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Set up your Security Maintenance program in an industrial environment

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IT-SA NUREMBERG – 25/10/2022

Set up your Security Maintenance program in an industrial environment

01 . Framatome presentation

02 . Cybersecurity solutions for critical industries

- Cybersecurity Maintenance Program
- Vulnerability Management
- Patch implementation
- Hardening solution

03 . To go further:

- SCADA specific Cybersecurity Controls
- Secure Industrial Automation Solutions
- Standardization & Streamlining

04 . Questions & Answers

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1. Framatome presentation

Framatome, FoxGuard Solutions and Cyberwatch

Joining forces to strengthen cybersecurity offerings for critical industries.

In 2019, Framatome acquired FoxGuard Solutions, a US leader in cybersecurity and industrial computing and in 2022, Cyberwatch, a european leader in Vulnerability scanning and risk management.

> *Through this acquisition, we are expanding our growth business and offering our customers a broader selection of cybersecurity services that meet the compliance and data security needs of our industry*

Bernard Fontana,
CEO of Framatome

- A publicly traded company
- Majority shareholder: The French State

Industrial Cybersecurity Services

Shape your cybersecurity organization

We help industry players build an **agile governance** in order to deploy efficiently their cybersecurity strategy throughout the whole organization

Assess your operational risks

By performing **technical tests** on your industrial systems, we identify vulnerabilities and help you manage them efficiently

Deal with OT risks and compliance

We assist critical industries to reach compliance for their OT assets in accordance with **legal requirements and regulation**

Strenghten your infrastructure

Thanks to our **proven hardening process** we upgrade your IT/OT systems to high cybersecurity level and reduce the potential attack surface

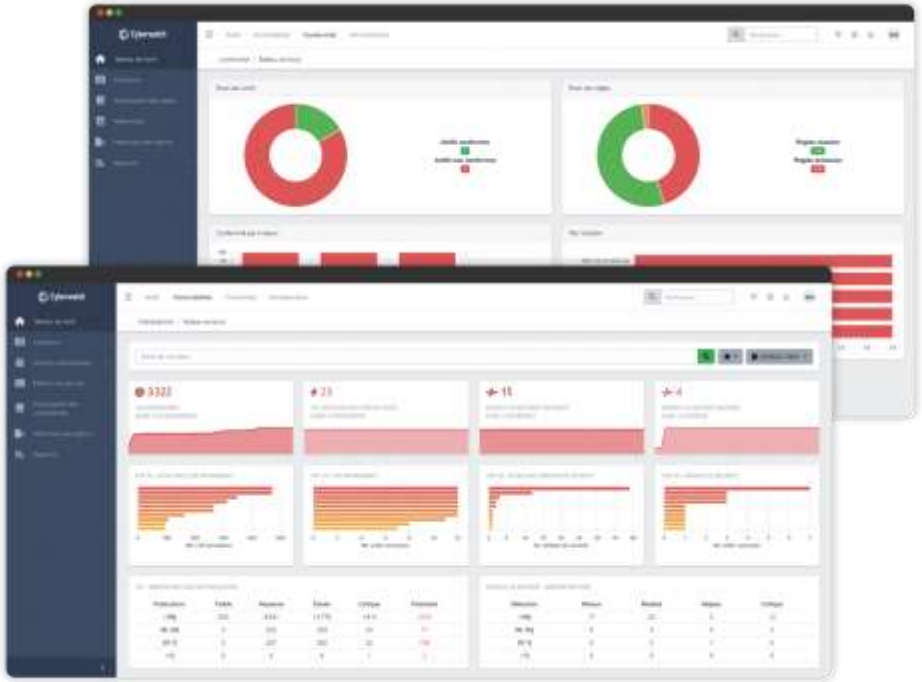
2. Cybersecurity solutions for critical industries

Cybersecurity Maintenance Program

End to end approach for your ICS cyber maintenance from assets inventory to Patch deployment

