EPICS software upgrade and areaDetector-3-2 deployment at NSLS2 beamlines

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Summary

- New EPICS Debian distribution deployment at the new beamline.

- areaDetector training event for beamline scientists.

NSLS2 now

- Currently NSLS2 is home to 27 beamlines
- + 2 will be built this year
- First 6 beamlines were built 4 years ago, and are taking general users for 3 years
- ∃ this rule: when something is built, and it works, don't touch it.
- Debian 7 on IOC servers
- EPICS 3.14 base and areaDetector-1-9 on most beamlines.

Upgrade decision

- At some point maintaining old software becomes expensive
- Need new Debian distribution for the very least.
- Mid-November 2017 we decided to test new Debian distribution on a real system.
- From EPICS community:
  - Updates pushed to epicsdeb are tested at FRIB
- Need to TEST to obtain credibility for a change.

The easiest path to upgrade…is to start from something new

- On newly constructed beamline 28ID1 PDF
- The right way is to built 2 parallel control systems:
  - Debian 7  Wheezy + old repo
  - Debian 8  Jessie + new repo
- In reality resources allowed only one deployment.

Outcome of the upgrade efforts..

- PDF beamline passed IRR with new Debian distribution on Debian 8 built from epicsdeb @ NSLS2.
- areaDetector-3-2 was deployed for prosilica diagnostic cameras.
- To expose new features new .opi screens for asyn and areaDetector were deployed. These screens were auto-converted by Mark Rivers and are available now in github in ../autoconvert/.
- New distribution was tested live, with utmost suspicion and attention to every problem on the top of PDF complexity.
- EPICS software upgrade way forward have been established for the interested beamlines.


PDF First Light

areaDetector-3-2 training for beamline scientists

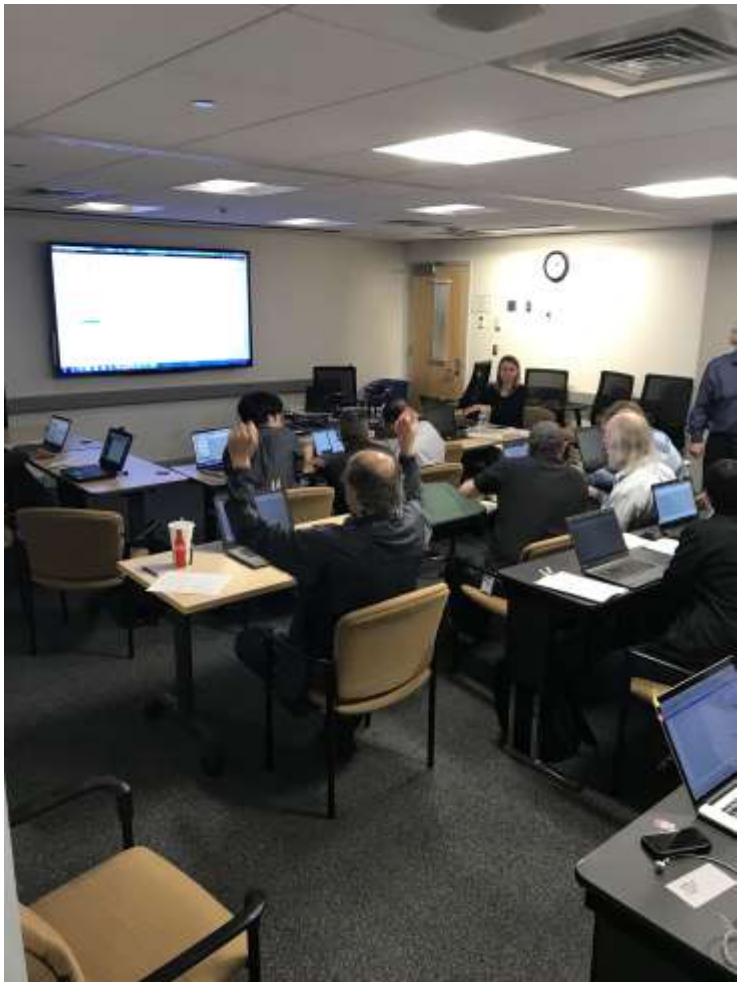
- Goals:
  - Promote EPICS software upgrade
  - Advertise PVA and EPICS7
- Good timing :
  - New Debian distribution
  - areaDtector-3-2 with latest Epics7 base.
  - A real beamline with all above deployed.
- Should be on the real HW and a real beamline.

