Interoperability in Smart Grid using IHE Integration Profiles

Objective

The purpose of the project IES is the adoption and implementation of an already existing, vendor-neutral and cooperative method to gain interoperability in smart grids. IES is completely conform with the targets of the European Commission and the content of their latest press release „Commission sets out path to digitalize European industry“ (Brussels, 19th of April, 2016) concerning its strategy to create a Digital Single Market (cross sector, cross border) https://ec.europa.eu/digital-single-market/en/news/communication-ict-standardisation-priorities-digital-single-market

What is IHE?

IHE (Integrating the Healthcare Enterprise) is an initiative by healthcare professionals and industry to improve the way computer systems in healthcare share information. IHE was established in 1998 by a consortium of radiologists and information technology (IT) experts with the intention to standardize and harmonize the data exchange between healthcare systems.

The group created a process through which interoperability of healthcare IT systems can be improved. The group gathers case requirements, identifies available standards and develops technical guidelines which manufacturers can implement.

IHE Structure

Integration Profiles: Integration Profiles are used to organize a set of actors and transactions for a specific need. It describes how to use established standards and specifies Actors and Transactions to get a specific use case done. A group of systems that implement the same integration profile address the need/scenario in a mutually compatible way.

Actors: Actors are information systems or components of information systems that produce, manage, or act on categories of information required by operational activities in the enterprise.

Transactions: Transactions are interactions between Actors that transfer the required information through standards-based messages.

Technical Framework

IHE technical frameworks are detailed documents which specify the Integration Profiles and associated Actors (systems) and Transactions.

Smart Grid Technical Framework

A dedicated “Smart Grid Technical Framework” - following the IHE guidelines - can be defined to describe the needed use cases (Profiles), the involved systems (Actors) and the interaction (Transactions) between them, based on established communication standards extended with all necessary constraints to achieve interoperability.

Example: Audit Trail and Node Authentication (ATNA)

The Audit Trail and Node Authentication (ATNA) Integration Profile establishes security measures which, together with the Security Policy and Procedures, provide patient information confidentiality, data integrity and user accountability. It contributes to access control by limiting network access between nodes and limiting access to each node to authorized users. Network communications between secure nodes in a secure domain are restricted to only other secure nodes in that domain. Secure nodes limit access to authorized users as specified by the local authentication and access control policy.

Actor Grouping

In some Profiles (e.g., XDS Cross-Enterprise Document Sharing), there is already a inherited requirement to group with ATNA Secure Node or Secure Application Actor. This grouping forces the network transactions to utilize mutually authenticated and encrypted TLS (Transport Layer Security) or equivalent. Furthermore to the fact that already existing profiles can be reused in other domains like energy IHE provides the tools and processes to define new profiles, which describe use cases in energy in a technical and comprehensible way.

Example: Supplier Switching

Integration Profile: Determine Energy Consumption (DEC)

Integration Profile: Supplier Change (SC)

Contact

Dr. Angela Berger
Medizininfotainment 27-29
1090 Vienna
Tel. +43 1 58503 - 58
angela.berger@technikum.at
www.smartgrids.at

Powered by the Climate & Energy Fund within the framework of the programme Energy Research 2015

Project Partner

Technologielaborum Smart Grids Austria
http://www.smartgrid.at

FIT Technologie Wien
Dep. Biomedical, Health and Sports Engineering
Dep. Renewable Energy
http://www.fit-austria.at

AICO EDV-Beratung GmbH (AT)
http://www.aico-software.at/home.html

OFFIS (D)
http://www.offis.de/en/start.html

Sprecher Automation GmbH (AT)

Tiani Spirit GmbH (AT)
http://www.tiani-spirit.com


Commission Decision 2015/132