



# IBEX: BEAMLINER CONTROL AT ISIS PULSED NEUTRON AND MUON SOURCE

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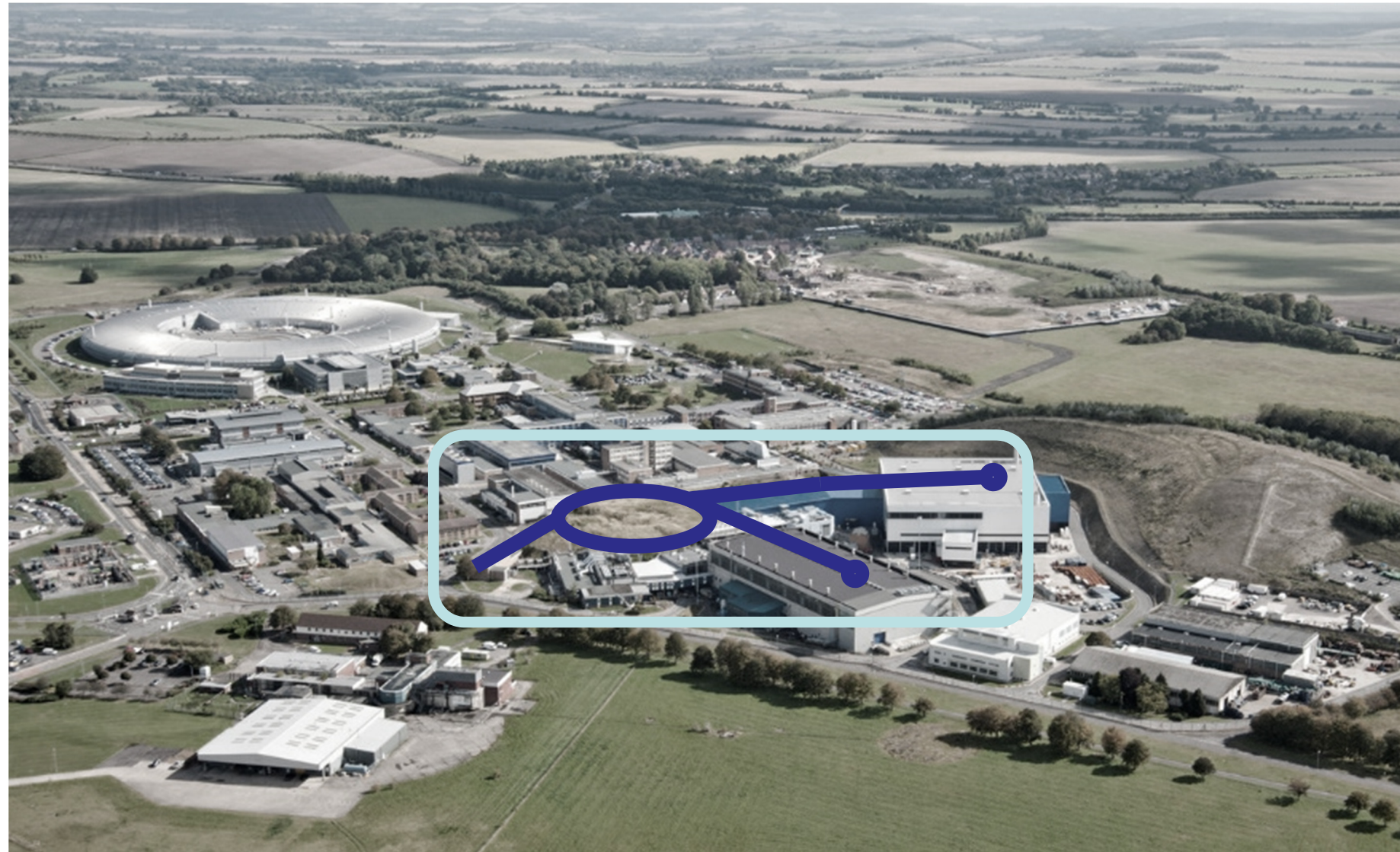
- Introduction
- Architecture
- What IBEX Looks Like
- Development Practices
- Recent Developments/In Progress
- Future Plans



