Russian Federal Grid Company Selects Siemens PTI’s PSS®ODMS for Integrated Network Model Management

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In September 2009, Siemens PTI received an order for our PSS®ODMS software solution through CROC Inc., a Siemens PTI partner in Russia that is developing an Integrated Network Model Management solution for the Russian Federal Grid Company (FGC UES). FGC UES is Russia’s transmission system operator, which manages eight head control centers within Russia. In 2007 it began a project to build a uniform power system model with the ability to exchange power system model changes amongst the different control centers. Using PSS®ODMS, the different control centers maintain their own parts of the master power system model and synchronize each others’ models automatically using PSS®ODMS’ ability to publish model changes to an enterprise integration bus.

For this solution, the Common Information Model (CIM) with its single data model was required for the aggregation of data. CROC chose the PSS®ODMS application as the central CIM-based data repository for its model management, model merging, data validation and user extensibility capabilities. PSS®ODMS has a CIM-compliant database schema (standard IEC #61970) with a comprehensive CIM/XML import and export function, which adheres to the open interfaces of the NERC Common Power System Modeling (CPSM) CIM/XML format. In addition, the PSS®ODMS database schema has a .NET API that provides comprehensive access to the database model which allows for easy user extensions. Other PSS®ODMS functions that can be easily extended by the users are the PSS®ODMS user interface using the CIMedit feature, and displaying the graphical data and extending the simulation analysis capability using Python, the open source scripting language.

The PSS®ODMS application was part of a larger solution at FGC UES. PSS®ODMS has an open, standards-based architecture, which enabled CROC to easily integrate PSS®ODMS with existing software applications within the larger solution environment. Specifically, Python scripts were written that automated data import and export via application-specific APIs. This allowed for automatic data exchange and inter-system communication over an enterprise integration bus with OSIsoft’s PI Historian and PSIEnergy’s network management application.

The final solution is being deployed with a number of very powerful PSS®ODMS graphical features enabled. This includes the PSS®ODMS OneLine Editor, an advanced GUI that allows for graphical representation of the topology. With this, the user can make network topology changes that can be automatically saved to the network model. In addition, there are user-configurable spreadsheet views with “locate on diagram” capability, flow arrow animation, color contouring and fully interactive one-line diagram displays.

Network analysis of the models within the CIM-compliant database was not a requirement for this solution. However, if it had been, there are modules in PSS®ODMS specifically designed for online (near real-time) system analysis, specifically, power flow, state estimation, short circuit and contingency analysis. When enabled, these capabilities provide a lightweight and cost-effective yet incredibly powerful multi-user solution for operational network simulation and analysis, which improves system reliability and security.

By the end of August 2010, Siemens PTI will have delivered to CROC 8 different copies of our PSS®ODMS application, which will be used as the central CIM-based data repository at each of the head control centers. Siemens PTI is proud to have worked with its system integration partner to provide the Russian Federal Grid Company with the capability to do integrated model management, model merging
and data validation. Deployment of PSS®ODMS at all the FGC UES sites throughout Russia is expected to be completed by mid-2010.

CROC Inc. (http://www.croc.ru/eng/about/) is the leading Russian company in IT infrastructure creation according to IDC’s Russia IT Services Analysis reports, 2002 - 2009. CROC’s broad portfolio of industry specific solutions and services offers added value to businesses such as continuity, manageability, flexibility, transparency, and security. Ultimately, CROC helps customers improve business efficiency and meet their strategic goals through the advanced use of information technology.