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Electric Power Research Institute

Secure Policy Based Configuration Framework (PBCONF)

Cybersecurity for Energy Delivery Systems Peer Review

December 7-9, 2016

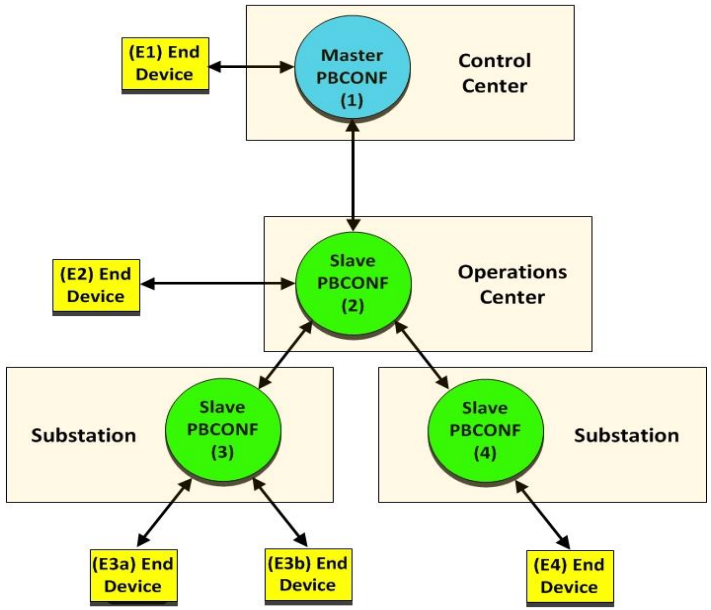
Summary: PBCONF

Objective

- The project will develop an extensible, open-source, policy-based configuration framework to support the secure configuration and remote access of modern and legacy devices.

Schedule

- 10/2014 – 9/2017
- Detailed design complete
- Alpha version complete
- Beta version 01/2017
- Result: an open-source remote access security configuration toolkit.



Performer:	**EPRI**
Partners:	**University of Illinois Ameren Schweitzer**
Federal Cost:	**$ 1,524,959**
Cost Share:	**$ 529,384**
Total Value of Award:	**$ 2,054,343**
Funds Expended to Date:	**% 70**

Advancing the State of the Art (SOA)

- **SOA**: Incorrect or inconsistent security configuration of the multitude of energy sector devices in the field is a large potential attack vector
- **Approach**: apply uniform security policies across devices
- **Why**: both utilities and vendors have indicated the need for security configuration through remote access methods
    - Uniform approach rather than through isolated applications (stovepipes)
- **Benefits**: the framework will have the necessary flexibility and adaptability for both legacy and new devices
- **Advancement**: The distributed architecture will enable both centralized and peer-based configuration of the devices to support scalability and resiliency

Challenges to Success

Challenge 1: Integration of an Ontological implementation with an underlying code base

Response – University of Illinois worked with a contractor, 2Wav to implement and integrate the ontology

Challenge 2: Deployment of nodes in diverse environments

Response – Developing an extensive users guide to cover deployment and operational utilization