# Where is ISIS?

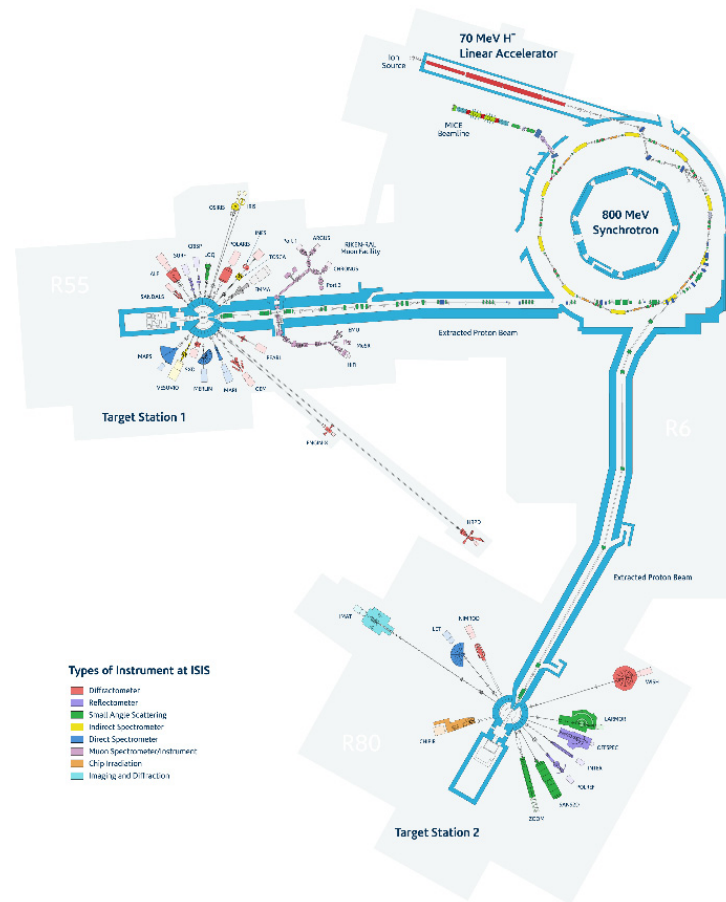


# Where is ISIS?

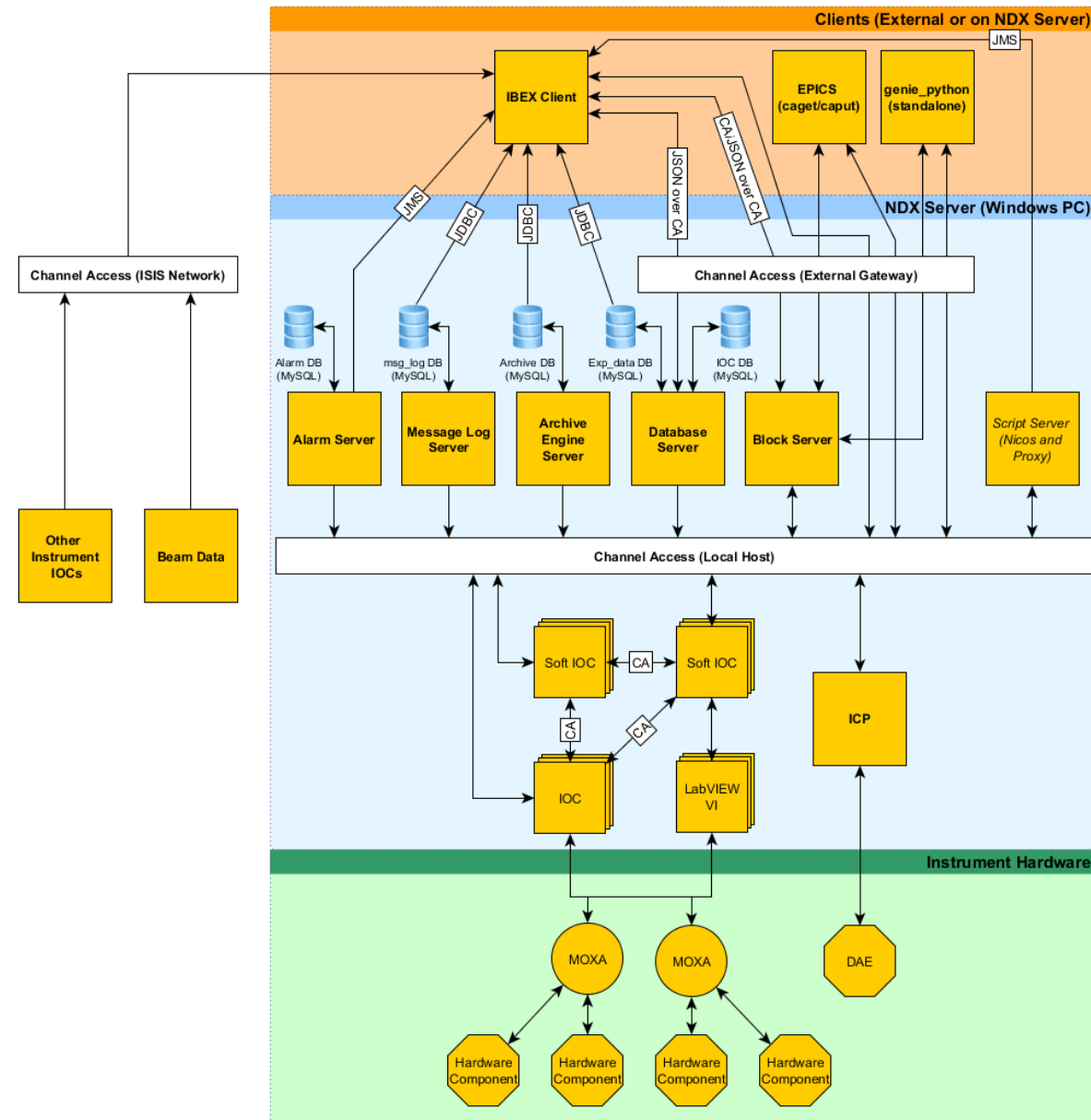


# What does ISIS do?

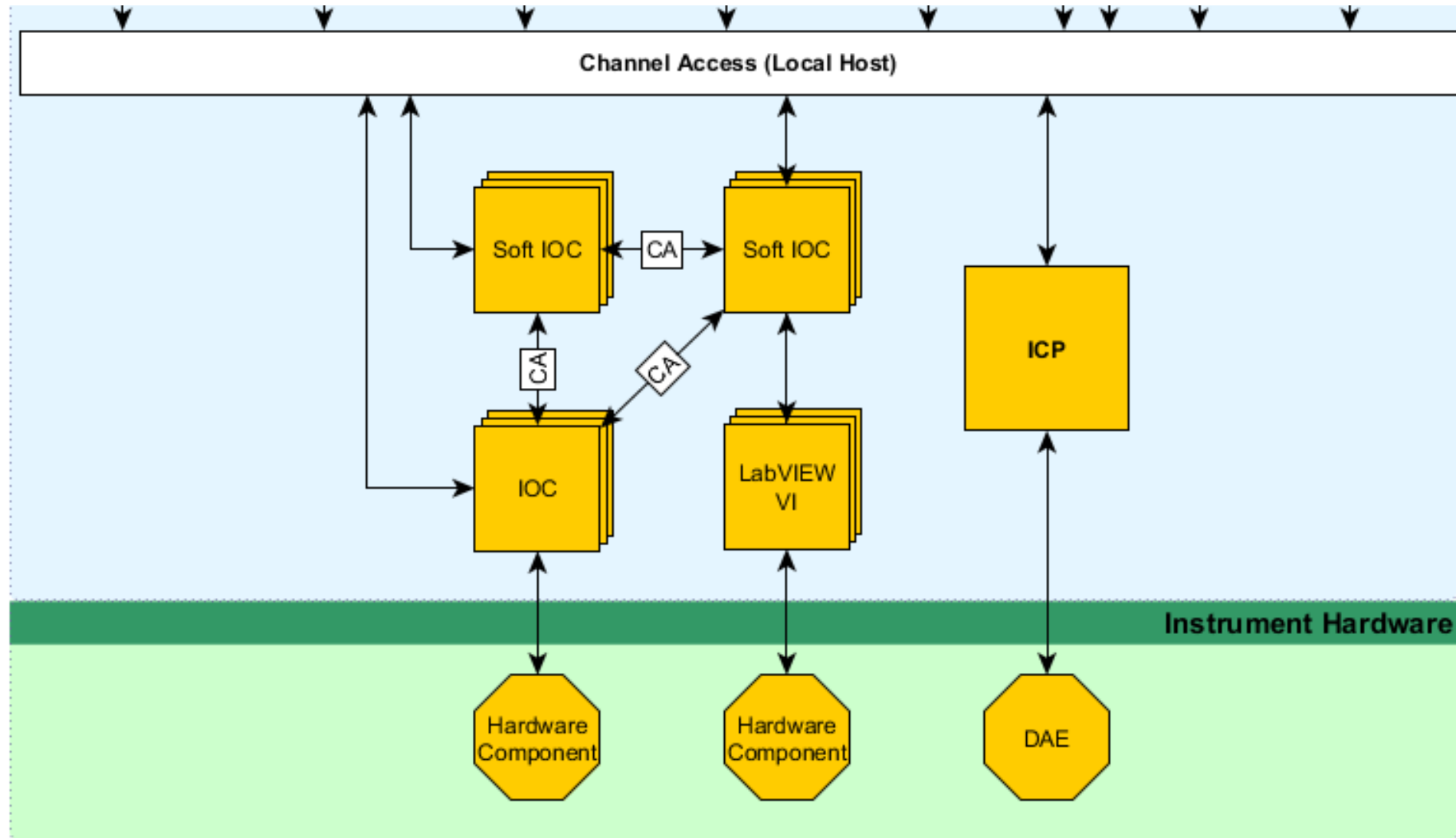
- Pulsed Neutron and Muon Spallation Source
- 2 Experimental Halls
- 30+ Instruments
- In 2018 – 1085 Proposals, 870 Experiments, 500 Journal and Conference Papers



