2nd SIP-adus Workshop on
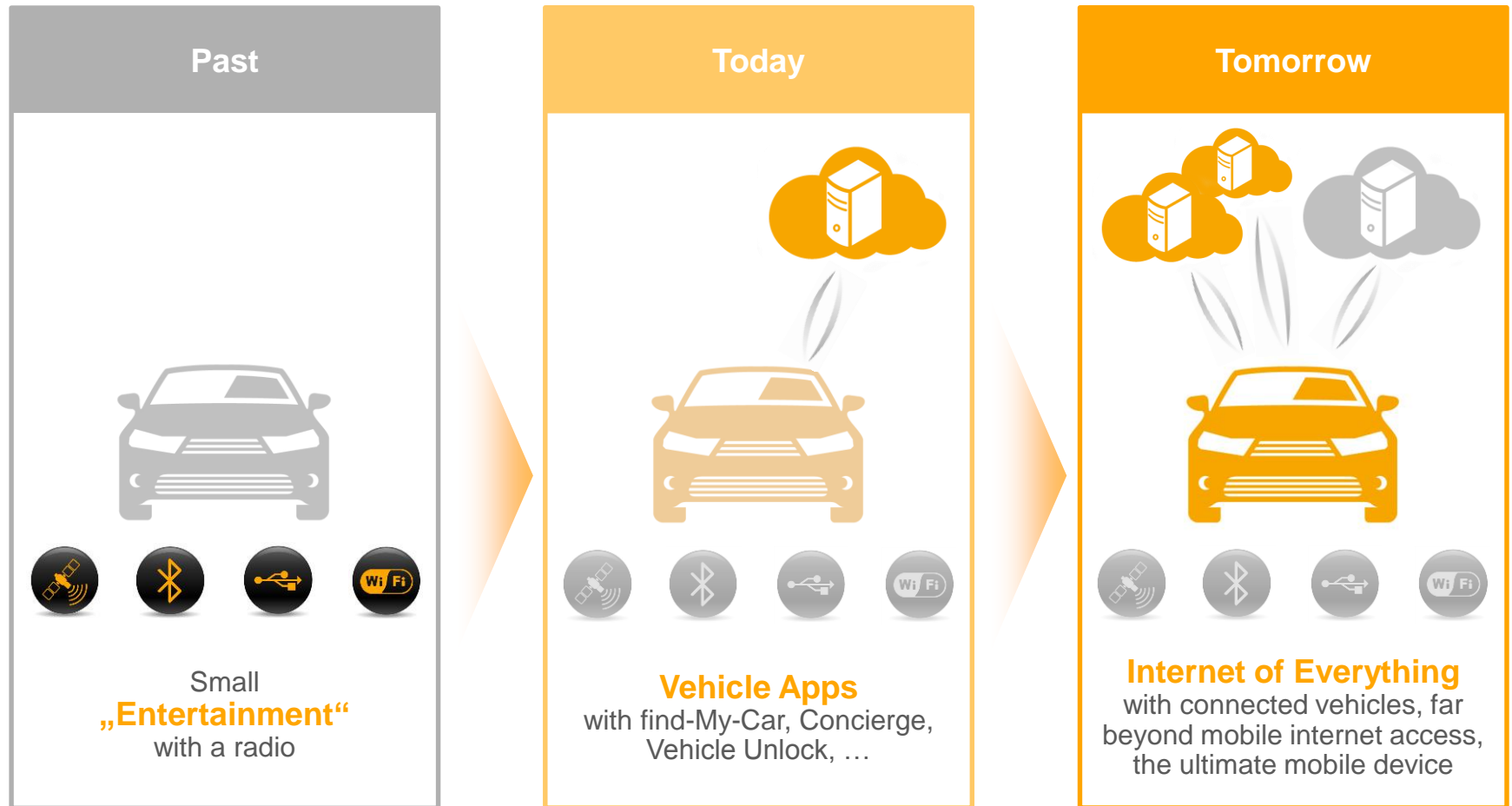**Connected and Automated Driving Systems 2015**

