Mobile Knowledge

IoT and security

MobileKnowledge

MobileKnowledge is a team of HW, SW and system engineers, experts in **smart, connected and secure** technologies for the IoT world. We are your ideal **engineering consultant** for any specific support in connection with your **IoT** and **NFC** developments. We design and develop secure HW systems, embedded FW, mobile phone and secure cloud applications.

Our services include:

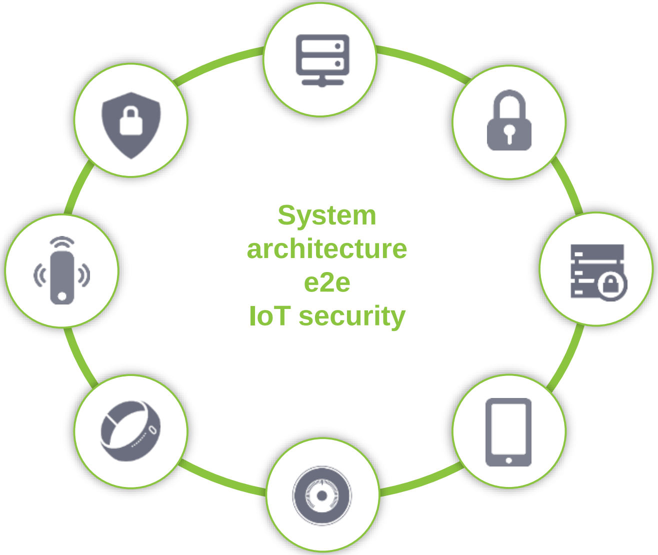
- **Secure hardware design**
- **Embedded software development**
- **NFC antenna design** and **evaluation**
- **NFC Wearable**
- **EMV L1 pre-certification support**
- **Mobile** and **cloud application development**
- **Secure e2e system design**

We help companies leverage the secure IoT revolution

MobileKnowledge

We are your ideal **engineering consultant** for any specific support in connection with your **IoT** developments, applications and related secure ecosystem.

We design and develop secure HW systems, embedded FW, mobile phone and secure cloud applications.



Secure cloud platform access

Server application development and maintenance

System architecture e2e IoT security

Secure hardware and software system design

Mobile application development and maintenance

Everything you need to build a trusted, future-proof, and robust solution

My IoT solution is secure

Internet of Things always requires an end-to-end security strategy

IoT is opening new business opportunities across nearly every sector, but when we multiply the connections between the physical world and the cyber world, we also multiply the risks.

We therefore need to:

- safeguard **integrity** of code running on devices.
- **authenticate** users and their devices.
- **protect** your system from cyber and physical attacks.
- protect the **privacy** of sensitive user data.

MobileKnowledge will help you choose the right **end-to-end security measures** tailored to your solution, at device, network and system levels, and in the most effective and efficient way.

Security needs to be built in from the start, with device and data security fully integrated to protect all IoT applications and solutions

Consider, for example, a factory floor where programmable logic controllers are used to operate robotic systems. Assuming the PLCs are integrated with the enterprise IT infrastructure, how can they receive security patches in a timely manner? And how can they be shielded from human interference?

Now imagine a smart meter that sends energy usage data to a utility operator for dynamic billing and real-time power grid optimization. How can both the meter and its data be protected from unauthorized access without hindering performance?

Mobile Knowledge

What security architecture do I need?

We provide a structured process for understanding your security needs and selecting your security strategy

A complete understanding of the application allows the user to **identify possible threats** and, therefore, decide on the **security measures** to incorporate.

Whether you want:

- to protect your brand and **ensure the authenticity** of each of the devices within the network.
- to ensure you have a **secure and trusted connection** to the backend.
- to protect the end consumer's **data privacy.**
- or to protect your system software from attackers by ensuring a **secure boot and secure update.**

Maintain full control of your solution when deployed in the field and avoid attackers damaging your business.

We will help you build a holistic security approach to your solution

1

Understand the solution and identify threats

2

Select the required security measures

3

Define the security strategy and how to implement the adopted measures

Usual security measures

Device origin and integrity
Ensure that the combination of HW/SW is kept under control of device manufacturer, avoid vulnerabilities in the field

Data security and integrity
Ensure that data in and out of the device is protected and kept unaltered

Secure OTA upgrade
Regular SW upgrades are reliable; upgrade device functionalities

Authentication:
Ensure that a "trusted" IoT network is established; only original devices work as expected, thus protecting revenues

Device life cycle management:
Full control on device status; prevent exploitation of decommissioned devices

User privacy protection:
Compliance with GDPR regulations; increased trust in IoT

IoT end-to-end security

MobileKnowledge services

Our services cover the **complete IoT ecosystem**, from hardware and embedded firmware-related services to mobile or cloud connection gateway solutions up to cloud services development or integration with existing platforms. Our holistic approach to security enables MobileKnowledge to address the complete end-to-end IoT ecosystem

Connected Devices / IOT

Make the appropriate decisions when designing the HW and the appropriate security architecture for your solution

- Support in the design of HW with secure elements or authentication ICs
- Support in the development and integration of FW/SW stacks for secure element and cloud connectivity technologies
- Expertise in hardware security, biometrics and sensors

NFC SE HOST CONN

Cloud connection & user experience (mobile/gateway)

Select the appropriate interfaces to interact with your IoT solution while ensuring the overall e2e security.

