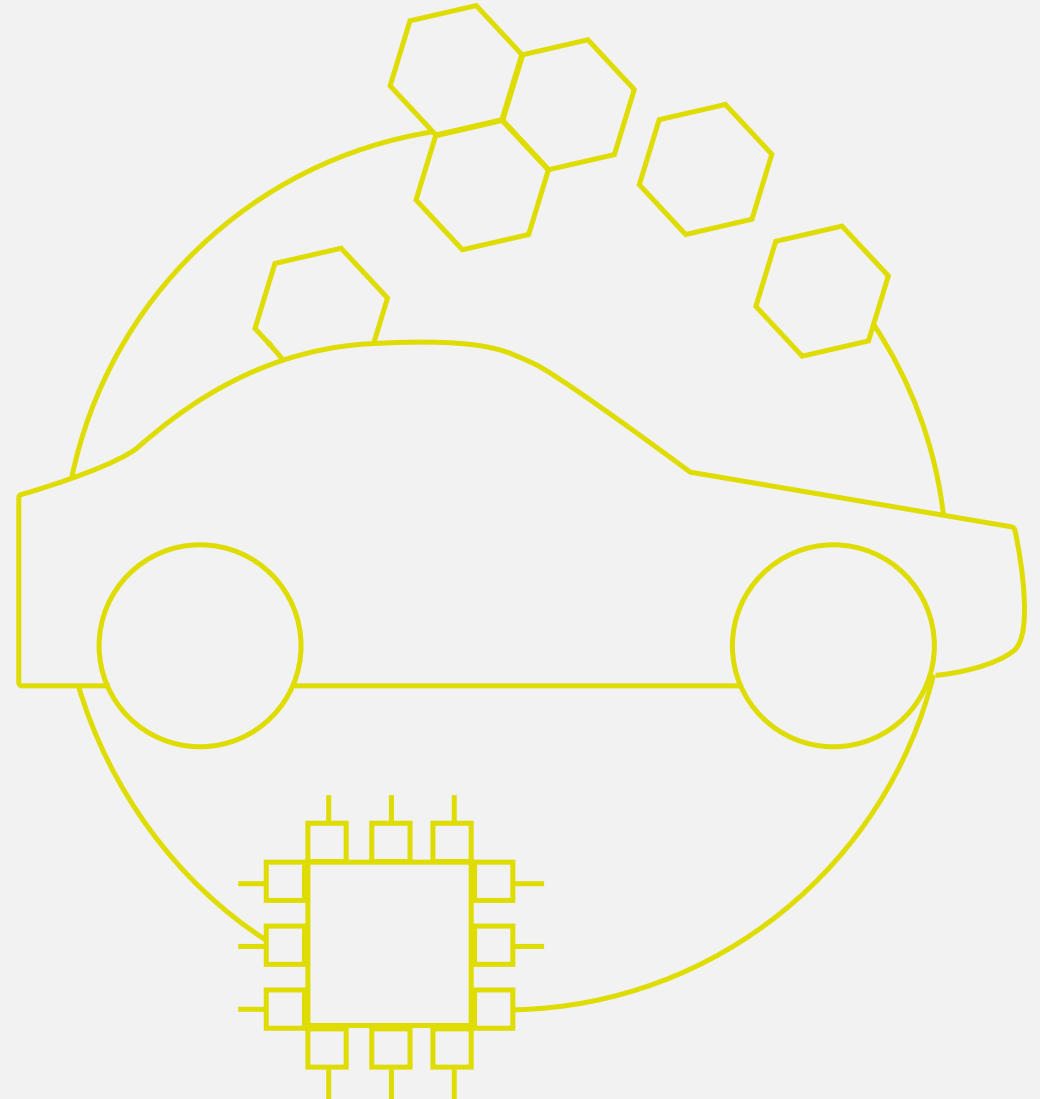




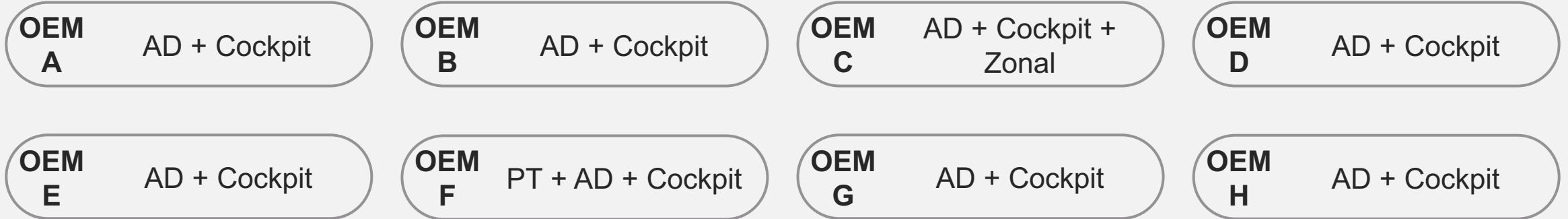
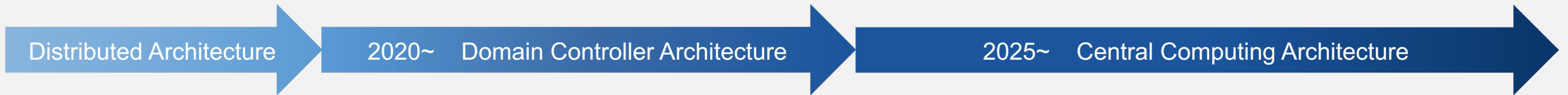
Cloud Native in Vehicle OS and AD + Cockpit Fusion Architecture

Dongchao Xu
Sep 21st, 2023



OEM's Roadmaps to Central Computing

- Global OEMs are transitioning from Distributed to Domain Controller architecture
- North America & Europe OEM/Tier-1's SOP in ~2027, and Japan in ~2030
- China OEM/Tier-1's earliest SOP in 2025

