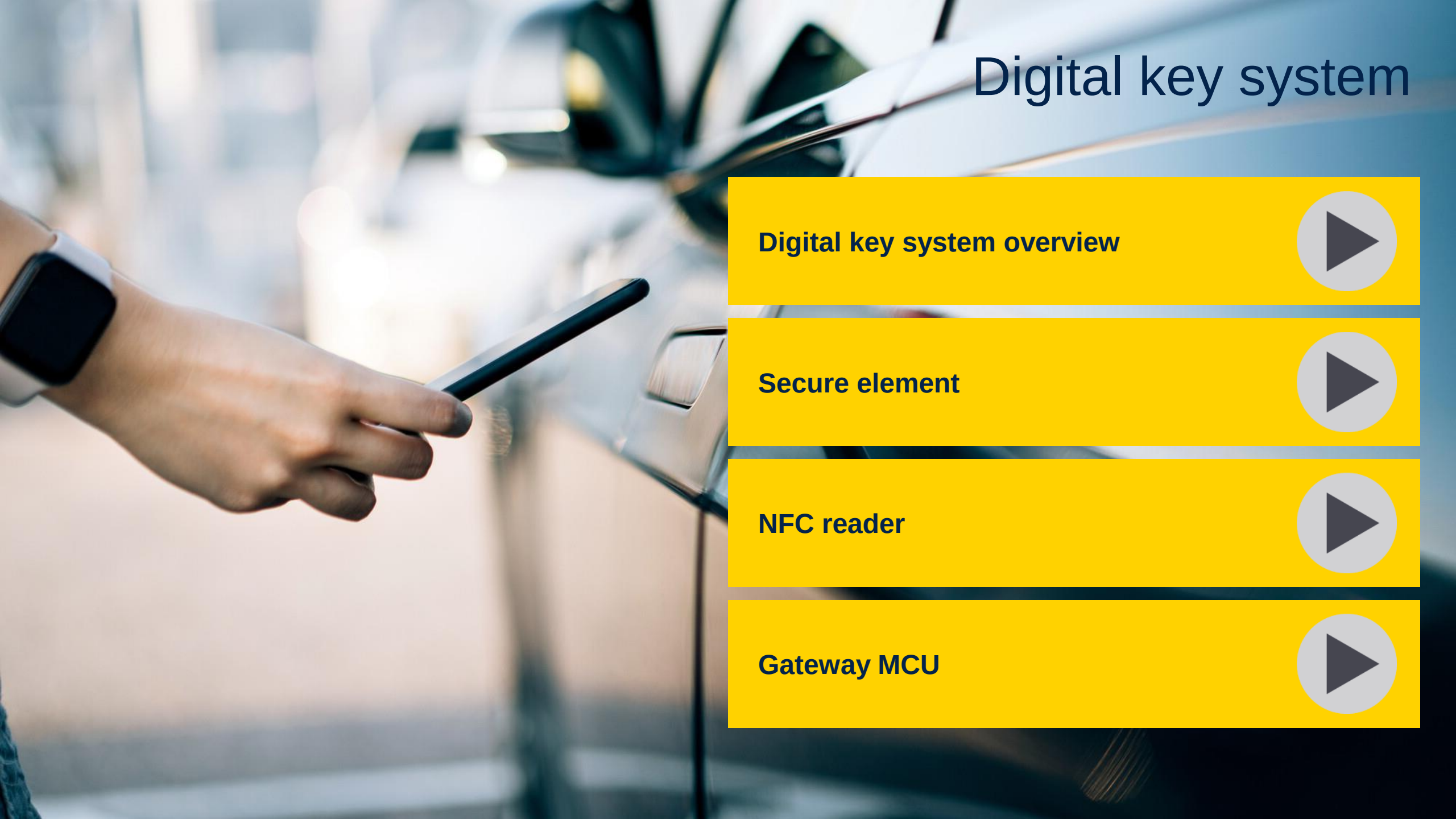

Digital key system

- Digital key system overview
- Secure element
- NFC reader
- Gateway MCU

Digital key system overview

A secure solution to access and start connected cars

Secure system level approach

Solution compliant with CCC R2 & R3

Seamless and flexible integration

