Deployment for the PANDA Detector Control System

EPICS Collaboration Meeting, 06/06/2019

Florian Feldbauer

Ruhr-Universität Bochum - Experimentalphysik I AG
FAIR - Facility for Antiproton and Ion Research
HESR - High Energy Storage Ring

\[ p_{\bar{p}} = 1.5 - 15 \text{ GeV/} c \]

\[
\begin{array}{|l|l|l|}
\hline
& \text{High Luminosity} & \text{High Resolution} \\
N_{\bar{p}} & 10^{11} & 10^{10} \\
\mathcal{L} & 2 \cdot 10^{32} \text{ cm}^{-2} \text{ s}^{-1} & 2 \cdot 10^{31} \text{ cm}^{-2} \text{ s}^{-1} \\
\Delta p/p & 10^{-4} & 2 \cdot 10^{-5} \\
\hline
\end{array}
\]
The PANDA Detector

PANDA physics program:

- Hadron spectroscopy
- Hadron structure
- Hadrons in medium
- Hypernuclear physics
Challenges for the Detector Controll System

- Detectors are build all over the world
- Each subsystem should develop their DCS partition
- Large diversity in used operating system at the different sites
- Large diversity in skills of “DCS-experts”
- Sub-Detectors need to start working on their control system now
Possible Solution

⇒ Container Virtualization (e.g. docker)
- First test IOC container (asyn, autosave, calc, modbus, stream, snmp):

```
[root@lenovoT450s /]$ docker image ls
REPOSITORY          TAG       IMAGE ID               CREATED             SIZE
ca-gateway          stretch-7.0.2 2d176f7a62ac 15 seconds ago 607MB
panda-ioc           stretch-7.0.2 fc72304d211c 2 hours ago 732MB
```

- Access to (hardware) serial ports, network stack, ...

```
[root@lenovoT450s /]$ docker run --device=/dev/ttyS1 --network=host ...
```

- Additional containers planned for Archiver, CS-Studio
- Tests with hardware will be performed in July