ESRF Operation Status

EUROPEAN **S**YNCHROTRON **R**ADIATION **F**ACILITY

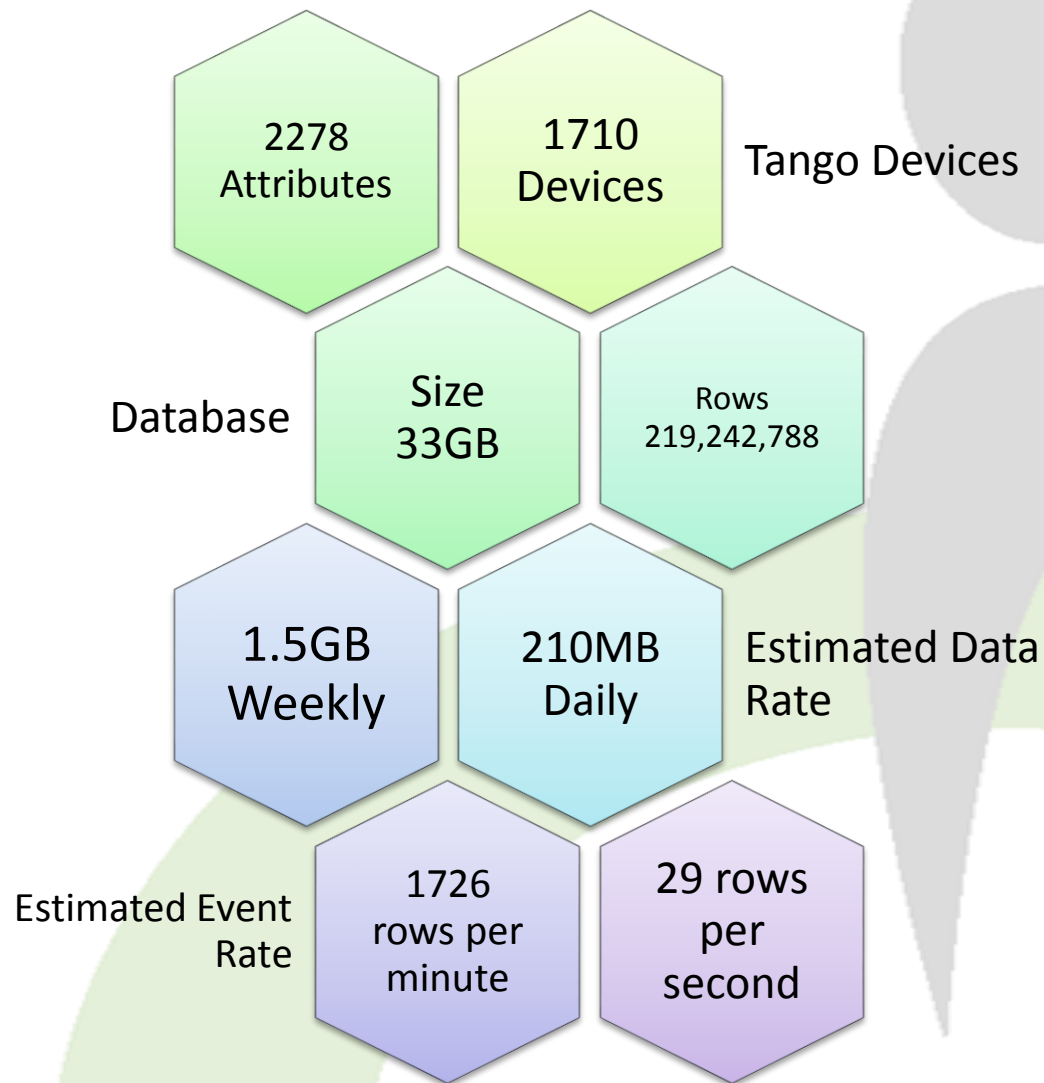Stuart James, Sept 2019 HDB++ Workshop

Installation Status

- New Timescale archival system came online in July.
- Currently archiving vacuum data from the new accelerator.
- Completed Components:
  - libhdb++timescale shared library
  - Java Extraction Library support
  - Timescale database server cluster
- Components Under Development:
  - Hdb Health Check (requirements planning)
  - Hdb Db Services (75% release 1)
- Completion of missing components will end first phase of development

