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Sustaining Rail Cyber Security over the Lifecycle

Rail Cyber Security Summit, 19th of February 2019, Amsterdam

Johannes Emmelheinz I CEO Siemens Mobility Customer Services

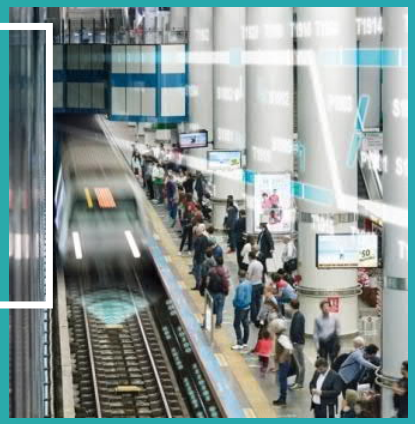
Mobility Customer Services supports all service related topics and makes rail operations even more efficient with innovative technologies at all levels

Customer Services

Mobility Management

Customer Services

Turnkey Projects & Electrification



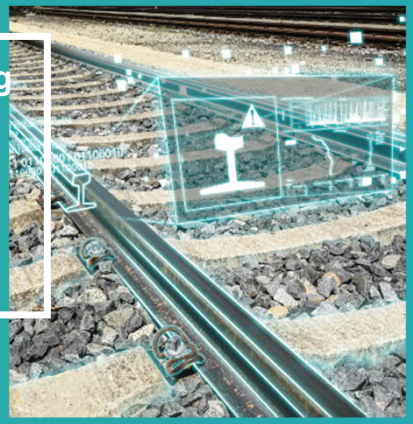
Customer Services

Rolling Stock

Spare Part Services

Rail Monitoring Systems

(MRX)



Digital Services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Challenges for
rail cyber security

Challenges for service providers

One size does not fit all due to cyber laws and regulations

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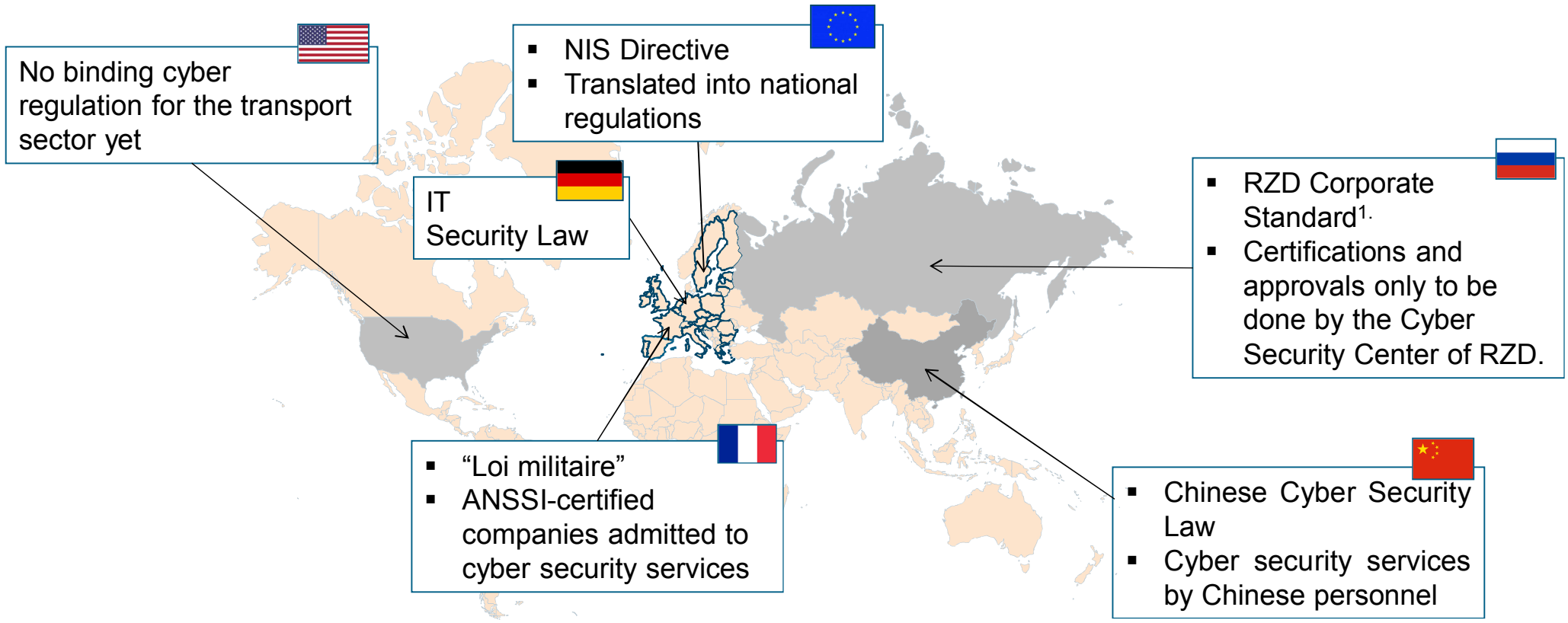


