



# 车云对等环境加速 构建软件定义汽车

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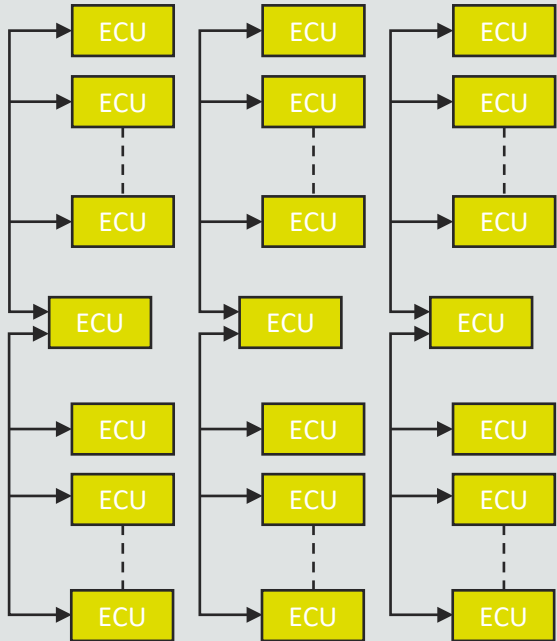




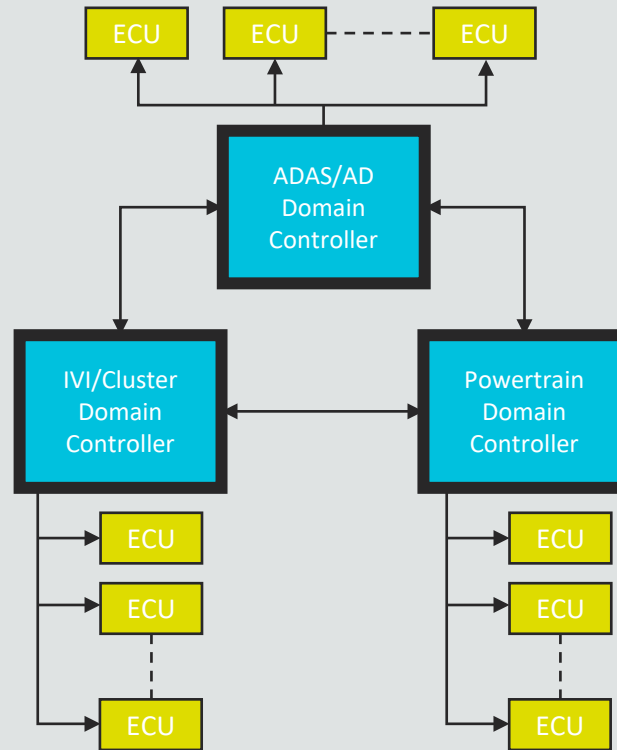
# Industry Trends

# Electric/Electronic (E/E) consolidation

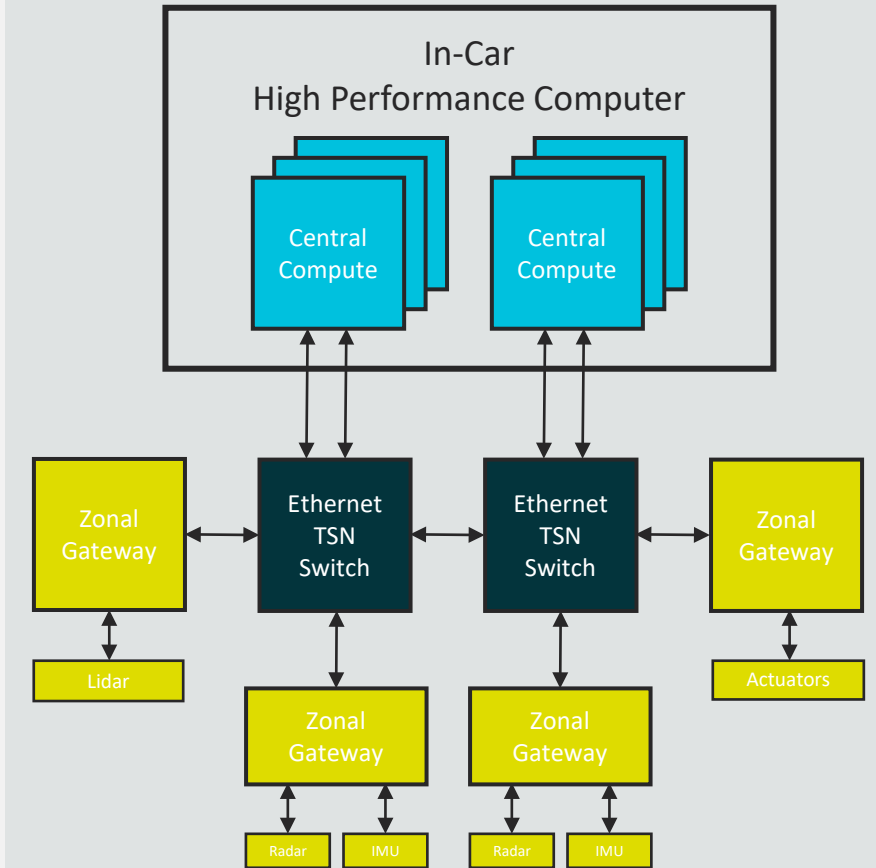
## Traditional Architecture



## Domain Architecture



## Zonal Architecture



# Cloud-native development

- Create parity between development and production environments
- Build, test, and deploy applications independently
- Apply modern development practices with high automation, flexibility, resilience, and speed

## Microservices

A development approach in which a large application is built as a suite of modular components or services

## Containerization

A type of software that can virtually package and isolate applications for deployment

## Continuous Delivery

A software delivery technique where developers produce and test code in short, continuous cycles

## DevOps

A methodology promoting better communication and collaboration between development and operations teams



# Cloud – native Embedded Software Development

# A holistic approach



# Industry collaboration for creation of cloud-native automotive software



<https://soafee.io>

Amazon Web Service is a founding member

## Governing Body Members



## Voting Members

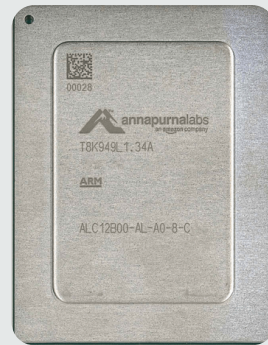


With Arm instances in cloud we are bringing parity between development and production silicon

