circuits



- Received very productive feedback on the interaction between **SciLog and BEC** (*cSAXS migrated to SciLog early this year*)
- Application-specific interface is more and more deviating from SPEC
- Improved communication with other systems (e.g. Eiger detector's raw2hdf5 converter now reports back to BEC)





J. Synchrotron Rad. (2020). 27, 730–736

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... more BEC

X-Treme

Done:

✓Ophyd integration

✓Fly scans are implemented and tested

✓User scripts are implemented and tested

✓(Partially) unsupervised implementation of new functionality

WIP:

- Working on live feedback

Next steps:

- Improve the integration with the data analysis routines (ASCII vs HDF5 files)

PX-III

Done:

✓Ophyd integration of existing devices

✓First alignment scans incl live feedback

WIP:

- Auto-deployment
  - *Thanks to Borys and Leo!*

Next steps:

- Waiting for more hardware to arrive / be commisioned

... more BEC

Debye

Done:

✓NI-board device integration (up to ~2.8 Gb/s)

✓Raw data file writer

Next steps:

- Ophyd integration
- First data acquisition (likely at SuperXAS mid August)