

Smart meter security

Case study

How to protect AMI 2.0 cyber security threat

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June 2023



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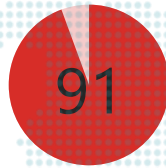
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Market Overview

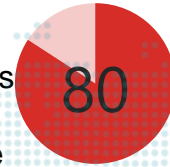
North America

Electric smart meter installations will reach 91% penetration by 2022



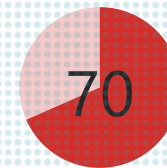
Europe

The EU smart metering policy calls for 80% of households to have smart electric meters installed by 2020



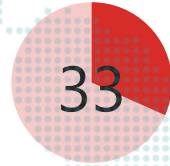
Asia

Driven primarily by China, the forecast penetration rate in Asia Pacific will reach nearly 70% by 2020



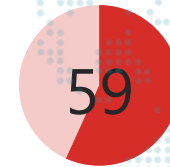
South America

Electric smart meter installations will reach 33% penetration by 2022



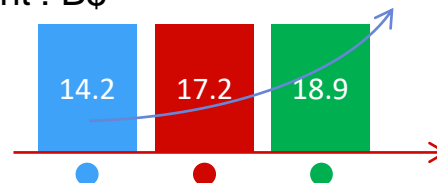
Oceania

The Global smart meter installations will reach 59% penetration rate by 2020.

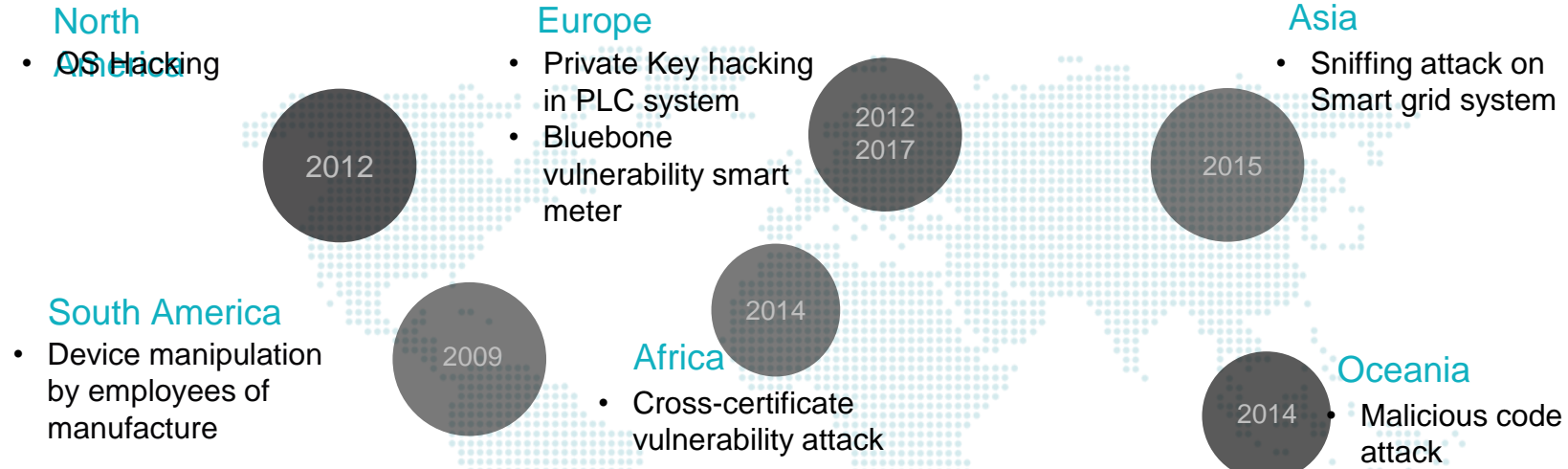


Global Smart Meter installation

Estimated Total investment : B\$

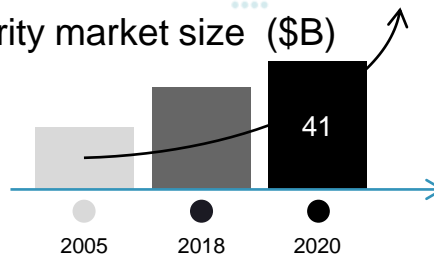


Threats of security



Global AMI Cyber Attack

Estimated Total IoT security market size (\$B)



| Challenges

1.

Long Business Cycle

2.

Security Regulation

3.

No security expert in device manufacture

- Long development and sales cycle
- The high-cost system integration fee.
- No industry-specific security regulations. It makes the clients to hesitate to adopt security solution.
- The absence of security experts. Hardware manufacture of IoT device in the industry has no resource to implement the security application.