Automotive Security for V2X and ITS

Tokyo International Exchange Center, October 27th 2015

Stefan Roemmele, Head of Security and Privacy Competence Center

Past – today – tomorrow
Changes in automotive business

Past

Small
„Entertainment"
with a radio

Today

Vehicle Apps
with find-My-Car, Concierge,
Vehicle Unlock, …

Tomorrow

Internet of Everything
with connected vehicles, far
beyond mobile internet access,
the ultimate mobile device

Digital Certificates …

… are he foundation for trust

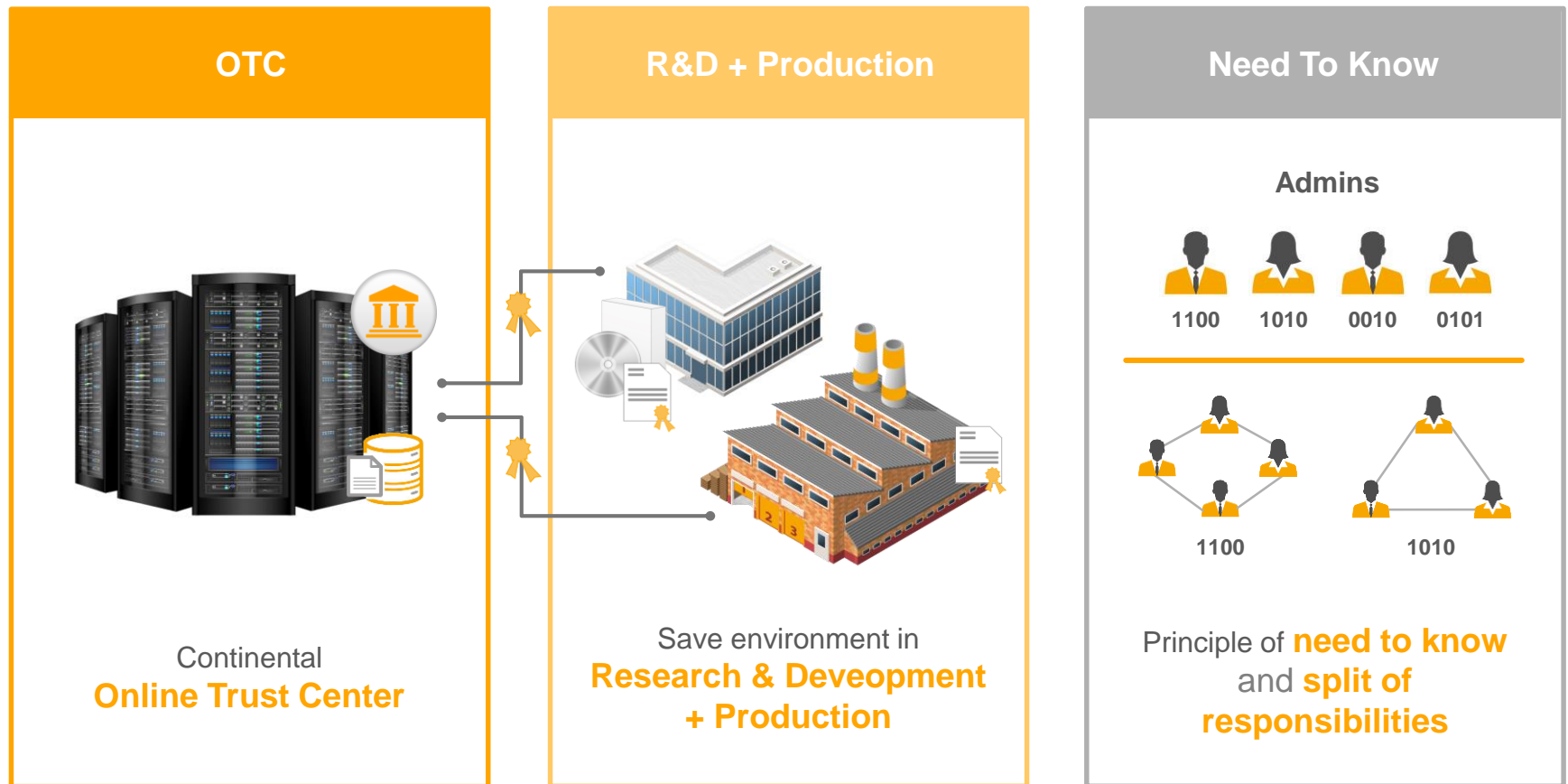|	
Communication	**SECURE**
	› In-vehicle components
	› Car2X
Storage	**SECURE**
	› Storage for certificates
	› Storage for secrets, to access devices
Assets & Processes	**PROTECT**
	› Software, OTA* software update
	› Boot process, flashing process & debugging
Access	**PROTECT**
	› Authorized usage
	› Release of new functionality
Privacy	**PROTECT**
	› Anonymity & pseudonymity
	› Unobservability & unlinkability