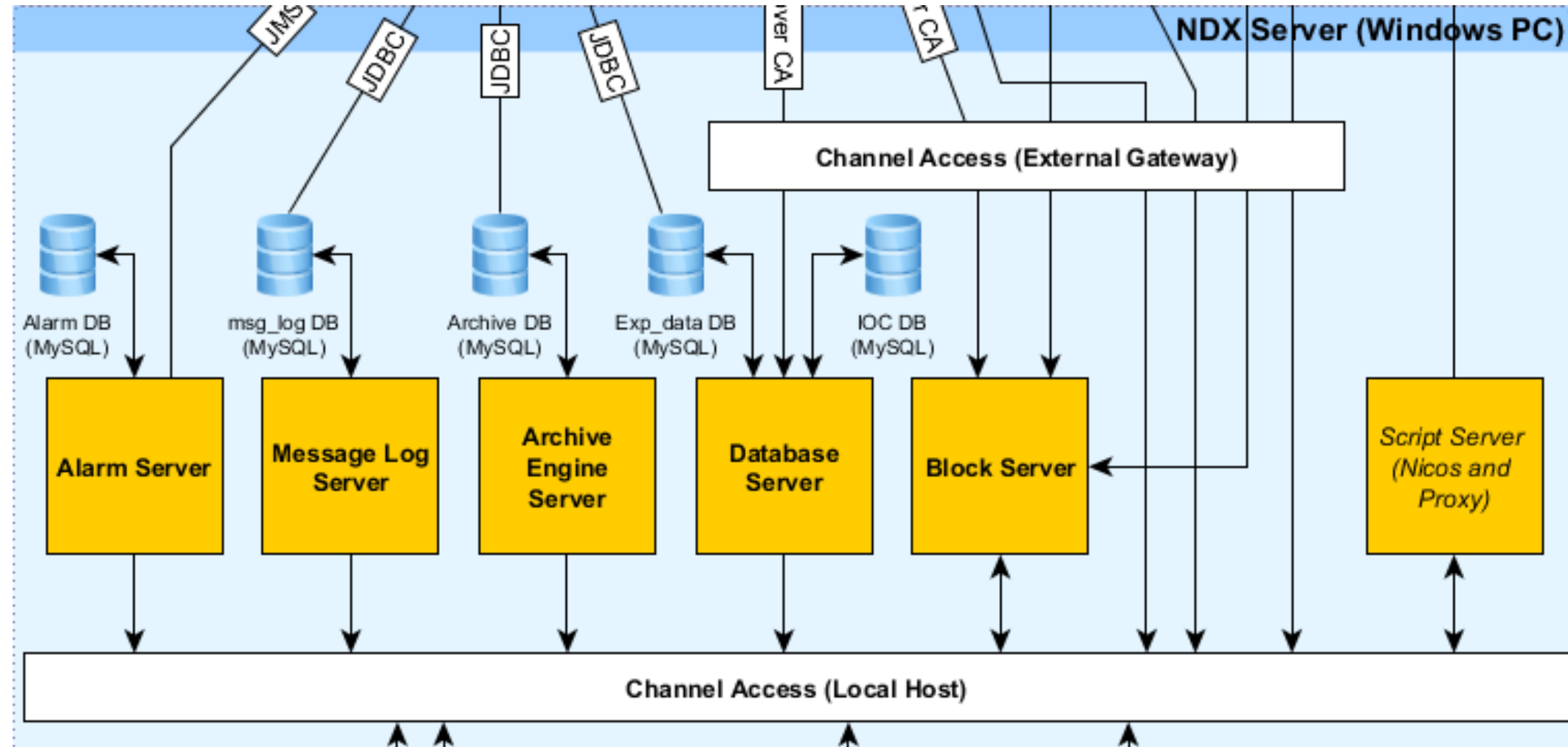
# IBEX Software Architecture



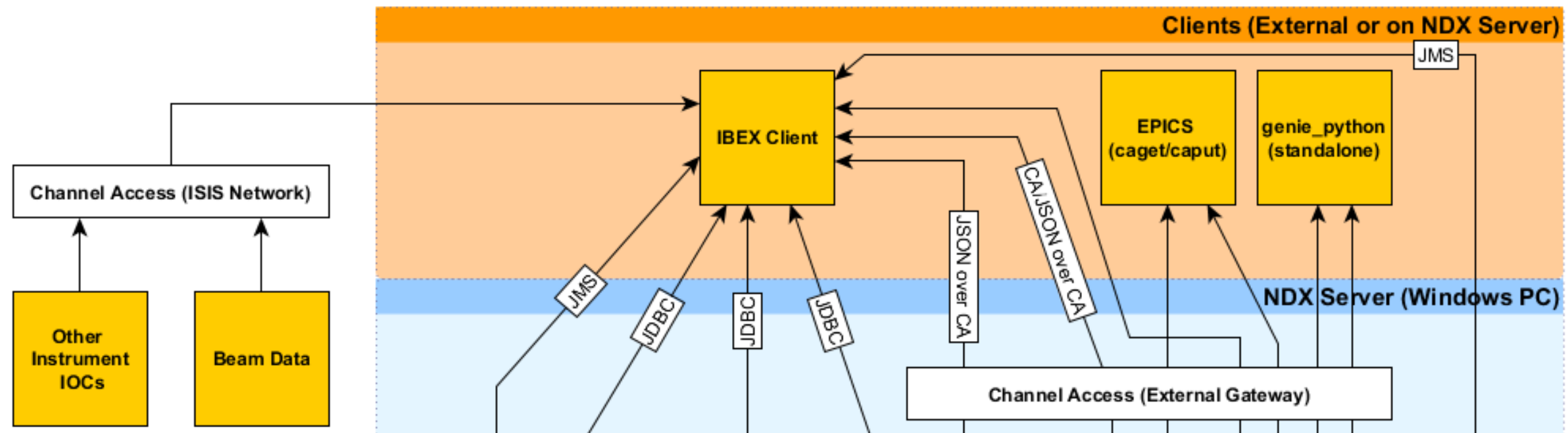
# Interaction with Hardware



# Support Items



# Clients



# The IBEX GUI

IBEX Instrument Configuration Synoptic IOC Console Help

**LARMOR is SETUP**

Run: 00003490 Shutter: CLOSED

Title: Analyser setup y=-7.0 arc=-6.5 a2=2.0

Users:

Good / Raw Frames: 0 / 0 Inst. Time: 11/06/2015 11:15:56

Current / Total: 0 / 0 Run Time: 5 min 27 s

Monitor Counts: 0 Period: 1 / 1

Configuration: larmor\_base

JAW GAPS	BENCH	Sample	Detector	Optics	Other
CJHGap 30.001	BSZ 337.99925	Phi 0.28816 deg	DetectorPack1 Off	Pol_Trans 209.00000 mm	Eurotherm1... disconnected
A1HGap 20.001	BSY 88.01325	CoarseHeight 16.64300	DetectorPack4 Off	BlockhouseV... 130.000	Eurotherm1... disconnected
S2VGap 39.986	BenchStatus LOWERED	Translation -14.99400 mm	DetectorPack2 Off	An_Trans -7.00050 mm	J1Temp5 disconnected
S2HGap 38.084	BenchLift LOWER	J1SetTemp 0.0 C	DetectorPack3 Off	An_Arc -1.88810 mm	Eurotherm1... disconnected
S1HGap 13.993	Bench_Rot -0.002	SampleX 2.03800 mm		Pol_Arc -1.59910 mm	S1VCent 0.000
A1VGap 19.998	M4Trans 200.00404	SamplePos			IncidentVacu... 0.002
S1VGap 14.000	Mon4InOut	J1Temp 23.0 C			s2south -18.288