Services **Products**

Vulnerability Management



1. Map
2. Detect
3. Identify
4. Prioritize
5. Decide
6. Correct

Patch Implementation

Secured, validated and compliant OT software patches for your assets

ACQUIRE

& Authenticate Patches

VALIDATE

Patches in a simulated environment with special equipment and know-how

SIGN

Public-private key digital technologies

DELIVER

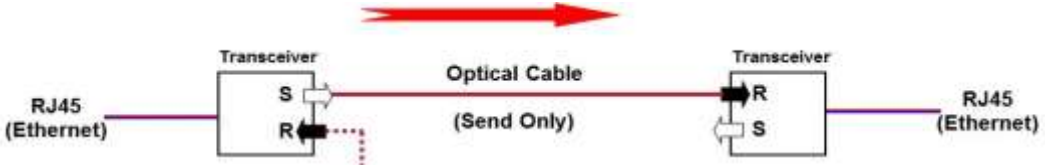
Delivery by secure electronic download or inviolable physical distribution

Sentrigard Control Console (SCC)

Patch Management Software

Hardening Solution: SCADA specific Cybersecurity Controls

… Optical **Data Diode**



Example of hardware level solution

Unidirectional Security Gateways:

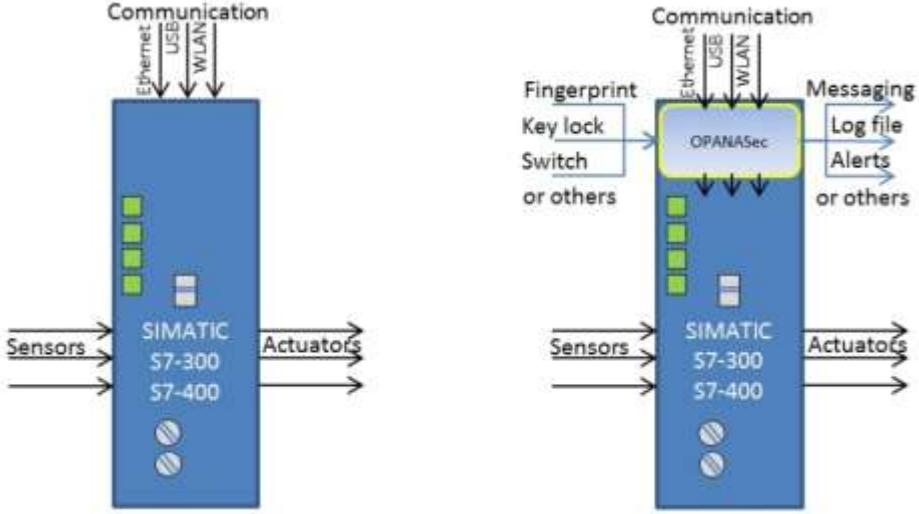
- For conduit from most stringent security zone, e.g. SL4 / IEC 62443 or S1 / IEC 63096, to lower zone
- For conduit from Instrumentation & Control (I&C) / automation systems to IT engineering networks
- **For collection of security logging and maintenance data without any retroaction**
- ISO/IEC 27033-4 – … – Network Security – Securing communications between networks using security gateways

3. To go further…

SCADA specific Cybersecurity Controls

Continuous real-time supervision of embedded systems, e.g. SIMATIC S7.

… **OPANASec** Protection for **SCADA**



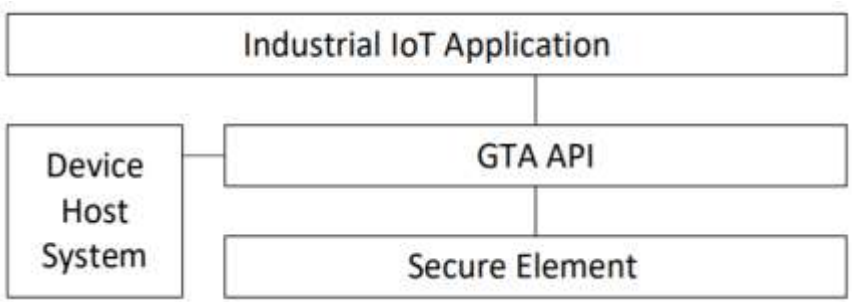
Example of system SW level solution

- Indication of potential attack or maintenance issue
- Patented technology

Standardization & Streamlining

M2M – Generic Trust Anchor API – New Development for IIoT

- **ISO/IEC JTC1/SC41 Standardisation initiated by Industry 4.0 (DIN/DKE)**
  - In cooperation with IEC TC65 and ISO/IEC JTC1/SC27 WG4
- **Generic Trust Anchor API (GTA API)**
  - **Secure Elements** (SE) for handling of „root of trust“ in cryptographic applications
  - Handling of private keys, certificates and info. needed for establishing trust relationships
- **Trust Anchor** – Security function for trustworthy information
  - Contains a cryptographic algorithms, a key, the issuer and parameters
- **Secure Element** (SE) – allow the trustworthy storage and use
  - E.g. of sensitive information of IIoT devices used for authentication within IIoT systems



