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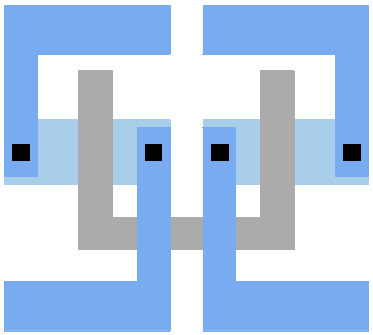
PXD Slow-Control Status



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20th DEPFET Meeting

Seeon

13.05.2016

IBBelle ("UNICOS")

- IBBelle controllable via EPICS and touchpanel.
- Actual small hardware problem (misaligned feedback switch) found with EPICS on day 1 of operations.
  ⇒ (at least that part of) the GUI – the central part of the UNICOS port – is working
- Commissioning to make a big step next week.
- Archiving of PV data also running (3730 PVs!), but consuming more resources (esp. RAM) than the poor PC has.
- Access control (operator/expert): I know how to do it…
- Quite a problem with incomplete documentation.
  - Differences between what's documented and what's in the PLC keep popping up.
  - Leads to incorrect GUIs. Not critical for safety!

DESY Testbeam Short Summary

- DATON now integrated in EPICS via IPbus and DHH-IOC (Bruno Deschamps, Björn Spruck)
  ⇒ milestone achieved: **All** PXD devices under EPICS control!
- new FOS IOC (using streaming mode with support for the optical multiplexer) ran uninterrupted for the entire beam time.
- rolled out new PS sequence tied to PSC (Thorsten Röder): control several PS at once.
- rolled out ConfigDB for DHH (Christian Pulvermacher)
- last week of TB: moved all IOCs to belle-iocpxd.desy.de. No interference, at least if the networks are separated.
  - CPU utilization (Intel(R) Xeon(R) CPU E5-2609 0 @ 2.40GHz):
    - LMU PS: 3%
    - others: 1% per IOC
    - big errors bars ⇒ difficult to scale up, but no trouble in sight, here.
  - Memory
    - IOCs negligible
    - Archiver Appliance: 45% of 32 GB (i.e. 15 GB) @ belle-control.desy.de

Power Supply Control / Run Control

- Reminder:
  - PS, DHH: power supply control
  - ONSEN, DATCON: run control
- At DESY:
  - PSC: PS units controlled (in local mode), intermittent Python script calls for DHH.
  - RC: ONSEN controlled, small bug in internal init sequence.

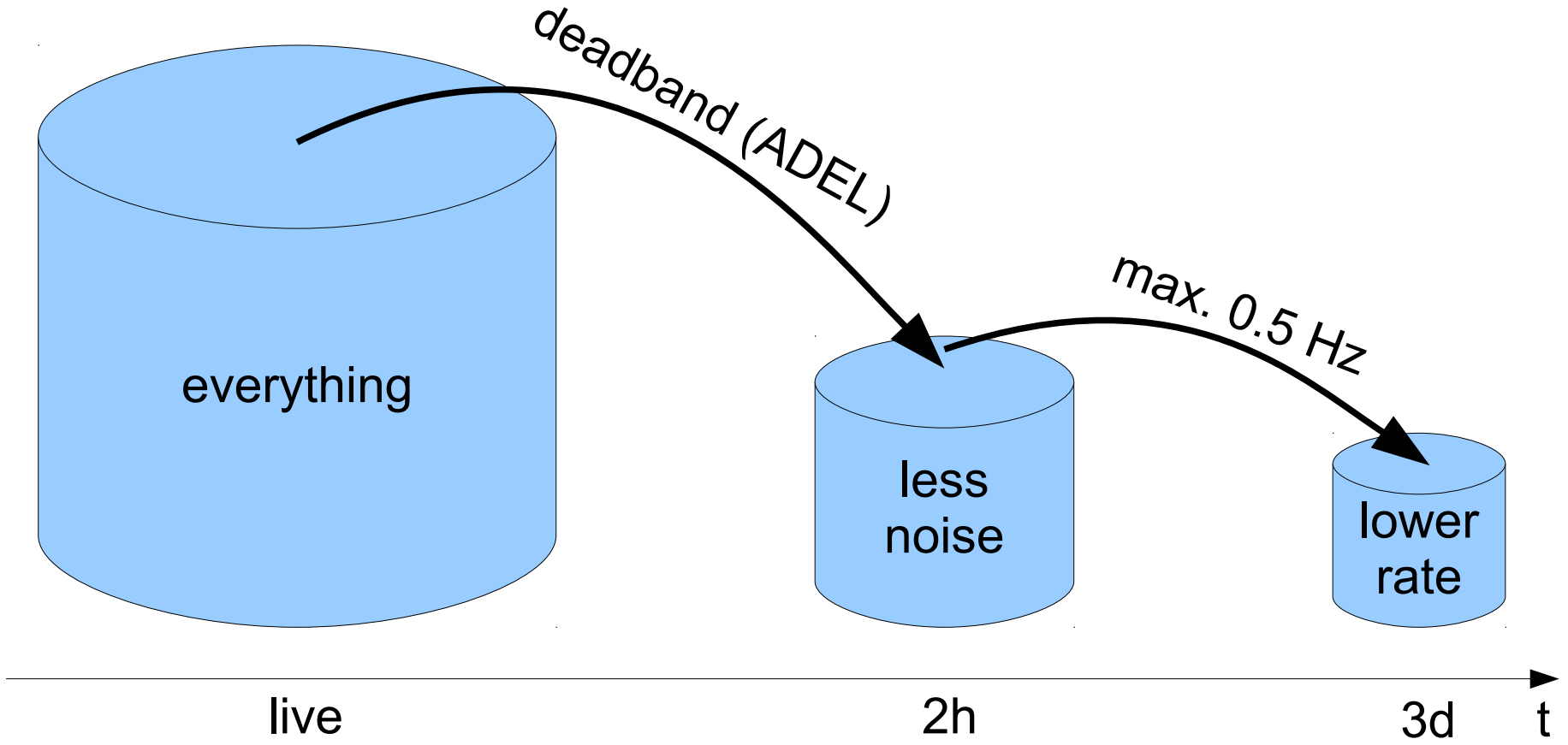
- Control + Monitor:
  Bringing the system into the desired state is only one half of the job.
  The second half is aborting when the requirements for the desired state are lost.
- “Control” is not that far away.
  ”Monitor” will take some time.

