Managing Trust for Industrial Control Systems

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Infrastructure Challenges

- Designed for safety, not security
- Standard applications, OSes seldom patched
- Susceptible to a variety of attacks
- Lack forensic capabilities
- Logging for operations, not communication
Goal: Integrated ICS & IT Intranet

INSECURE CONNECTIVITY

IDEAL INTEGRATED ICS AND IT INTRANET
Integration Drivers

- Geographically dispersed systems
- Responsiveness
- Business agility
- Cost savings
- Compliance
- Security
- Safety
Security Challenges
For a customer POC, you will receive a license valid for 30 days.

For internal Juniper use, you will receive a license valid for 90 days.

TCG: Standards for Trusted Systems

Virtualized Platform

Mobile Phones

Printers & Hardcopy

Authentication

Network Security

Storage

Security Hardware

Applications
- Software Stack
- Operating Systems
- Web Services
- Authentication
- Data Protection

Desktops & Notebooks

Servers

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• **Open Architecture for Network Security**
  - Completely vendor-neutral
  - Strong security through trusted computing
  - Original focus on NAC, now expanded to Network Security

• **Open Standards for Network Security**
  - Full set of specifications available to all
  - Products shipping since 2005

• **New Standard for Industrial Control Systems**
  - Aligns with ISA100.15 Backhaul Network Architecture
  - Aligns with IETF standards for PKI and identity-based comms
Dynamic Connectivity and Trust Management

IF-MAP COORDINATION

UNTRUSTED IP NETWORK

Backhaul Connectivity
- Any link type: Ethernet, Cell, WiFi, WiMax, SatCom, etc.
- Backhaul authentication

Protection
- Authentication
- Confidentiality
- Integrity
- Policy Enforcement

Transparency
- Existing ICS protocols
- Layer 2 VPLS

FIELD WORKER

ICS OPS CENTER

FIELD ICS

OVERLAY NETWORK

ISOLATION BOUNDARY

ETHERNET

IP OVER BACKHAUL

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Next Steps and Call to Action


• Design ICS security solutions customized for your unique environments.

• Contact vendors and insist on acquiring TCG-certified ICS security solutions based on the TNC and ISA standards.

• Deploy solutions in pilot first, observe and correct issues, then deploy into production.

• For more information on TCG technologies and architects guides, visit [www.trustedcomputinggroup.org](http://www.trustedcomputinggroup.org)
Thank You!

Questions?

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