



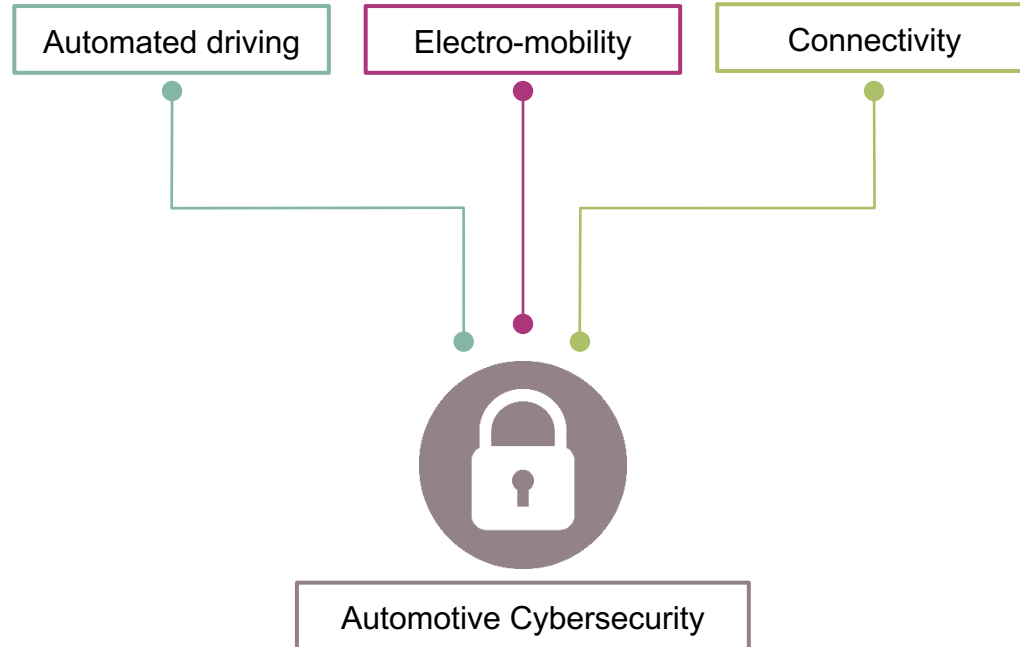
We are the link  
between the real and  
the digital world.

# Automotive Cybersecurity



# Cybersecurity is defining the next level of quality for the automotive industry

**The Automotive Market is currently shaped by four Megatrends.  
They are all linked to Automotive Cybersecurity**



# Infiniteon is your trusted advisor for a holistic automotive cybersecurity approach

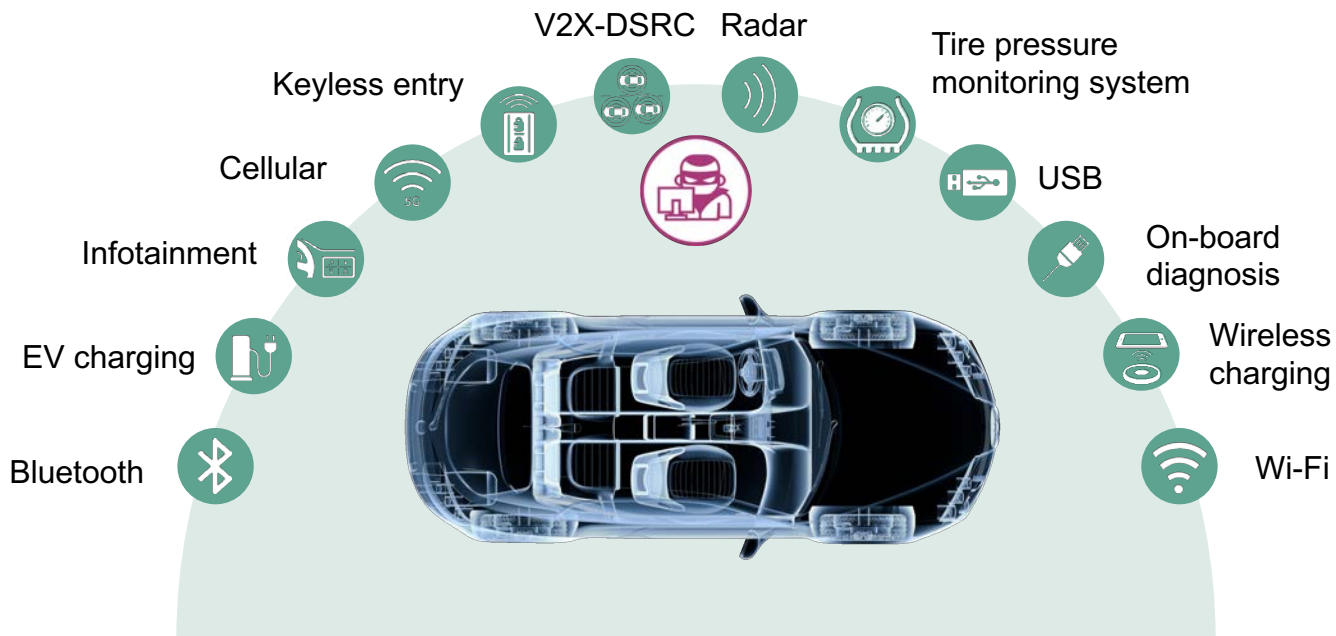


**The combined ATV and CSS divisions result in leading-edge products!**



# Connected car revolution

Every connection in the car is a potential point for an attacker...



