TANGO CONTROLS
COLLABORATION
IN 2015

Andy Götz (ESRF)
on behalf of

TANGO Collaboration
BUNJIL THE CREATOR

CHEERS
THANKYOU
NGOON-GODGIN!
If you want to walk fast then walk alone, but if you want to walk far then walk together

African proverb
HOME SWEET HOME
CONTINUOUS IMPROVEMENT
Tango Continuous Improvement

• Keep the concept of a distributed object simple

• Integrate new features and applications into the core

• Multiple languages as 1st class citizens (C++, Python + Java)

• Documentation + Installation
TANGO 9

ANOTHER MAJOR RELEASE!
• Pipes (aka Streams)
• Dynamic commands
• Forwarded attributes
• Enumerated attributes
• Polling thread optimisation
• New base class – Device_5Impl (API is backwards compatible)

The People
E. Taurel
P. Verdier
J.-L. Pons
F. Poncet
(ESRF)
G. Abeille
(SOLEIL)
JAVA DEVICE SERVERS

- A new version of the Java implementations for device server **JTango** has been developed using annotations. It makes writing Java device servers MUCH easier!

- The following annotations are supported:
  
  ```
  @Device: class
  @Attribute: field
  @Command: method
  @State: field
  @Init: method
  @DeviceProperty
  ```

  - **G.Abeille** (SOLEIL)
  - **P.Verdier** (ESRF)
• A new API for Java clients has been developed called **ezTangORB**. It makes writing Java device clients MUCH easier!

• Example:

```java
//ezTangORB
TangoProxy proxy = TangoProxies.newDeviceWrapper("tango://whatever:10000/sys/tg_test/1");
double result = proxy.<Double>readAttribute("double_scalar");
```

**I.Khokhriakov**

(HZG)
TANGO SITES WHICH LOVE PYTHON

- **ALBA** developed the first Python TANGO control system for controlling accelerator and beamlines.

- Some sites that love Python:
  - LMJ
  - DESY
  - Max IV
  - ELI-ALPS
  - SKA SA
  - ...
“It would also be nice if the tango programming interface would be more pythonic. The final goal is to make writing tango device servers as simple as possible” [TEP1]

- A new pythonic High Level API (HLAPI) has been implemented and which supports co-routines (using gevents)

```python
import time
from PyTango.server import run
from PyTango.server import Device, DeviceMeta
from PyTango.server import attribute, command

class Clock(Device):
    __metaclass__ = DeviceMeta

time = attribute()

    def read_time(self):
        return time.time()

    @command(din_type=str, dout_type=str)
    def strftime(self, format):
        return time.strftime(format)

if __name__ == '__main__':
    run((Clock,))
```
• A new event based archiving system (HDB++) has been implemented with:
  
  • higher data rates,
  • us time resolution,
  • precise timing
  • multiple TANGO control systems

See talk WED3O04.

• The architecture allows multiple database backends to be plugged into the archiving system. So far MySQL and Cassandra are implemented.

See poster WEM310.

L.Pivetta et. al.
(ELETTRA+ESRF)

R.Bourtembourg
P.Verdier
J-L.Pons
(ESRF)
A RESTful http based API called mtango (m for mobile) has been developed for TANGO.

- Uses TANGO Access Control and tomcat for security
- Can be used from any client implementing http
- API implemented for JavaScript
- See website for API

I.Khokhriakov (HZG)
TANGO VIRTUAL MACHINE


A.Götz
(ESRF)
TANGO
COMMUNITY
IS GROWING!
Lasers ADOPT TANGO

- 3 Extreme Lightsource Infrastructures have chosen TANGO+EPICS
• INAF using TANGO for Binocular telescope archived data

• SKA has chosen TANGO as the common framework for the Telescope Manager

• EGO-VIRGO gravitational observatory using TANGO

• ERAS using TANGO on Raspberry Pi
How to finance the roadmap?

Sustaining Tango with a collaboration contract
• We have prepared a contract with partners who are willing to finance TANGO infrastructure developments. Contract is for 5 years.

• Two types of partners: Core + Contributors

• Potentially 10 partners have expressed their interested. This would finance at least one FTE / year.

• Collaboration contract will start in 2016

• TANGO stays free and Open Source and Sustainable!
• Student training

• Post mortem tools

• Packaging with Docker

• Many more e.g. device servers for White Rabbit, oscilloscope based on Zed board, web browser, etc. etc.
CONCLUSION

TANGO IS CONSTANTLY IMPROVING

TANGO COMMUNITY IS GROWING

TANGO IS SUSTAINABLE