* Over-The-Air

Cntinental

2010 – 2020 – 2030
Changes in the next decades and the overall state of the art

2010 company	Today company	Tomorrow national
Certificate for **signature**	Online Trust Center — Root CA* — Key Management — Certificates from a **company CA*** with root	… Japan … EU … — Certificates from a company CA derived from a **national root***
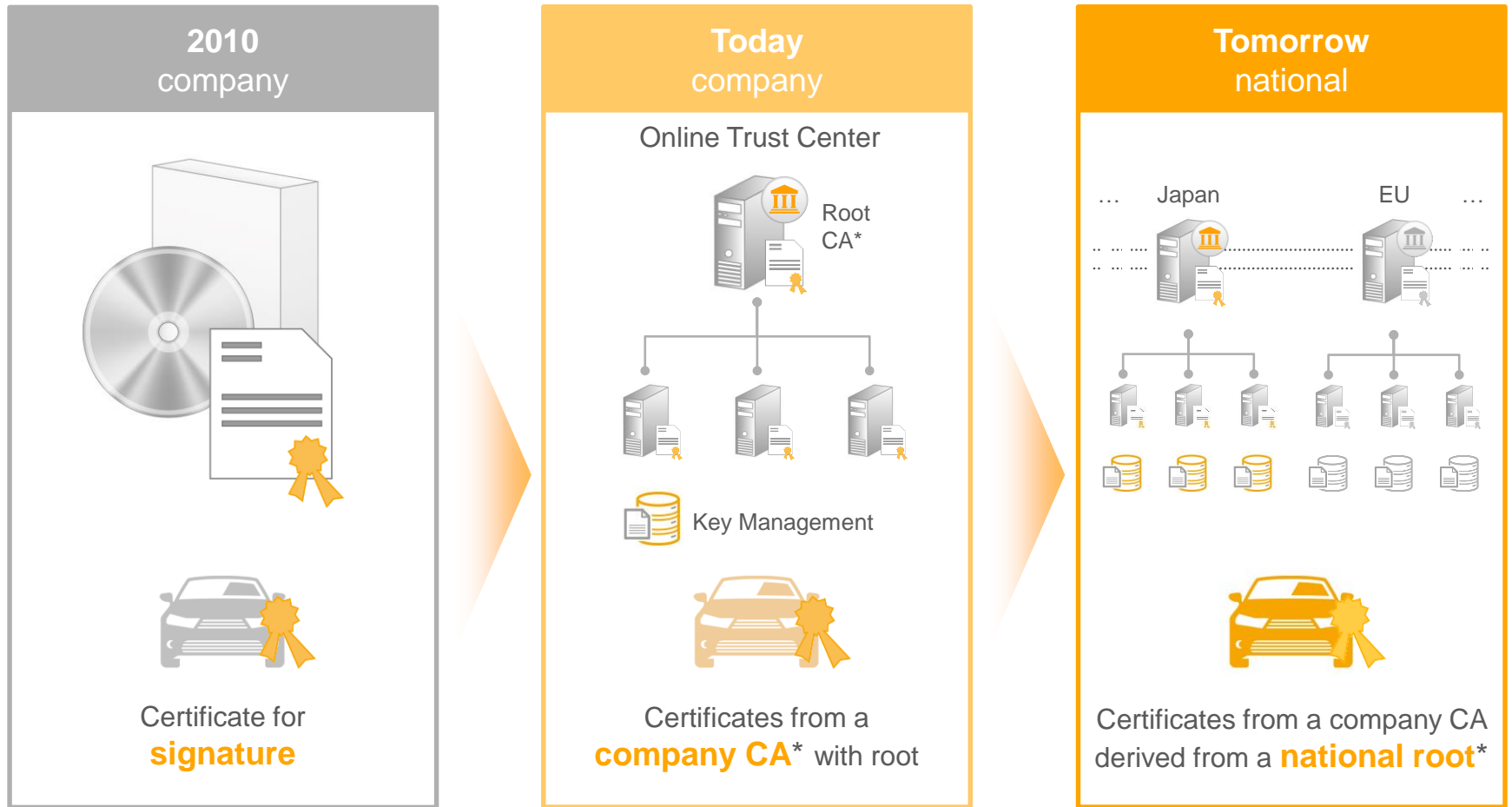
* Certification Authority