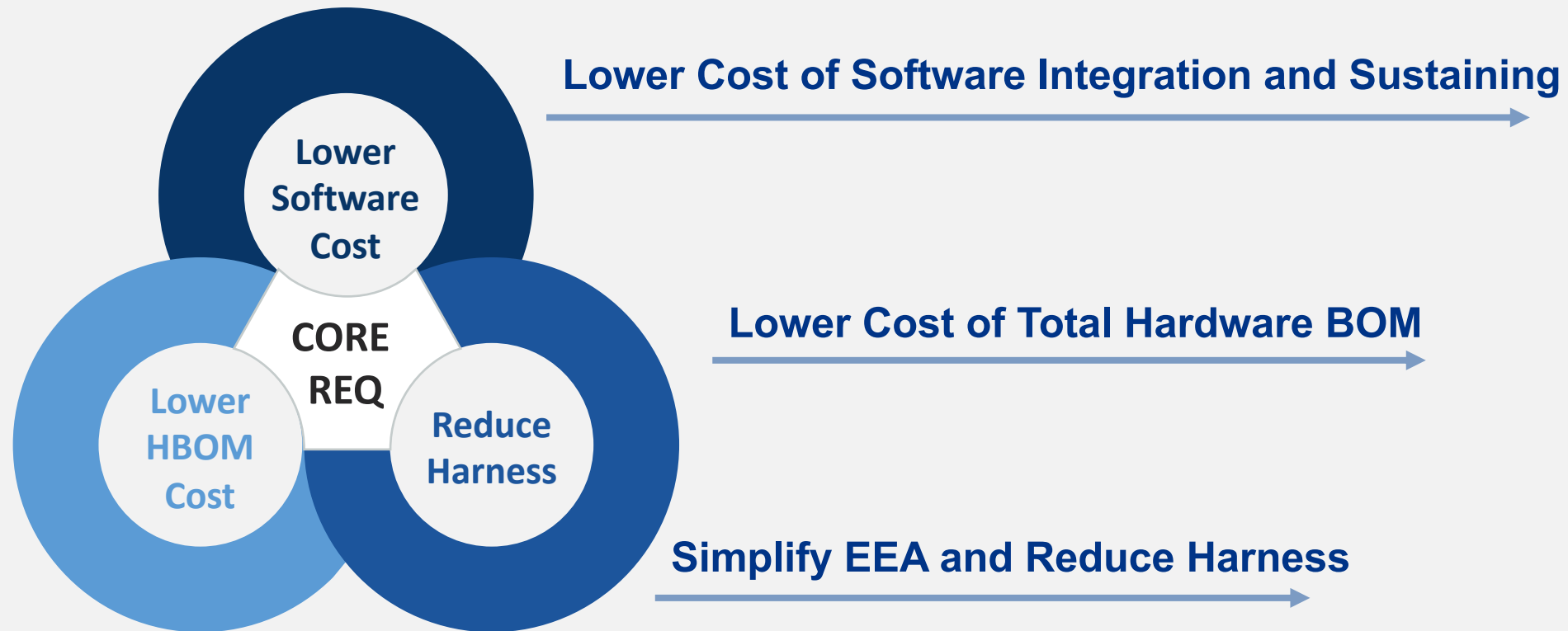


AD + Cockpit is the major form expected from customers in China

Adaptation to central computing architecture and domain consolidation is the key to **sustainable development of future generation vehicles**

Why Central Computing – Voice of Customers

- Lower the cost of Software Integration and Long-term sustaining is the most important reason why OEMs want to realize Central Computing



ThunderSoft Central Computing Reference Design



- Cockpit and ADAS 2 in 1
- Immersive User Experience powered by **KANZI**
- **AI enabled Cockpit** (Personalization by AIGC, Voice Assistant, Intelligent Car Manual, and more)

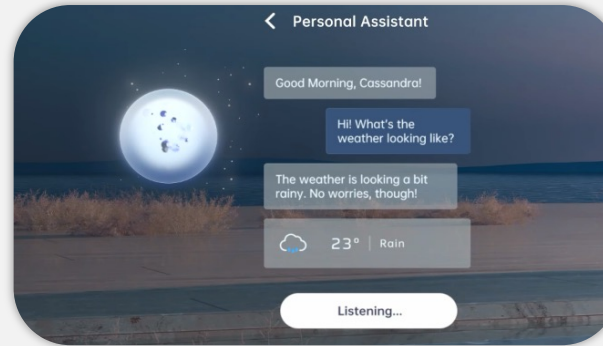
- **Vehicle OS for Central Computing**
- **Hypervisor and Container**
- 3D AVM, DMS and CMS
- ADSP algorithm integration
- CarPlay, Android Auto and HiCar

ThunderSoft Vehicle OS for Central Computer

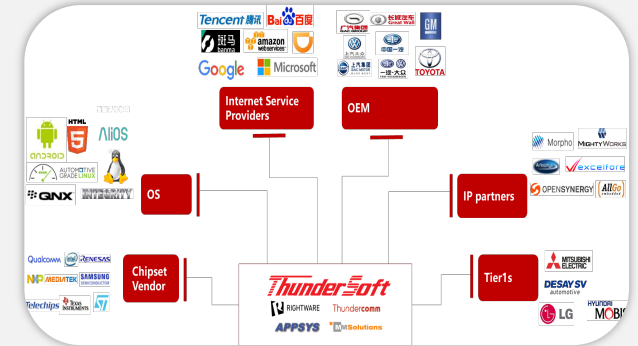
Central Computing Oriented Architecture



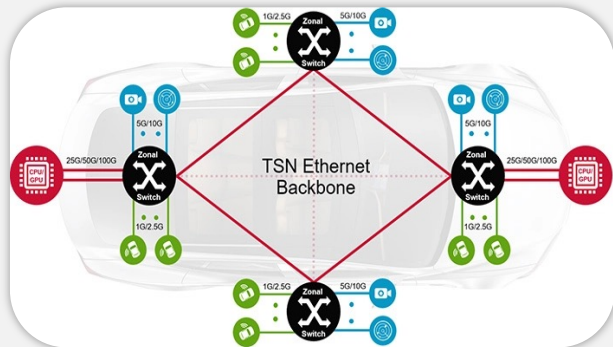
AI powered HMI (LLM+AIGC)