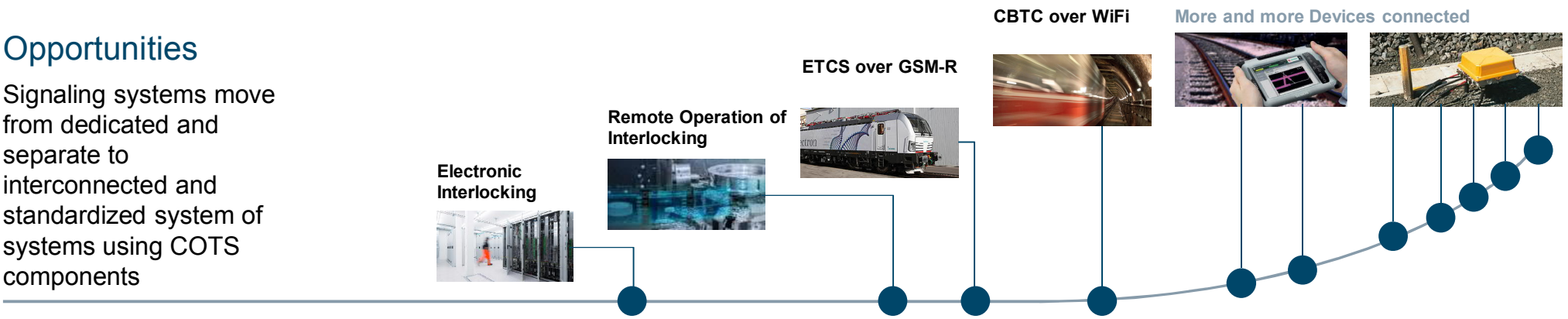
1) STO RZD 02.049-2014

Challenges for service providers

increased connectivity and evolving threat landscape

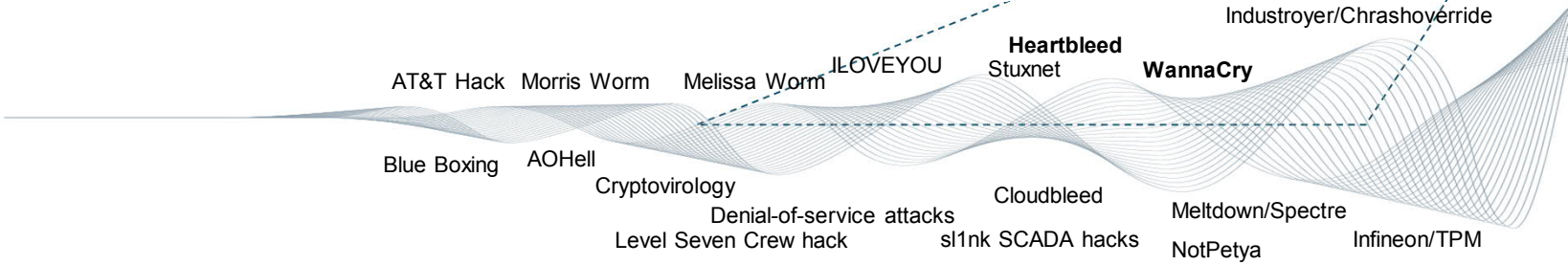
Opportunities

Signaling systems move from dedicated and separate to interconnected and standardized system of systems using COTS components



… and risks

Exposure to malicious cyber attacks is also growing dramatically, putting our lives and the stability of our society at risk



Challenges for service providers

Cyber requirements are increasingly diverse and demanding

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Diverse cyber security requirements in content and extent

… from one paragraph up to 100+ pages

Duration of service obligations increasing

... sometimes up to 40 years

System architectures need to be adapted

… e. g. for remote patching

Challenges for service providers

Split responsibilities within organizations

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Example responsibility IT and OT departments:

Split responsibilities for cyber security

IT department		OT department[1]

Example loco operations:

Split responsiblilties for technical safety, operational safety and processes

1) signalling, rolling stock etc.