CASE STUDY

KEPCO Smart meter 2.0



Project Overview

Company profile

- Korea Electronic Power Corporation
- Assets: KRW 181.7 trillion
- Sales revenue: KRW 59.8 trillion
- Employee: 22,196
- Listed Korea Exchange (1989) and New York Stock Exchange (1994)

Project overview

- Total secure advanced smart meter replacement:
35,000,000 for 7 years
- Security functions
- Pilot project start from **2022**



Key to success

- Pass **crypto module validation program** (Korea standard)
- IoT device security functions
- **Cost-effectiveness MCU** based hardware design

Project history

2019

AMI 1.0

- Remote metering system only

2020~2021

AMI 1.5

- RTOS
- Security functions. Data encryption, Key management. KCMVP SE(Secure Element).
- Firmware upgrade functions.
- Diverse communication network support. CAN, RS485, Wi-SUN
- IEC 62056-6-2, Ed3.0 - DLMS/COSEM Interface Objects

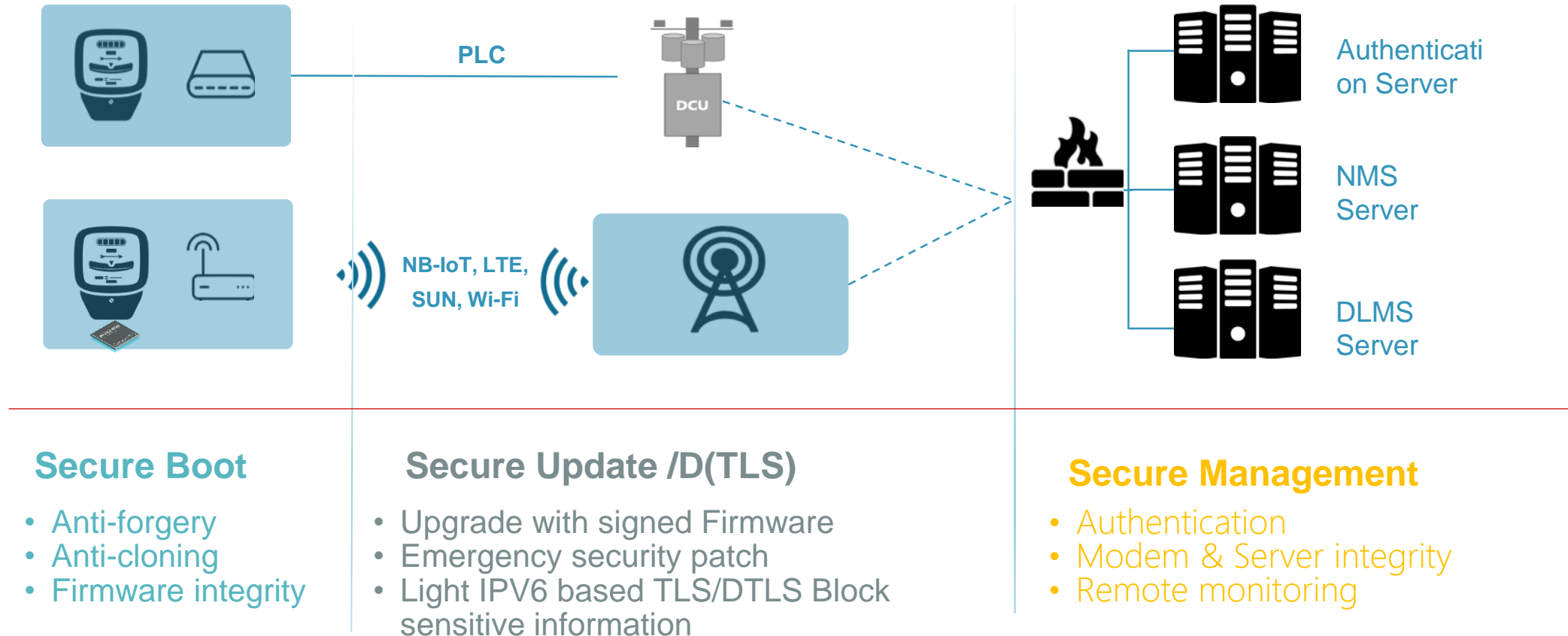
2022~

AMI 2.0

- Security enhancement.
 - Secure boot/ Secure update/Attestation
 - KCMVP certified MCU
- Meter, Modem unified model .
- Diverse communication network support. LTE Cat M1, NB IoT



Security Requirement



| SPI trusted SDK solution for the project

Hardware

- KEPCO standard smart meter testing pcb board
- Nuvoton M2354
- Keypair SE (For AMI 1.5 version only)

Software

- Network communication
- PSA certified RTOS
- Firmware
- Security
- Hardware system integration

Certificate

PSA



psacertified™

FIPS 140-2



KCMVP
(KOREA)



| Our Benefit

1. HIGH ASSURANCE END TO END SECURITY SOLUTIONS FOR AMI

- Embedded hardware-integrated security solution. High performance. High level of security.
- Full function coverages. Secure Device, Data, Communication.

