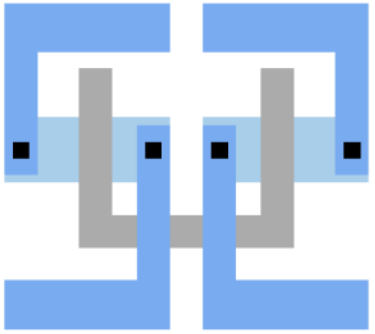
UNIVERSITÄT
HEIDELBERG

PXD Slow Control



Michael Ritzert

michael.ritzert@ziti.uni-heidelberg.de

PXD Weekly Meeting

24.01.2019

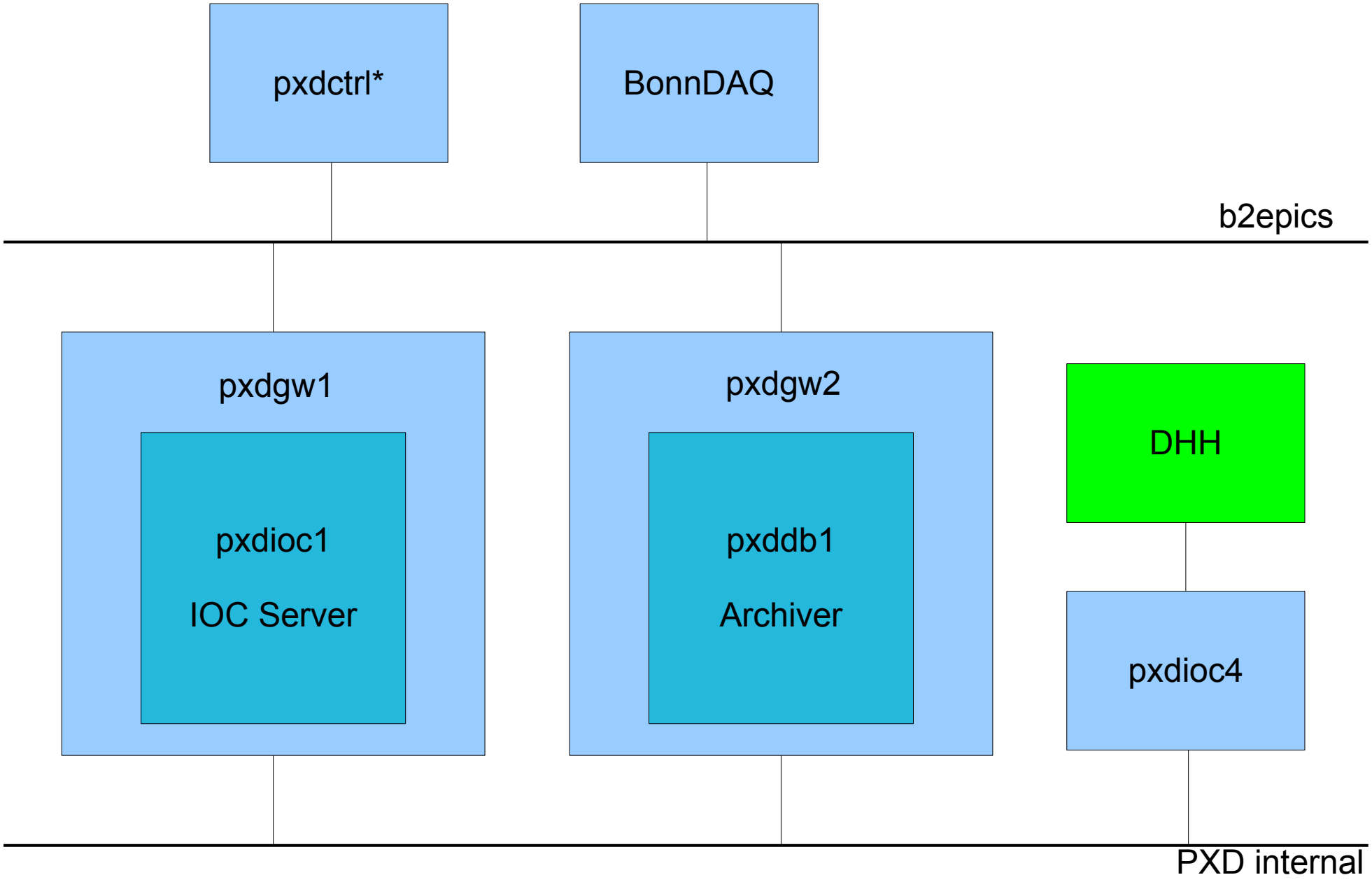
Major Stumbling Stones Ahead

- Biggest problem right now: dhhioc CPU consumption.
  - Prevents parallel ramping of all modules.