Standardization & Streamlining

M2M – Generic Trust Anchor API – New Development for IIoT

GTA API – Low-level Secure Element

```
// Search for certificates and keys
x509_cert = secure_element_read_certificate(subject_name="/CN=test")

// ... Find a matching private key ...
key_handle = secure_element_get_key(...)
// Setup and execute cryptographic functions

// ... Select algorithm for signature, based on available key ...
digest = secure_element_hash(data = "Hallo it-sa.de!",  alg = SHA256)
signature = secure_element_sign(key_handle, digest, alg = RSA_PSS)
// Post processing of raw signature ...
```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Standardization & Streamlining

M2M – Generic Trust Anchor API – New Development for IIoT

GTA API – Abstraction

```
// Open a GTA context and find an ID with a specific profile
h_ctx = gta_context_open(personality = “App1”,
                         profile = “ch.iec.30168.authenticate_basic”)

// Compute and authentication tag according to the selected profile
tag = gta_authenticate_data_detached(h_ctx, data = “Hallo KELI!”)
```

Scalable **Authentication** Solutions, including for **Cybersecurity Maintenance**

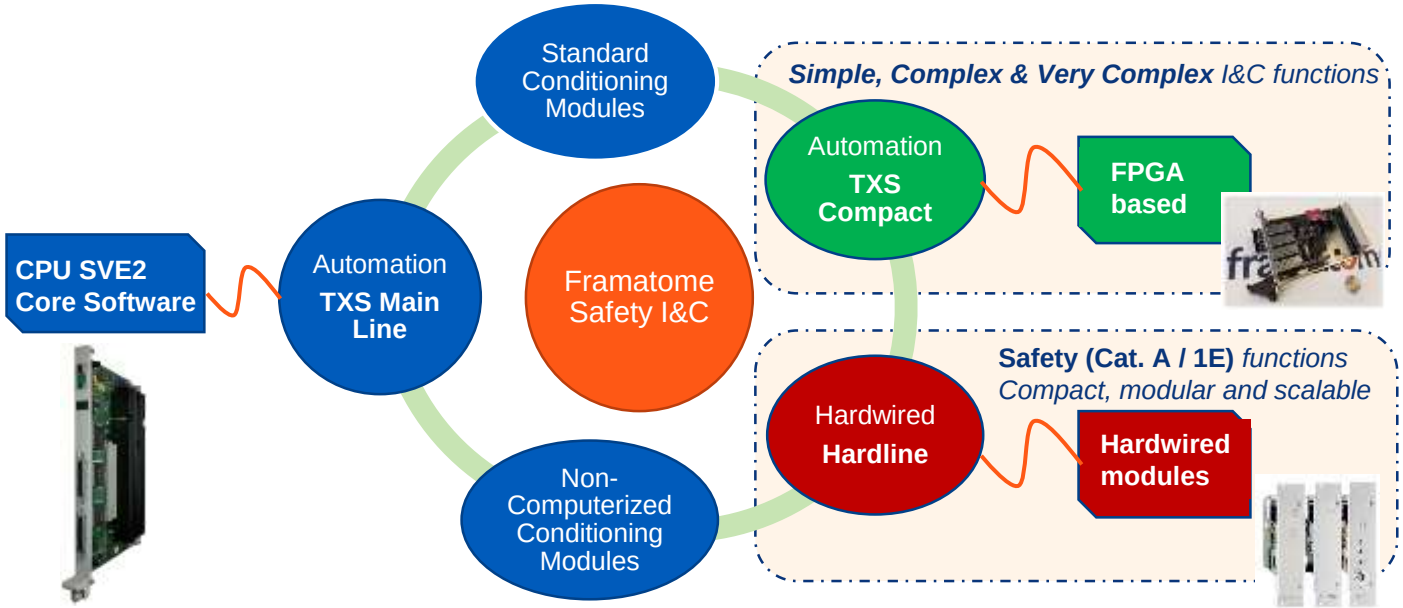
Secure Industrial Automation Solutions

Cybersecurity Maintenance for all automation platforms

TXS Main Line (Microprocessors)

