U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability
National SCADA Test Bed

Technology Preview

Lemnos Interoperable Security Project

Vendor Interoperability Testing and Demonstrations

You are invited to incorporate the Lemnos framework into your security product and test it against open-source products for interoperability. Public demonstrations of security interoperability are scheduled for the ISA Expo 2009 and Distributech 2010 conferences.

Benefits of Lemnos Model for Vendors

- ✓ Permits shortened development cycle with Open PCS Security Architecture for Interoperable Design (OPSAID) code
- ✓ Uses open-source base available to the public
- ✓ Allows vendors to include value-added customization
- ✓ Uses configurations proven in lab and field tests
- ✓ Enhances ability to meet customer needs

VENDORS

With the Lemnos framework, interoperability of control security equipment is straightforward.

To obtain interoperability between proprietary security appliance units, one or both vendors must now write cumbersome "translation code." If one party changes something, the translation code "breaks."

The Lemnos project is developing and testing a framework that uses widely available security functions and protocols like IPsec—to form a secure communications channel—and Syslog, to exchange security log messages. Using this model, security appliances from two or more different vendors can clearly and securely exchange information, helping to better protect the total system.

Lemnos Accomplishments To Date

- ✓ Successful Internet testing between Sandia National Laboratories (SNL) and Schweitzer Engineering Laboratories (SEL)—Spring 2009
- ✓ Successful testing between SNL and SEL in simulated substation topology at Tennessee Valley Authority (TVA) lab—June 2009
  - SNL Lemnos/OPSAID Reference Architecture Prototype System (field & system units)
  - SEL 3620 Ethernet Security Gateway
- ✓ Successful testing between SEL, SNL, and additional units from participating vendors at TVA Lab—July 2009
  - n-Dimension nPlatform 340
  - Garrettcom Magnum DX900
  - Industrial Defender ESP (Electronic Security Perimeter) and SEM (Security Event Manager)
  - Phoenix Contact MGuard RS

This project is co-funded by the U.S. Department of Energy through its National SCADA Test Bed (NSTB) Program. NSTB is a multi-laboratory resource that partners with industry and other government programs to test, research, and help design cyber security solutions to enhance control systems security in the energy sector and reduce the risk of energy disruption due to cyber attack.

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The Lemnos Framework

- ✓ Has a baseline for interoperability that security vendors in the process control arena can readily adopt
- ✓ Uses open-source security software with configuration files tested against the NSTB Open PCS Security Architectecture for Interoperable Design (OPSAID)
- ✓ Has been lab-tested at the Tennessee Valley Authority (TVA)
- ✓ Supports the industry-developed *Roadmap to Secure Control Systems in the Energy Sector*

Lemnos Partners

EnerNex CORPORATION

SEL

TVA

Sandia National Laboratories

Simplify regulatory compliance in a complicated security environment by leveraging the Lemnos framework.

ENERGY UTILITIES AND OTHER ASSET OWNERS

As an electric utility, are you struggling to implement the NERC CIP standards and other regulations? Are you weighing the misery of multiple management interfaces against committing to a ubiquitous single-vendor solution? When vendors build their security appliances to interoperate using the Lemnos framework, it becomes practical to match best-of-breed offerings from an assortment of vendors to your specific control systems needs.

The Lemnos project is developing and testing a framework that uses widely available open-source security functions and protocols like IPsec and Syslog to create a secure communications channel between appliances in order to exchange security data.

For more information, visit

www.oe.energy.gov/controlsecurity.htm

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