Ecosystem Neutrality



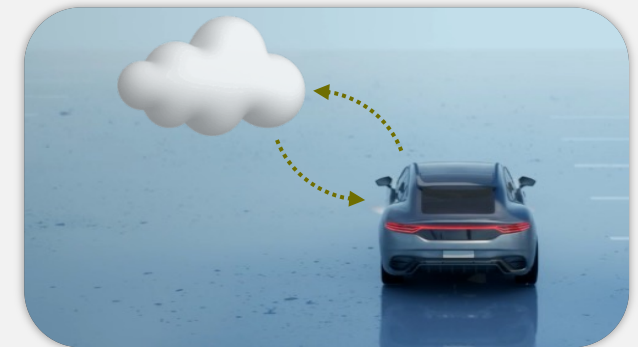
Real-time & Deterministic



Safe and Secure

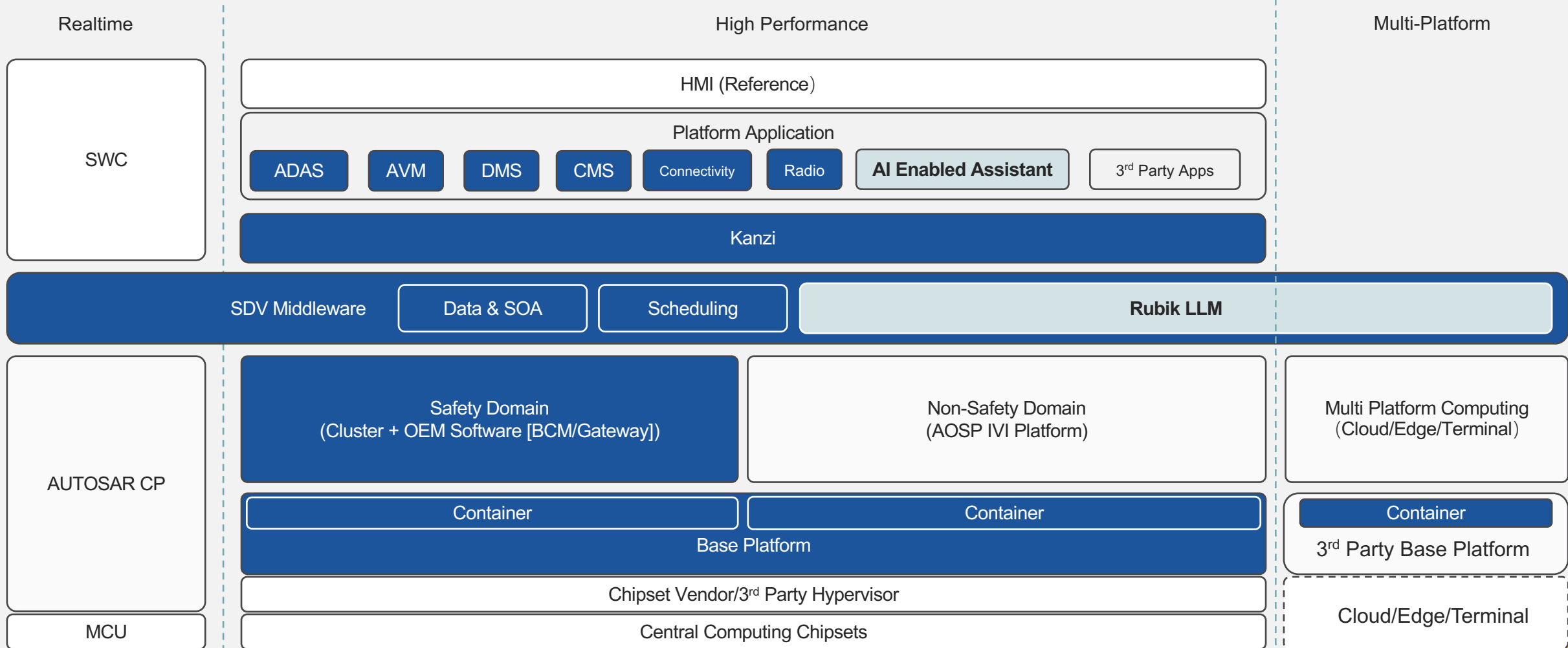


