



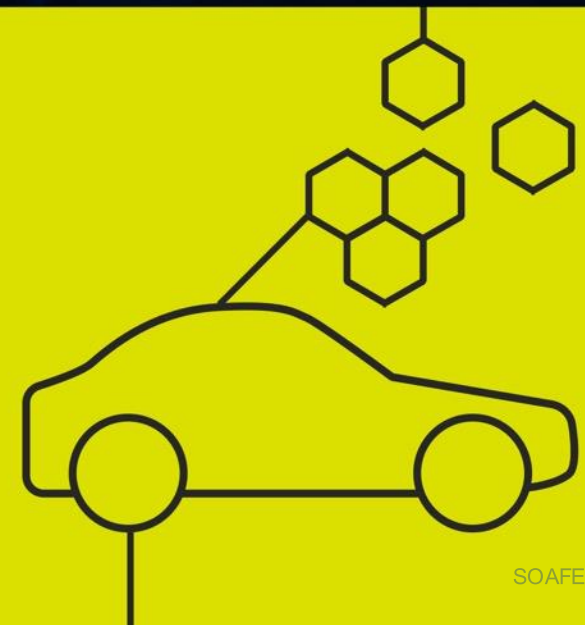
Blueprint

Aos Edge

to enable
Scalable Deployment & Mixed Critical Orchestration
for Virtual and Real Environments

Bucci Kawabuchi, EPAM
AosEdge, Product Marketing

May 15, 2025





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Global (EN) ↓



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through a digital lens.

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Bucci Kawabuchi

EPAM Japan

Automotive & Embedded

AosEdge, Product Marketing

career

Win/VC++ dev

Mobile carrier

Mobile app studio

Global agile agency

“Flying Car” startup

Blueprint

Aos Edge

to enable
Scalable Deployment & Mixed Critical Orchestration
for Virtual and Real Environments

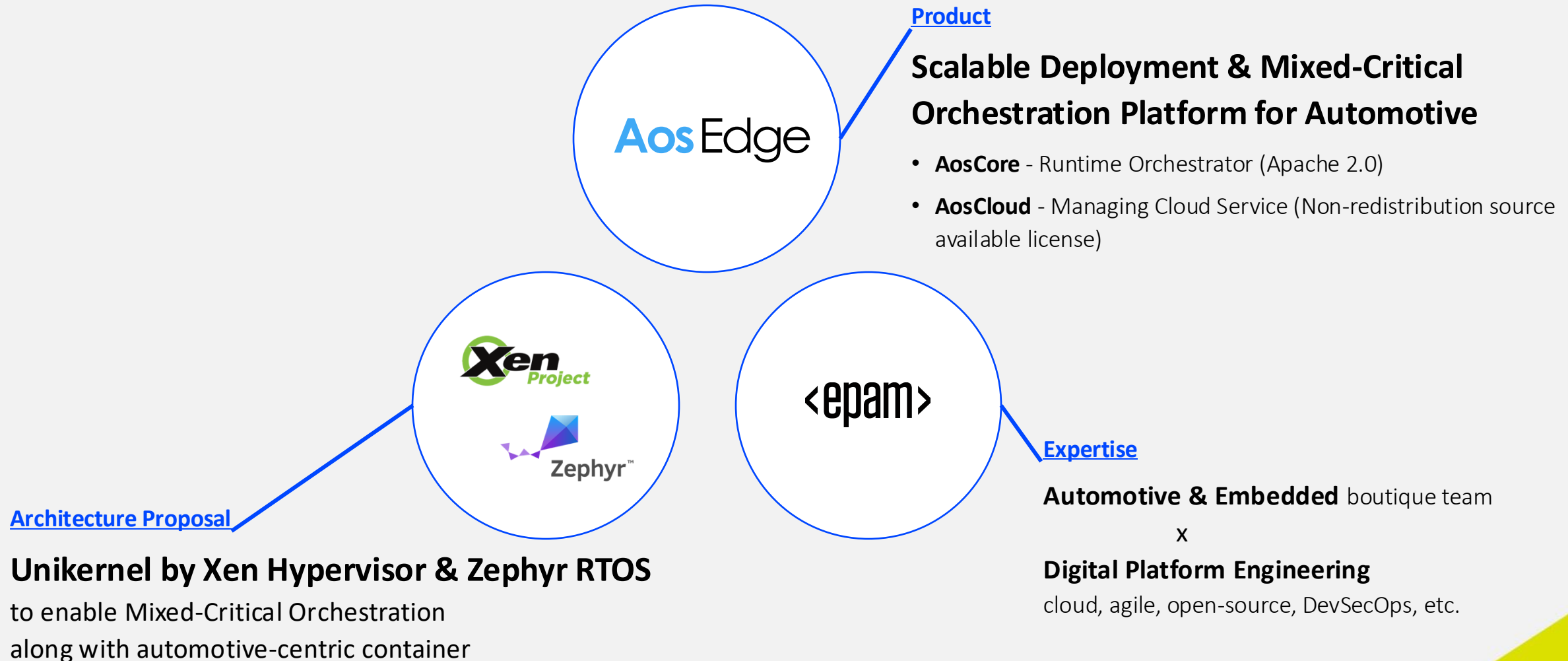
Bucci Kawabuchi, EPAM
AosEdge, Product Marketing