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Approaches for
rail cyber security

Approaches for rail cyber security

Application of accepted and aligned standards

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Approaches for rail cyber security

Holistic cyber protection concept for systems, processes & people

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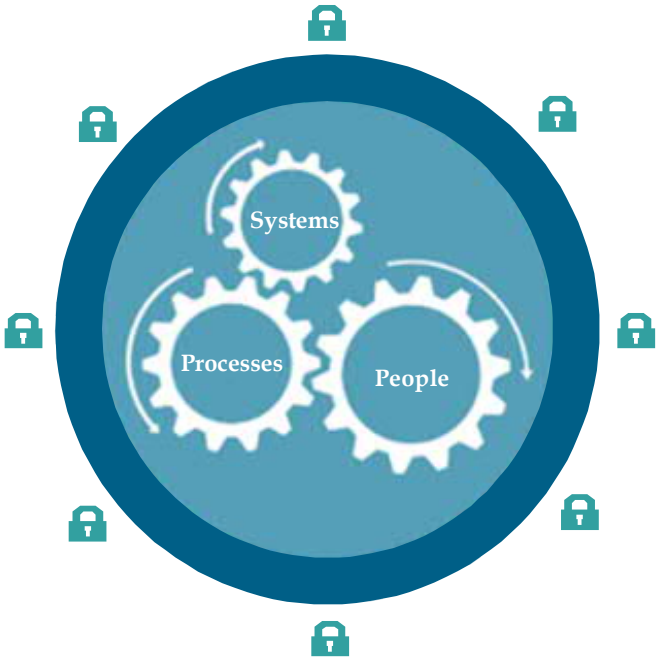
High level **risk assessment** between operator and system integration

Secure design and **implementation** by system integrator

Secure Operations



Systems

Periodical

- Vulnerability Monitoring
- Vulnerability Management
- Patch Management
- System Updates/Upgrades
- Penetration tests
- Assessments (Threat and Risk, IEC 62443)

Continuous

- SIEM/Intrusion Detection
- Cyber Security Operations Center

basic

advanced

People & Processes

- ISMS (e. g. ISO 27001) incl. awareness trainings
- Incident handling, forensics

Approaches for rail cyber security

Contribution of all partners required for a stable structure

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Where we can support

Where we can support

Our service portfolio for sustainable protection of rail security

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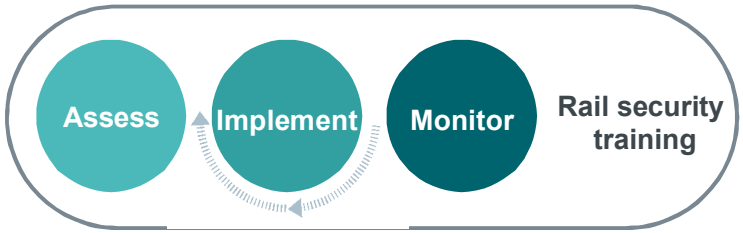

Rail security assessment	Rail security implementation	Continuous monitoring of rail security
• IEC 62443 Gap analysis • ISO 27001 Assessment • Threat & Risk Analysis • Cyber Security Consulting & Documentation • Penetration tests	• Security Implementation / Architecture • Incident Handling and Response	• Vulnerability Monitoring & Asset Discovery • Cyber Security Monitoring (Intrusion detection/ SIEM) • Cyber Security Operations Center • On-call support

Selected reference projects

- ✓ **Full service contracts** including **cyber security services** for signaling systems for mainline operators
- ✓ **IEC 62443 assessments** for mainline, metro and tram operators
- ✓ **Asset inventory** for driverless metro operator
- ✓ **Penetration tests**
- ✓ Pilot projects for **Intrusion Detection** for signaling and rolling stock

Where we can support

With our rail cyber security experts and partner network

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Product & Solution Security

~ 300 employees dedicated to rail cyber security

Products, systems and services are developed and used in accordance to the applicable legal and normative standards

Cyber security is reflected in all relevant processes and supported by adapted procedures and tools

Collaboration partners

RazorSecure

DARKTRACE

Atos

accenture

…and others

Charter of Trust co-founded by Siemens in February 2018

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Leading global companies joined forces for creating security in a networked world.

Charter of Trust

1. Protecting the data of individuals and companies
2. Preventing damage from people, companies and infrastructures
3. Establishing a reliable foundation on which confidence in a networked, digital world can take root and grow

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enel · IBM · Munich Security Conference msc Münchner Sicherheitskonferenz · NXP · SGS · T · TOTAL · TÜV SÜD

Summed up ...

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Especially in the rail industry it is essential to protect critical infrastructures. Sustaining rail cyber security over the complete life cycle

- **is challenging and requires efforts of all stakeholders.**
- **is supported by applying international standards.**
- **is facilitated by a close interaction between rail system suppliers, service providers, cyber startups and rail operators.**

Thank you very much!

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