2. APPLICABLE INDUSTRY STANDARD SOLUTION

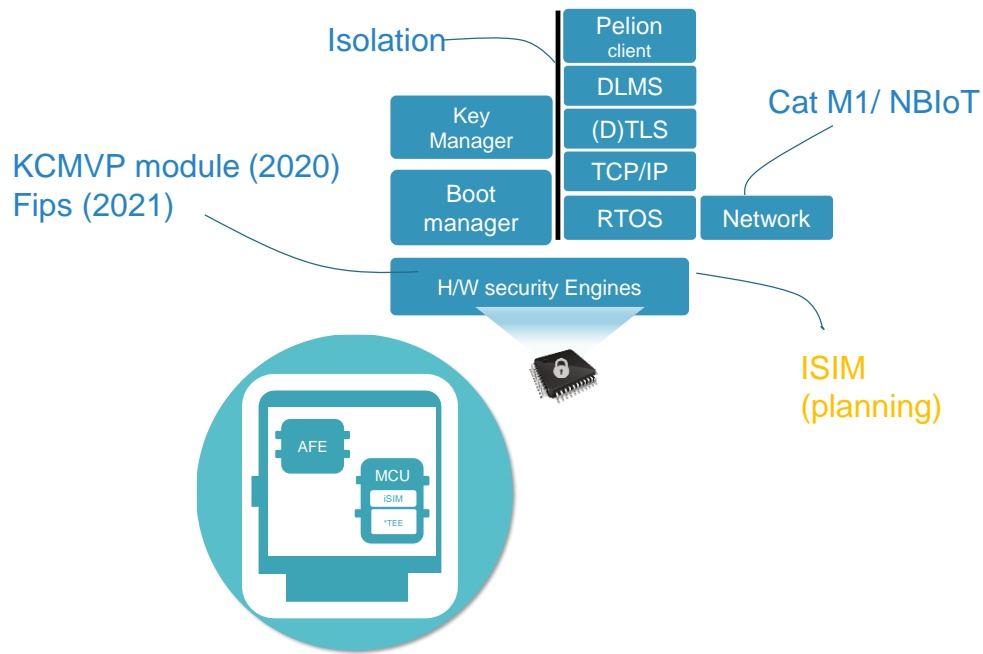
- Certified solution. Industry regulation, validation program for global users.
- Meet industry standard network and telecommunication infrastructure.

3. EASILY APPLIED SERVICE

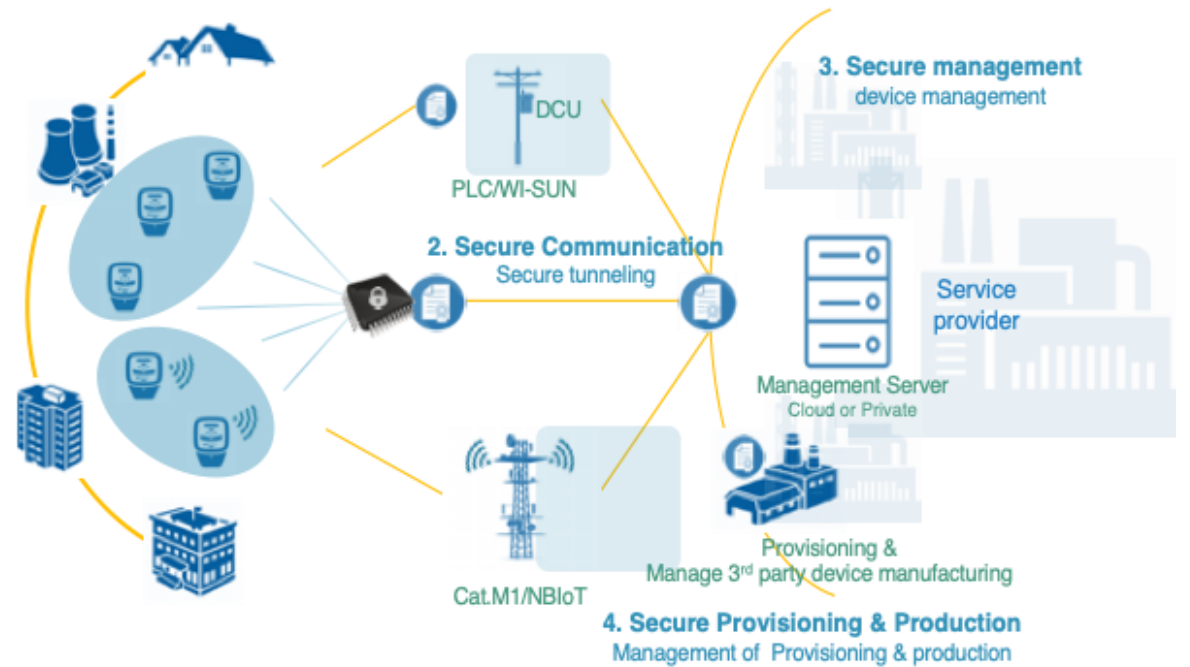
- The platform and service to help apply standards and service process of AMI requirements to clients infrastructures.
- Valued -pricing strategy to help adapt the solution in the client's different step of AMI service without cost risk.