Cloud Native & Scalable Computing



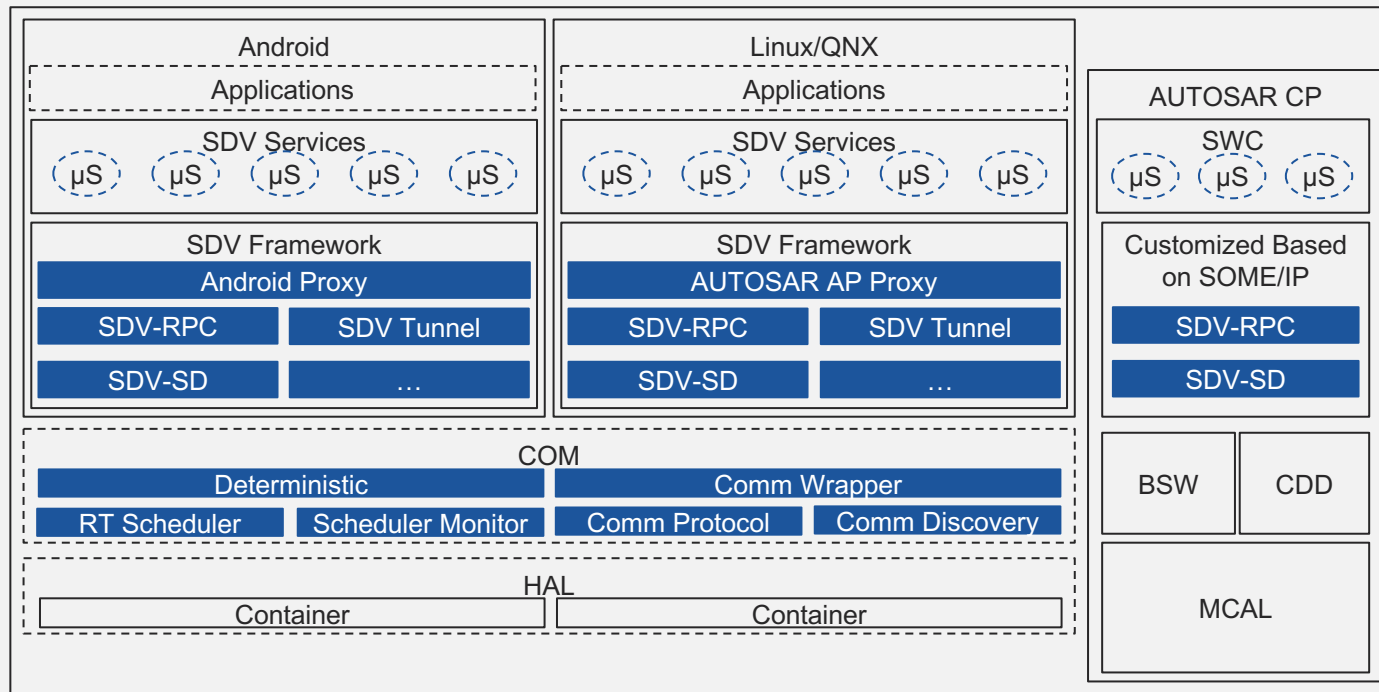
ThunderSoft Vehicle OS for Central Computer

