EPICS to TANGO Translator

Rok Šabjan on behalf of Rok Štefanič

roksabjan@cosylab.com
rokestefanic@cosylab.com

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Outline

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- Constraints
- Implementation
- Issues
- Tango/Tine translators
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Motivation: Supported in TANGO, we want it speak EPICS

- Microdiffractometer MD2 developed by Maatel, France on license from EMBL
- Existing device support in TANGO Control System
- EPICS support required for EPICS customers
- Generic EPICS Support needed
  - Should work with future changes in the TANGO Device Server with least changes and if possible, no coding
  - Should be running on a Windows machine
Building blocks of the solution

- TANGO interface library
- Communication handled through Asyn driver
- Generic approach for command calls and attribute manipulation
- Clearly defined format for command calls and attributes
- Support for all major TANGO datatypes
Building blocks of the solution

EPICS DB
Asyn Driver
Tango Client Library

TANGO Device Server

MD2 Device

CORBA/Ethernet

cygwin
Windows PC

Cosylab 2007
Asyn Driver

- Standard driver framework for EPICS IOCs
  - In principle in can be used with other control systems (uses libCom library only)
- Name comes from the support for asynchronous devices (serial, GPIB), but now also supports synchronous register-based devices
- Main benefits of use:
  - Defined interfaces and structure (easier code maintenance)
  - Lots of testing and debugging features already provided
- If there is no other significant reason, I recommend it for new drivers
**Implementation (1/2)**

- Command and attribute naming convention
  - type
  - name
  - datatype

**example:**

```plaintext
@asyn($(PORT),$(ADDR))attr_ArchivePath_str
@asyn($(PORT),$(ADDR))cmd_MoveDevices_arrayof_shtout
```
Implementation (2/2)

- All records are processed during initialization
- TANGO device server is queried for required commands or attributes
- The mapping is stored in a table inside the driver
- If the command does not exit in the driver, an error message is displayed and the record’s requests are ignored
- Future changes only require changes in the database (and screens)
- Cygwin environment makes EPICS run on the same platform as the TANGO device server, making all one software package.
Issues

- Compound TANGO datatypes
  - In TANGO commands can take or return an argument in form of two dimensional arrays consisting out of pairs of string and long or double values
  - Solution was not found, problem noted

- EPICS string length limitation
  - MD2 TANGO device server reports status as long strings
  - Only a minor problem
Tango/Tine and Tine/Tango

- Developed for EMBL Hamburg in August and September 2007
- Thanks to Phillip Duval from DESY for help on the TINE side
Conclusions

- Translators among control systems are a good way of integrating existing implementations
  - In most cases much better than implementing the whole thing again (cost/benefit)
- Focus on the target and don’t reach for a perfect translator (80/20) rule
  - A perfect translator may be harder than re-doing the whole thing in another control system
- Maintenance can be an issue
  - Change control is important
- Need experts for both control systems
Thank You!