Supplemental Project Notice

CREATING AN OPEN SOURCE DSCADA DEVELOPMENT PLATFORM

Developments in DSCADA can be advanced by having a DSCADA open to development.

PROJECT HIGHLIGHTS

- The DNP to DNP platform can be placed ahead or behind existing DSCADA systems to add functionality not in the current system.
- A simple HMI will also allow the platform to act as the DSCADA system for some utilities.
- The system can be a bridge between T&D for applications such a loadshed or demand reduction from voltage lowering.
- The funding utilities will direct the initial functionality included.
- Mass deployment of commands, such as changing the protection philosphy across an area is easily scripted into a single command from the existing SCADA system.

Background, Objectives, and New Learnings

Many utilities have deployed Distribution SCADA systems. These systems are complex and ridged in their deployments. When utilities seek new functionality, an extended process of getting into the development cycle with the SCADA vendor is required. Small DSCADA platforms have been deployed at some utilities to enable functionality that was not supported by their DSCADA system. The additional functionality demonstrated includes, advanced communication monitoring, deployment of setting changes to voltage regulation devices to enable demand reduction, the collection of fault magnitude data in real time following a device state change, the collection of sensor data from vendor websites and conversion of the sensor data into dnp messages, the creation of text messages associated with device status changes for employees without SCADA access, the changing of protection setting groups for large groups of protection devices based upon a single SCADA command, simple rule based automated FLISR systems, SCADA target based coordination of stacked reclosers, schedule based adaptive protection, distribution automation based rolling load shed, advanced alarming algorithms and voltage monitoring based broken conductor detection.

This project is planned to specifically focus the development of a platform that will provide DSCDA engineers hardware to continue to develop and refine applications that are easier to execute or maintain outside of their DSCADA system. Once the platform is released in an open source format, the platform can be utilized by utilities, universities and research organizations a simple DSCADA system.

New Learnings

The project aims to provide the following new learnings:

- What functionality is desired that is not currently supported or efficiently supported in existing DSCADA systems?
- What tools should be initially developed and tested prior to an open source release.
- What security concerns arise and how are they mitigated.

Benefits

The primary benefit to the public is the utility's improved awareness and reaction to events involving complex SCADA devices. The additional SCADA functionality can improve safety, reliability and resiliency.

Project Approach and Summary

EPRI intends to collaborate with the project funders to develop a list of functionalities that are desired to be performed outside their existing DSCADA systems. After the functionalities are ranked and agreed upon, a platform will be developed that enables the base functionalities to be executed outside of the DSCADA system. The platform will utilize DNP protocol to transfer existing SCADA traffic, execute application generated SCADA commands, and present the DSCADA system with new generated SCADA points.

EPRI intends to continue to develop and test functionality for a period of three years. At the end of the three-year period, EPRI intends to create a governance structure to release the platform as an open source with the functionalities developed over the course of the project.

Deliverables

- Uncompiled code developed to enable the demonstration of all the enhanced functionalities developed.

The non-proprietary results of this work will be incorporated into EPRI's R&D Programs, and made available to the public, for purchase or otherwise.

Price of Project

The price to participate in the project is XXX with a minimum of at least 4 funders.

The project qualifies for Self-Directed Funding (SDF). Project funding may be spread over two years of the project.

Who Should Join

Utilities that are interested in advanced functionality within the SCADA system(s).

G&T companies that would like to expand SCADA to the distribution utilities they serve.

Companies that would like to simplify systems that execute multiple commands such as wildfire settings etc.

Companies that do not currently have voltage lowering systems, load shed systems or need to deploy mass settings changes such as wildfire protection settings.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

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