Tango

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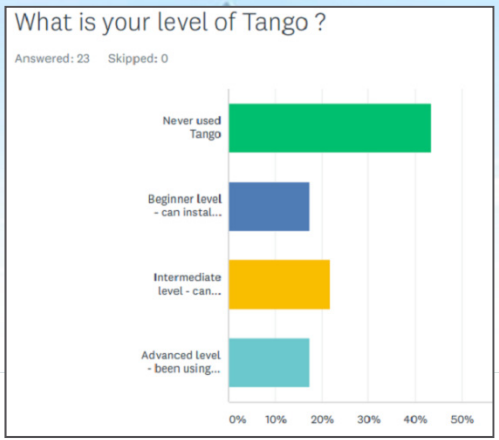
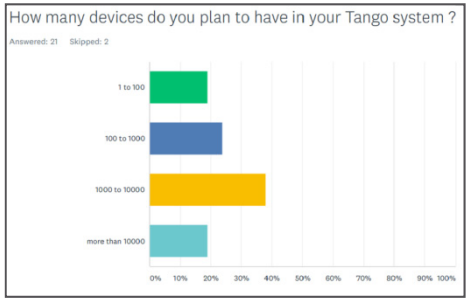
Workshop organization

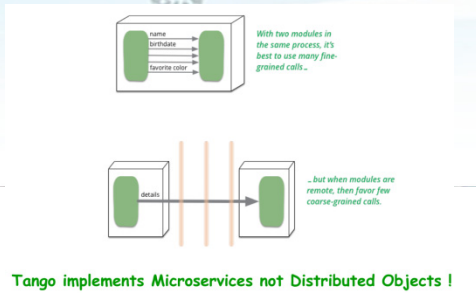
- About **40 participants**
  - A survey done before the workshop was organized to know the expectations of the audience
  - Surprisingly the majority will use Tango on large scale control systems !
  - 40% were complete newbie
- A **Tango Virtual box** machine
  - was given to participants to be able to play with tools
- About **12 presentations** from very diverse institutes : ESRF, MAX-IV, TATA consulting, SKA , JINR, DESY, ELETTRA
  - Showing the diversity of the current community
  - And speakers were often “quite young” proving the vitality of the underlying community of developers of the “Tango Ecosystem”





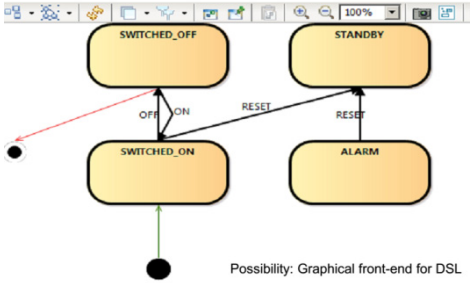
Workshop content : Tango and software engineering

- Tango is based on Modern software engineering Concepts !!
  - Presentation of the underlying software architecture concepts of Tango : Actors and MicroServices
  - Tango implements a micro service approach (and not distributed objects !!)
  - Its narrow interface was “visionary” approach today supported either by theoreticians (Martin Fowler) or industry (Microsoft and the ORLEANS framework)



Tango implements Microservices not Distributed Objects !

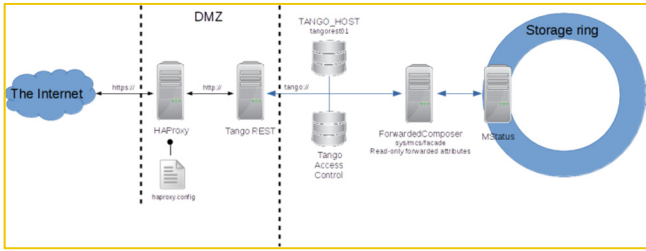
- “TATA consulting company” presented a very interesting approach to extend the Model-Driven Engineering of Tango
  - By introducing a Domain Specific Language
  - To extend the “Tango interface generator” to a “Tango interface and behavior generator”
  - Opening the possibility to :
    - build large scale control systems simulations
    - facilitate interface definitions
    - and future global integration in complex engineering project such as SKA with multiple contributors



Possibility: Graphical front-end for DSL

Workshop content : Tango and new software technologies

- Community efforts are now focused on integrating Tango with up-to-date new technologies
- Using Tango as a Data Source for “big data” analysis of misbehaviors with **ElasticSearch**
- Using Web technologies such as **jupyter** for end user interaction
- Opening to **Web**
  - The development of a well defined Tango **REST API** with ,stable and robust
  - Is a major step to opens Tango DeviceServer to Web and cloud application
- HDB++ solution to benefit from **NO SQL** databases for large data storage



Workshop content : Adopting Tango

- PyTango hands-on tutorial
  - Appreciated by participants
- Virtual Machine
  - Updated especially for the workshop
  - Contains the state of art of Tango software components
  - Participants installed it and could play with it
- And a testimony from a “Tango user”
  - From DESY who explained how they used Tango for 2D Detectors integration

Participants feedback was very positive as they got a complete picture of the Tango concepts and latest tools