Application of Tango-CS for research machines on the PIK rector

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1. PNPI - Petersburg Nuclear Physics Institute named by B.P.Konstantinov of NRC «Kurchatov Institute»
2. Neutrons, why they?
3. Reactors at the institute
4. Reactor PIK
5. Scientific neutrons machines
6. General idea of software applications for scientific machines
7. What we want?
8. What now?
PNPI - Petersburg Nuclear Physics Institute named by B.P.Konstantinov of NRC «Kurchatov Institute»
Reactors at the institute

PIK reactor
in December 2018 will be launched

WWR-M reactor
in 2015 it is stopped
PIK-reactor

Full thermal power - 100 MW
Heat moderator - light water
Reflector - heavy water
Neutron flux density - $5 \times 10^{15} \text{ cm}^{-2} \text{c}^{-1}$

body of reactor view

Sectional view of reactor
Scientific neutrons machines

Amount: 28 machines

PIK-reactor

Neutron-guide hall

Part of SANS-2
General idea

1. Just turn the motors
2. Change parameters of criostat/magnet/etc
3. And read data from detectors

... but, very many motoros, machines, sensors ...

i.e similar parts for which distributed control is necessary
What we want?

**TangoWebapp**

The internet

**Clinets:**
- Web server Tango REST API
- Sardana
- Small programs on C++/Python/Java/Qt5

**Servers:**
- SANS-2
- TEX-2
- NERO
- Other machines

Clinet view in general:
1. Structure of machine with the ability to change parameters
2. Meta-language (Python) for the algorithmization of the experiment
3. Detector image

Data Storage
- HDB++
- (User data)

Low-level programs, C/C++, hardware API
What now happens?

1. Preparing to start the reactor
2. Calculation of neutron-guides
3. Modernization of machine from HZG

And now we need to decide and start developing the software platform
Thank you for your attention!
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