Today: **Continental insights**
Continental has know-how and experience

OTC

Continental
Online Trust Center

R&D + Production

Save environment in
**Research & Deveopment
+ Production**

Need To Know

Admins

1100　1010　0010　0101

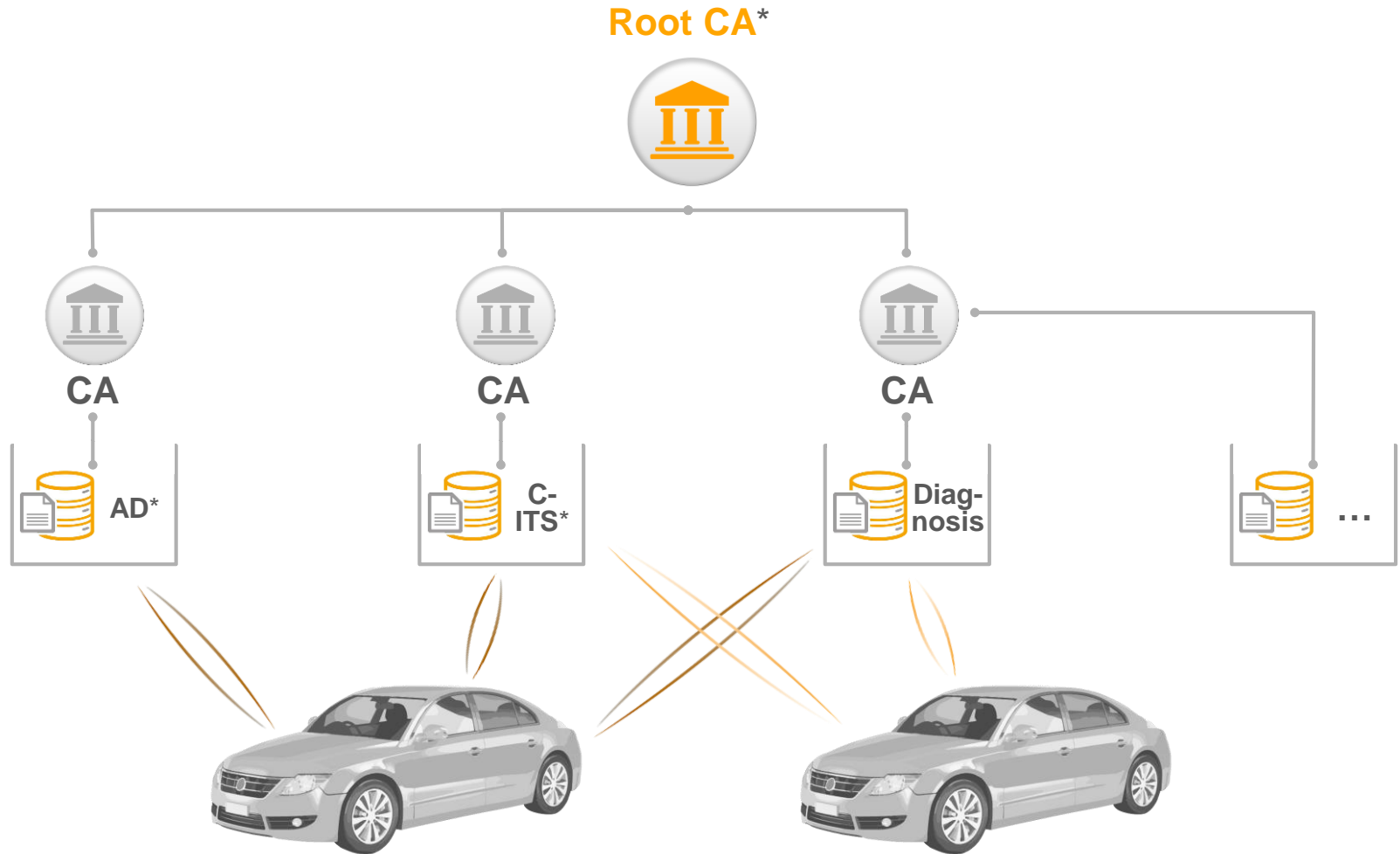1100　　　　1010

Principle of **need to know**
and **split of
responsibilities**

Near Future: **Trust is very important for the automotive branch**
Automated Drive and Cooperative-ITS demand trust