TXS Compact (FPGAs)

Hardline (No SW, no FPGAs)



4. Questions and answers

TIME FOR QUESTIONS!

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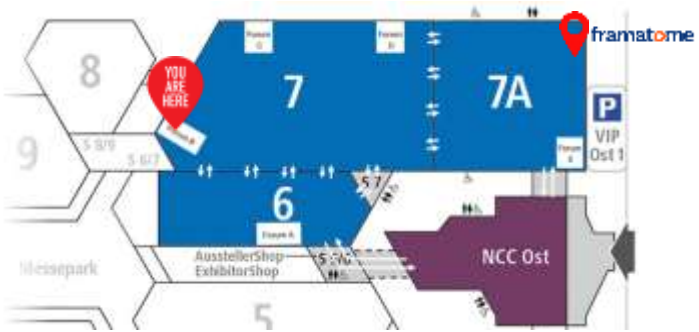
FOR LONGER DISCUSSIONS…
MEET US DIRECTLY ON OUR BOOTH

Hall: 7A
Stand number: 7A-601



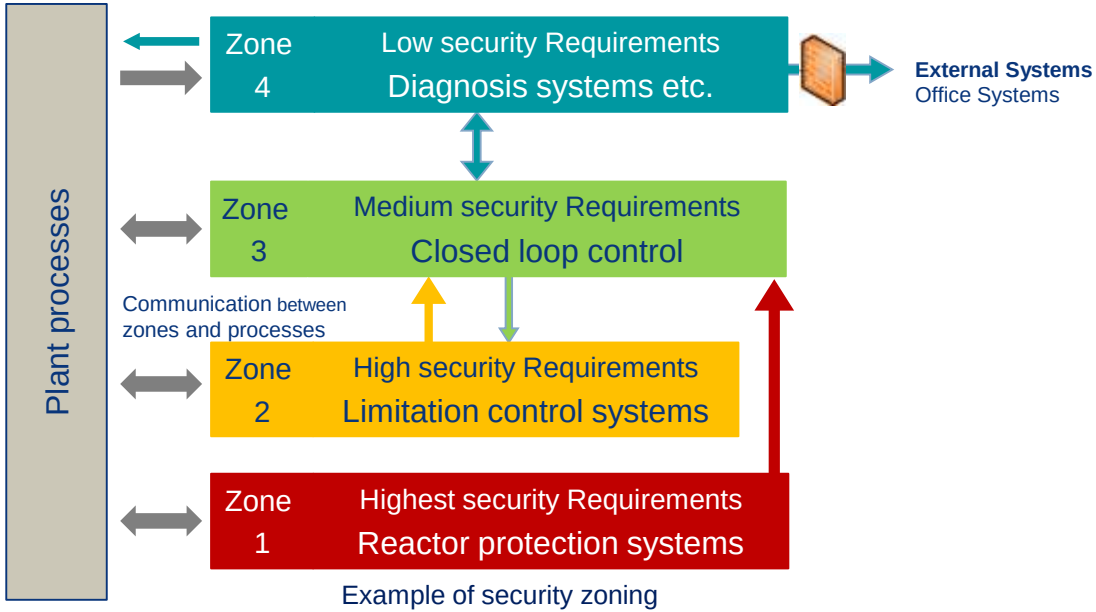
Backup slides

Cybersecurity solutions for critical industries

At overall Architecture Level

Architecture analysis from Cybersecurity viewpoint (IEC 62645 / IEC 62443)

- Sensibility analyses to determine security degrees of each I&C system
- Definition of security zones (e.g. I&C systems of the same security degree)
- Specification of cybersecurity requirements for I&C systems and their interfaces



Example of security zoning

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Thank You!