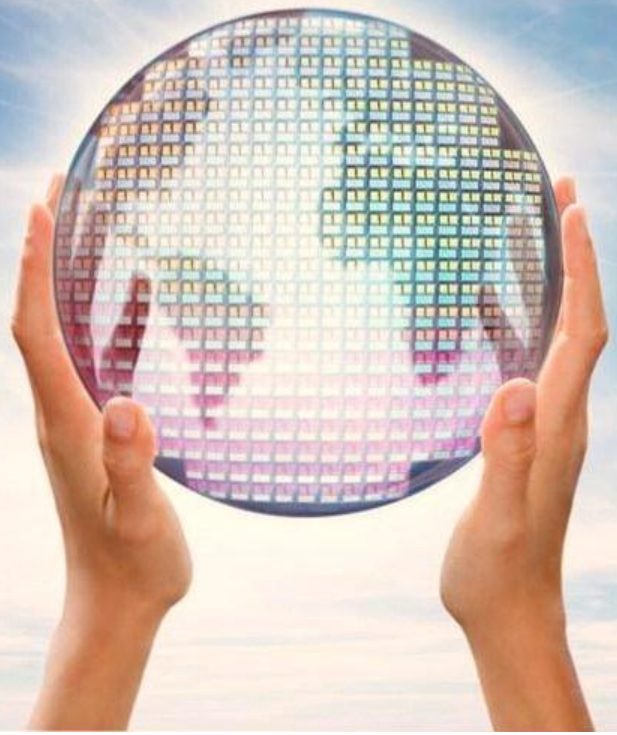
Innovative semiconductor solutions

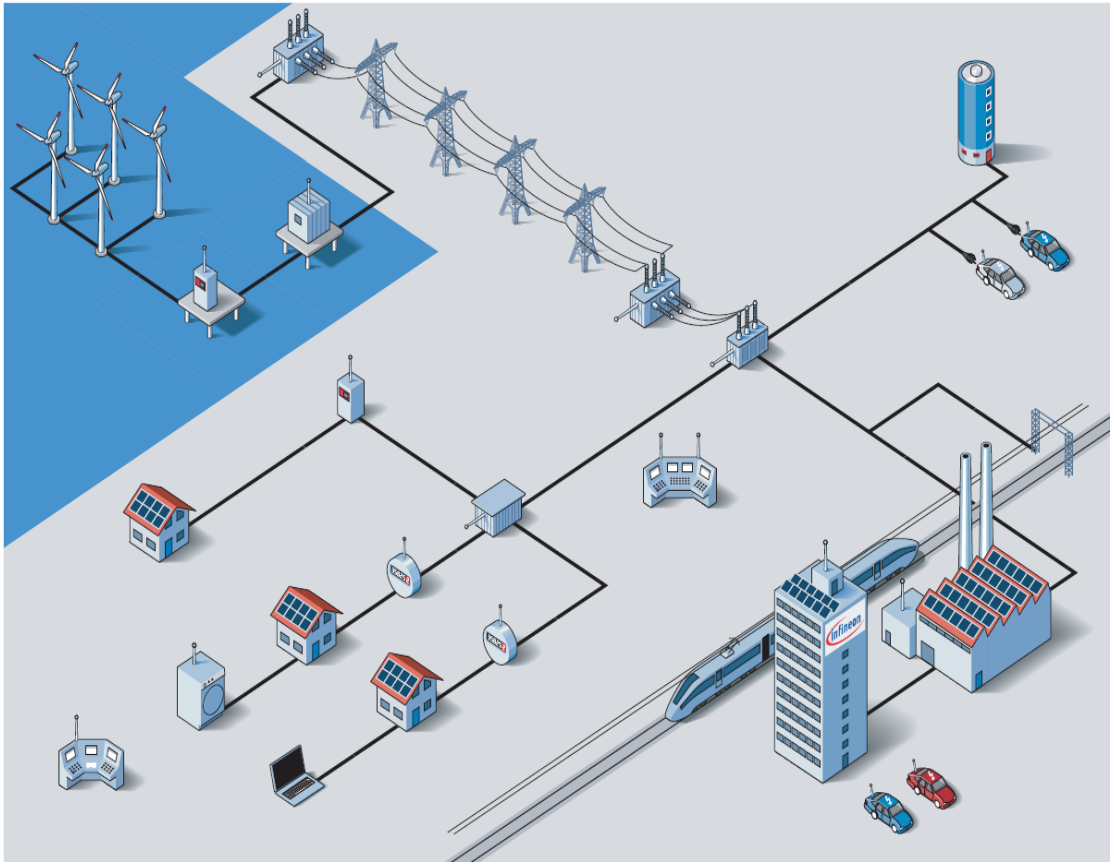
For energy efficiency, mobility and security