Online Trust Center

Backend

A

B
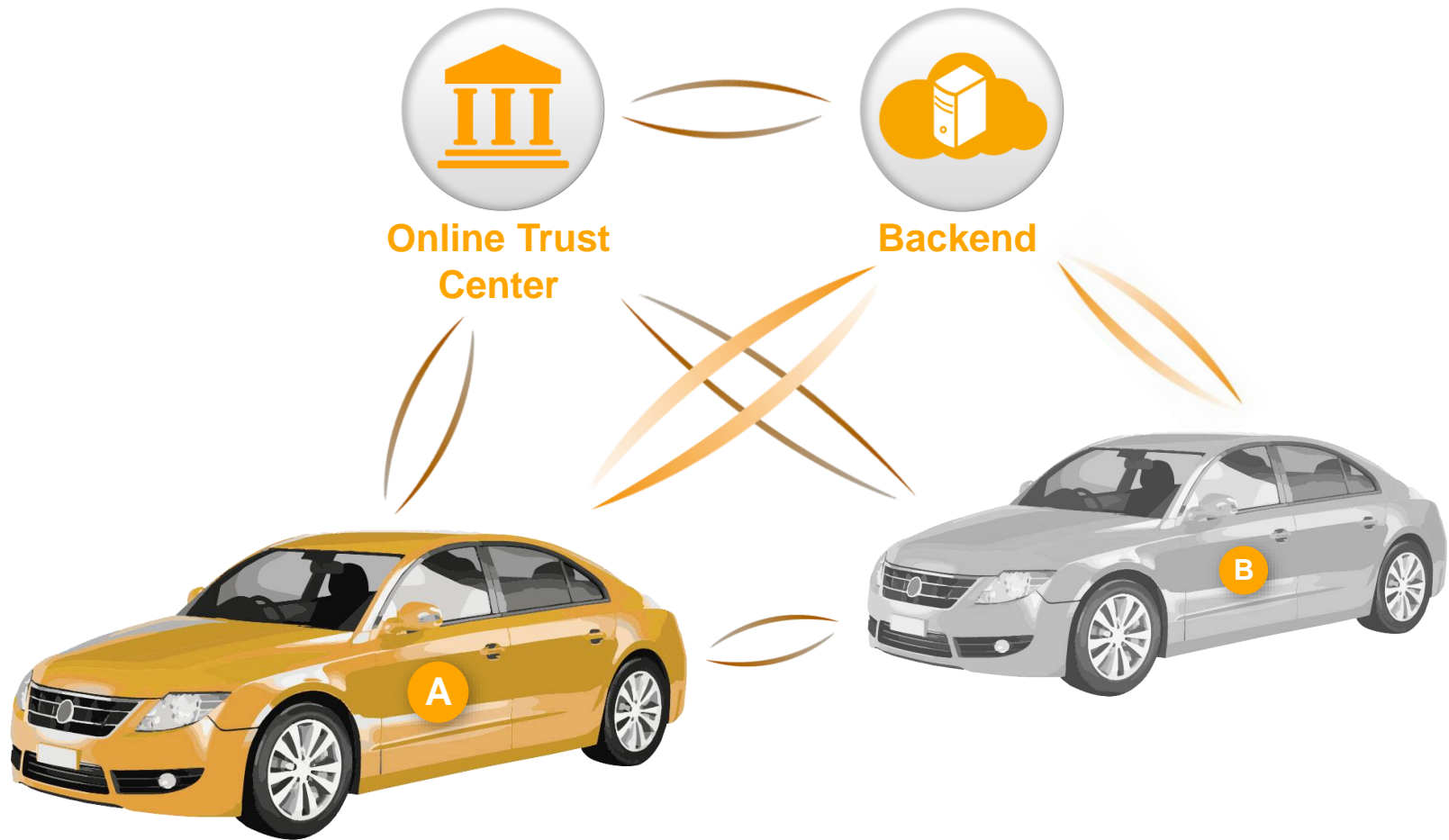