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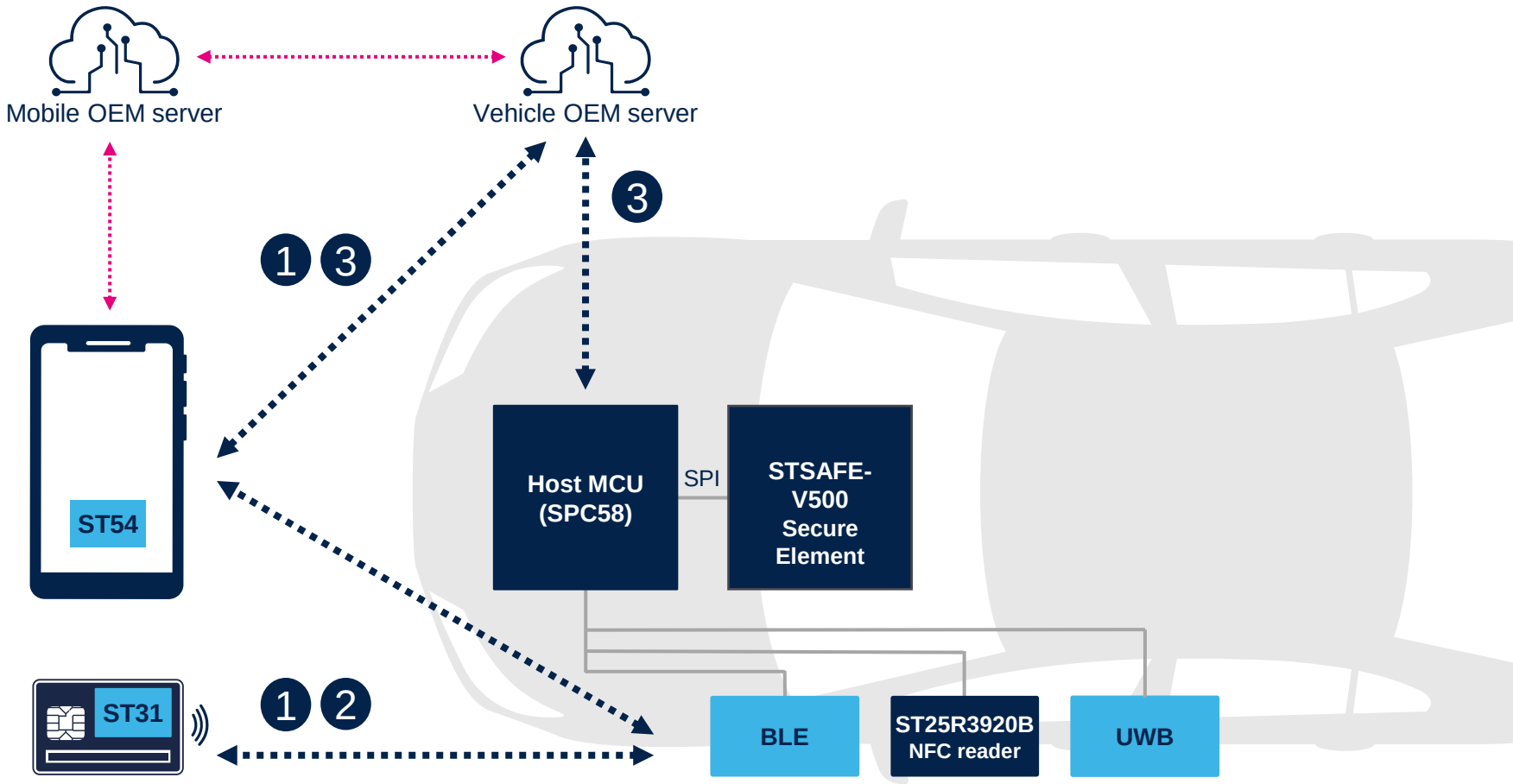
Digital key system overview

1. **Password management** for
   - Initial car access
   - Owner pairing
2. **Car access** with
   - UWB
   - BLE and NFC
3. **Key management**
   - Owner key sharing with family & friends