Solution architecture

Architecture



Network



| SPI Product

2019

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Smart meter
AMI 1.5

2021

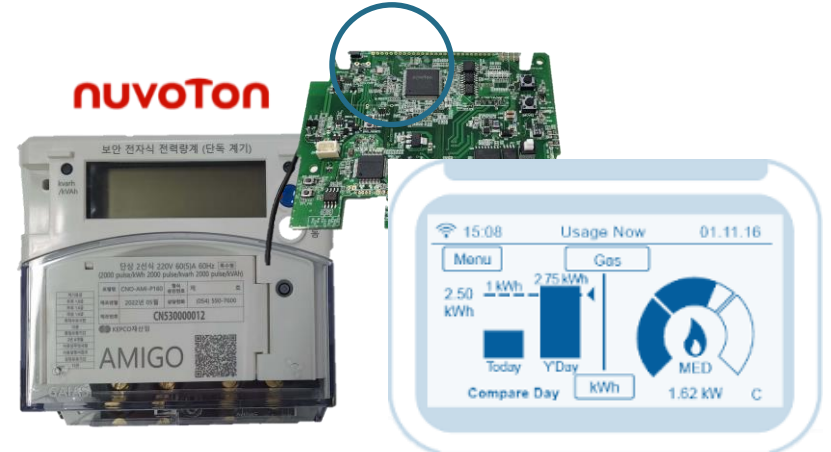
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Modem for Smart meter

2022

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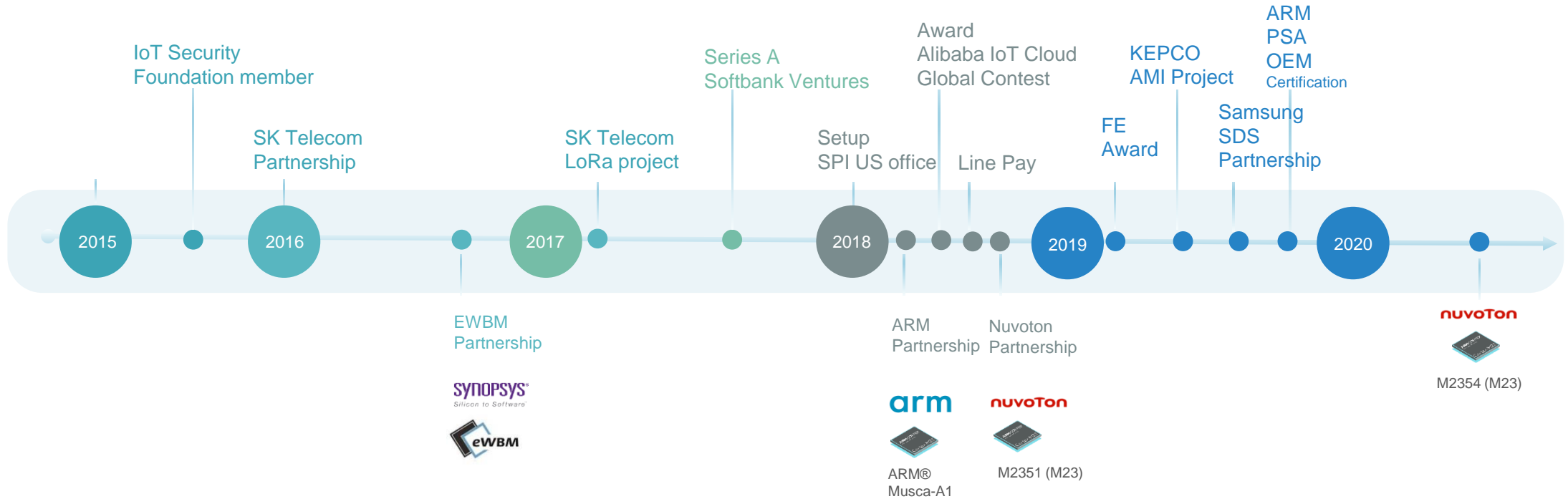
Security Smart meter
AMI 2.0