Digital Certificates
Creating trust
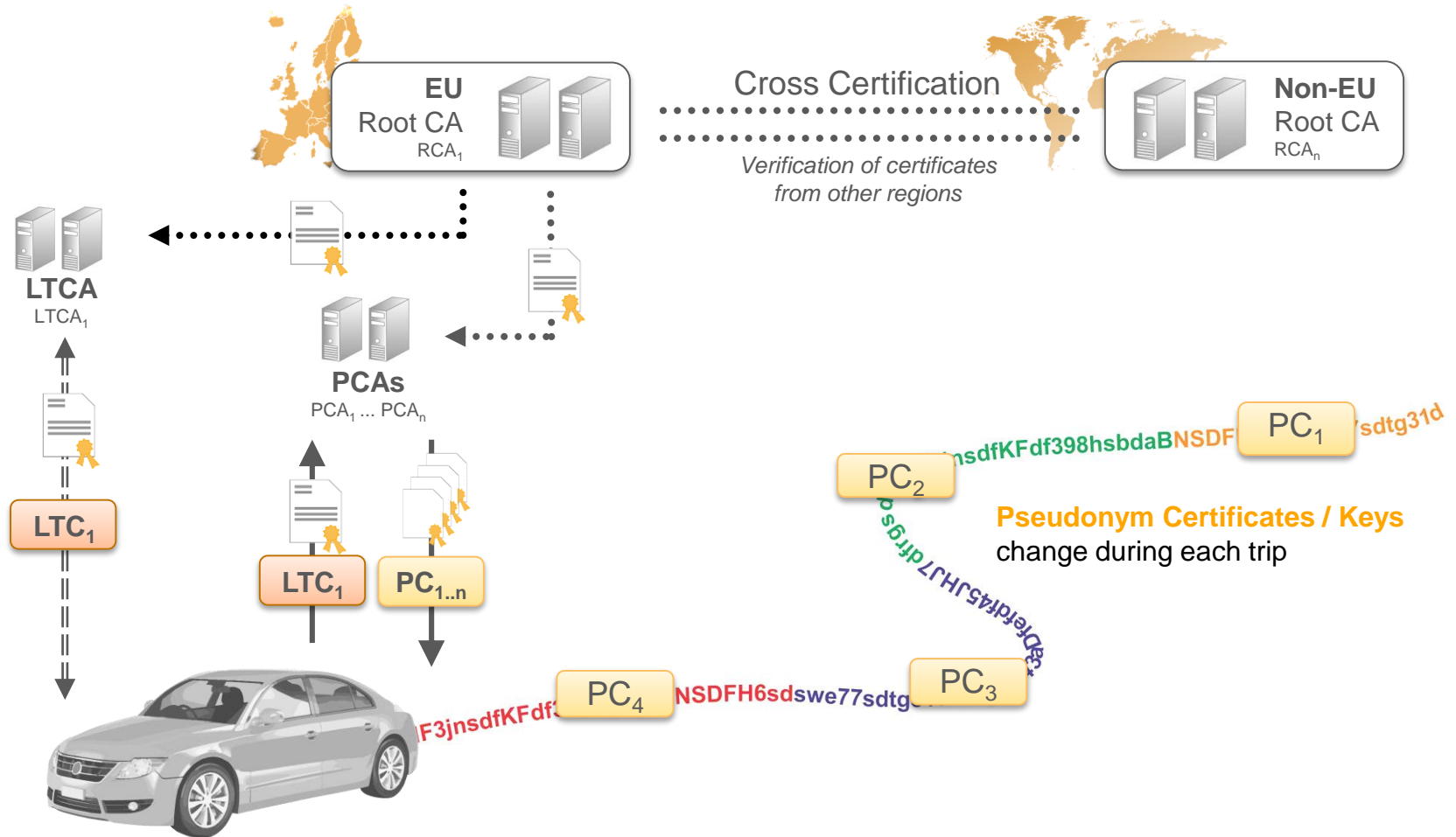