# Attack scenarios

...and, unfortunately, they seem to have unlimited creativity!



Software

Hardware

Logic attacks

Protocol fuzzing,  
jamming, replay

Side channel attacks

SPA, DPA, spectre,  
meltdown

Fault injection

Spiking, radiation,  
light attacks, clock  
manipulation, DFA

Invasive attacks

FIB manipulation,  
microprobing

**What countermeasures can be implemented?**

# Attack scenarios

...What countermeasures can be implemented?



Software

Hardware

Logic attacks



PKI, digital signatures, encryption, CMAC, blockchain, MISRA C-CERT coding guidelines

Side channel attacks



Run-time invariant SW implementation, randomization in HW and SW, dual-rail HW implementation, encrypted computation

Fault injection



Double computation, all safety HW measures

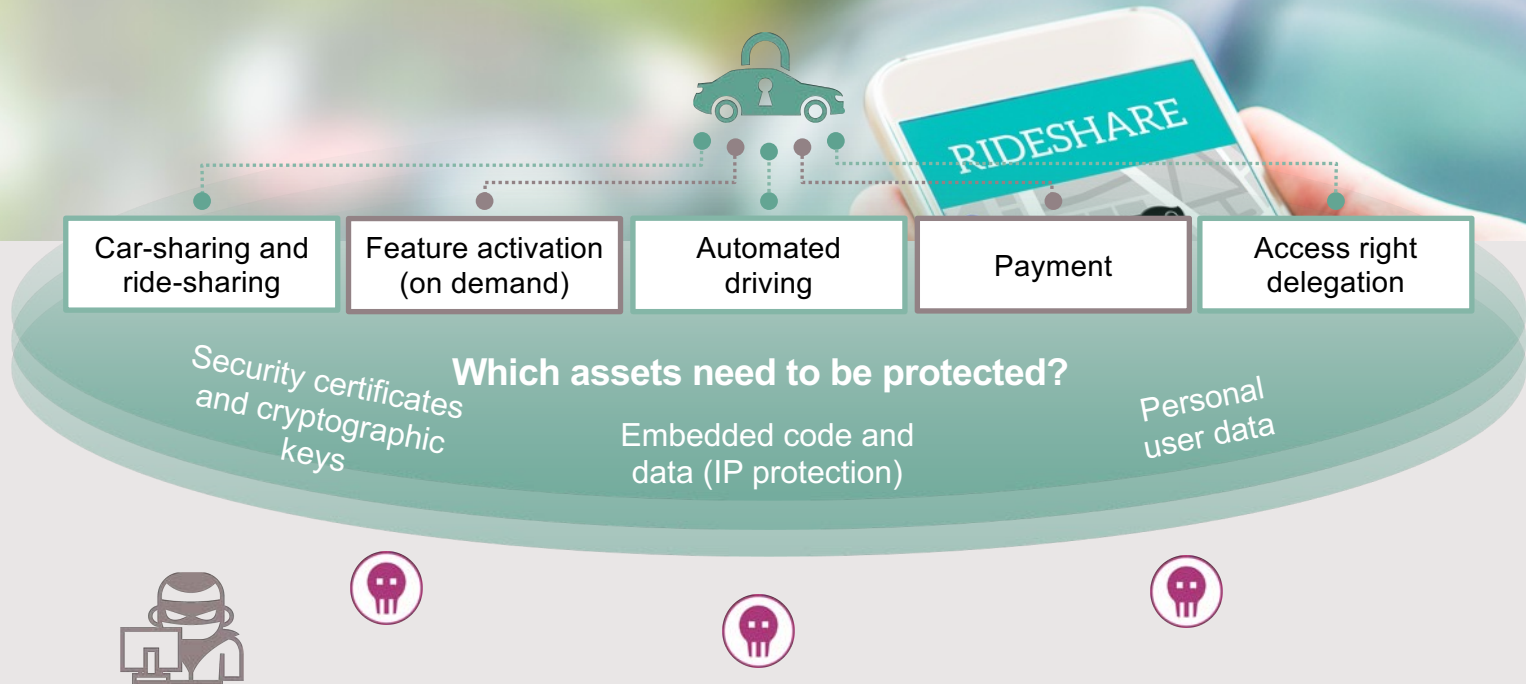
Invasive attacks



Tamper protection, implanted ROM, full-custom design

**Security always consists of a combination of hardware and software**

But not everything is bad news. Security is the enabler for new business models

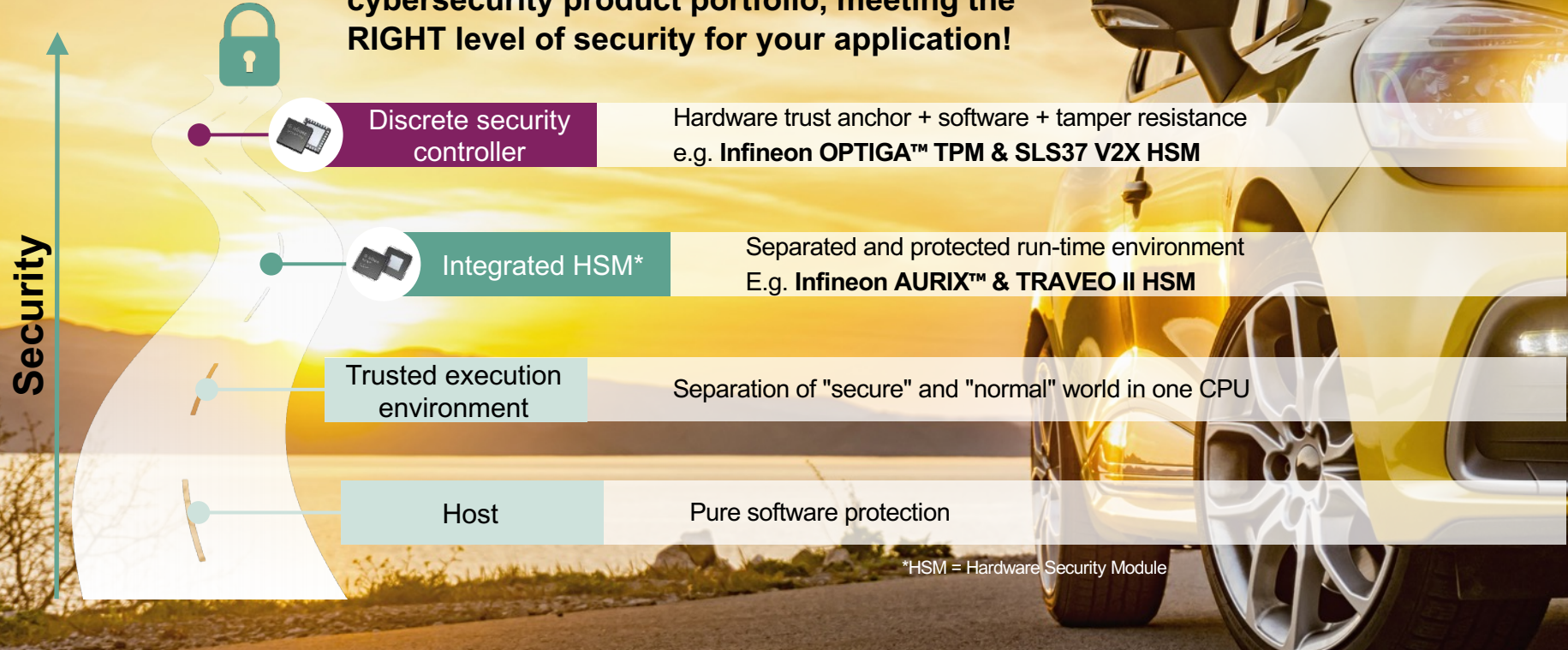




# We offer the most scalable automotive cybersecurity portfolio, meeting the right level of security

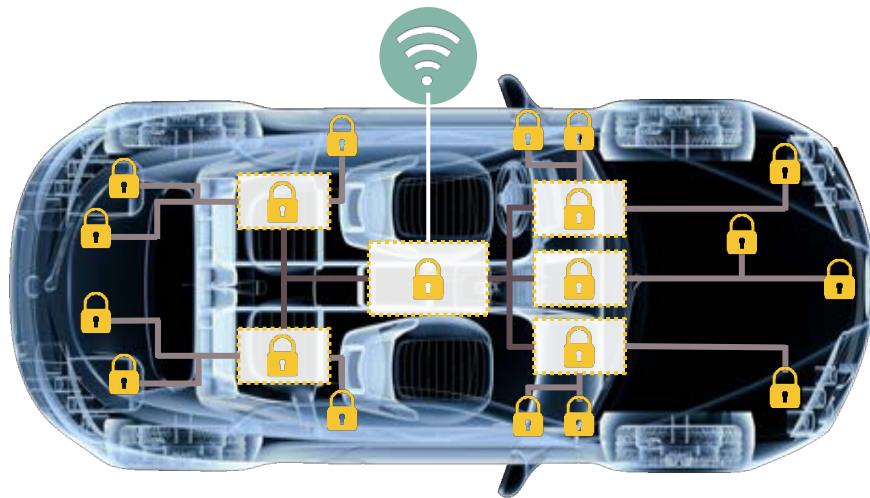


**Infineon offers the most scalable automotive cybersecurity product portfolio, meeting the RIGHT level of security for your application!**





