EIGER2 X 16M at PSI

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Beamlines

X06SA
● Eiger X 16M
● 5 - 100uM beam
● single axis
● 16 node cluster

X10SA
● Eiger2 X 16M
● 10-75 uM beam
● single axis
● 24 node cluster

X06DA
● Pilatus 2 MF
● 50x80 uM
● multi-axis prigo
● 7 node cluster
Data pathways

IP over infiniband

xbl-daq-25

puller_publisher

pull 3600

sub

update_rate

pub 3600

sub

cbf_creator

sub

GPFS

push 3600

sub

h5puller

wget

GPFS

x10sa-cn-*

spotter (x 484)

pull 1

amq topic

not in green box

Diffraction Viewer
Hardware infrastructure

DATA server

EIGER2 X DCU

40 Gbps fiber
filewriter

ZMQ

IP over Infiniband 40 Gbps

online cluster

GPFS storage

ZMQ.PUB

DATA server

remote users

offline comp-cluster

GPFS storage

10 Gbps

Remote users

40 Gbps fiber

filewriter

ZMQ
Eiger2 summary

- In operation since August 12, 2019
- roughly 8 weeks of user operation
- Total number of datasets: **4858**
- average parameters from our DB
  - Osc. Angle: **0.25**
  - Total Frames: **1373**
  - Exposure Time **0.14**
- Increased use of serial crystallography in solid support
  - raster, identify micro-crystals, collect small wedge (10 deg)
- online monitoring of dataset collection with spotfinder

EIGER2 X 16M at the SLS

- auto processing via in house pipelines via ADP
  - fast, smaller wedge
  - full
- ADP tracker – HTML5 app to track automatic data processing
- CBF for screening images (max. 20 frames)
Hardware Infrastructure

- Computing for EIGER2 X 16M
  - Online-Cluster: **24 nodes**: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz, **22 cores (44 with hyperthreading)**, 392GB RAM, REDHAT 7.6
    - Data reduction
    - Spot finding (raster)
  - Offline-Cluster: **32 nodes**: Dual Xeon E5-2690v3 (2.60 GHz), 256GB ram, Scientific Linux 7.0
    - MX software
    - graphics available via nomachine
Storage
- IBM GPFS
- 1.2 PB Total SLS
  - 2.5 PB in 2020
- 545 TB for all MX beamlines
  - to double in 2020

User console
- 10 GBps network
- GPFS access
- improves 16m loading and display for user inspection

Data retrieval options
- rsync
  - Usage increasing
- External hard drive
  - Most used method
- Automatic data backup to the Swiss National Supercomputing Center in Lugano, in 2020
  - metadata available via web interface
- GlobusOnline