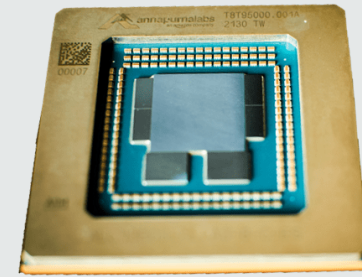
**Graviton**  
2018



**Graviton2**  
2019



**Graviton3**  
2021

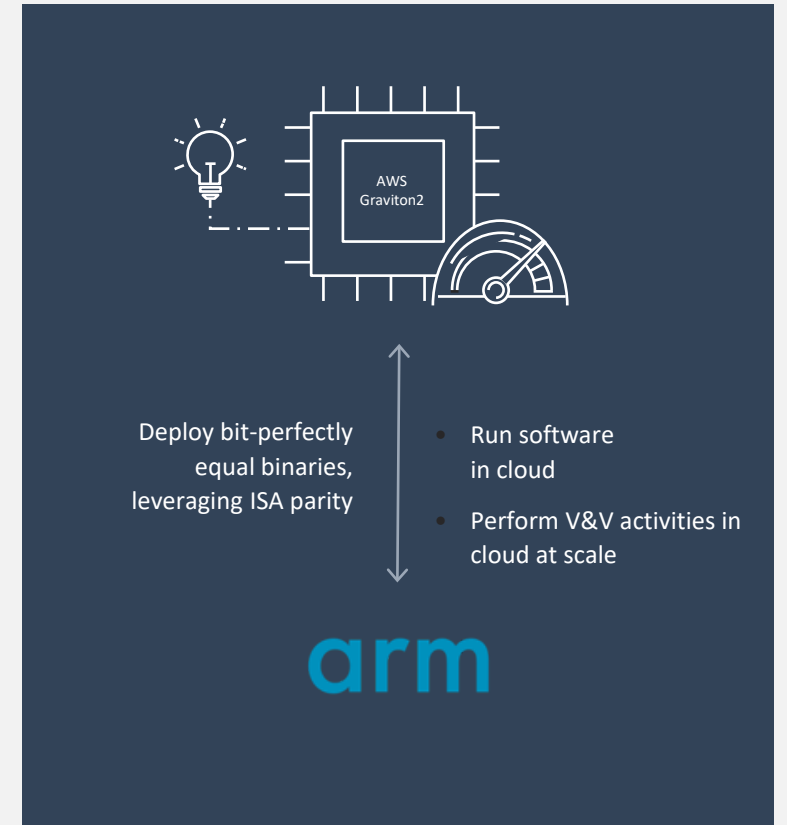
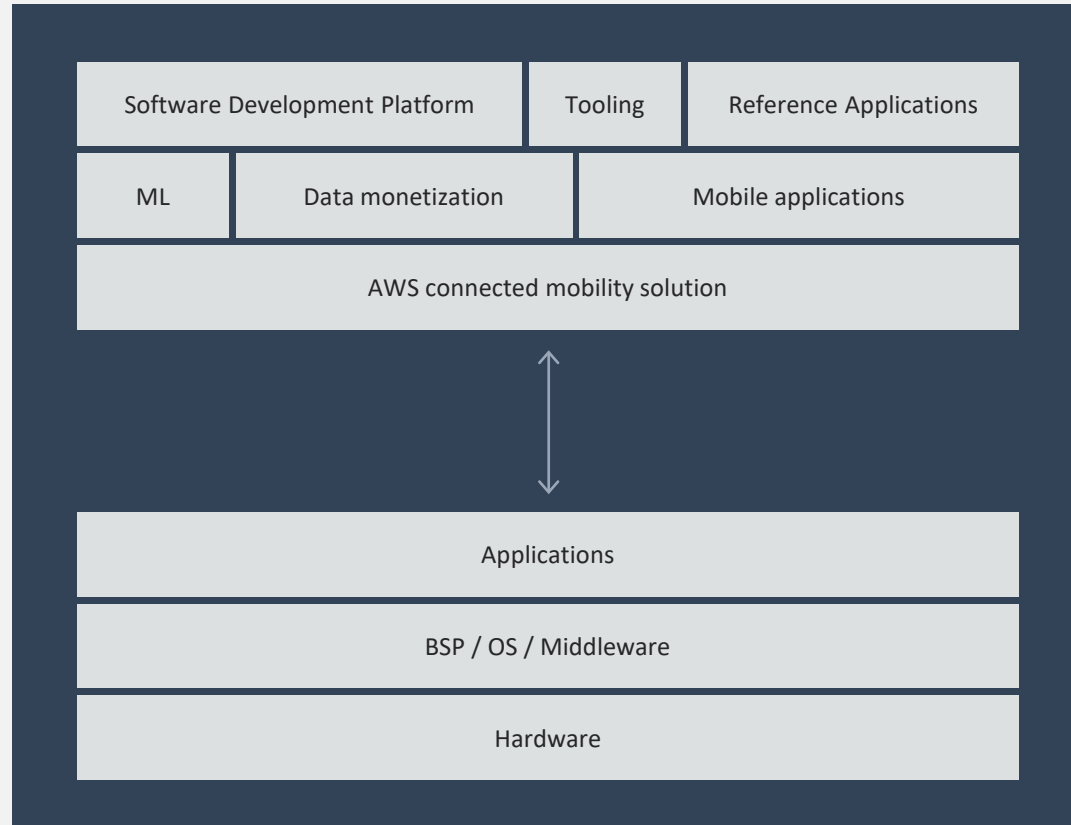
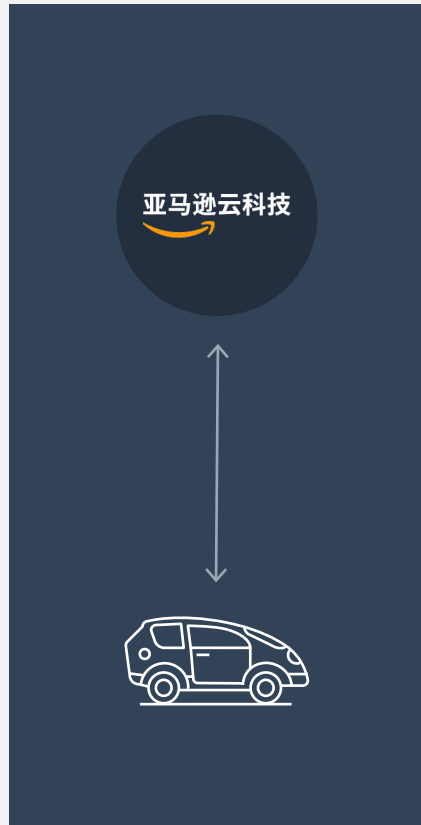