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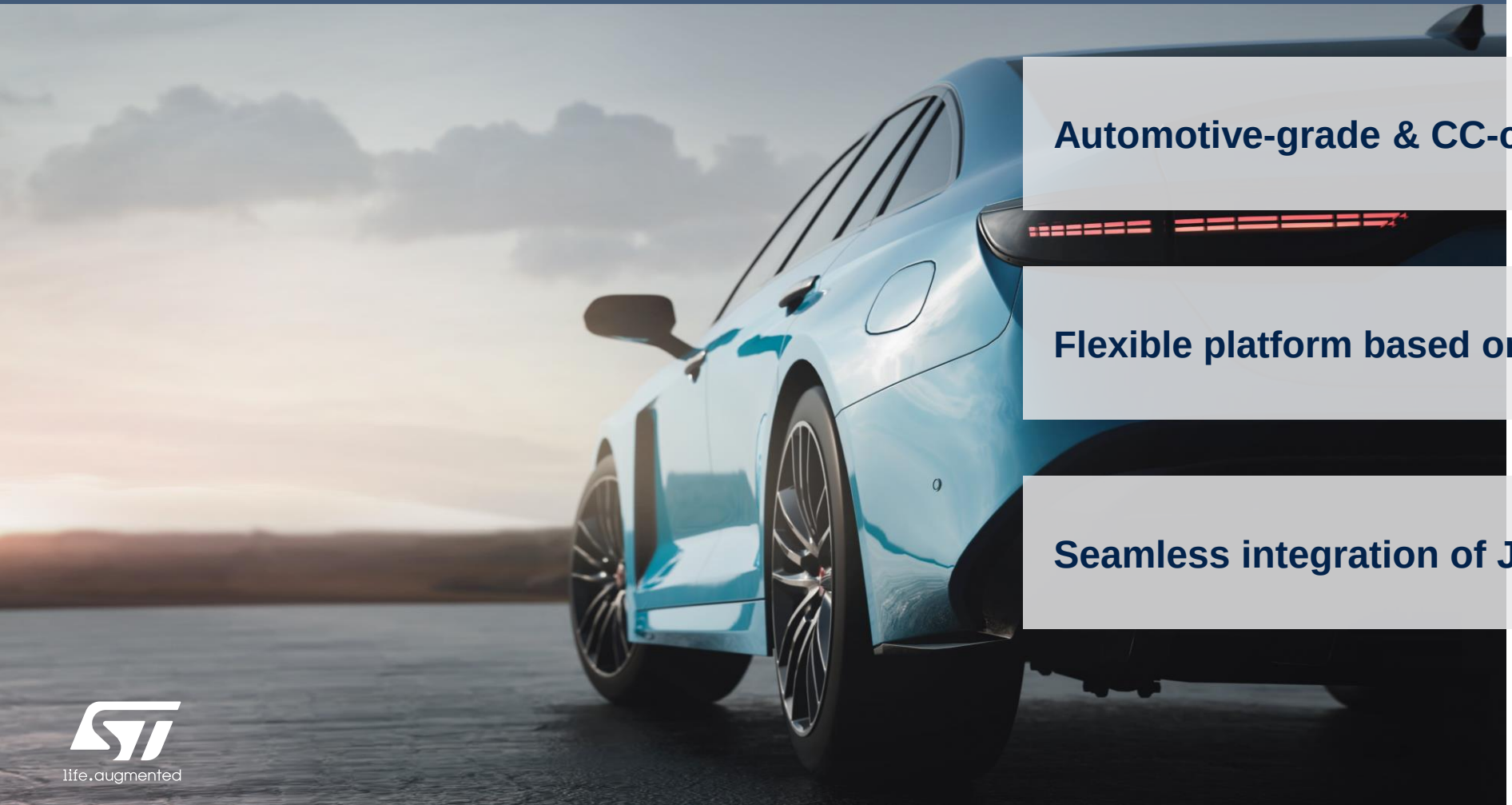
STSAFE-V500 secure element

A secure solution for multiple applications



- **Automotive-grade & CC-certified system-on-chip**
- **Flexible platform based on Open Java Card™ OS**
- **Seamless integration of Java Card applets**