Tango Control System

Hdb Health Check

libhdb++timescale

Timescale HDB++ Cluster

Hdb Db Services

Java Extraction Library

HdbViewer
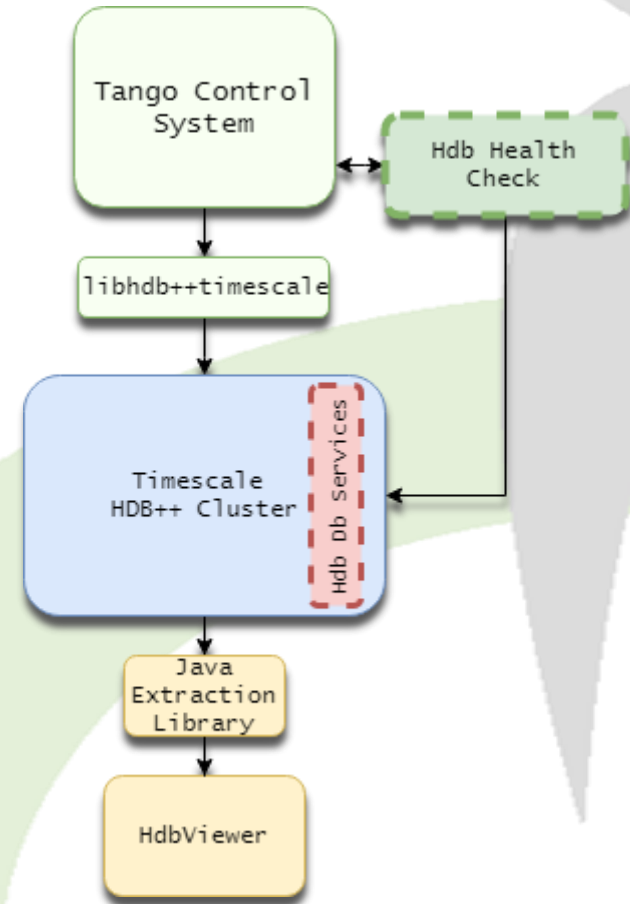
System Statistics

- All figures are estimates based on data from the live system.
  - System is currently shutdown and under construction.
- System usage is still low, plenty of room to grow before we find limits and are forced to scale/optimise.
- Over 60% of the database size is indexes (inline with research).
  - Due to composite index used to speed up queries.
- 99.9% data is scalar DevDouble.

```
       table_name      | row_estimate
-----------------------+-------------
att_array_devstate     |         1581
att_array_devstring    |           59
att_parameter          |        20611
att_scalar_devboolean  |            3
att_scalar_devdouble   |    212488736
att_scalar_devlong     |          112
att_scalar_devstring   |         1501
```

| 2278 Attributes | 1710 Devices | Tango Devices |

| Database | Size 33GB | Rows 219,242,788 |

| 1.5GB Weekly | 210MB Daily | Estimated Data Rate |

| Estimated Event Rate | 1726 rows per minute | 29 rows per second |

System Statistics Cont…

	Faulty	Started	Paused	Stopped	Pending	ev/sec	Fail...	Context
"HDB++" statistics	0	26	0	0	0	4.00	0.00	Shutdown
FE Pressures	6	553	0	0	0	5.00	5.00	Shutdown
INFRA	21	99	0	0	0	0.00	0.00	Shutdown
Injection/Extraction	0	0	0	5	0	0.00	0.00	Shutdown
Linac	0	14	0	0	0	0.00	0.00	Shutdown
SR Pressures	3	878	0	0	0	9.00	2.00	Shutdown
SR RGA 1	0	76	0	0	0	0.00	0.00	Shutdown
SR RGA 2	0	133	0	0	0	0.00	0.00	Shutdown
SR RGA 3	1	114	0	0	0	0.00	0.00	Shutdown
SR RGA 4	0	57	0	0	0	0.00	0.00	Shutdown
SY PowerSupplies	0	0	0	89	0	0.00	0.00	Shutdown
SY Pressures	0	101	0	0	0	0.00	0.00	Shutdown
TL1	0	6	0	0	0	0.00	0.00	Shutdown
TL2	0	12	0	0	0	0.00	0.00	Shutdown
Undulators	0	23	0	91	0	0.00	0.00	Shutdown

	Faulty	Started	Paused	Stopped	Pending	ev/sec	Fail./sec	Context
E.S. Manager	31	2092	0	185	0	16.00	2.00	Shutdown

System Statistics Cont…

2277 Attributes   distributed   in 15 Subscribers

Attributes | **Performances** | **Table**

Subscriber	Attributes	Nb Events	Max Store	Max Pending	Reset Time	Duration
SR Pressures	878	1026803	34.54 ms.	100	16 Sep 20:00:05	19 h 51 mn 57 sec.
SR RGA 4	57	481	66.36 ms.	57	17 Sep 08:17:52	7 h 34 mn 10 sec.
SY PowerSupplies	89	0	0.00 us	40	16 Sep 20:00:05	19 h 51 mn 57 sec.
FE Pressures	553	694508	19.54 ms.	5	16 Sep 20:00:05	19 h 51 mn 57 sec.
INFRA	99	1739	42.08 ms.	5	16 Sep 20:00:05	19 h 51 mn 57 sec.
Undulators	114	10	3.35 ms.	5	16 Sep 20:00:05	19 h 51 mn 57 sec.
Injection/Extract...	5	0	0.00 us	4	16 Sep 20:00:05	19 h 51 mn 57 sec.
"HDB++" statistics	26	317627	14.28 ms.	3	16 Sep 20:00:05	19 h 51 mn 57 sec.
SY Pressures	101	2781	10.00 ms.	2	16 Sep 20:00:05	19 h 51 mn 57 sec.
Linac	14	210	30.94 ms.	1	16 Sep 20:00:05	19 h 51 mn 57 sec.
SR RGA 1	76	890	21.34 ms.	1	16 Sep 20:00:05	19 h 51 mn 57 sec.
SR RGA 2	133	3920	8.16 ms.	1	16 Sep 20:00:05	19 h 51 mn 57 sec.
SR RGA 3	114	2185	32.57 ms.	1	16 Sep 20:00:05	19 h 51 mn 57 sec.
TL1	6	114	31.87 ms.	1	16 Sep 20:00:05	19 h 51 mn 57 sec.
TL2	12	0	0.00 us	1	16 Sep 20:00:05	19 h 51 mn 57 sec.

Dismiss

System Issues

- Some key outstanding issues being worked on:
  - String storage: string data requires escaping to store, but PostgreSQL does not offer easy escaping on extraction.
  - Missing types: DevEnum and DevEncoded.
  - Extraction problems with some unsigned types.
  - Multiple EventSubscribers running in a single Device Server not supported yet.

Thank you!

Any questions?

http://www.tango-controls.org/