

Managing beamlines at Solaris from an IT point of view

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The synchrotron light source that is the heart of National Synchrotron Radiation Centre Solaris would be useless without research that will be conducted at its beamlines. The initial setup of the facility includes two of those: one getting radiation from a bending magnet with two endstations (PEEM and XAS) and one utilising an insertion device – undulator – with a single ARPES endstation. The latter is finished and undergoing commissioning while the former has several pieces of hardware still in installation [1].

Since the main purpose of constructing and maintaining beamlines is inviting scientists to conduct their research there, the facility should have reliable systems to guide them through the process of registration, obtaining beam time, using equipment on a beamline to run measurements and processing results. The heterogeneous nature of the aforementioned systems is quite clear: on the one hand, there is a control system

that enables the users to control beamline's hardware and on the other there are all other services that they might require outside of the experimental hall. Both aspects are equally important and necessary in order to provide a painless experience for the researchers.

The control system's task is to administer hardware and software, provide a link between them, supervise them and supply operators with control over both segments. The former consist mostly of vacuum equipment, diagnostics in form of cameras, YAG screens, etc., PLC, motion controllers and endstations. The latter is based on Tango which is an open-source framework used in managing distributed control systems in large physics facilities. It was created at ESRF, Grenoble, France and is now maintained by a consortium of synchrotrons from the whole Europe (Solaris is also a part of it) [2]. There is a separate instance of the Tango control system for each beamline.

The system for providing services to the users is called Digital Users Office. It's still in development phase – there is a collaboration between Solaris and Cyfronet, a part of University of Science and Technology in Kraków.

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- [1] A.I. Wawrzyniak et al., “Solaris storage ring commissioning”, IPAC’16, Busan, Korea, WEPOW029
 [2] Tango Controls website: <http://www.tango-controls.org/>