Smart Meter Security

Martin Klimke, Principle of Technical Marketing
Infineon Chip Card and Security

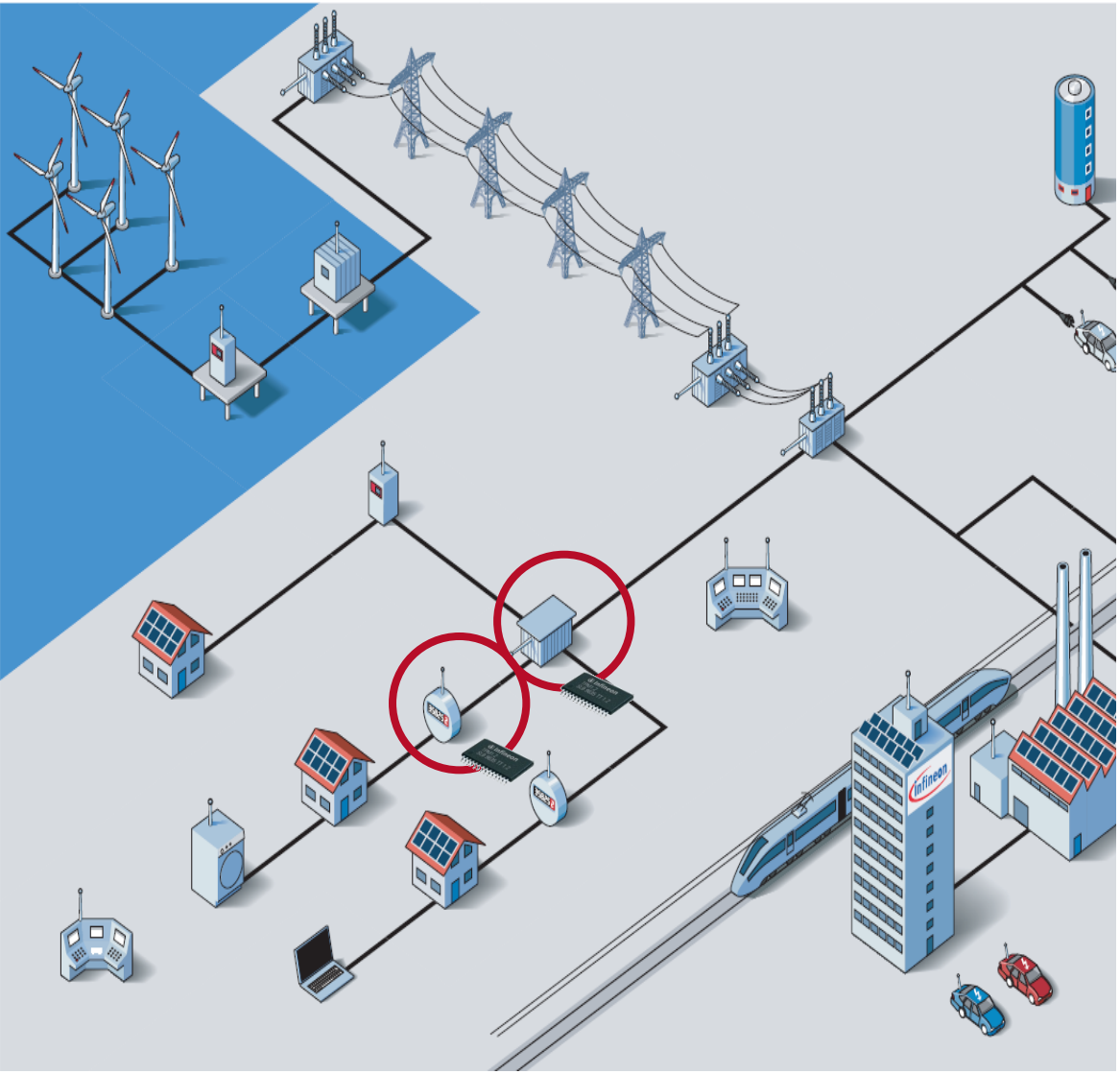
Smart Grids: Advanced power control, intelligence and communications