- For other ASIC-related problems, there is not indication at the moment that the IOC is involved.

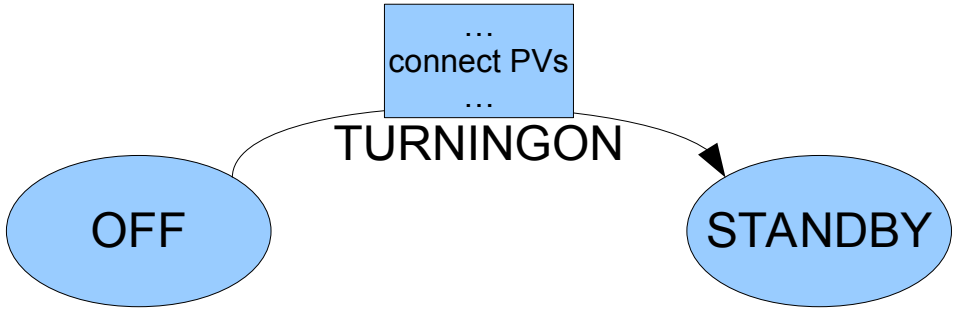
- The alarm system needs to be populated.

Setup at KEK Right Now



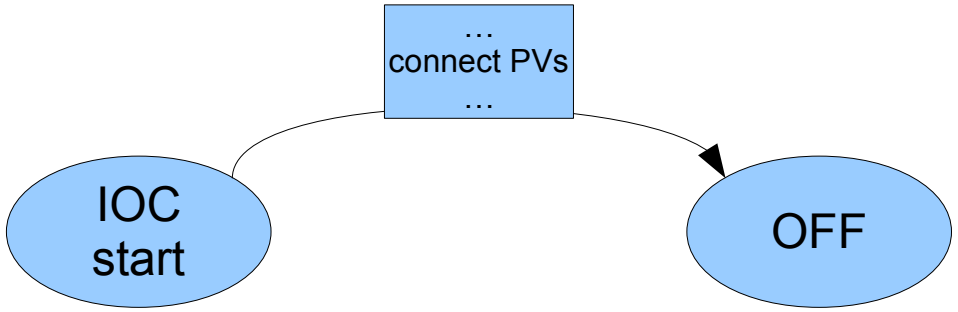
Reminder: DHH Sequence Fix #1

Before



Connect PVs during TURNINGON state.
⇒ All sequences connect at the same time.
⇒ PV connection happens on the critical path.

Fixed



Connect all PVs as soon as the IOC starts.
⇒ Away from the critical path.

- Problem solved: Overload of the configApp IOC during powerup.
- No problems observed after the change.

Current: DHH Sequence Fix #2

- Second problem: dhhioc consumes 100% CPU during pedestal upload.
- Traced down to a piece of code inside the EPICS asyn module.
  - Used by the devIpBus module.
  - Unclear if we use it in a way it wasn't meant to be used.
- A tight loop iterating over a linked list of entries, looking into each entry.
  - About as bad as it can get concerning caching inside the CPU…
  - Improved by caching the result of the scan in a C++ map.
- No functional code changed, still needs thorough checking after any changes in the setup.
  - The key used to build the cache might be incomplete.
  - E.g.: Will it work with more than one DH* per IOC?
- Used in the test environment at DESY at the moment.
  - Looks good so far. Ready to be used at KEK?

Alarm System

- Included so far:
  - Several ONSEN alarms.
  - PS OVP triggers.

- **Please provide input!**

- Refer to https://indico.mpp.mpg.de/event/6182/contribution/2/material/slides/0.pdf for details.

- During B2GM, I will try to establish aural alarm notifications in the B2 shift room.

Archiver

- Running with 20 modules on the „small“ IOC server (pxdgw2):
  Load « 0.5
  RAM 6 GB used (~half of that for the log message server!).

- ⇒ The same size server (in terms of CPU, RAM, but more storage) will do for 40 modules!
  But maybe a (physically) bigger server is needed to fit the HDs
  ⇒ These usually also come with more CPU cores, etc.
  ⇒ Try to find one that is big enough, yet also cheap.

- „EU-Japan Economic Partnership Agreement“ from February 1st.
  ⇒ Hopefully, exporting from Germany will be a lot easier then.

Other Open Items (That Require Brief PXD Shutdowns)

- Investigate PS (and possibly DHH) lost packets.
  - Current best guess: Interface between hardware and first switch.

- Update the servers to SL7.6.

Thank you!