Agenda

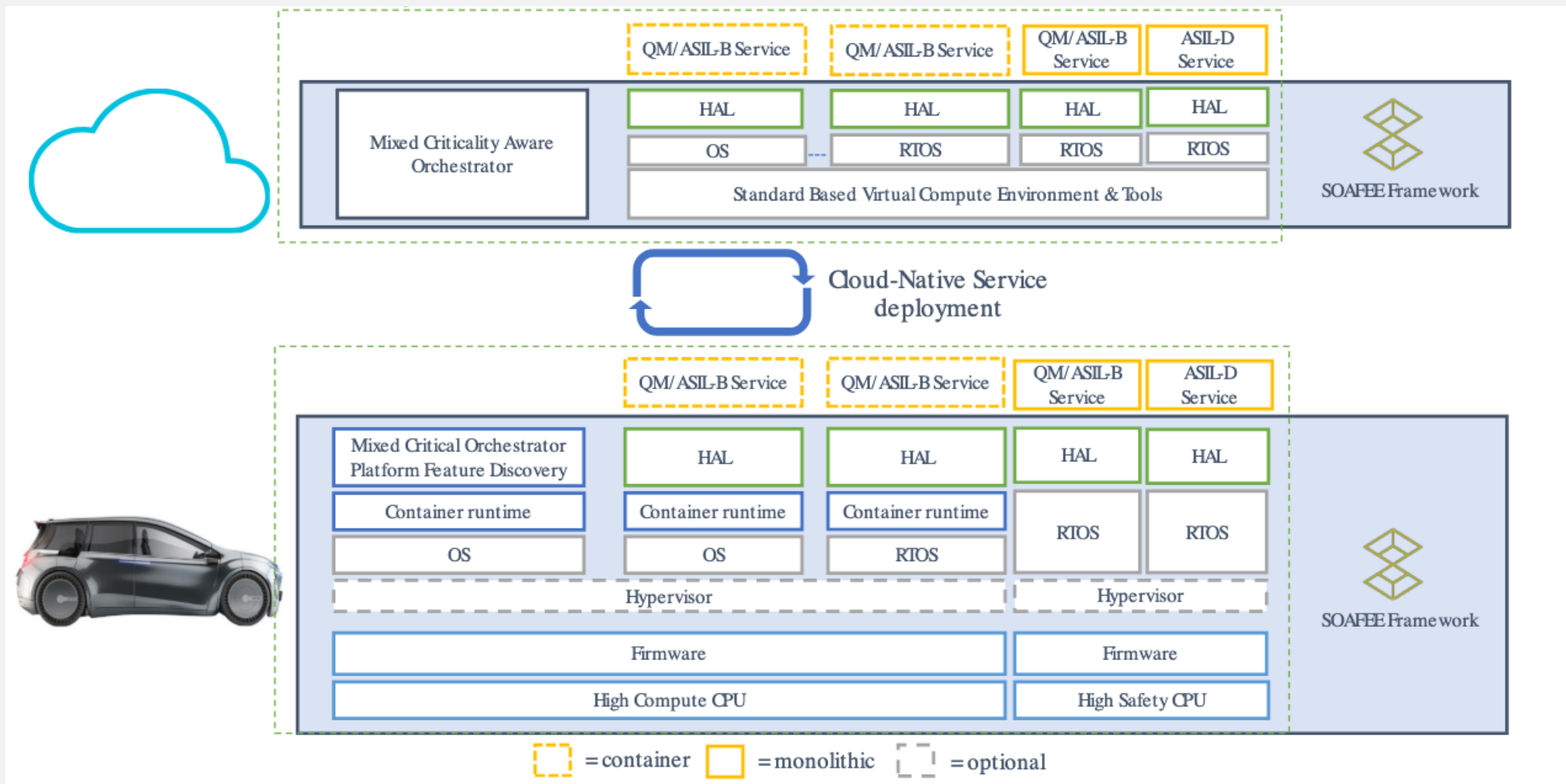
Blueprint Overview
Product
Features
Demo Booth
Get Started

