Secure Integration and Interoperability

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Key Hurdles to Achieving Interoperability

- Interoperability by itself is not does not make the case for utility involvement
- Several layers where interoperability must be achieved – not just on network-layer communications
- Security standards are in flux – some are incomplete or have flaws
- Some security standards just aren’t adopted due to overhead (i.e. Secure ICCP)
- Standards process tends to be vendor dominated
- Lengthy timeline for standards development and updates
Overcoming Key Hurdles

• IEC 61850: Good example as a driving factor toward interoperability
• IEC 62351: maturing family of standards
• Need utilities to drive the market
• Continued review and updates to standards
• Shorter timelines for standards development – need SDOs to be more reactive and proactive
Ongoing EPRI Security Efforts to Support Interoperability

- Lemnos Configuration Profiles
- DNP3 Secure Interoperability
- Security Objects for AMI
- Network and System Management
Network Security Management for Tx Systems

Develop security management architecture for a consistent set of information security objects

Approach:
- Analyze IEC 62351-7
- Identify gaps for transmission security objects
- Engage 62351 working group

Multi-year effort
- Driving toward vendor adoption and testing

First step toward interoperable security objects
IT and Communications DEPEND upon Management Systems

Across all industries, the use of Information and Communication Technologies (ICT) requires comprehensive management systems to ensure:

• Reliability
• Security
• Operational Efficiency

Power Operations: increasing reliance upon intelligent, networked devices and systems

Is ICT deployed within Transmission Substations adequately managed?
Initial Target: Substation LAN

An Network and System Manager (NSM) is utilized then to monitor, control and secure the communication devices, links and interfaces within substation automation systems with localized and distributed functions.

“What is lacking is a complete and standardized abstract management model so that multi-vendor systems can be managed interoperably”

IEC TC57 WG15 has developed an abstract Network and System Management (NSM) data object model
Benefits for Transmission Substations

1. **Improved visibility of the network and connected devices/systems can result in:**
   - Improved MTTR from intelligence to dispatch accurate resources (electrical journeyman vs. communications tech)
   - Advanced security enforcement by detecting and acting locally in real-time
   - Continued choice enabled by interoperably managed multivendor systems

2. **Psychological:**
   - Accelerate acceptance of new technology from visibility into the configuration and run-time metrics

3. **Compliance:**
   - Improved vulnerability assessments from additional monitoring of CIP cyber assets
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