In-house 3rd Party



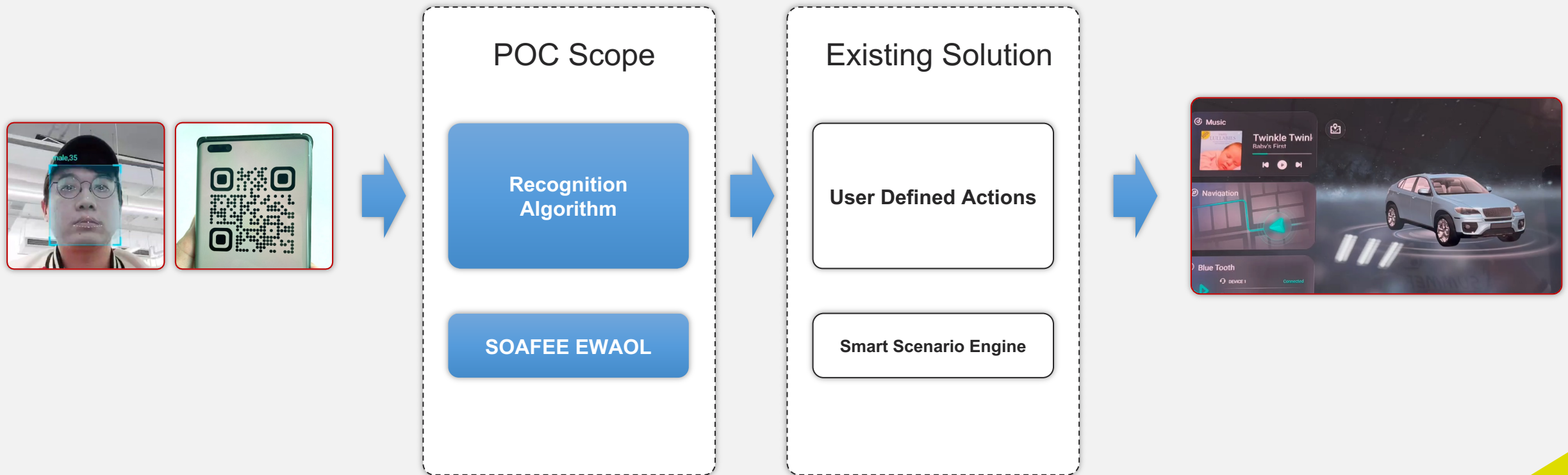
SDV Middleware – The Key to Scalable Computing

- SOA to decouple software applications and the underlying services
