Department Of Energy Cryptographic Key Management System

Integrated Customer Solutions. From Thought to Finish

Partnering to Deliver Best Practices and Technologies to
Meet the Emerging Needs of our Country and Customers

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Project Description

Ξ **Produce the Cryptographic Key Management System (CKMS) for the secure management of keys for the energy sector infrastructure**

- Leverage DoD best practices in key management to the energy sector

- Protect high value data, command and control information, and fend off cyber attacks

- Secure generation, distribution, and revocation of keys to smart grid domains

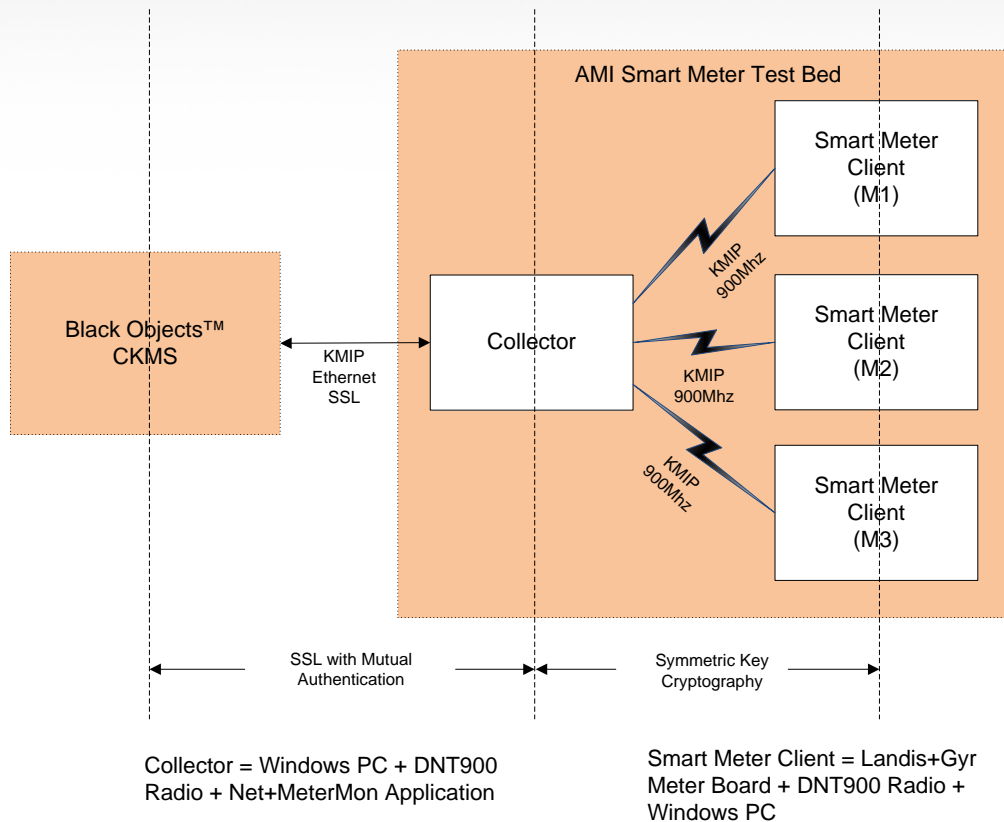- Current focus on Advanced Metering Infrastructure (AMI)

Customer

Ξ **Department of Energy (DOE) Cybersecurity for Energy Delivery Systems (CEDS)**

- CEDS projects are funded through the DOE Office of Electricity Delivery and Energy Reliability R&D Program

- Charter is to enhance the reliability and resilience of the nations energy infrastructure by reducing the risk of energy disruptions due to cyber attacks

Project Team

- Sypris Electronics – Prime contractor to DOE
- Purdue University Center for Education and Research in Information Assurance and Security (CERIAS)
- Purdue University Smart Meter Integration Lab (SMIL)
- Oak Ridge National Laboratory (ORNL)
- Electric Power Research Institute (EPRI)
- Valicore Technologies

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Recent Demonstration

AMI Smart Meter Test Bed

Black Objects™ CKMS

KMIP Ethernet SSL

Collector

Smart Meter Client (M1)

KMIP 900Mhz

Smart Meter Client (M2)

KMIP 900Mhz

KMIP 900Mhz

Smart Meter Client (M3)

SSL with Mutual Authentication

Symmetric Key Cryptography

Collector = Windows PC + DNT900 Radio + Net+MeterMon Application

Smart Meter Client = Landis+Gyr Meter Board + DNT900 Radio + Windows PC

- Symmetric and Asymmetric Key Management Functions
- Integration of vCoreServer
- Integration with AMI Smart Meter Testbed
- Integration of Hardware Security Module (HSM)
- Key Management Interoperability Protocol (KMIP)
- Sample web-based user interface for device management

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