- Keep control and interact with your solution through a neat and simple user experience
- Development of mobile and PC applications to interact with your IoT devices (Android, iOS) and cloud services
- Commissioning and secure onboarding of IoT devices

Cloud services & platforms

Connect to the appropriate cloud base services for full control of the whole life cycle of your IoT solution.

- Ad-hoc cloud services to support your required use cases
- Server applications development and maintenance
- Support the life cycle management of IoT devices:
  - Secure credential provisioning and management
  - Secure OTA management of IoT devices

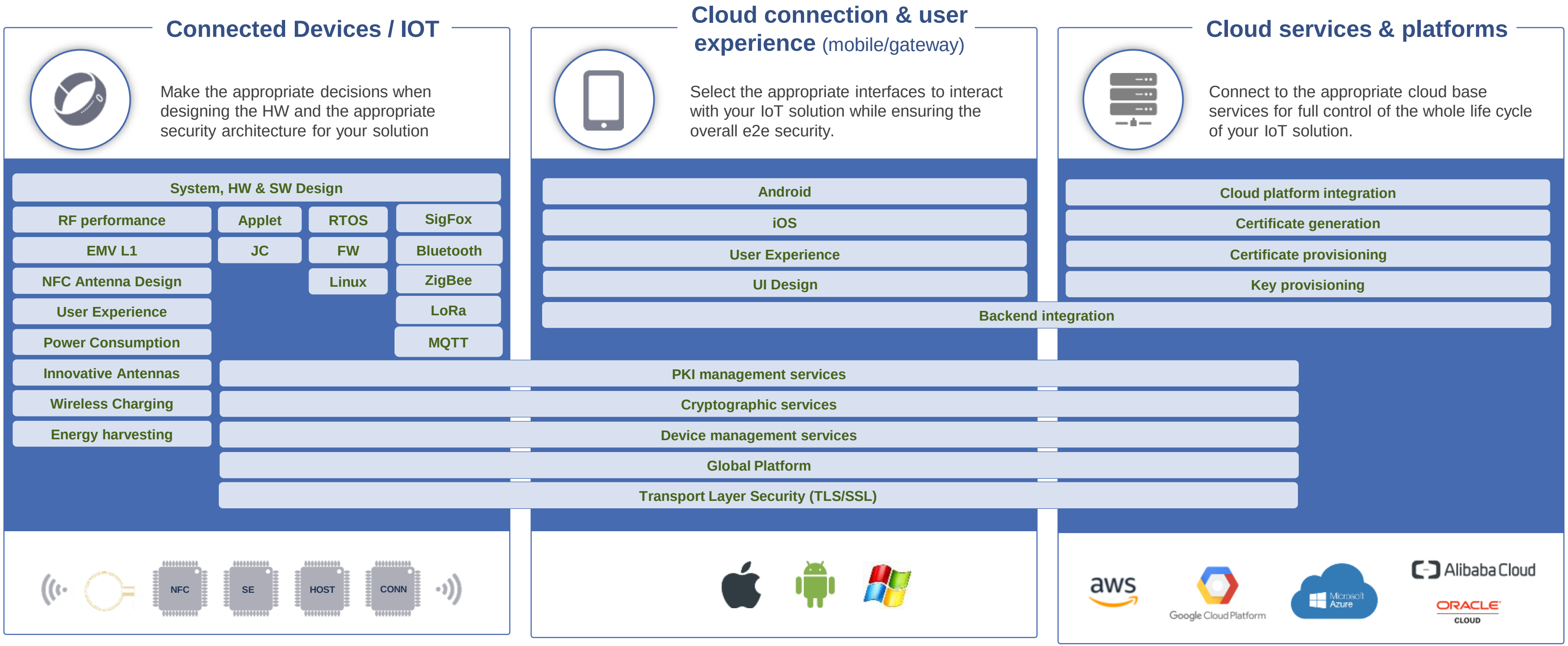
aws Google Cloud Platform Microsoft Azure Alibaba Cloud ORACLE CLOUD

e2e secure architecture design and consultancy
e2e user experience

IoT end-to-end security

MobileKnowledge competences

We offer you an "à la carte" set of engineering competences where you can find and select the support you need



Connected Devices / IOT

Make the appropriate decisions when designing the HW and the appropriate security architecture for your solution

- System, HW & SW Design
- RF performance
- EMV L1
- NFC Antenna Design
- User Experience
- Power Consumption
- Innovative Antennas
- Wireless Charging
- Energy harvesting
- Applet
- JC
- RTOS
- FW
- Linux
- SigFox
- Bluetooth
- ZigBee
- LoRa
- MQTT

Cloud connection & user experience (mobile/gateway)

Select the appropriate interfaces to interact with your IoT solution while ensuring the overall e2e security.