- Provide deterministic in global task scheduling & data communication among heterogeneous systems in vehicle



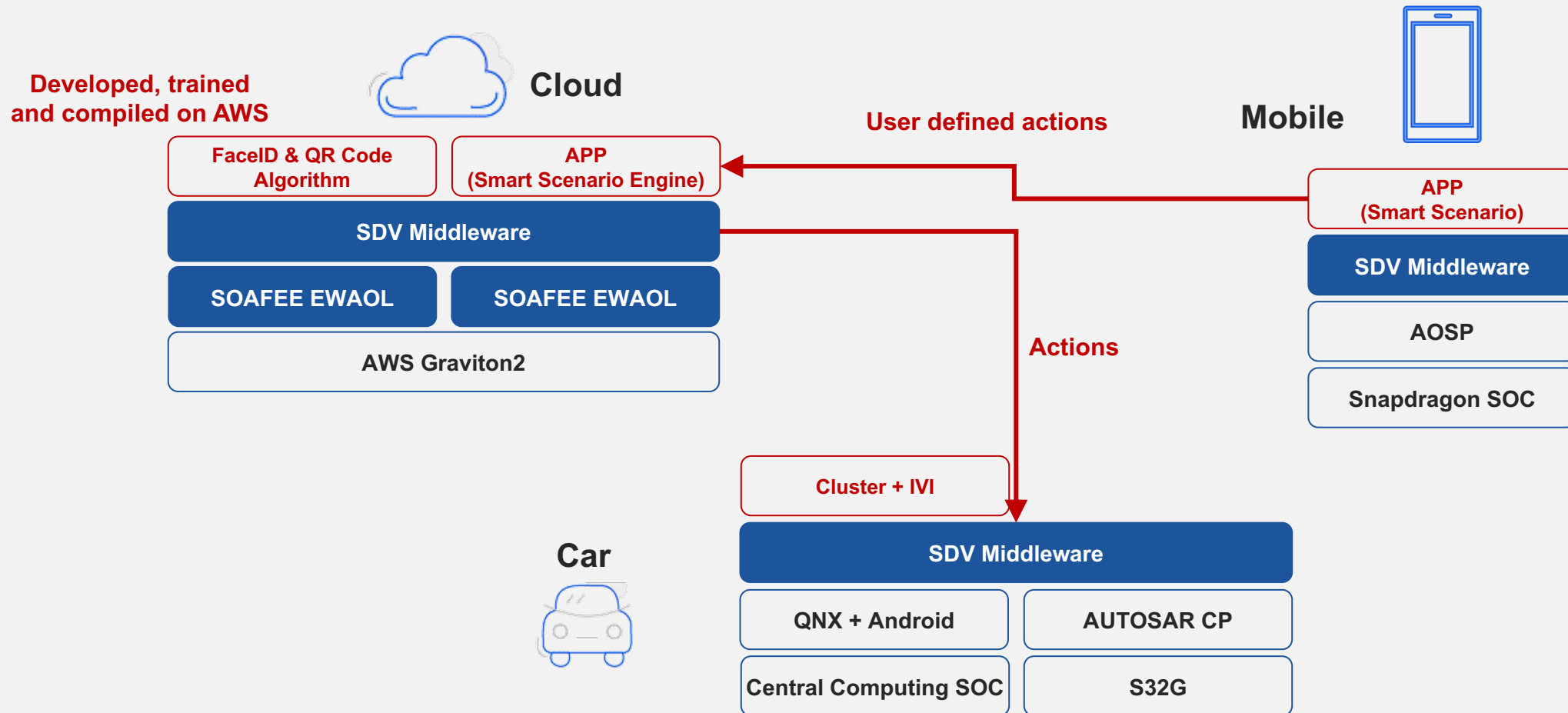
Cloud Native SDV POC Project with EWAOL (1/4)