# Principles of cybersecurity



## Different Layers of Security are required in future Car Architectures



Secure platform



Secure onboard  
communication



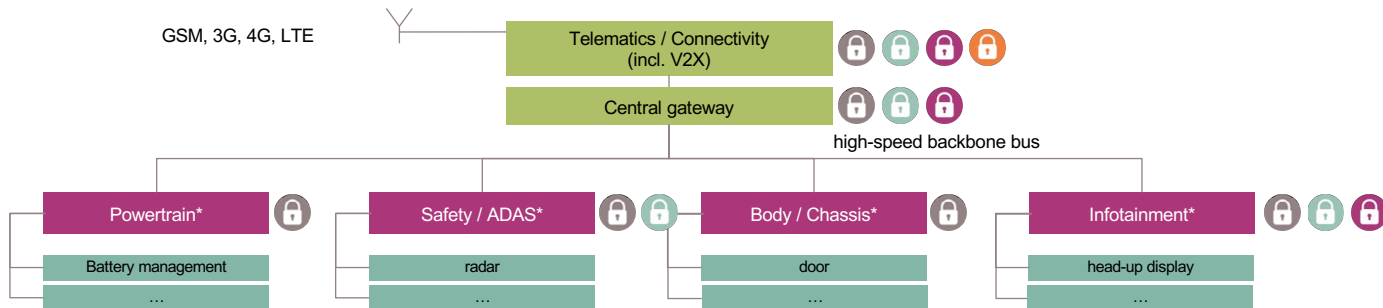
Secure network  
separation



Secure external  
communication

# Infinion's automotive security offering

## A scalable portfolio for dedicated applications



### AURIX™ family TRAVEO™ II family

#### On board security across all domains

- › HW Security Module (HSM or SHE) (AURIX™ TC2x & TC3x)
- › Cyber Security Realtime Module & Satellites (AURIX™ TC4x)
- › Full EVITA compliant (AURIX™ TC3x)
- › Ethernet security features (AURIX™)
- › Unique chip individual keys
- › Security SW lib
- › Safety Features against fault attacks (up to ASIL-D)
- › Automotive qualified with zero ppm automotive quality

Integrated HSM

### SEMPER™ SECURE Flash

#### Hardware root-of-trust for Application processors

- › ASPICE level 2 firmware
- › Secured storage regions
- › Hardware crypto engine
- › Ephemeral session keys
- › Mutual device authentication
- › Automotive qualified
- › ASIL-B compliant

### OPTIGA™ TPM

#### Authentication, secured key store, on-chip key generation & management

- › Tamper resistant hardware
- › TPM2.0 SW compliant
- › Initial keys and certificates
- › Automotive qualified Hardware + Software certified acc. to Common Criteria

### eSIM SLI 37

#### Enabling cellular connectivity

- › Tamper resistant hardware
- › eSIM SW functionality
- › Initial keys and certificates
- › Automotive qualified
- › Hardware certified acc. to Common Criteria

Discrete Hardware Security

# A dependable communication in an interconnected system has security as an integral part

## No Safety without security

- › Security is a mandatory precondition for Safety
- › Safety is the most important asset to be protected
- › A dependable architecture is secure and safe

## Security is an architecture property

- › A secure EE-architecture is always built around a certified root-of-trust
- › Hardware/Software co-design is key for a strong protection scheme
- › Appropriate security is required on all layers of the EE-architecture

## Security is a moving target

- › Security erodes over time
- › Always be ahead of the attacker's capabilities
- › Crypto-agility is a must – the right hardware is an enabler for this

## Security needs cooperation

- › Security by obscurity is not sustainable
- › Security standards allow transparent risk management over the complete lifecycle
- › Incident management processes across the whole supply chain have to be established



# Infineon – Automotive CyberSecurity Leadership beyond Hardware



Most scalable security product offering in automotive



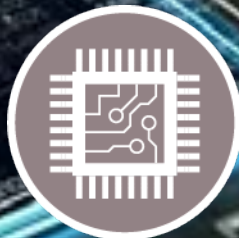
30+ years experience in security



Hardware and software security expertise



Partnership program including software and tool vendors for security



Security by Design



Trusted Advisor in security - standardization



Part of your life. Part of tomorrow.

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