

Central IT services for FS: ASAP.



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for the IT group

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Overview

What does central¹ IT do for FS?

- > data ingest
- > meta data catalog
- > data management
- > data storage
- > data processing facilities
- > data archival
- > other services
- > future services

¹as opposed to FS IT



disclaimer

This is about services that are specifically for FS, not general IT services for all of DESY. The services and efforts from the Research and Innovation in Computing sub group are handled in the next talk, I will not mention them here.

Of course the specific services are typical “tips of ice bergs” that sit on a huge foundations.

I only mention here the people involved directly in the specific services, otherwise I would have to list all of IT, without whom we could not do anything.



data ingest: how do data get into the system

- > A special beamline filesystem tuned for fast reliable ingest
- > SMB and NFS mounts for simple data ingest
- > Hydra² for fast ingest with monitoring side path
- > ASAP::O for fast ingest and on/offline processing
- > instant³ copy from beamline filesystem to core filesystem
- > “external beamtimes” as a way to get data from external sources into the system

²now really an FS service

³mostly, can get delayed by some usage patterns



- > SciCat as an IT service: decision in January 2022
- > Since then: established trial instances for Petra and FLASH beamlines
 - first in then-current version of SciCat
 - after long development cycle the now current version since September '23
 - on basis of OpenStack and Kubernetes infrastructure
 - automatic proposal ingest from DOOR to SciCat
- > by DAPHNE funding: dedicated scientist position for Photon and Neutron science services
 - position filled since summer '23 with Regina Hinzmann
 - commitment to development of code (recent visit to ESS)
 - connecting/integrating further services through SciCat user interface
- > in cooperation with FS-EC SciCat Technical and SciCat General meetings (<https://indico.desy.de/category/1044/>)
 - to provide a tool for the beamline experimentalist for internal use as well as to contribute to FAIR and Open Data Access
 - agree on common goals wrt development and deployment of SciCat at DESY



- > management of on- and offline resources:
 - filesets
 - mounts
 - online compute nodes
- > data access
 - permission management (via γ -portal)
 - data export via SFTP server
- > archival and retrieval

data storage

- > fast big storage for data processing
- > local access via maxwell or via SMB
- > remote access via sftp
- > realized in the ASAP gpfs instance, at present: 15PiB



data processing facilities: Maxwell 🐼

- > general HPC-like cluster Maxwell 🐼
 - ≈ 1000 compute nodes, ≈ 45 from FS
 - for general offline processing
 - JupyterHub service for interactive analysis
 - via reservations: resources for online processing, see e.g. talk by Thomas White
 - online availability limited by sparse resources, needs better scheduling
- > processing at beam lines is handled by FS, with support from IT, e.g. for ASAP::O



- > data are archived via dCache on tape
 - first copy done 7 days after end of beam time
 - at removal from GPFS: Δ -copy
- > files are aggregated into (tar) containers
- > two copies are held, on different tape technologies
data are kept on GPFS until both tape copies exist
- > restage from tape upon request
(via RT-Queue, involving both FS-EC and ASAP team)



other services

- > network support, especially the PDAQ-network
- > services by IT subgroup research and innovation in computing (RIC), see talk by Sophie Servan
















future services

- > production scicat instance
- > open data repository **depending on data policy**
demo project with dCache storage and scicatfrontend
together with FS and others
- > ... and more as required



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- > Regina Kwee-Hinzmann 

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- > Ralf Lueken  CSRN Tape Archive
- > Frank Schlnzen 
- > Galina Smirnov 
- > Peter Suchowski  CSRN Tape Archive
- > Christian Voss 

... and the RIC sub group, see next talk by Sophie Servan

... and all the many the others for the more basic services that we rely on

