

Interoperability Context-Setting Framework

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Purpose

This paper is responding to GridWise™ Architecture Council's (GWAC) request for a short position paper reflecting "favor" aspects of the Interoperability Context-Setting Framework document. This paper also raises a question to the Framework team and offered suggestions for additional exploration.

Content

Congratulations to the GWAC Interoperability Framework Team for the thought leadership reflected in the Context-Setting Framework document. The concepts expressed in the document present an excellent archetype for coordinating the efforts of a wide range of Stakeholders and Practitioners working on modernizing the power grid.

In particular, the Framework's approach of categorizing interoperability issues by modeling after the OSI 7-layers communication model leverages a large body of existing knowledge and implementation understandings. It also demonstrates the solvability of the problem, even for such a sizable problem domain as the Electric Grid, given the world-wide interoperability achievements in the modern Telecom and Networking industries. This approach lends optimism to those that are faced with the challenges on a daily basis integrating legacy and new components under real-world technical and business challenges. To that end this reviewer is especially appreciative of the emphasis the Framework team has directed toward the Integrators. Most practitioners have to perform integration functions when putting theories into practice. No single firm no matter how large can afford to rely completely on closed solutions.

Another point of note to this reviewer is that the Framework preserved the "independence of information technology choices and solution approaches" that occurs on different sides of interoperability interfaces. It is often the hidden concern that interoperability somehow dilutes or threatens a company's competitive positioning and ability to differentiate within a competitive landscape that slows the adoption effort of interoperable concepts. The Framework points out nicely that "Independence" and "Interoperability" are not mutually exclusive objectives.

Additional Exploration Areas

The following are two suggested areas for additional exploration:

1. Identification of an Authority to enforce the interface agreement. This Authority is responsible for resolving ambiguities and inconsistent interpretations, and to assure consequences of violation are exacted. It also serves to articulate the boundary of authority and to resolve disputes by the parties across the boundary. Practically this may be simply implemented as an additional function performed by the Registry to validate the interface agreement conditions between parties in the Registry.
2. Articulate levels of compatibility in “organizational” versus “informational” or “technical” aspects of the framework. This allows practitioners to have flexibility in prioritizing level of compatibilities. Once again the Registry can be a mechanism to reflect the compatibility levels of the parties. Admittedly it is ideally desirable to instill compatibility across all categories and aspect of the Framework. Nonetheless a benefit of articulating interoperability categories is to allow for an incremental approach of adoption and to reflect real-world legacies.

Framework Question

Did the Framework team explore exploring a Federated Model for making decisions in a very large network?

Closing Comments

The scope addressed by the Context-Setting Framework is necessarily broad, admittedly complicated, and contains concepts that may be very abstract to a large segment of the targeted audiences. The DOE sponsored Advanced Communication and Control Architecture Project (ACCP) is an excellent example of a system that has been deployed to aggregate Distributed Energy Resources (DER) from different technologies, spanning legacy to new technologies, across manufacturers, geographic regions and control area operators, and with very different end applications and business objectives. It is also a key objective of ACCP to serve as a reference platform to the industry for adopting interoperability practices. The Framework team is recommended to include ACCP as an example in future releases of the document.