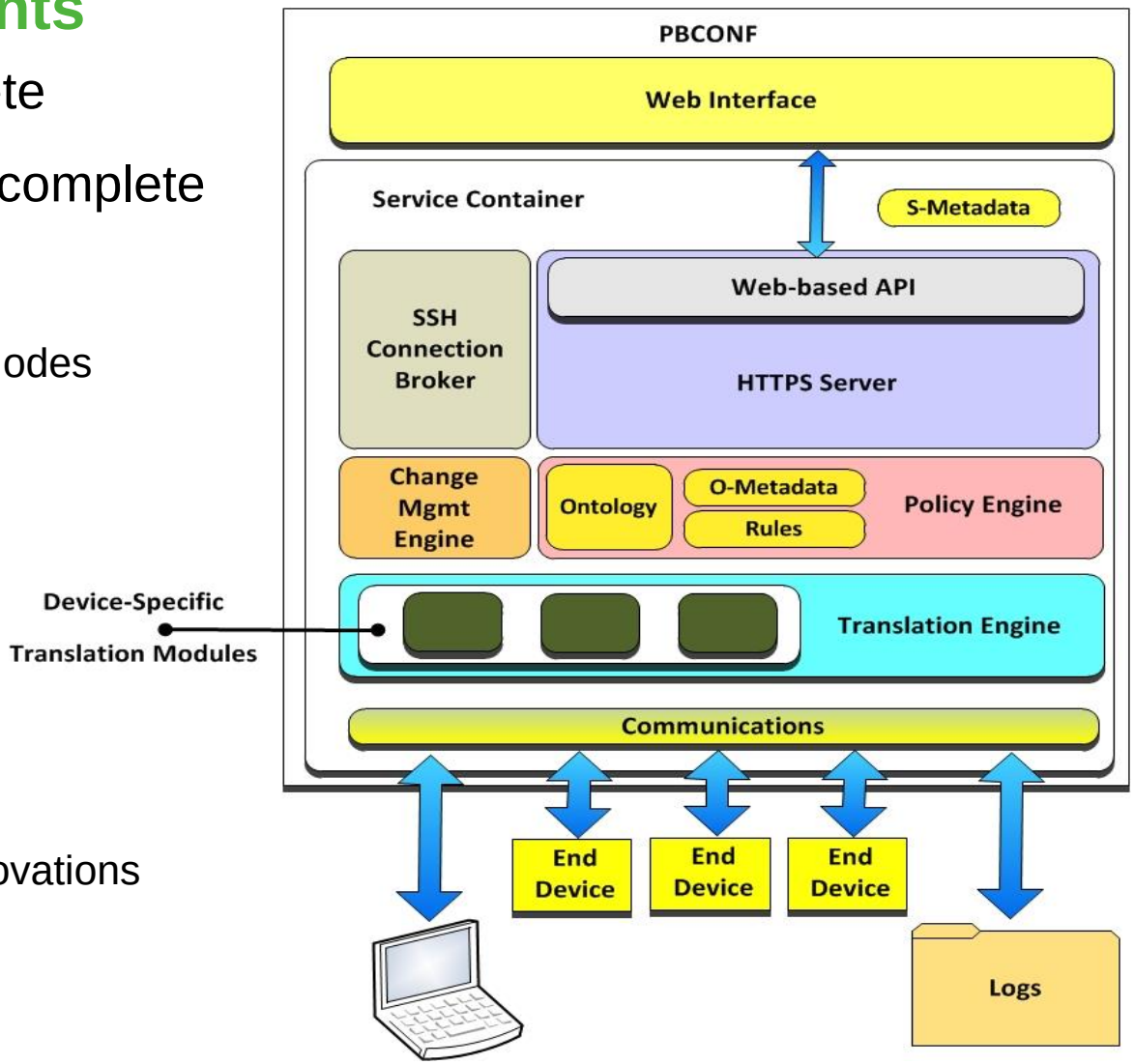
Challenge *3:* Addressing potential performance and scalability issues

Response - Ensure the design addresses electric sector constraints and test across several demonstrative deployments

Progress to Date

Major Accomplishments

- Detailed design complete
- Test plan development complete
- Alpha version deployed
  - University of Illinois – 3 Nodes
  - Ameren – 1 Node
  - EPRI – 4 Nodes
- Pre-Beta in test
- Socialization
  - Utilities – Duke Energy
  - Industry – Real Time Innovations



Collaboration/Technology Transfer

Plans to transfer technology/knowledge to end user

- End users for this technology are utilities and vendors
  - Includes utilities of all sizes – from small to large
  - Vendors will develop the translation modules

- What are your plans to gain industry acceptance?
  - EPRI will conduct an outreach workshop near the end of the project for all interested utilities and vendors
  - One of the team members is a utility – and they will be used to test the alpha and beta versions of the technology
  - A second utility has expressed interest in deploying and testing the Beta version – integration with OpenFMB and potential expansion of the ontology
  - As the project continues, other utilities will be briefed on the technology
  - Host an industry workshop to demonstrate operations and enumerate key features and industry

Next Steps for this Project

Approach for the next year or to the end of project

- Key Milestones to accomplish
  - Complete Beta version testing
  - Beta version updates
  - Integrate PBCONF across test sites
  - Develop the users guide
    - Input from all test locations
  - Host a workshop for Utilities
    - Targeted for 6/2017
    - Utilities and Vendors
  - Transition to Open Source
    - Targeted for 9/2017