Industrial Security

An Ongoing Task
Industrial Security

- Industrial Security History
- The Building Blocks of Industrial Security

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The Changing Security Situation – from Fieldbuses to Industrial Ethernet

Benefits of Industrial Ethernet
- Openness (e.g. for integration of wireless communication systems)
- Internet connectivity (e.g. for remote access)
- Higher number of nodes (theoretically billions within an IP subnet)
- Higher data rates (100/ 1,000/ 10,000 Mbit/s)

Issues to consider
- Vulnerability through openness
- Threats from the Internet
- Address conflicts if not carefully administrated
- Necessity to plan and structure networks

Industrial Ethernet means great benefit to the industry, but also requires new security standards
### Office versus Industrial Security

#### Office IT

**Objectives and requirements**
- Security of data
- Control administrative processes
- Prevent espionage

**Features**
- A lot of connections via the internet
- Regular patches possible
- Use of standard SW and HW
- Examples: PC, Microsoft, applications, internet

#### Production IT

**Objectives and requirements**
- Prevent loss of production (availability!)
- Product quality
- Safety: prevent hazards
- Security: prevent sabotage

**Features**
- Data connections to office IT / internet must be subject to clear security management
- SW update strictly limited
- Specific SW for automation and control of production processes
- Examples: SCADA systems, S7 control
Siemens Industrial Security History

- **1995**: Introduction of
  - **Knowhow Protect feature**: encryption of S7 program blocks
  - **Copy Protection**: program blocks bound to HW serial number

- **2004**: Start of cooperation with the Swiss CERN institute to identify any vulnerability and to improve the robustness of components against hacking etc.

- **2005**: Introduction of the **Cell Protection Concept** with the SCALANCE S security modules

- **2007**: **IP Hardening** of Ethernet-based SIMATIC components to improve the communication robustness of Ethernet

- **2010**: Improvement of the Knowhow Protect feature and the Copy Protection mechanism with STEP 7 V5.5
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Security is an Ongoing Task

Industrial Security must be addressed at various different levels

Organization

Technical Security

Processes

Standardization/
Regulations

e.g. IEC standards

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Technical Industrial Security Features in Production Systems

Industrial security consists of processes, products and measures to prevent data abuse and intrusion by third parties into office environment & production processes.
The Cell Protection Concept –
Secure LAN and Secure Remote Access
Siemens Industrial Security Services
Covering All Phases of the Plant Lifecycle

Security services from Siemens Industry
- Security awareness training and workshops
- Vulnerability assessments
- Consulting on secure architectures and concepts
- Implementation services
- PCS 7 Firewall
- Application whitelisting
Thank you for your attention!

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