CJVGap 30.006		J2Temp 22.0 C			KEPCO1_Cu... disconnected
		J2SetTemp 0.0 C			
		FineHeight -0.00100 mm			

Current user: NONE Bump strip is NOT\_TRIPPED Motors are STATIONARY Stop All

Alarms Beam Status DAE Data Browser Experiment Details IOC Log Motors Scripting Synoptic Web Links

Pressure A2 0.011 Pressure B1 130.000

Vacuum 1 Vacuum 2

Coarse Jaws HGap 30.001 VGap 30.006

Chopper Frequency 20 Phase 0 Error 0

Polariser In/Out FOM Angle -0.084 degree

Aperture 1 HGap 20.001 VGap 19.998

Slit 1 HGap 13.993 VGap 14.000

Monitor 3 Counts 0 counts M3Height 0.00003

Sample Changer Sample B\_J In Position 1

Sample Stack X 2.038 Y -14.994 PHI 0.288 Fine Height -0.001

Slit 2 HGap 38.084 VGap 39.986

Monitor 4 Counts 0 counts M4Trans 200.00404

Bench Rotation Target angle Unknown Current angle Unknown Status Unknown

Analyser In/Out Angle -0.300 degree

Moving Beamstop Counts 0 counts Z 337.99925 Y 88.01325



# Web Dashboard

**ZOOM is RUNNING**

Title: AcBe source in the tank - test of new ADCs Users:	Good / Raw Frames: 678726/678726 Current / Total: 0.000 uA/140.898 uA hour Monitor Counts: 0 count	Start Time: Wed 29-Aug-2018 17:25:52 Run Time: 18 hr 51 min 7 s Period: 1/1
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Configuration: SLITS\_SETUP