- New Business models and Services
- Better Intelligent Grid Management
- Better use of “Green” energy
- Active control of power consumption

Motivation for Attacks

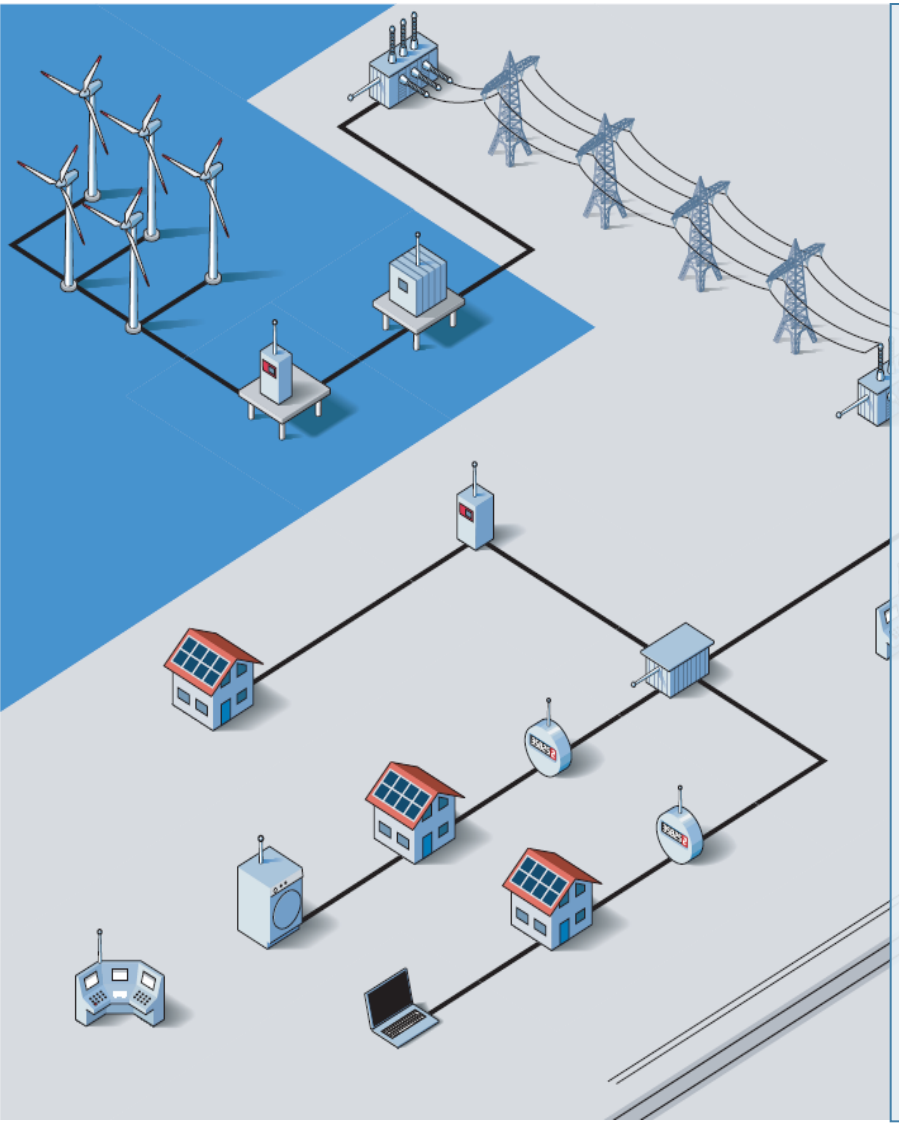
Security for Smart Metering



- Concentrators and Smart meters are
  - physical unprotected and
  - easily accessible.