Company Overview

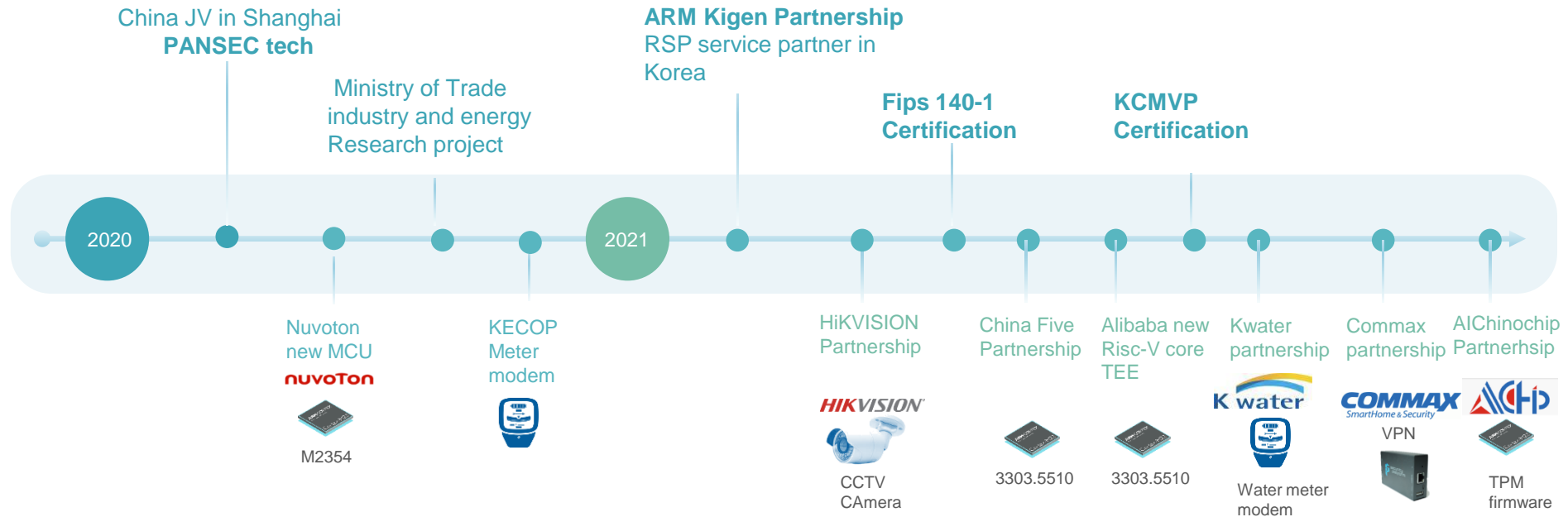
Security Platform Inc.



SPI Company history



SPI Company history



| Team

Team

Average 15 years security and system development experience
Global business experiences
Softbank, Premier Partners



Management



Suik Hwang

- CEO/CISSP
- Samsung electronics ('93-'95)
- Samsung Motors ('95-'99)
- Secui ('00-'15')



Kyungmo Kim

- CTO
- Samsung Electronics('98-'2001)
- Secui (2003-2015)



Dongsoon Hwang

- SVP/CISSP
- Gemalto/GVP/APAC for (2002-2015)
- SafeNet /GVP



Konsik Lee

- R&D Leader
- Samsung Electronic semiconductor(1988-1991)
- Samsung SDS('91-'97)
- Samsung Electronic('97-99)
- Spearnnet CEO

Applications

<p>AMI 2.0 Secure Smart meter & Modem card</p>		<p>VPN Surveillance & Home automation</p>	
	<p>POS Digital payment</p>		<p>IoT Portal LoRa, NBloT, Cat M1</p>
<p>TCS Secure sensor and IoT device for train</p>		<p>Memory Secure flash memory for MCU</p>	

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谢谢

謝謝

Děkuji

Bedankt

Thank you

Kiitos

Merci

Danke

Grazie

ありがとう

감사합니다

Dziękujemy

Obrigado

Спасибо

Gracias

Teşekkür ederim

Cảm ơn