Root CA*

CA

CA

CA

AD*

C-ITS*

Diag-nosis

...

* **AD:** Automated Driving | **C-ITS:** Cooperative Intelligent Transportation System | **CA:** Certification Authority
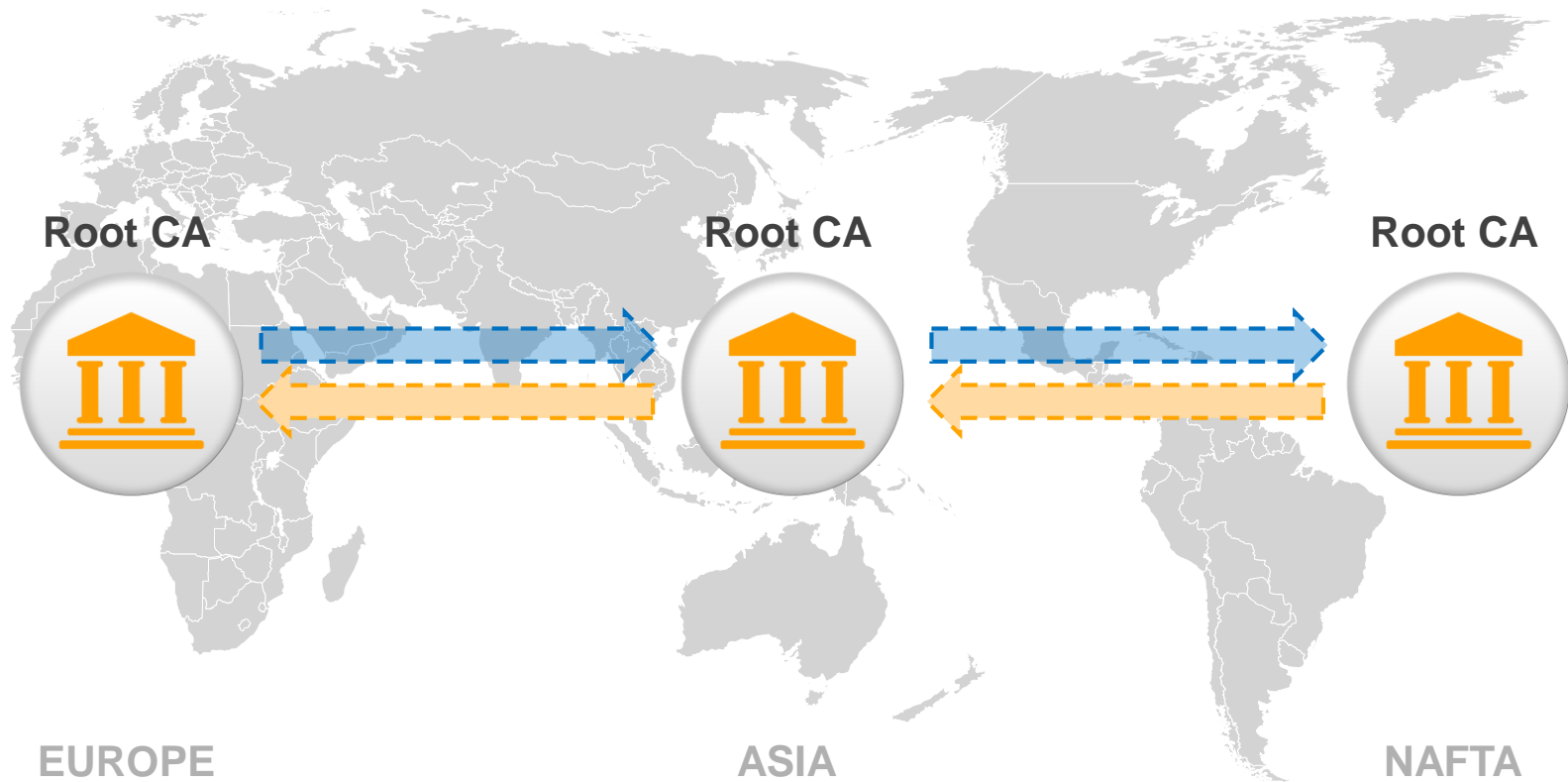
Trust Center Strategy (example EU V2X)
Key Initiative: One root regarding Certification