- Android
- iOS
- User Experience
- UI Design

Cloud services & platforms

Connect to the appropriate cloud base services for full control of the whole life cycle of your IoT solution.

- Cloud platform integration
- Certificate generation
- Certificate provisioning
- Key provisioning

Backend integration

PKI management services

Cryptographic services

Device management services

Global Platform

Transport Layer Security (TLS/SSL)

NFC end-to-end secure applications

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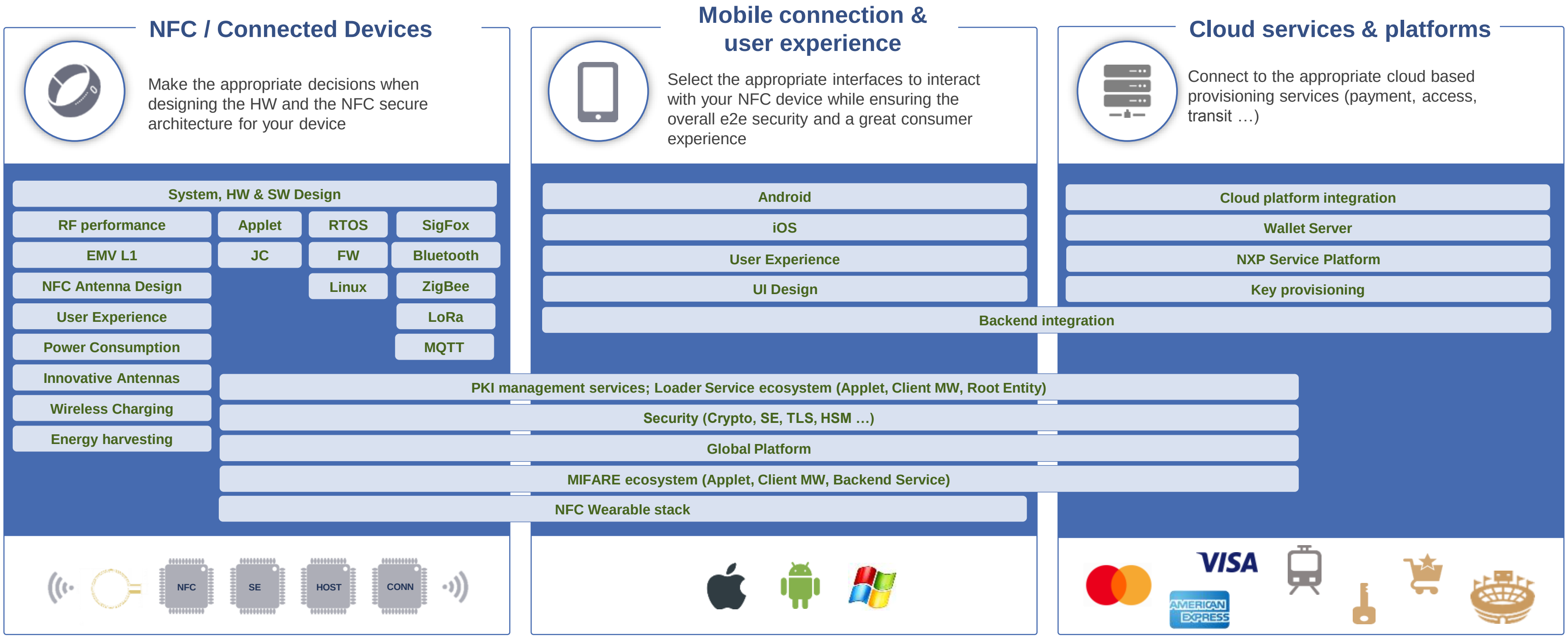

NFC / Connected Devices

Make the appropriate decisions when designing the HW and the NFC secure architecture for your device

Mobile connection & user experience

Select the appropriate interfaces to interact with your NFC device while ensuring the overall e2e security and a great consumer experience

Cloud services & platforms

Connect to the appropriate cloud based provisioning services (payment, access, transit …)

System, HW & SW Design

RF performance | Applet | RTOS | SigFox

EMV L1 | JC | FW | Bluetooth

NFC Antenna Design | Linux | ZigBee

User Experience | LoRa

Power Consumption | MQTT

Innovative Antennas

Wireless Charging

Energy harvesting

Android

iOS

User Experience

UI Design

Cloud platform integration

Wallet Server

NXP Service Platform

Key provisioning

Backend integration

PKI management services; Loader Service ecosystem (Applet, Client MW, Root Entity)

Security (Crypto, SE, TLS, HSM …)

Global Platform

MIFARE ecosystem (Applet, Client MW, Backend Service)

NFC Wearable stack

Mobile
Knowledge

MIFARE
Accredited Training Partner

Approved Engineering Consultant
NXP

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