Workshop

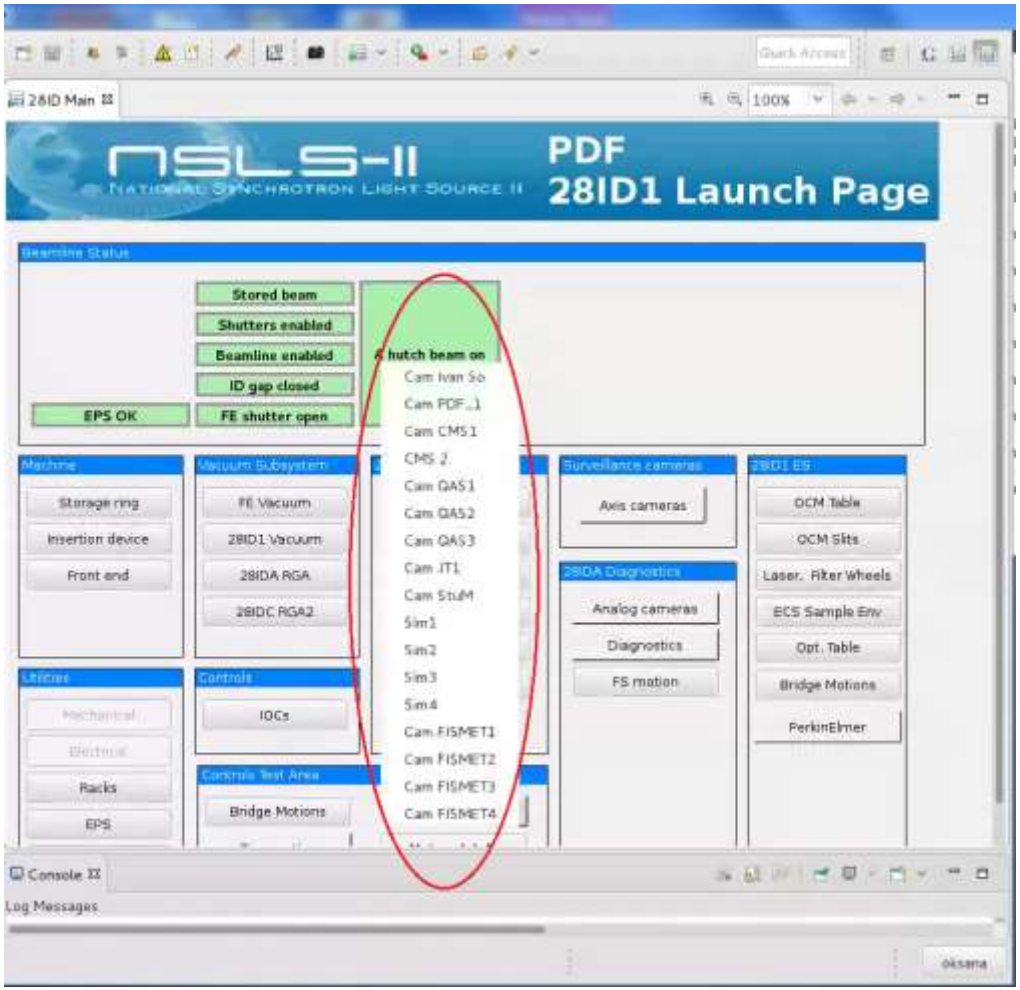
- Lecture
- Hands On Labs hosted by
  28ID1(11 cameras)
  11ID (13 cameras)
- AM + PM (20 + 20)

- Everyone had a prosilica camera with IOC at the beamline to play with.