- Security controller can provide protection against physical attacks
- Security concepts must reflect the long life time of smart meters

Motivation of the German Smart Meter Security Certification

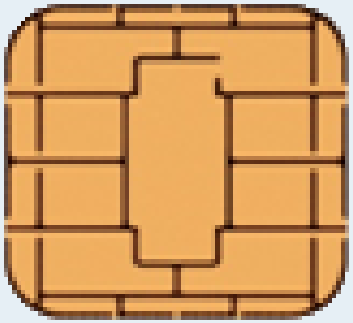


- The Smart Grid is critical infrastructure
- Protection of this infrastructure is a governmental responsibility
- A mandated security certification

1. drives the industry to an acceptable security level
2. establishes trust in the communication process with the population
3. is a corner stone for acceptance.

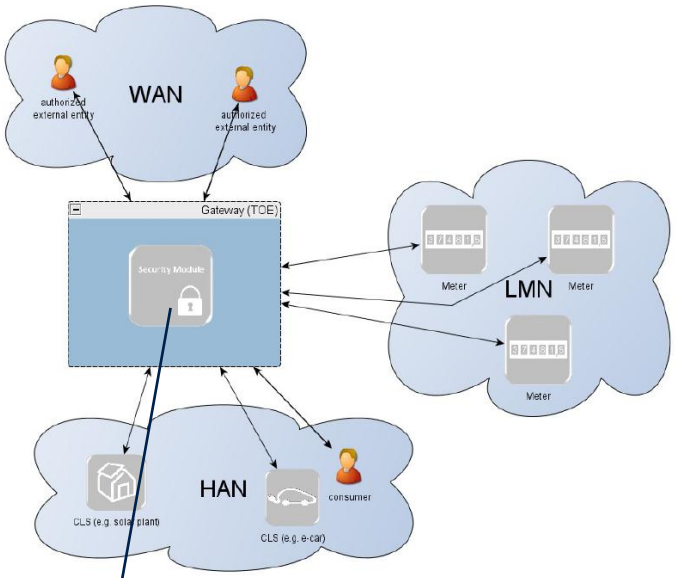
Bundesamt für Sicherheit in der Informationstechnik
Deutsches IT-Sicherheitszertifikat
Zertifikat Nummer: BSI-DSZ-CC-0001-200x
bis EAL 4

Applications using Security controller



Since 25 years security controllers have used in IT- critical infrastructure and supported excellent security.

Germany: Protection Profile and related Security Architecture of the BSI (federal agency for IT security)



Source: BSI

OPTIGA™ SM
(sales code: SLS 52EII000)

- I2C Bus
- Turnkey Security Solution
- Integrity Guard

- Security Module
  - based on a certified security controller
- Functions
  - Key Storage
  - Session Key Generation
  - Mutual Authentication
  - Signature Generation
  - Signature Verification
  - Secure messaging
- EAL 4+ Common Criteria

OPTIGA™ SM

The fast and seamless approach for smart meter security

EAL4+ Certified

- Compliant to world's first smart meter related protection profile
- Lower certification cost for system