**Graviton4**  
2023



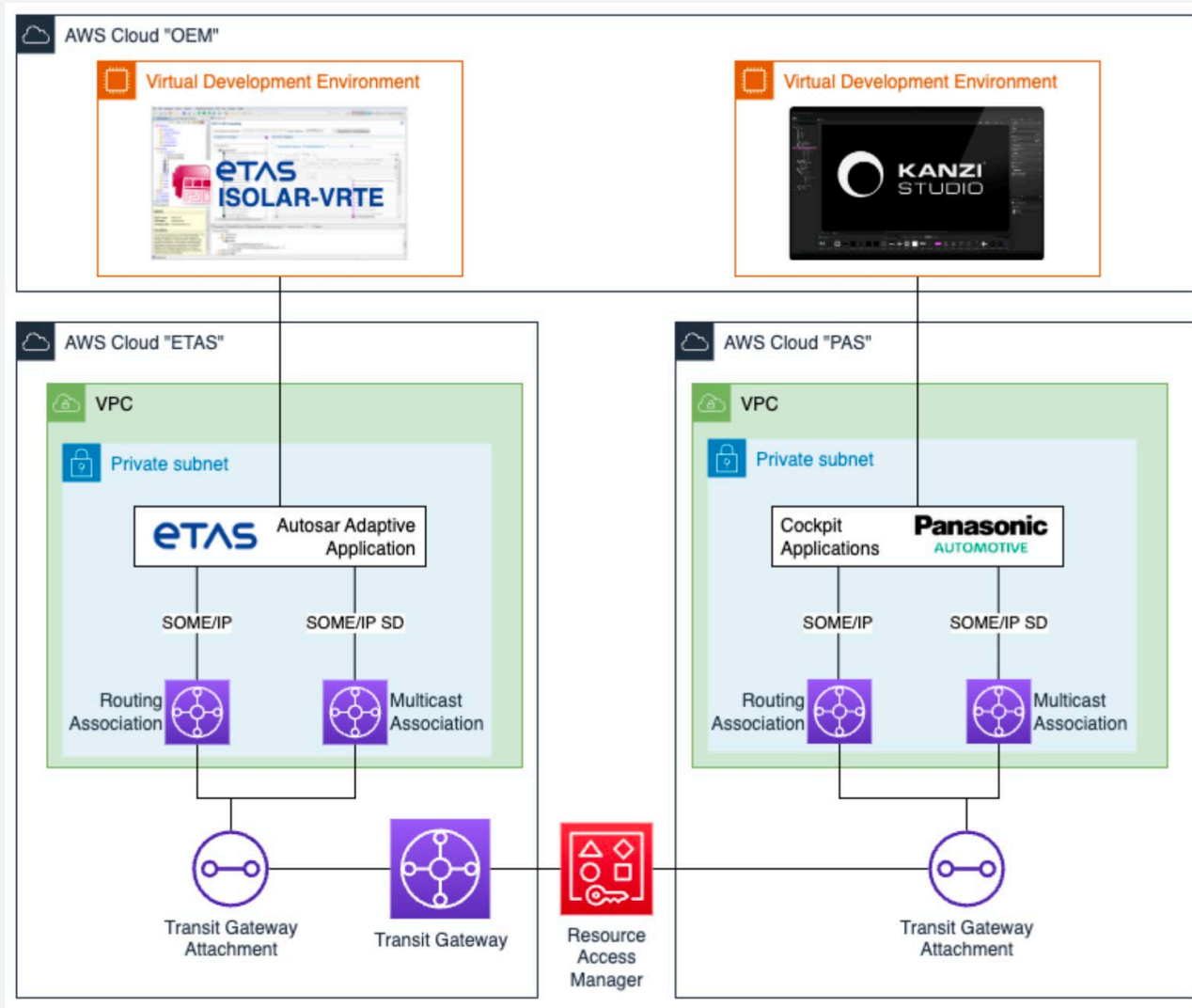


# Graviton instances pave the way for parity-enabled vECUs\* in the cloud



\*Virtual Electronic Control Units

# Sample demo

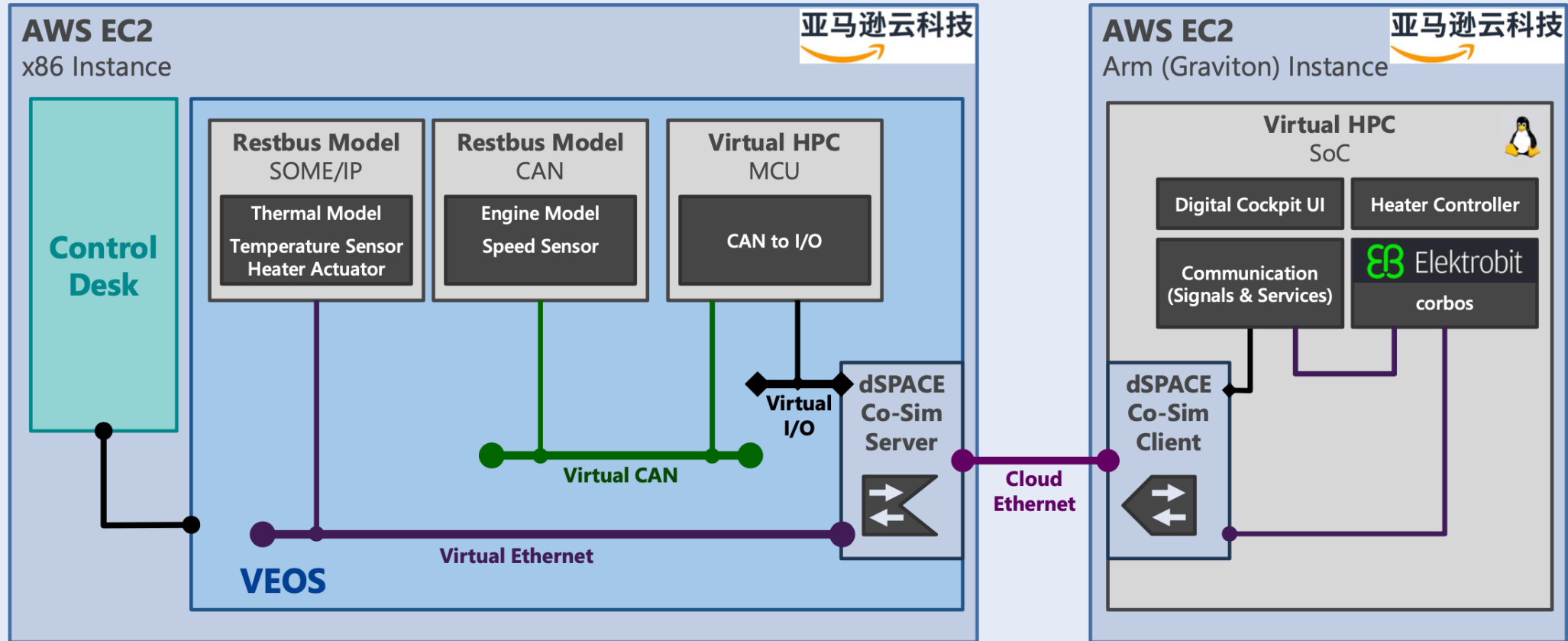


*"Amazon Web Service have come along a way during last year"*