### Run Information

- Run Status: RUNNING
- Run Number: 00004312
- RB Number: 0
- User(s):
- Title: AcBe source in the tank - test of new ADCs
- Start Time: Wed 29-Aug-2018 17:25:52
- Total Run Time: 18 hr 51 min 7 s
- Period Run Time: 18 hr 51 min 7 s
- Good Frames (Total): 678726
- Good Frames (Period): 678635
- Raw Frames (Total): 678726
- Raw Frames (Period): 678635
- Current Period: 1
- Number of Periods: 1
- Period Sequence: 0
- Beam Current: 0.000 uA
- Total Uamps: 140.898 uA hour
- Count Rate: 0.088
- DAE Memory Used: 192401 byte
- Total DAE Counts: 5217591 count
- DAE Timing Source: Internal Test Clock
- Monitor Counts: 0 count
- Monitor Spectrum: 2
- Monitor From: 1000.000 us
- Monitor To: 99000.000 us
- Number of Time Channels: 500
- Number of Spectra: 98312
- Shutter Status: CLOSED
- DAE Simulation mode: No

### Blocks

#### Motor\_positions

- J1\_VGAP: 20.001 (MINOR/LINK\_ALARM)
- J4\_VGAP: 14.976 (MINOR/LINK\_ALARM)
- PGC\_Unit: -0.00035 mm (MINOR/HIGH\_ALARM)
- J2\_VGAP: 19.987 (MINOR/LINK\_ALARM)
- J1\_HGAP: 29.997 (MINOR/LINK\_ALARM)
- J2\_HGAP: 20.005 (MINOR/LINK\_ALARM)
- Spin\_flipper: DISCONNECTED
- J4\_HGAP: 15.002 (MINOR/LINK\_ALARM)

#### Sample\_Stack

- SampleStack\_HighZ: -1.658 (MINOR/LINK\_ALARM)
- SampleStack\_Y: 0.262 (MINOR/LINK\_ALARM)
- SampleStack\_X: 19.962 (MINOR/LINK\_ALARM)
- SampleStack\_loZ: 120.024 (MINOR/LINK\_ALARM)