Blueprint Overview

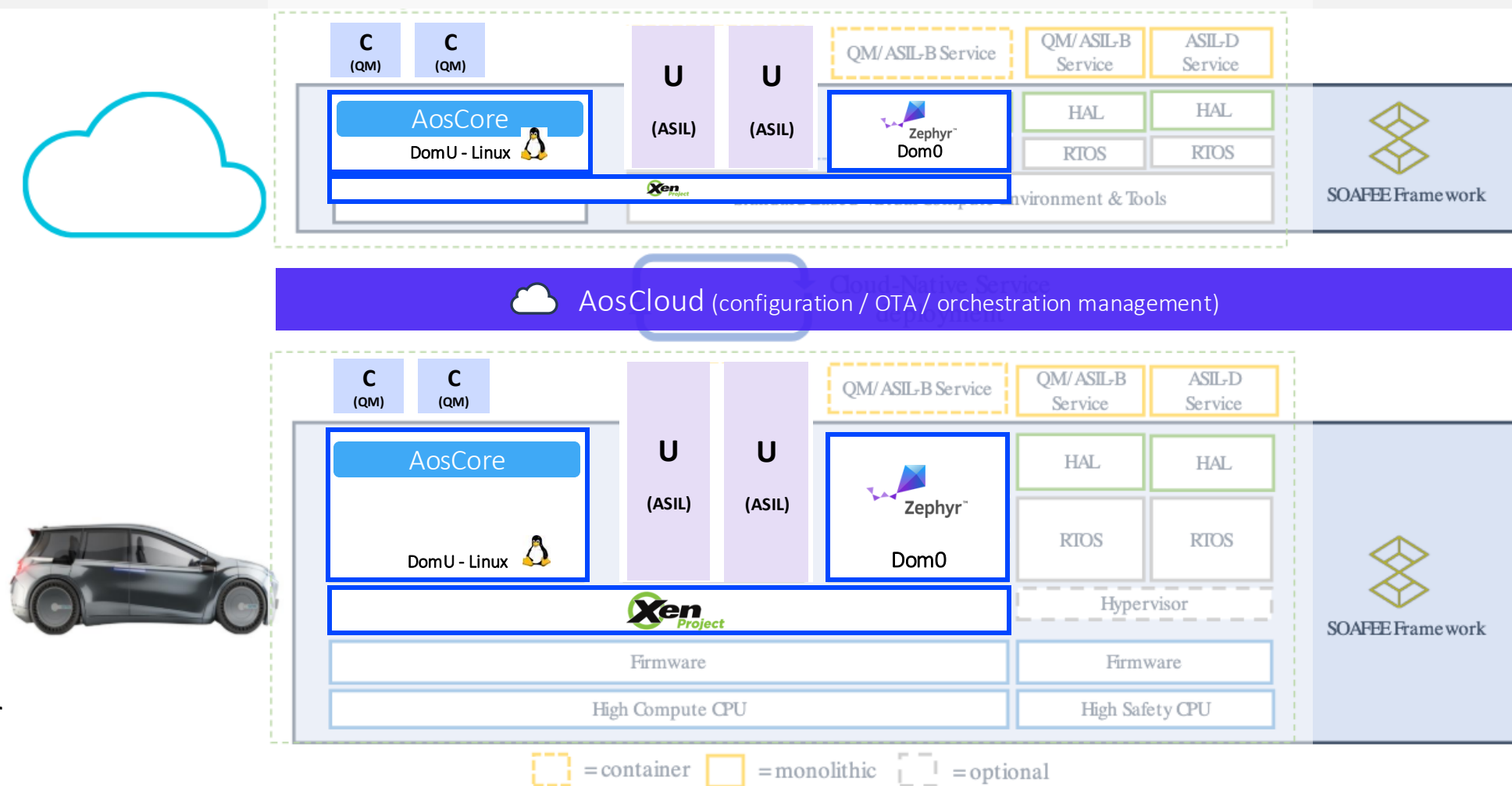
Product + Architecture Proposal



Blueprint – SOAFEE & AosEdge



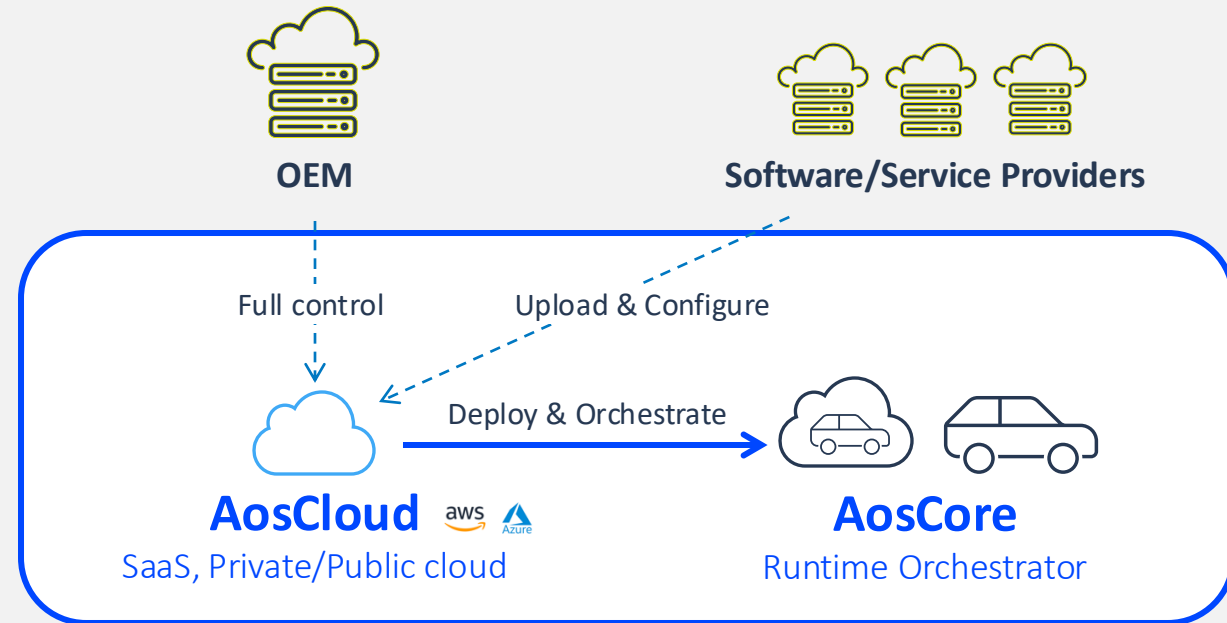
Blueprint – SOAFEE & AosEdge



Product

Aos Edge

Scalable Mixed Critical
Orchestration Platform



Configuration & OTA management in Cloud

- Manage device, fleet, configuration, campaign
- FOTA (delta update, roll back, etc)
