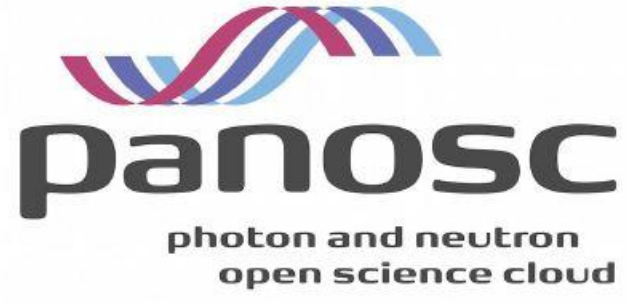

The Portal Architecture test experience at MAX IV Laboratory, Sweden

ExPaNDS/PaNOSC and CALIPSOplus Technical Coordination Workshop
8th - 9th of October 2020

The ExPaNDS project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 857641.
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Overview

- Facility
- COVID and the impact on the team’s roadmap
- ExPaNDS team at MAX IV
- The Portal Architecture test experience
  - What went well
  - What went wrong
  - What is the gap
  - What are the needs

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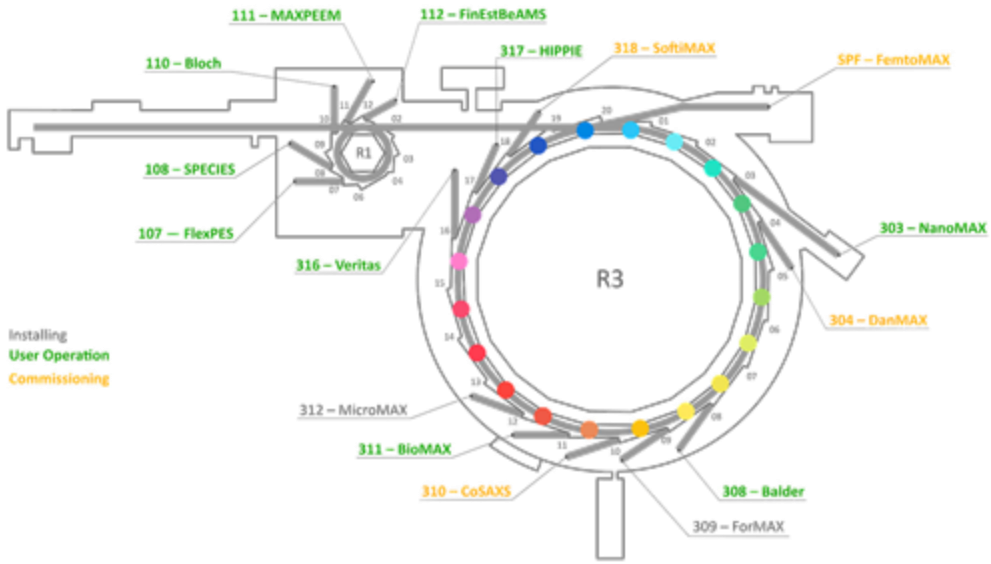
MAX IV Laboratory

synchrotron facility
Lund, Sweden

10 … beamlines in user operation
4 … commissioning
2 … procuring, installing



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COVID-19 and the impact on your team

- MAX IV follows Lund University rules
  - home office as an “exception” -> preferred where possible
- Advice from HR to postpone all recruitments
  - 6 months delay in one ExPaNDS position

Scientific Software Specialist, 2 years at MAX IV

Lunds universitet, MAX IV, Controls & IT

https://expands.eu/vacancies/
Process already ongoing (next slide)

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Team

ExPaNDS

Linh Nguyen
Software Developer – Information Management
Expertise in Web technologies
Will contribute to WP3 Data Catalogue

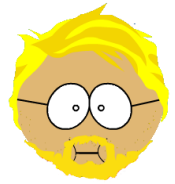
New Member (?)
Data scientist
WP4 – Data analysis service
status: Interviews finished

Sudha Padmanabhan
Team Lead – Information Management
Will contribute to WP3 Data Catalogue