- POC to validate the concept of cloud native development methodology in a mixed environment
- FaceID & QR Code recognition to trigger user defined actions
- Actions can be defined with app installed in a cell phone



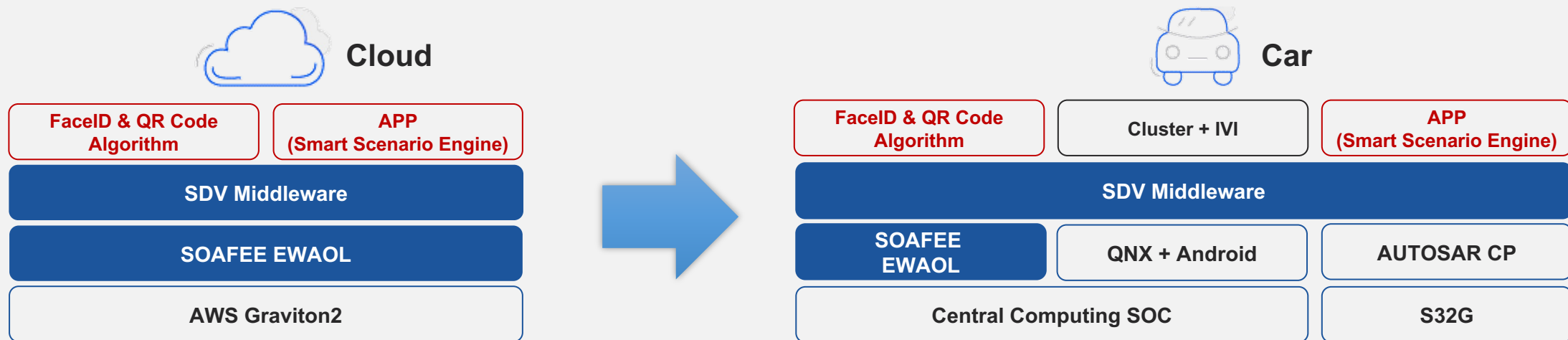
Cloud Native SDV POC Project with EWAOL (2/4)

- Develop & deploy the software at Cloud side
- Perform cross-system joint test by leveraging ThunderSoft SDV Middleware



