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# Secure Automotive solutions

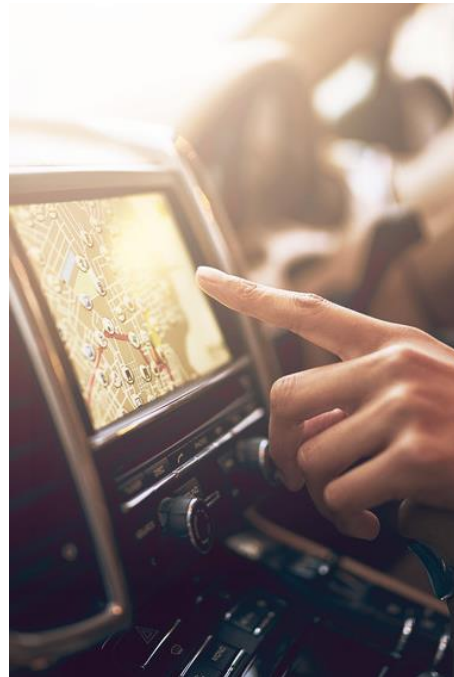


# Smart Driving connected services

Ensuring security in all automotive connected services



Vehicle to cloud



Vehicle to Infrastructure



Vehicle to Vehicle



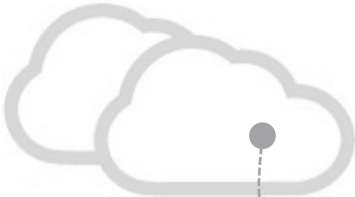
Vehicle access

# Connected services threats

**Connected vehicles become more vulnerable to attacks**

### Vehicle-to-Cloud

- Diagnostics
- Software Upgrades
- Traffic information
- Infotainment
- Payment services
- Internet services
- Emergency Call (eCall)



Service and network access corruption  
Device cloning and counterfeiting  
Data eavesdropping and corruption



### Vehicle-to-Infrastructure

Real-time traffic information



### Consumer device integration

- Smartphones
- Tablets



### Vehicle-to-Vehicle

Advanced Driver Assistance System (ADAS)

# Smart driving security objectives

## Implementing security in connected vehicles

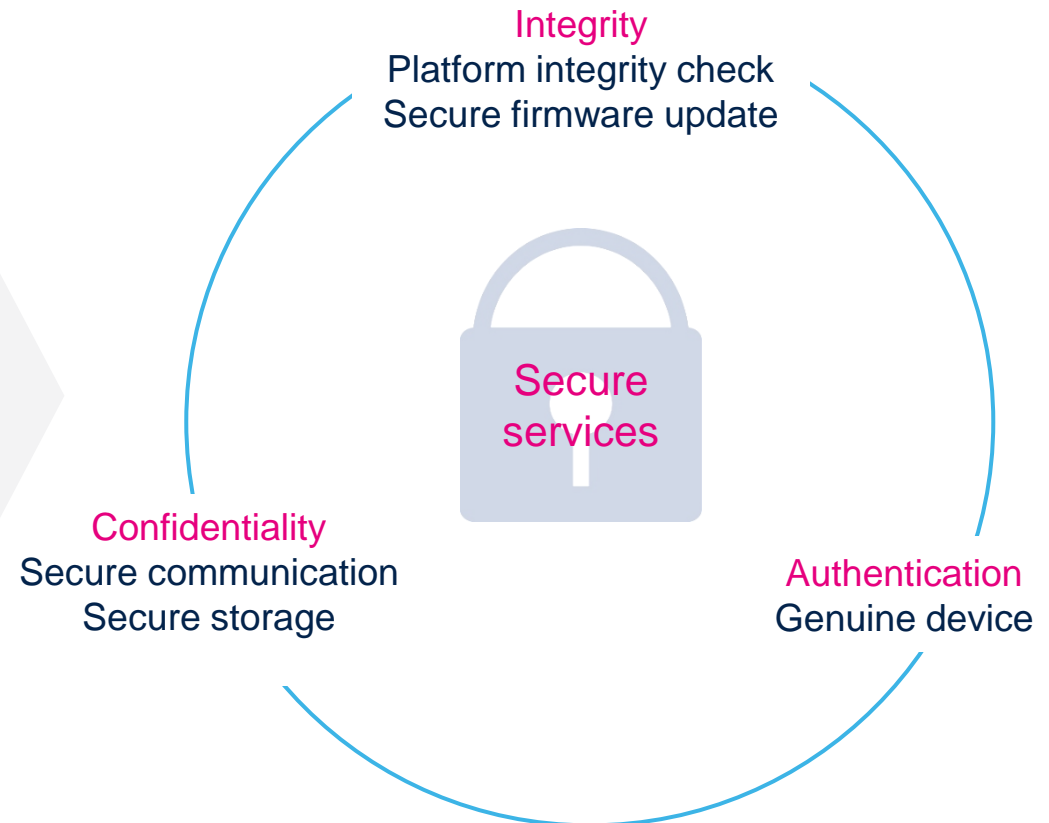
### Security Objectives

**Passenger safety**

Guarantee vehicle behavior  
(prevent device cloning, ensure device integrity)

