The role of Standardized Web Services in Electric Utility Control Center Applications Integration

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Abstract– The power system operation applications of the Electric Utility Control Center such as *Energy Management Systems (EMS) / Supervisory- Control-And-Data-Acquisition (SCADA)* are installed as stand alone systems which interface with power system using communication protocol based interfaces. Due to their highly specialized nature, the integration of power system operation applications with business applications of the Electric utility becomes quite a challenging task. The applications at the business end of the electrical utility control center are well integrated using standardized web services and Service Oriented Architecture(SOA) middleware. This resulted in development of the infrastructure with reduced complexity and programming effort, and also made maintenance of this infrastructure less expensive. The efforts are being made in the recent days to adapt similar strategy for integration of power system operation applications too.

The current article mainly focuses its research on the technology of the standardized web services which allows integration of power system operation applications using International Electrotechnical Commission(IEC) standards. The emphasis is laid upon the understanding of major drawbacks in application of normal web services to power system operation applications. The article also discusses in specific IEC 61970 Generic Interface Definition (GID), its benefits as well as Common Information Model (CIM) for handling standardized data model.

As a next step towards better understanding of the role of standardized web services, the implementation aspects of monitoring and controlling services for EMS/SCADA by means of web services based on IEC 61850 and IEC 61970 standards has been discussed. Further, the article explores the implementation ,advantages and short comings of *Open-Source Implementation* , and also discusses the proposed solutions to those shortcomings.

Keywords: Generic Interface Definition(GID), Common Information Model(CIM),IEC 61970, IEC 61850, EMS/SCADA, Service Oriented Architecture(SOA)

Field of Research:Electric Utility Control Center Applications

Topic:Advantages of Standardized web services for integration of applications in Electric Utility Control Center

Focus/ Research Question:Relevance of Standardized web services in Electric Utility Control Center applications

Expected Findings/ Results: Benefits of standardized web services for integration of power system operation applications using Generic Interface Data(GID) interface, Common Information Model(CIM) and IEC standards IEC 61970, IEC 61850