#### Diagnostics

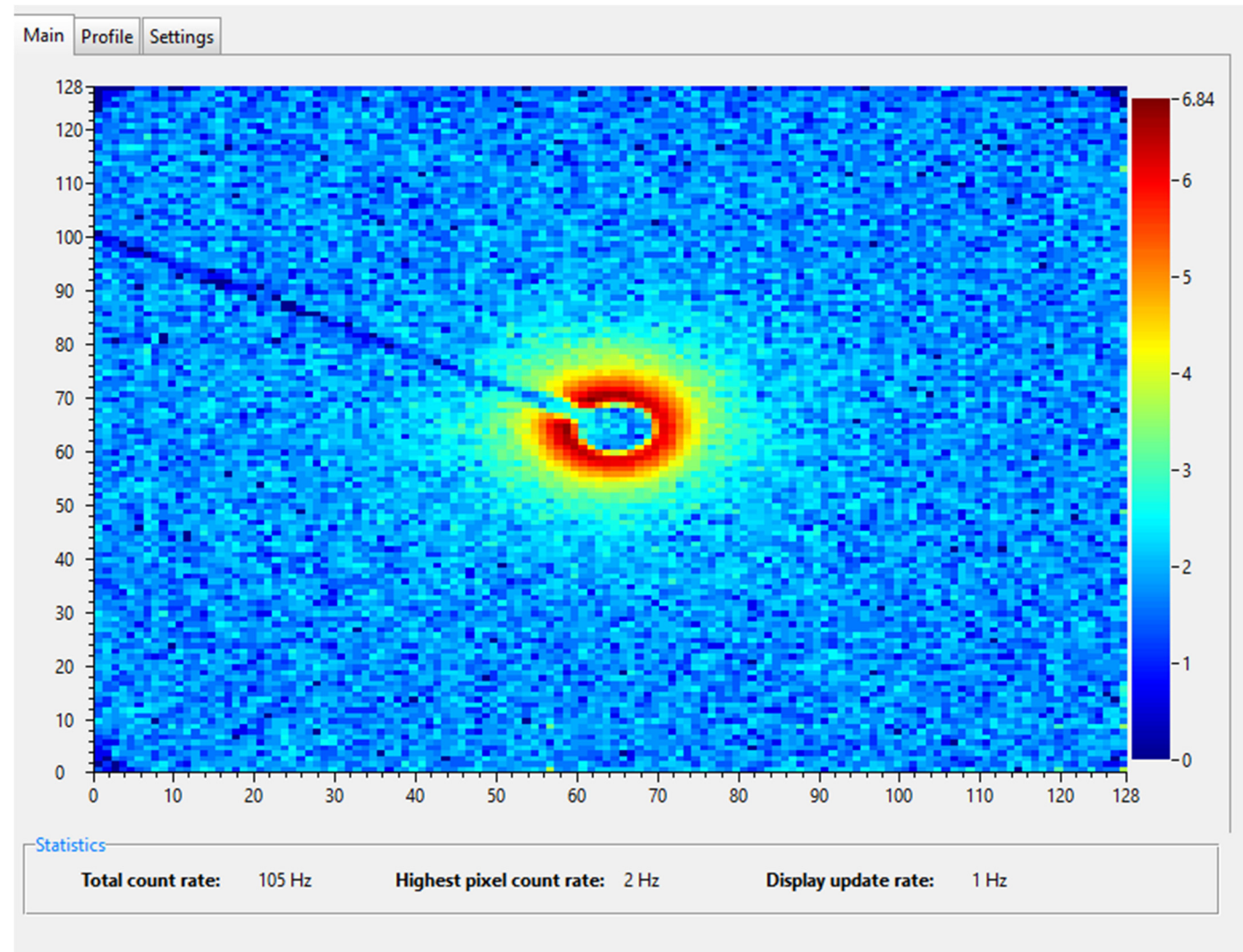
- Guide\_vacuum: 870.000 mbar
- GAUGE1: 1000.000 mbar
- mag\_curr: 0.000 A (MINOR/HIGH\_ALARM)
- disk1: 3000 us
- disk2: 99000 us
- monitor3: -161.36455 mm (MINOR/HIGH\_ALARM)
- Monitor4: EXTRACTED
- Nanodac1: 22.89 C
- Monitor2: EXTRACTED
- Snout\_vacuum: 9900.000 mbar

#### Julabo

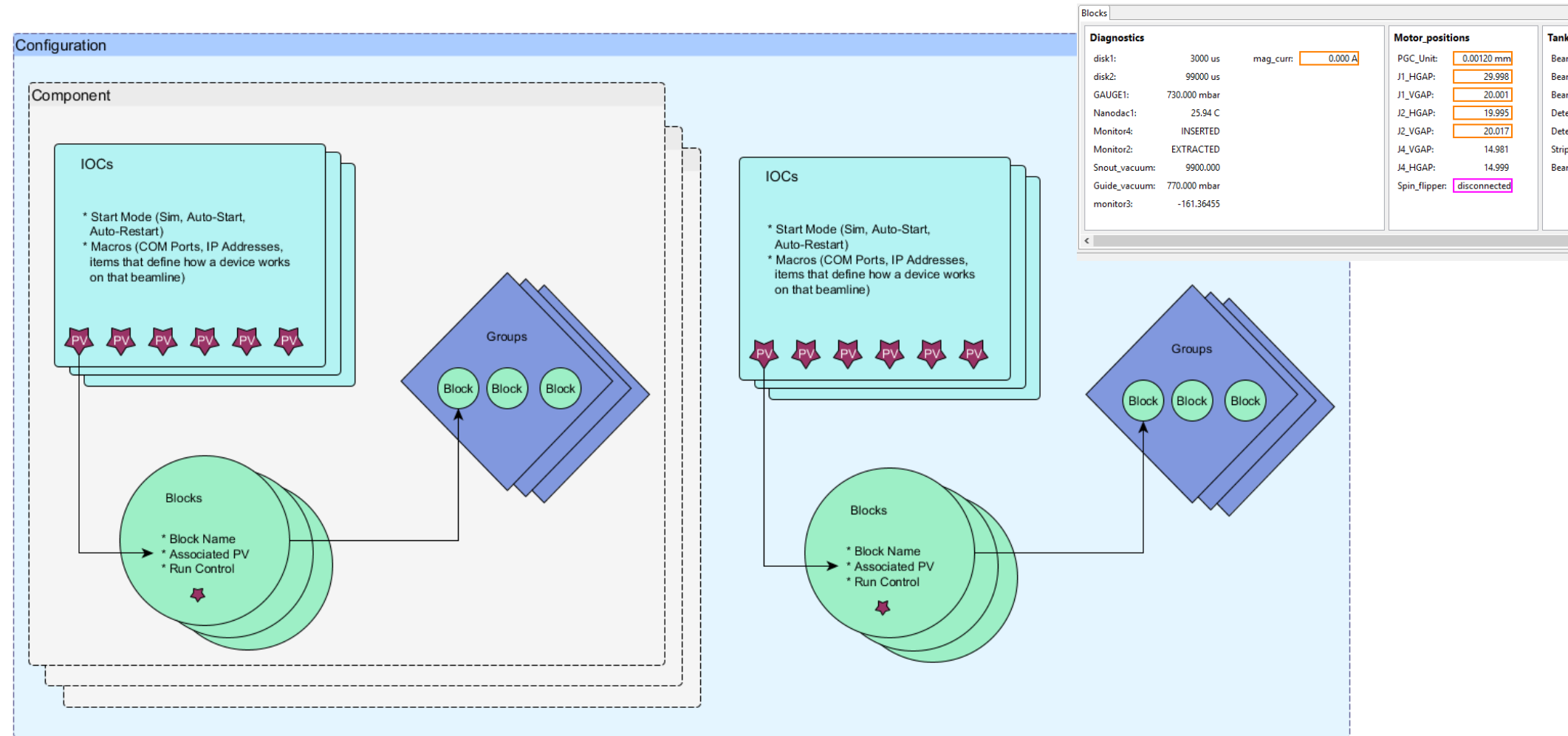
- julabo\_one\_bath: 24.1 C
- julabo\_one\_temp\_sp: 0.0 C (INVALID/UDF\_ALARM)
- julabo\_one\_sample: 0.0 C (INVALID/CALC\_ALARM)
- julabo\_two\_bath: 24.1 C