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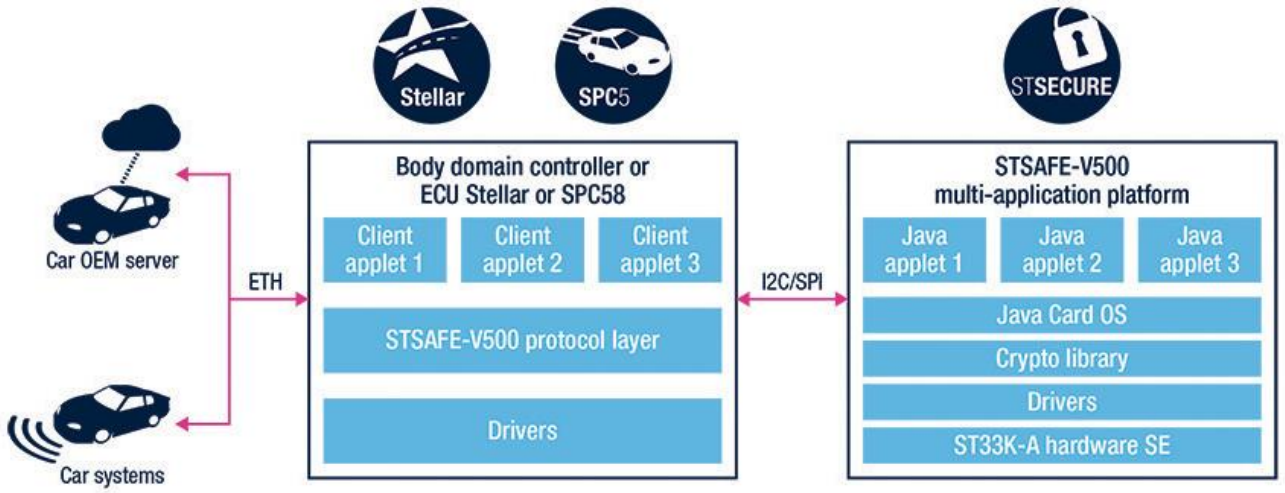
STSAFE-V500 for multiple applications
Digital key system & Qi charging

Open platform supporting multiple use cases



Java Card™ Open Platform

- Supports Java Card 3.0.5 classic edition
- Based on GlobalPlatform™ specification (version 2.3.0)
- Secure OTA SW update following SCP03 or SCP11.c protocol

Applications

- Supports integration of applets based on Java Card
  - Tamper-proof storage of credentials and sensitive data
  - Execute cryptographic operations required for use cases
- Supports all mandatory features for:
  - Digital Key (CCC R2 & R3)
  - Qi charging (WPC Qi 1.3 & Qi2)

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STSAFE-V500 for DK
Digital key system

CCC R2 and R3 specification compliant

A discrete eSE in the console

- Solution based on Java Card™ (3.0.5 classic edition, GP 2.3)
- Based on ST33K-A Hardware (AEC-Q100 Grade 2, certified CC EAL6+)
- Password verifiers and digital key secure storage
- Secure protocol for owner pairing
- Mutual authentication of car and phone

A scalable offer

- STSAFE-V500 : flexible Java Card Open Platform
- STSAFE-V500 for DK & Qi: turnkey solution with G+D DK Applet and ST Qi charging applet

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STSAFE-V500 for Qi Wireless device charging

WPC Qi 1.3 & Qi2 specification compliant

Highest level of security for Qi chargers in cars

- Solution based on Java Card™ (3.0.5 classic edition, GP 2.3)
- Based on ST33K-A Hardware (AEC-Q100 Grade 2, certified CC EAL6+)
- Secure authentication of the Qi charger by the phone
- Qi2 & Qi 1.3 secure authentication protocol supported
- Personalized certificate signed by Qi certificate authority

A scalable offer

- STSAFE-V500 for DK & Qi: turnkey solution with G+D DK Applet and ST Qi charging applet
- ST Qi Applet is an added function on top of Java Card OS

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ST25R3920B NFC reader

High NFC performance for an improved user experience

- Low-power key detection of mobile devices and cards
- Excellent customer experience due to large detection volume
- Fast time-to-market with CCC and NFC Forum compliant solution