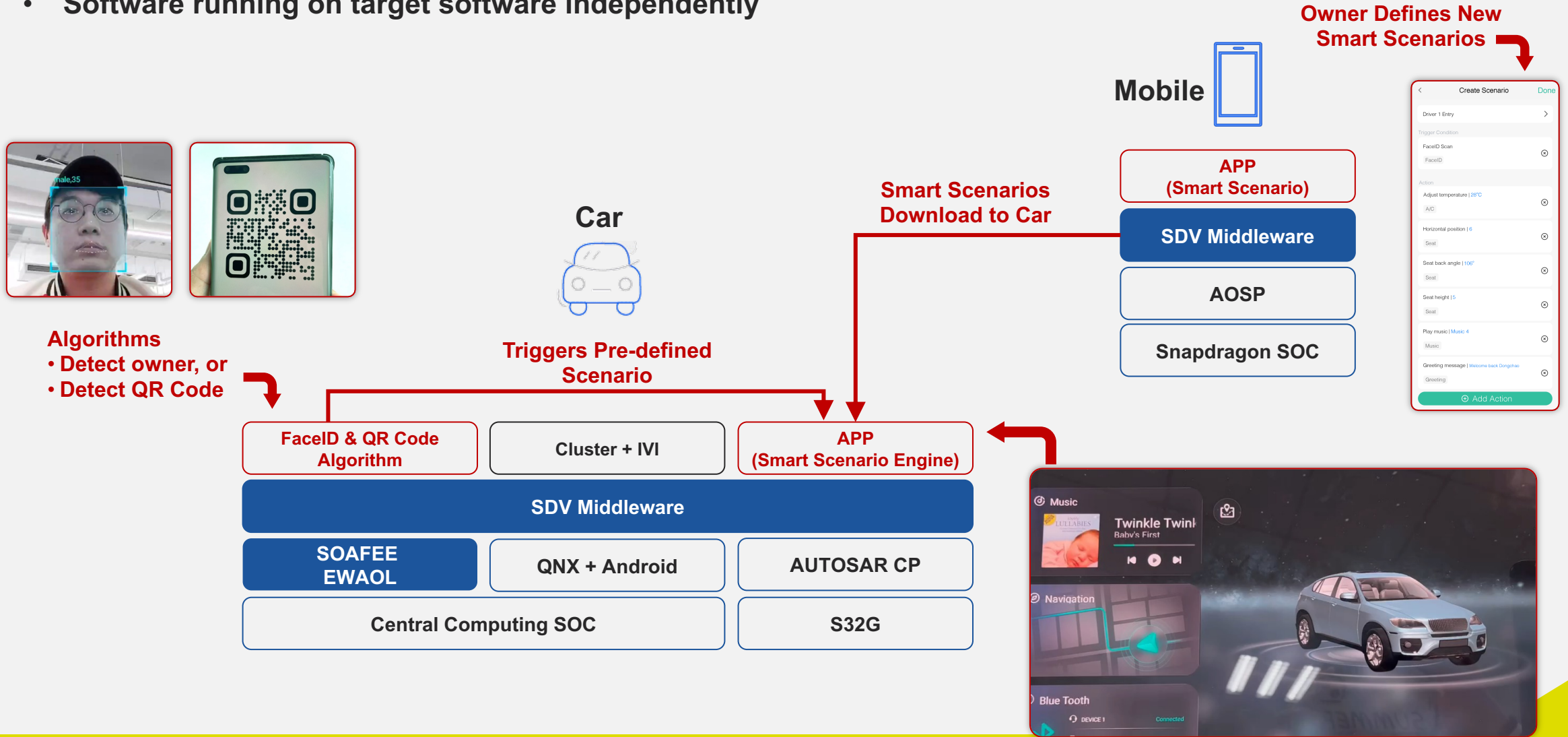
Cloud Native SDV POC Project with EWAOL (3/4)

- After Development & Testing from Cloud side
- Software got deployed into target system running in parallel with existing cockpit system software



Cloud Native SDV POC Project with EWAOL (4/4)

- Software running on target software independently





Thank You
Danke
Gracias
Grazie
谢谢
ありがとう
Asante
Merci
감사합니다
धन्यवाद
Kiitos
شكراً
ধন্যবাদ
תודה