Zdenek Matej
Scientific software coordinator
WP4 – Data analysis service

Daren Spruce
Head of IT
Coordination

Andrii Salnikov
Systems Engineer – IT & Infrastructure
Expertise in HPC cluster and Kubernetes



Jason Brudvik
Scientific software and Web developer
Expertise in Scientific Web Applications

MAX IV operation & DataSTAMP

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The Portal Architecture test experience

- PaNOSC Demo version deployed on Kubernetes
- What went well?
  - Helm chart deployment on Kubernetes
  - Portal functionality is there after troubleshooting and fixing issues
  - Jupyter Notebooks are working
    - including custom MAX IV notebooks that were added to DB
  - Remote Desktop is working (but not really usable without data access)

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The Portal Architecture test experience (2)

- What could go better?
  - **Authorization framework, Integration with Active Directory**
    - we had setup auxiliary Keycloak OIDC to make AD integration possible
      - GitLab OIDC we have in place was not working with Portal
    - reported issue: Nginx Ingress filters access_token header used in Portal implementation (underscores are not allowed)
  - **Hidden limitations/bugs that affects user experience**
    - Names and paths handling
      - reported issue: Kubernetes names limits are not checked during instance names user input
      - URL path to remote desktop is hardcoded
    - Kubernetes node names usage for multi-node cluster is messy

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The Portal Architecture test experience

- What is the gap between what's in your facility and what the Portal needs?
  - no gaps, we have multi-node production-ready Kubernetes cluster
  - moving to OpenShift will likely reveal more issues with security setup for the Portal

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Facility needs for the Portal

- Name the features you would prioritize/what does the portal needs in order to run in your facility?
  - Ways to make data accessible!
    - either run as a correct user UID to access local shares
    - and/or establish data transfer services
  - User-friendly front-end
  - Security
    - as soon as Jupyter Notebook is started it is accessible by everyone
  - considering MAX IV pilot ExPaNDS analysis service science case: SLURM module or an environment to run multimode MPI jobs will be needed as well

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Conclusions

- Portal is working BUT
  - no user-friendly fronted
  - no data access patterns
  - feels buggy and not greatly secure
- at the moment “Jupyterhub on Kubernetes” works better for MAX IV users
  - user-friendly front-end
  - simple way for creating own sw environments
  - data available
  - tested and validated sw environments

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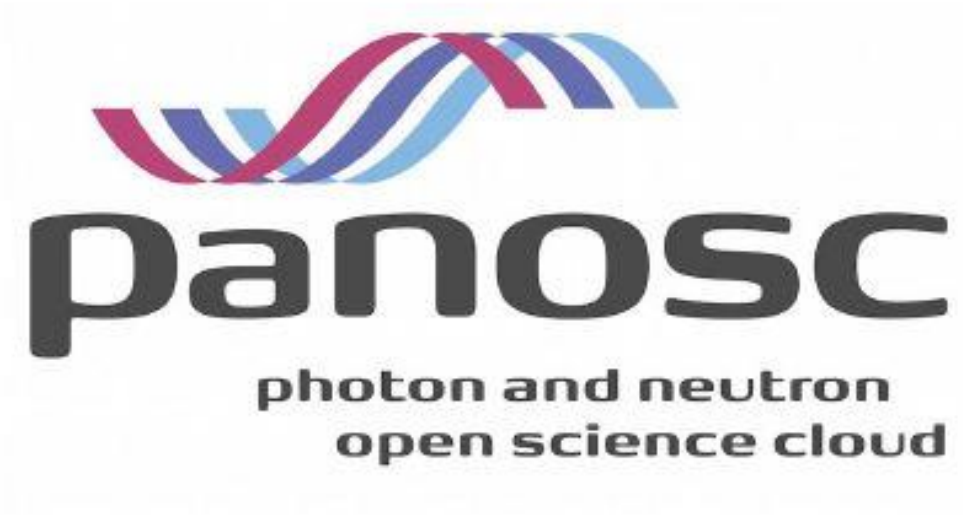

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