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ST25R2930B overview

- NFC Forum CR13 CCC DK reader device
  - NFC-A, NFC-B (ISO14443A/B) & NFC-F for DK
  - NFC-V reader, P2P and CE mode for other applications
- EMVCo 3.1a for in car payment & EV charging
- **1.6W** output power with **dynamic power output**
- AEC-Q100 Grade 2: -40 to 105°C

Good range & user experience	Distinguish phone from NFC card	Noise immunity	Low power consumption
DPO & active waveshaping	**Heartbeat algorithm**	**Noise Suppression Receiver**	**Capacitive & Inductive Wakeup**
High output power Controlled Signal quality	Unique algorithm to distinguish phones from cards	Increased immunity to interference from noise sources	Increase battery lifetime during key detection

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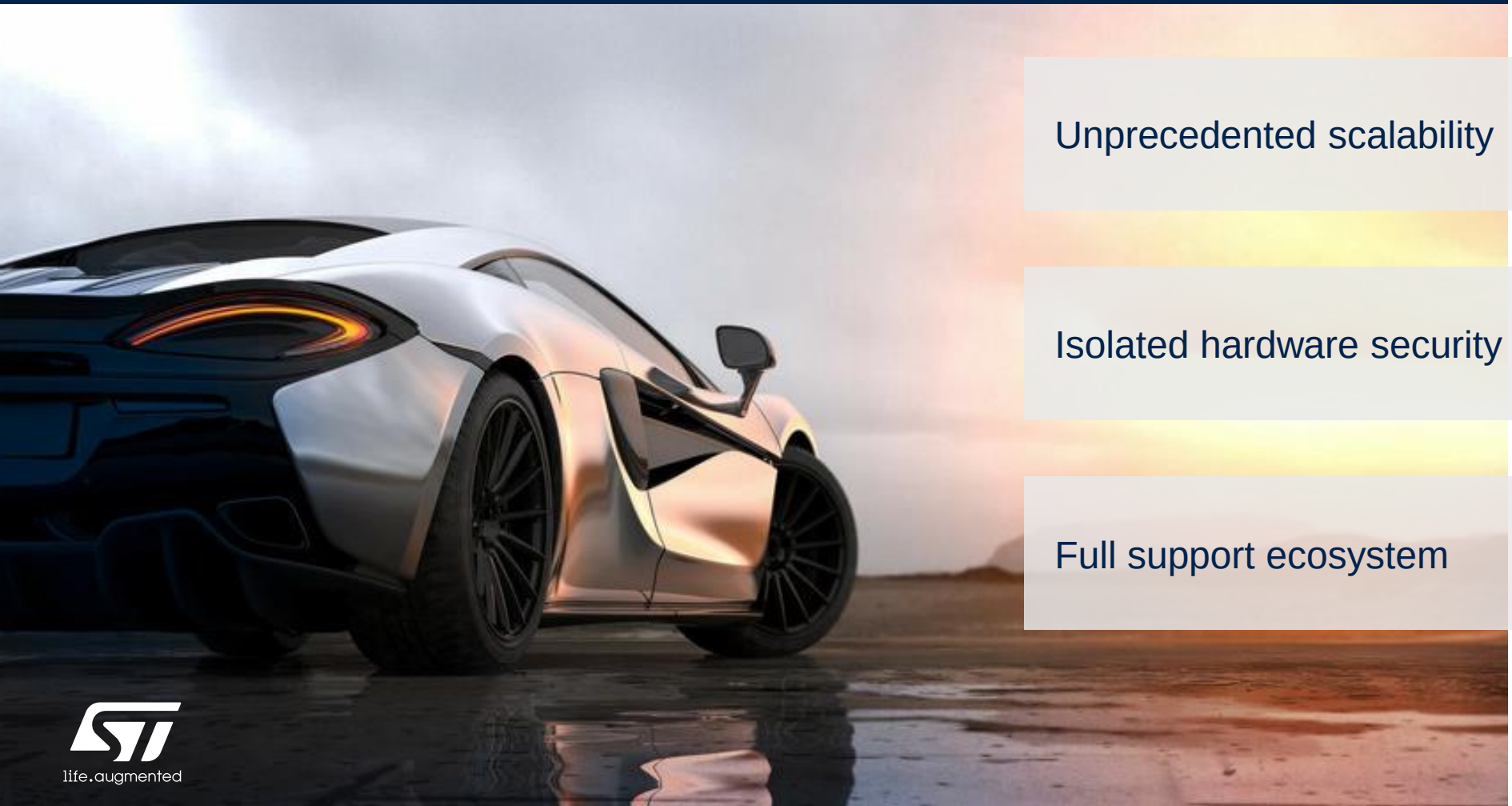
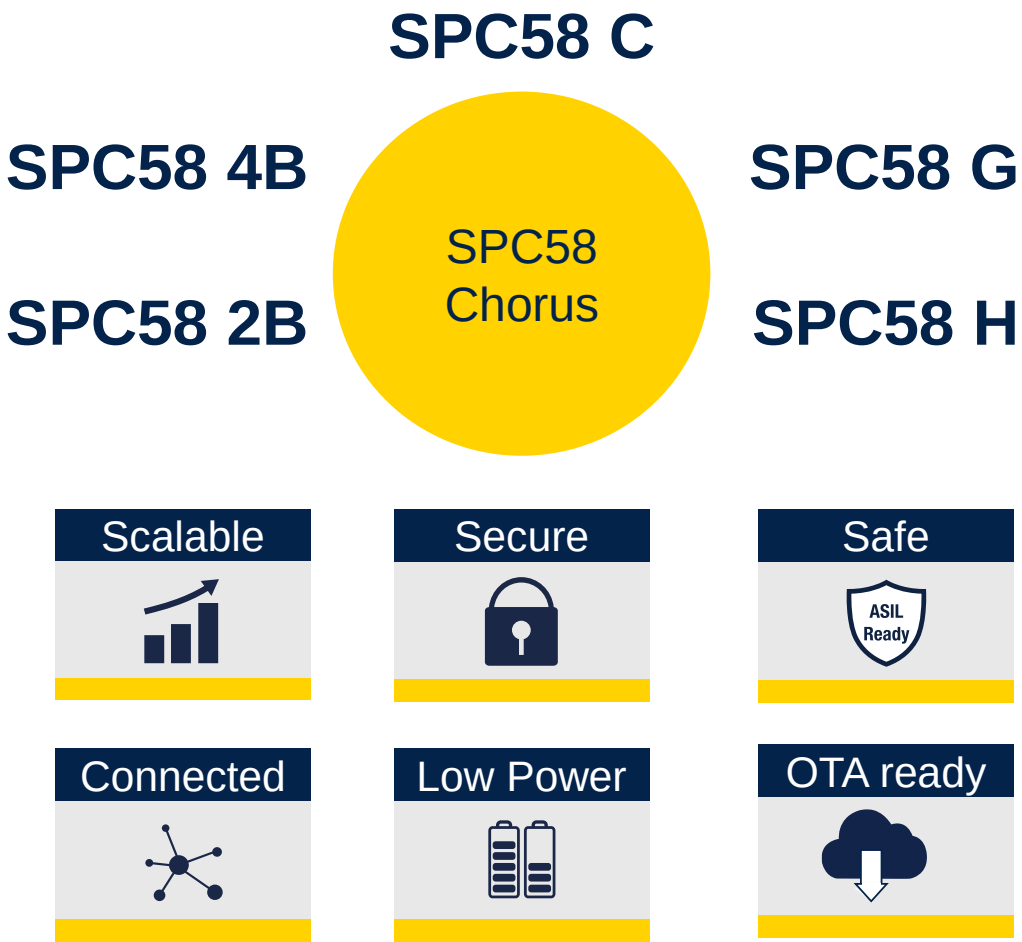
SPC58 gateway MCU

A wide range product family - SPC58 chorus



- Unprecedented scalability
- Isolated hardware security module
- Full support ecosystem

SPC58 automotive MCU



Unprecedent scalability

- From Single core 64Mhz up to Triple core 200MHz
- 512KFlash up to 10MFlash
- QFP64 up to BGA386

Isolated hardware security module

- Secure boot
- Crypto accelerator (symmetric and asymmetric algo)
- Evita Medium and Full

Full support ecosystem

- Dedicated SW packages for security

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