Turn Key solution

- No dedicated security coding skills needed at customer
- Easy integration

Integrity Guard

- Robust electrical integration
- No false alarms
- Lower field returns

Industrial interface

- Compatible to widely-used I2C Interface
- No need for external quartz

OPTIGA™ SM

The fast and seamless approach for smart meter security

Integrity Guard

5 ECC curve/key combination

On chip key generation

- Security for long lifetime

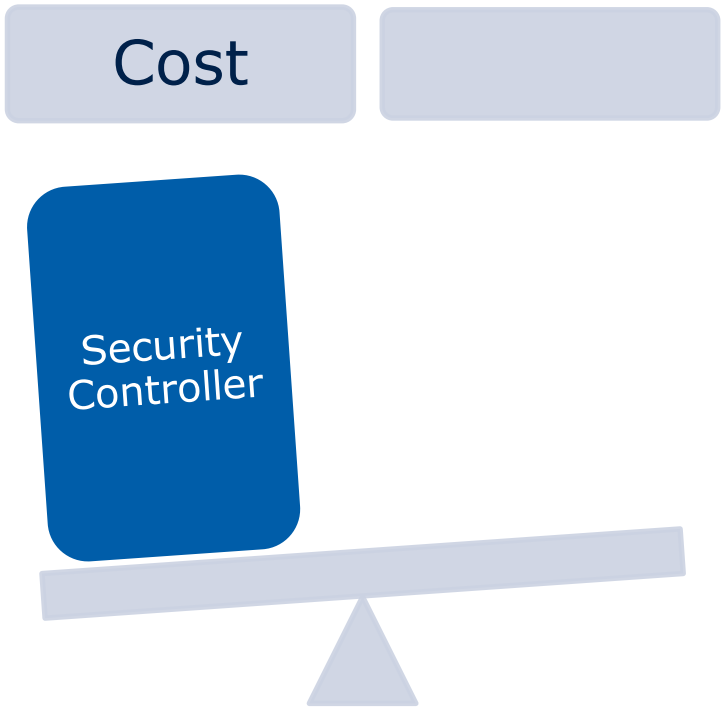
Endorsement Certificate

- improve security in manufacturing

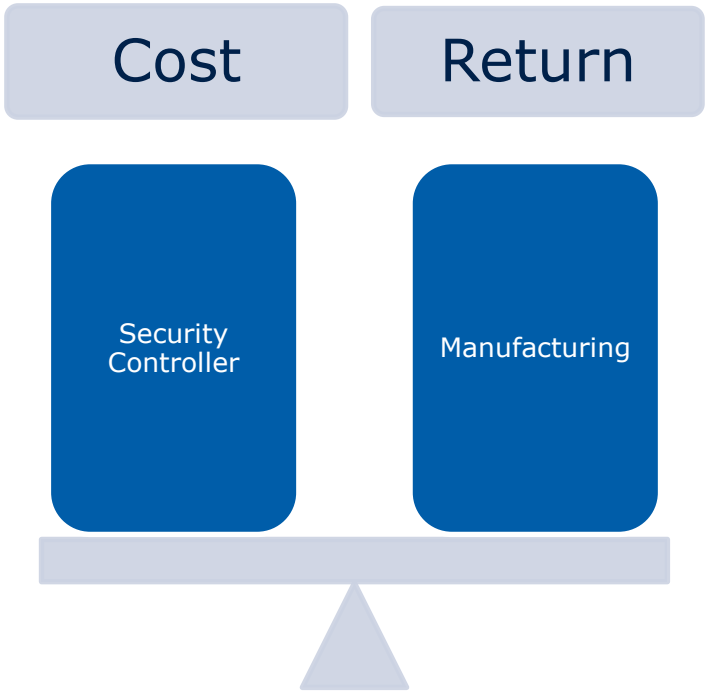
Native Implementation

- Fast execution
- No slow down by interpreter

Security Controller lower cost

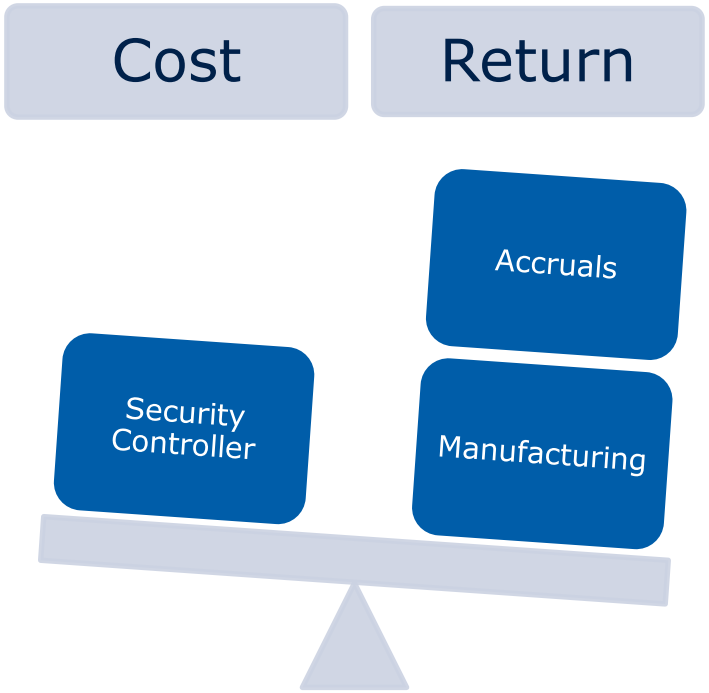


Security Controller lower cost



- Lower of cost in smart meter manufacturing by
  - Less security invest
  - Lower cost for security certifications

