

SSRL Crystallography Computing Facilities HDRMX Meeting at BNL

Thomas Eriksson, May 26th, 2016

Outset

- We don't have an Eiger detector
 - Advanced plans to purchase a 16M
- Came here to learn and gather information
 - Data availability for early viewing and “QA” processing
 - Computing hardware, reasonable requirements
- What type of experiments are being done on existing Eigers?
 - New, previously unfeasible, targets
 - More and faster collections of “standard” targets

- Currently operating 4 beamlines with scheduled users. Detectors on those are:
 - Pilatus 6M, upgraded to 25Hz (S/N: 101)
 - Pilatus 6M, 10Hz
 - MarCCD 325
 - ADSC Q315
- BL 12-1 under construction – candidate for an Eiger 16M
- Support MX experiments at LCLS MFX beamline
- Beamline control and automation using DCS/Bluice
- No automatic processing pipeline

- 32 blades, Xeon X5550, 8 cores, 24GB
 - Half for interactive use, half for bluiice/webice tasks
- 16 blades, Xeon E5-2670 v3, 24 cores, 128GB
- Storage via NFS using 2 NAS appliances
 - 600TB “/data”
 - 30TB “/home”
- Networking
 - Storage: 20-40Gbit/s
 - Processing blades: 10-20Gbit/s
 - Detectors: 1Gbit/s to storage
 - Pilatus 6M: 10Gbit/s to buffer node

- Current setup easily copes with today's load
- Main concerns with adding an Eiger detector
 - Access to images for viewing and initial evaluation during rastering and screening
 - Impact on storage system
 - User backups
- Considered remedies
 - Early processing on buffer node
 - Eiger buffer node: minimum 10Gbit/s to storage
 - Add flash/SSD tier to storage system
 - Data backups - ???