Mercedes Executive

# Sample demo

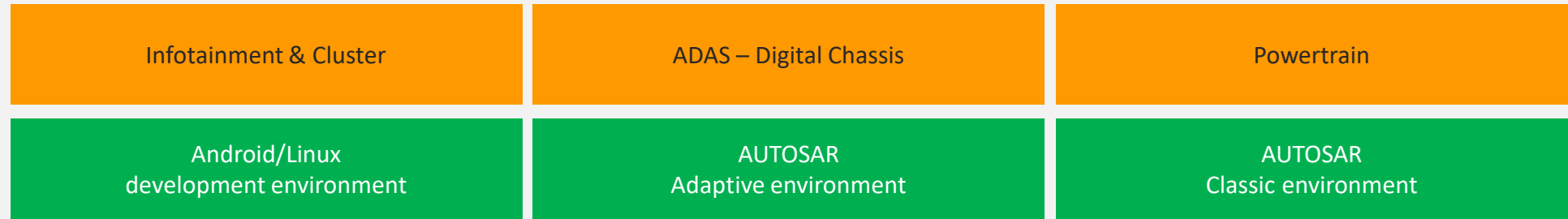
## dSPACE VEOS – AWS Graviton Connection: Demo



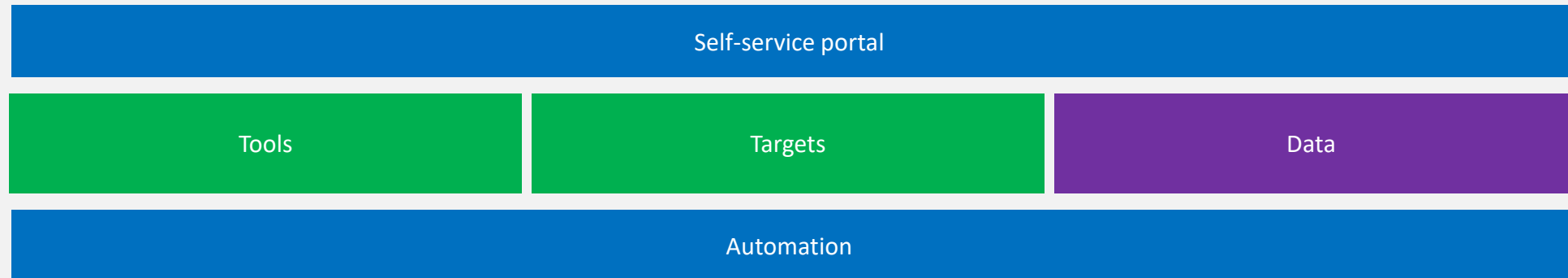


# Build your own workbench with preferred tools, targets, data, and automation workflows for effortless developer experience