Security Controller lower cost



- Lower of cost in smart meter manufacturing by
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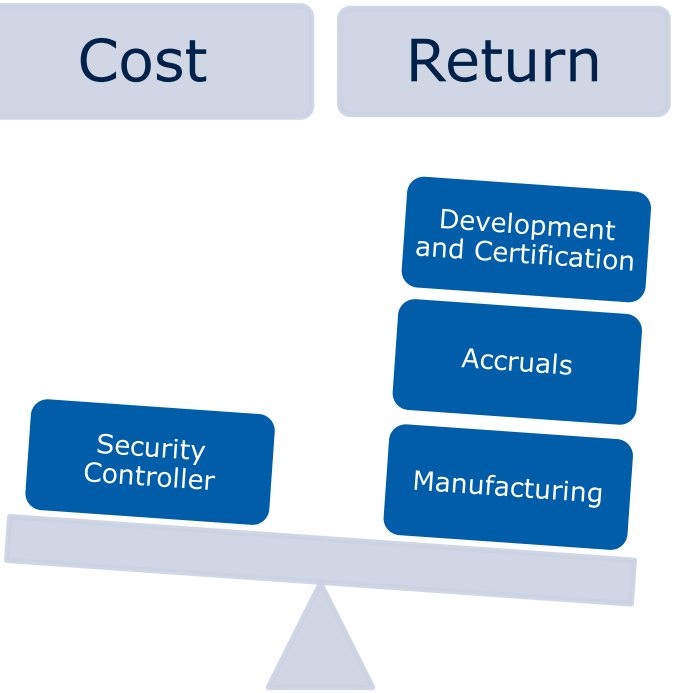
- Lower accruals against security flaws in the field

Security Controller lower cost



- Lower of cost in smart meter manufacturing by
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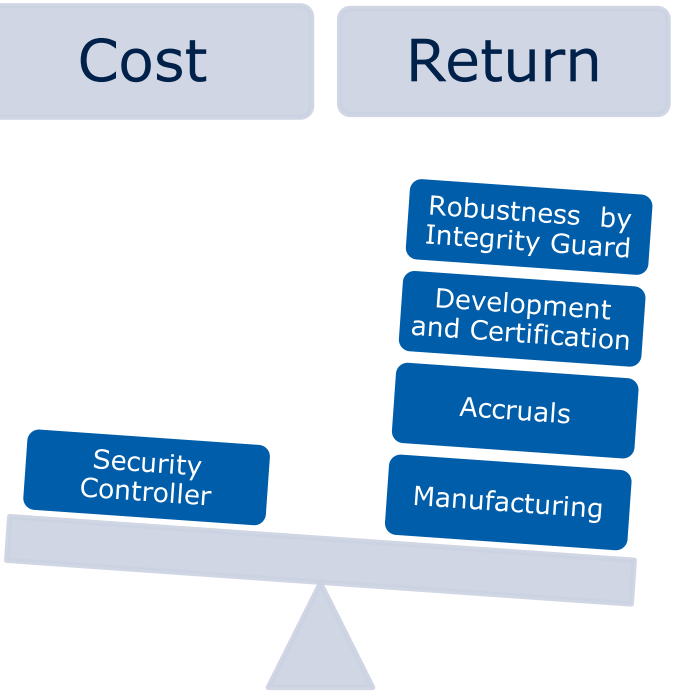
- Reduction of development and certification cost

Security Controller lower cost



- Lower of cost in smart meter manufacturing by
  - Less security invest
  - Lower cost for security certifications
- Lower accruals against security flaws in the field
- Reduction of development and certification cost
- Lower cost by increased robustness by Integrity Guard

Summary

1. Smart meters will be connected by standardized network infrastructures and will become targets for attacks and misuse

2. Security must be built in from day one

3. Security Controller provide a solid foundation for smart meter security