# Live View



# Configuration Management



# Development Practices

- Modified Agile/SCRUM
- Science Advisory Group
- Continuous Integration
- Test Framework
  - LeWIS

Poster WEPHA090  
for more information

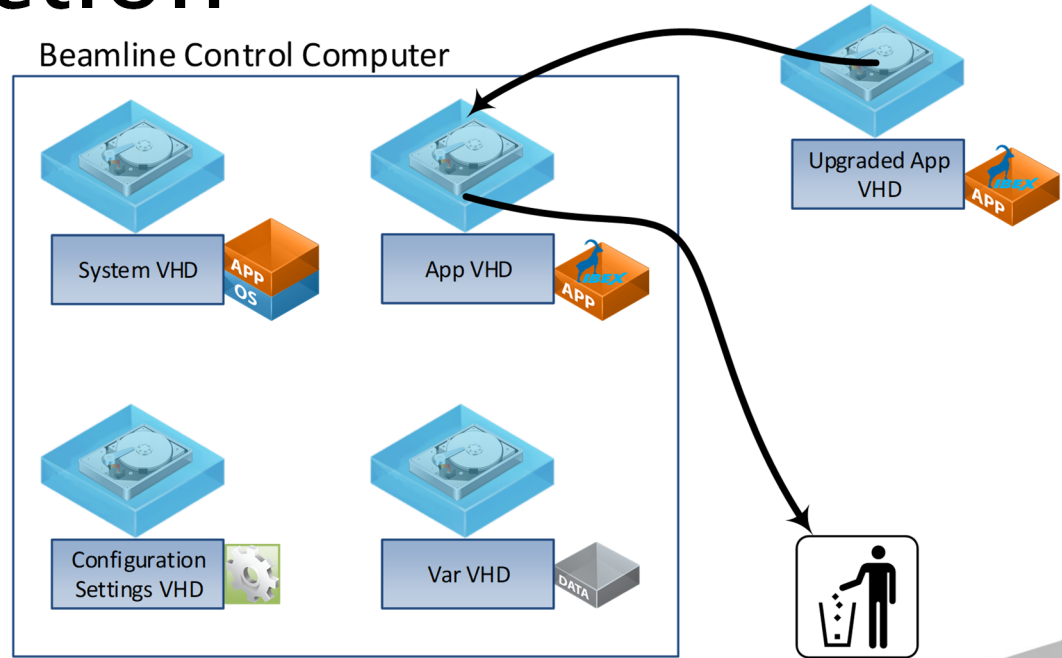


# In progress

- Motion Control
- Reflectometry
- Datastreaming
- VHD Collection

Talk WEDPL03 for more information

Poster WEPHA091 for more information



# Future plans

- Scripting Improvements
- Finish migrating instruments
- EPICS 7
- Phoebus





# QUESTIONS?