Good bonding time between controls and scientists



Training details…



Conclusions

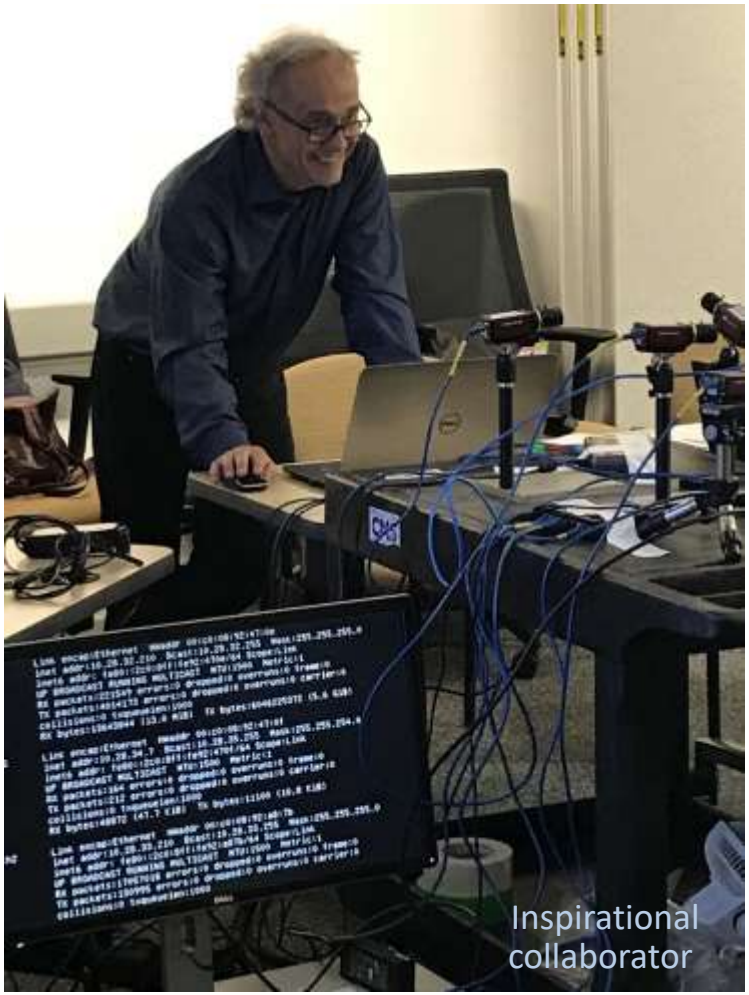
- Successfully deployed new EPICS Debian distribution on a new beamline. Overcame a potential barrier of a change.
- Demonstrated that areaDetector can be upgraded no every interested beamline, running any Debian.
- By running a training for beamline scientists advertised benefits of keeping EPICS software updated and did a good job positioning PVA and EPICS7.

Credits:




- Anton Derbenev for NSLS2 new Debian distribution.
- Kay Kasemir for perfecting .adl to .opi translator, and BOY fixes along the way.
- Leon Flaks for Debian delivery and admin help.
- John Trunk for mounting and focusing 10 cameras for the training labs.
- Matt Cowan, Kunal Shroff for help running the areaDetector-3-2 labs.
- Kazimierz Gofron for media efforts. Video and text are available @ https://www.bnl.gov/ps/epics/
- Richard Farnsworth for support including project $$ and Zen Tranquility.
- AND …..

Mark Rivers for



- Changing areaDetector make to work with Debian distribution.
- Translating areaDetector and asyn .opi screens.
- areaDetector workshop and beamline's visits @ NSLS2.
- Adding new features to address NSLS2 needs.

Thank you !

Inspirational collaborator