LTC: Long Term Certificate | **PC**: Pseudonym Certificate | **LTCA:** Long Term Certification Authority | **PCA:** Pseudonym Certification Authority

Approach / recommendation
Establish regional roots with a worldwide cross-certification

Create trust for technologies and services worldwide
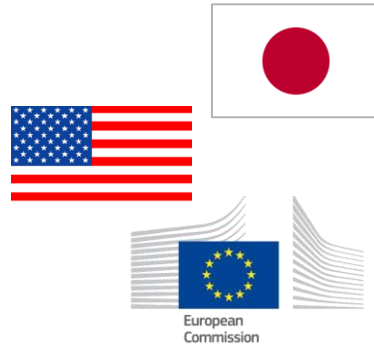
Outlook and next steps
Enabling cross-certification worldwide

Workshop	**Japan/EC/USA**	**Know-how**	**...**

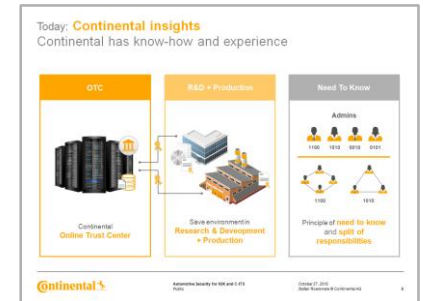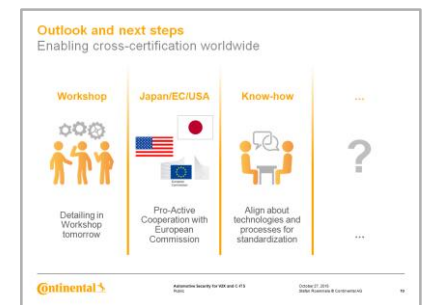| Detailing in workshop tomorrow	Pro-Active Cooperation with European Commission	Align about technologies and processes for standardization	...

Outlook and next steps for Automotive Security
Enabling cross-certification worldwide

▶ **Cooperative services from multiple suppliers require trust**

▶ **National root CA demand cross certification to generate interoperability**

Cntinental

ありがとう

Thank you!