A Few Words on the Archiver Appliance

- https://slacmshankar.github.io/epicsarchiver_docs/
- Alternative PV archiving system for EPICS (v3 and v4).
- Transparent switch from the old archiver from user's point of view.
  - But beware the PV name prefix (https://github.com/ControlSystemStudio/cs-studio/issues/1655)
- Stores data in raw files on disc instead of database.
  ⇒ automatic partitioning, easier to backup. Also supports automatic data sparsification.
- Convenient HTTP interface to view & retrieve archived data in several formats (CSV, JSON, Matlab, …) including status, severity.
- Some statistics (at the end of TB, incl. DHE+PS):
  1345 PVs archived , 120 events/s
  74 GB/a * (40/2) = 1.5TB/a
- ~1GB accumulated, 223ksamples/s write performance

Archived Data Migrations

- Limited disc capacity means that storing the full data set is not possible. It's also not required.
- Data reduction has been tested at DESY.
- Support in the IOC (correct ADEL) is required!



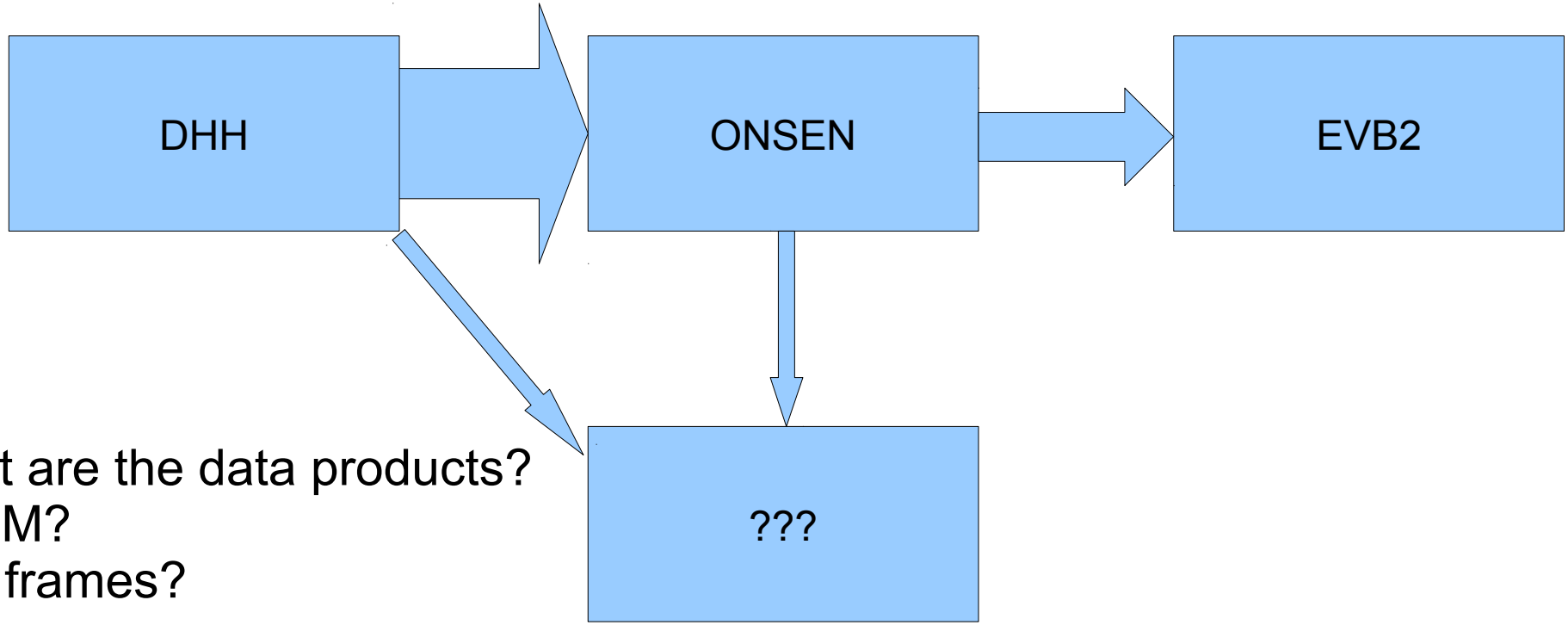
The Way Ahead

- Find a stable sequence to bring up DHH+ASICs. Pack the scripts that are run into a state machine for control via RC.
- ONSEN RC
  - little control, a lot of monitoring

- SL6 support for RPMs has now ceased.
  - The build scripts will continue as they are, but I won't fix anything related to SL6 only.
- CSS 4.3 is on the horizon.
  - BEAST (alarm system) PVs that are useful for UNICOS porting.

Open Questions

- Pedestals
  - from configuration database?
  - or taken whenever starting data taking?
- “Local” Run



What are the data products?
- DQM?
- full frames?

Where do the data go?
- If the answer is “EVB2”,
how do we coordinate with global?

Thank you!