Workbench  
Users



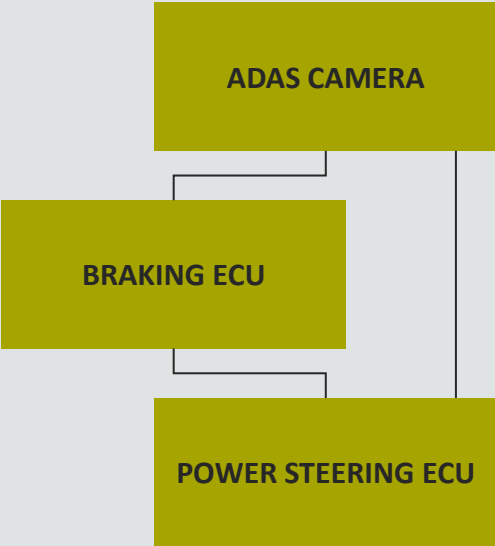
Workbench  
Builders



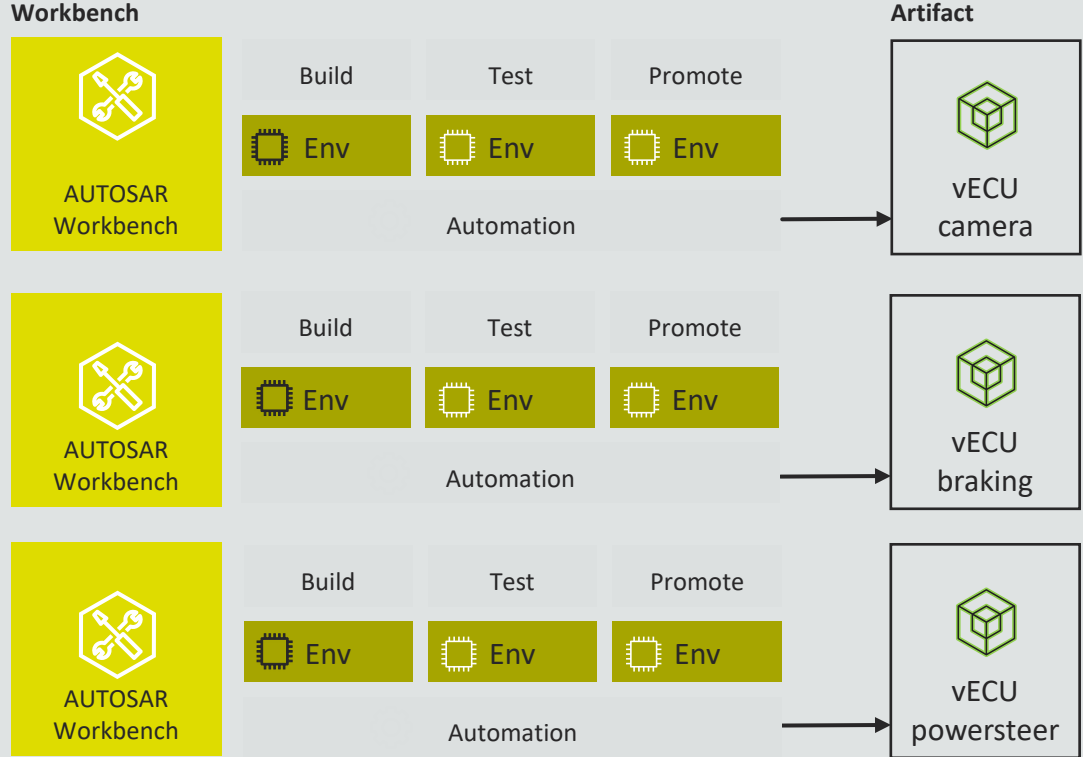
# Virtual Work Bench Scenario

EE integration in Digital Twin – Automatic emergency breaking

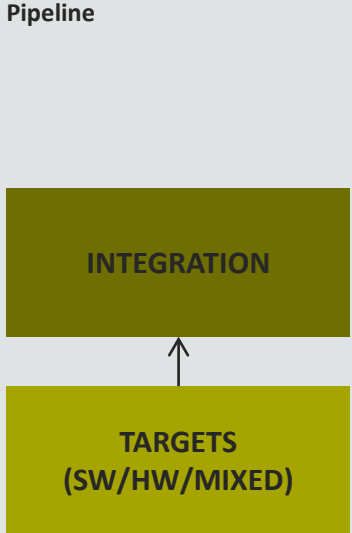
## EE ARCHITECTURE



## VECU DEVELOPMENT



## EE ARCHITECTURE DIGITAL TWIN







# Collaboration across the industry

## Virtual Engineering Workbench



## Cloud-native Tool Collaboration



## Virtualized Targets



Graviton3



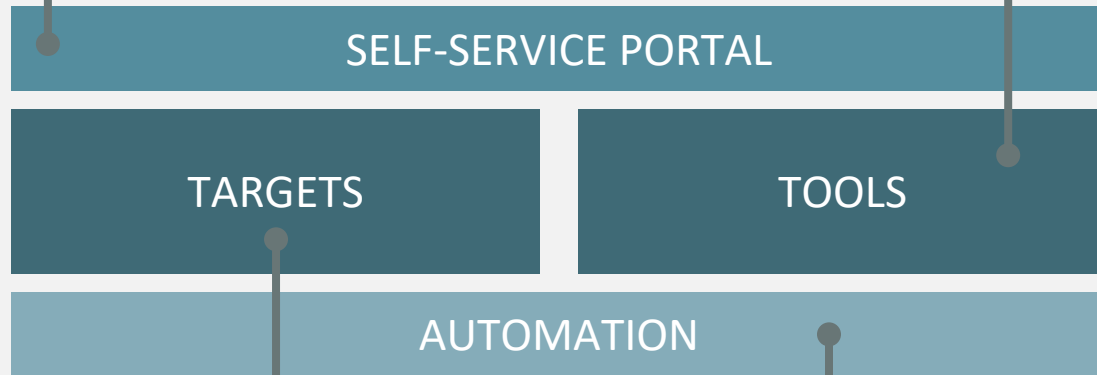
# Customer Success Stories



# BMW Self service & Automation

Enable easy  
access & lifecycle  
management

Automatic installation  
(e.g. testing tools),  
expose ports for ADB



Provide latest BMW  
OS 9 images; instantly  
usable & configured

API first & all things  
automated to  
orchestrate the  
solution by BMW

re:invent 2022



# Android / Yocto / Qt / Vector



*"This way, they can **complete 90% of their development and testing in the cloud** instead of on physical hardware. In the final stage of development this work, which constitutes the remaining 10%, can then be ported back to physical hardware for final testing and validation"*

*"This is a big step for us and essentially a new business stream for Qt," says Juhapekka Niemi, SVP of Product Management at Qt. "Making our solutions available in Amazon Web Service Marketplace and **enabling development on Amazon Web Service means bringing Qt's brand and products to millions of users and developers.** We're also excited about what the future holds for bringing the benefits of Qt on Amazon Web Service **to other verticals like medical device design and industrial automation.**"*



# Stellantis: Software transformation with VEW solution



**Tara Vatcher**

SVP SW Architecture and Development, Platform, Stellantis  
re:invent 2022



Today we have increased the agility and speed for our developers. We have reduced the **onboarding time from months down to weeks and even now down to minutes**. We have enabled scalability and security [...].

As we have 5 R&D centers, the VEW ensures that all of them have the same environment, have the same pipelines that they can **develop as one unified group**.



Thank You  
Danke  
Gracias  
Grazie  
谢谢  
ありがとう  
Asante  
Merci  
감사합니다  
धन्यवाद  
Kiitos  
شكرًا  
· Āḗ Ē  
תודה