TANGO CONTROLS MOVES TO INDUSTRY

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on behalf of

TANGO Collaboration
CROSSING THE BRIDGE
CROSSING THE BRIDGE
SUSTAINABILITY

Tango moves to Industry – 13 October ICALEPCS 2017
“Sustainability means that the software you use today will be available - and continue to be improved and supported - in the future*.”

https://www.software.ac.uk/about

Future = 20 to 30 years
Distributed Devices are still modern after 20 years e.g. agents and microservices are modern (again!)
IT TAKES MORE THAN TWO TO TANGO ...

- 40+ sites depend on Tango Controls
- Original core developers sometimes move on
- All projects need renewal in order to be sustainable
- Minimum of 3 to 4 core developers needed
- Collaboration Contract helps guarantee sustainability
THE TANGO CONTROLS COLLABORATION

• **10 members = 5 core + 5 collaborating members**

• **100 000 euros / yr, 5 yr contract** (ESRF financial rules)

• *Steering Committee* votes on decisions and strategy
THE TANGO CONTROLS COLLABORATION

- Collective decisions
- Simplified Procedure to join
- GOAL is MORE + BETTER SOFTWARE
Core Industrial Partners

- Core industrial partners are industrial partners who can work in the Tango core

Minimum Requirements:

1. Power Tango users,
2. Experienced developers,
3. Professional and affordable

Identified 4 partners:

- Startups – IK, 3Controls,
- Service companies – STFC, Nexeya
Each partner has expert skills

• Following partners had skills in:

1. **IK**
   - Tango, ava, C++, JS, web design, s/w quality ...

2. **3Controls**
   - Tango, documentation, VM, ...

3. **Nexeya**
   - Tango, Windows, CI

4. **STFC**
   - Tango, Python, C++

5. **Webu**
   - Django, web hosting

6. **Jetbrains**
   - sponsored development tools
• Following tasks were sub-contracted:
  1. **C++ and Java core development (LTS + V10)**
     - move to github, LTS + V10, CI, QA, ...
  2. **Restructuring documentation**
     - move to Sphinx, readthedocs.com
  3. **Continuous integration for Linux+Windows**
     - Travis for Linux
     - AppVeyor for all Windows compilers
  4. **Missing features for PyTango 9.2**
     - Pipes, enum types, i/f change event
  5. **Web site hosting + improvements**
     - new website is even better
  6. **Device server catalogue**
Events Sponsored

- Tango Write-the-doc camp
- Streaming of Tango meeting
- Russian Tango meeting in Moscow
Fig 1. - Problems encountered in open source

Source: opensourcesurvey.org

http://opensourcesurvey.org/
Documentation Restructured

- Mindmap by Olga Merkulova enabled us to restructure the documentation:
Trust is built on transparent communication + results

✓ Forum
✓ Mailing list
✓ Annual meeting
✓ Local meetings
✓ Kernel meetings
✓ Steering committee
✓ GitHub workflow
TANGO LAB SYSTEM

Prevac developed the first Tango based lab system on Windows in Python, C++ and C#.

RAPID FX TOOLSET

- Data Presentations
- Synoptic View
- Device Control
- Tango Setup
- Experiment manager (Sardana)

SDK

TANGO Framework – PyTango – C++/boost

User Device

Logical DS

User Device

Custom Equipment

Prevac Equipment

PLC (Modbus)

SARDANA

Commercial

Open source
**Tango Web Dev**

**JYSE** is a Grenoble startup that has developed a web application for building ergonomic displays of data coming from Tango (and other sources) without programming.
Why industry is slow to adopt Tango?

• **Tango Controls** is a framework and requires resources to develop.

• **Big companies** usually already have their solution.

• **Lack of ISO or GOST certification**

• **Open Source** licensing is not always well understood by industrial partners

• **Tango Controls** comes from the **scientific world**
How to secure and increase number of industrial partners?

- Continue to *sub-contract* specific developments

- Propose *longer contracts* for core development

- Prospect and evaluate new *partners*

- *Industry* helps us to do *continuous improvement*: code, web site, documentation, ...
LESSONS LEARNED

1. **Sustainability** requires constant work
2. **Plan for change**, developers move on
3. **Startups** are excellent *quality vs cost* value
4. **Money** is very useful even for Open Source
5. **Industry** is a good partner if well chosen
CONCLUSION

MORAL

Not enough to be Open Source

It needs to be Sustainable too !