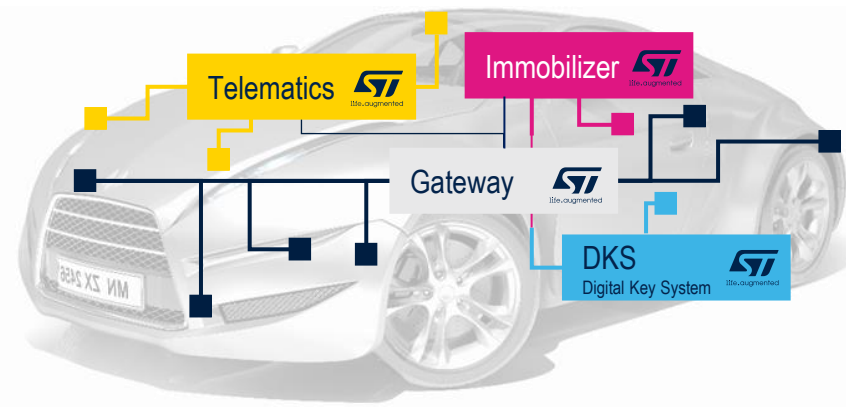
**Data privacy**

Guarantee sensitive data and keys are not manipulated  
(prevent data corruption or eavesdropping)



# ST33-A secure element

## CC EAL5+-certified eSE for Automotive applications



### Secure connectivity in telematics

- eCall
- Diagnostics
- Software upgrades (FOTA)
- Payment & internet services
- Real-time traffic information
- V2X

### In-car security and integrity

- Gateways
- Authentication units & immobilizer
- DKS: Digital Key Devices
- Sensor integrity : camera, radars

### eSE secure storage and services

- Secure boot
- EAL5+ secure storage of confidential data
- Cryptographic services
- EAL5+ Common Criteria

# ST33-A secure element benefits

ST33-A, a proven and deployed solution for secure car

## Proven

More than  
1Bu ST33 sold



## Selected

ST33-A adopted by  
Tier-One car makers



## Quality

10ppm target  
without wear leveling



## Certified

Common Criteria  
EAL5+



# End-to-end digital key system

## ST is everywhere to ensure Secure NFC Car Access



**ST54** combines an eSE and an NFC Controller in a Mobile Phone



**ST31** eSE enables NFC-A card emulation and energy harvesting

**In the digital key**



**ST25R3920** Automotive NFC Reader detects and communicates with the key

Information is transmitted to **STM8-A** Automotive MCU

**In the door-handle**



**SPC58** Automotive MCU receives information from the door-handle

**ST33-A** Secure Element authenticates the user to enable car access

**In the car**

# ST4SIM Overview

## Cellular connectivity solutions



Smart  
Driving

### **Crypto Advanced Secure (ST4SIM-110A)**

Built devices with advanced secure communication and large user memory size

### **GSMA Secure & Scalable (ST4SIM-200A)**

Offer solution GSMA certified, interoperable with best worldwide coverage

- Wide range SIM/eSIM solutions based on Cryptographic and GSMA SGP.02 configurations
- GSMA eSIM certified and interoperable with MNOs & Subscription Management platform
- Complete ecosystem with trusted partners for connectivity & Subscription Management Platform
- Automotive grade solutions (T° & reliability)
- Multiple packages format (MFF2, TSSOP20)



# Secure connectivity solution

## ST's eSIM solution strengthens its positioning in Automotive market

### Cellular Connectivity secure solution Leader

SIM / eSIM for consumer or IoT devices (GP / GSMA-certified)  
Proven field quality with more than 1.5 billion ST33 family cards deployed



### Strong reliability and security in Automotive markets

Automotive-grade qualification AEC-Q100 grade 2 [-40°C / +105°C]  
Certified Common Criteria solutions EAL5+



### State-of-the-art secure product

State-of-the-art, secure and flexible embedded OS (including certified cryptographic algorithms)  
Java Card applet development (Extended OS features and added services)  
Standard involvement (GSMA / SIMalliance / Global Platform / 3GPP / ETSI / Car Connectivity Consortium)



# Secure automotive takeaways



- Scalable ST security offers (from eHSM to certified secure element)
- Hardware and System-on-chip solution
- Complete cellular connectivity solution with trusted partners

# Thank you

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