- Multi-tenancy, CDN
- Enterprise integration ready

Automotive-centric Container & Orchestration

- Optimized for remote constrained environment
- Lightweight & Secure
- OCI compliant

Mixed-Critical Orchestration with Unikernel

- Unikernel handled within the orchestration framework
- FuSa with Xen HV & Zephyr RTOS

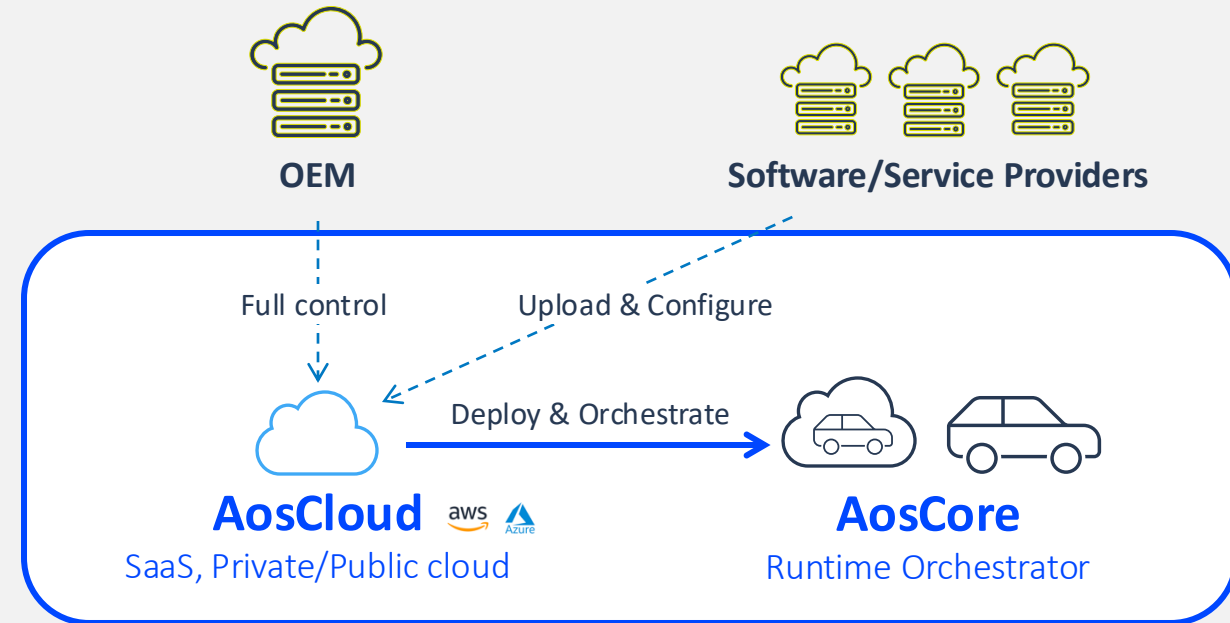
Dynamic rebalance & resource optimization

- Dynamic rebalancing to fully utilize multi-node HPC
- Abstract HW from SW

Product – why?

Aos Edge

Scalable Mixed Critical
Orchestration Platform



**Configuration & OTA
management in Cloud**

**Automotive-centric
Container & Orchestration**

**Mixed-Critical Orchestration
with Unikernel**

**Dynamic rebalance
& resource optimization**

- M
- FC
- M
- En

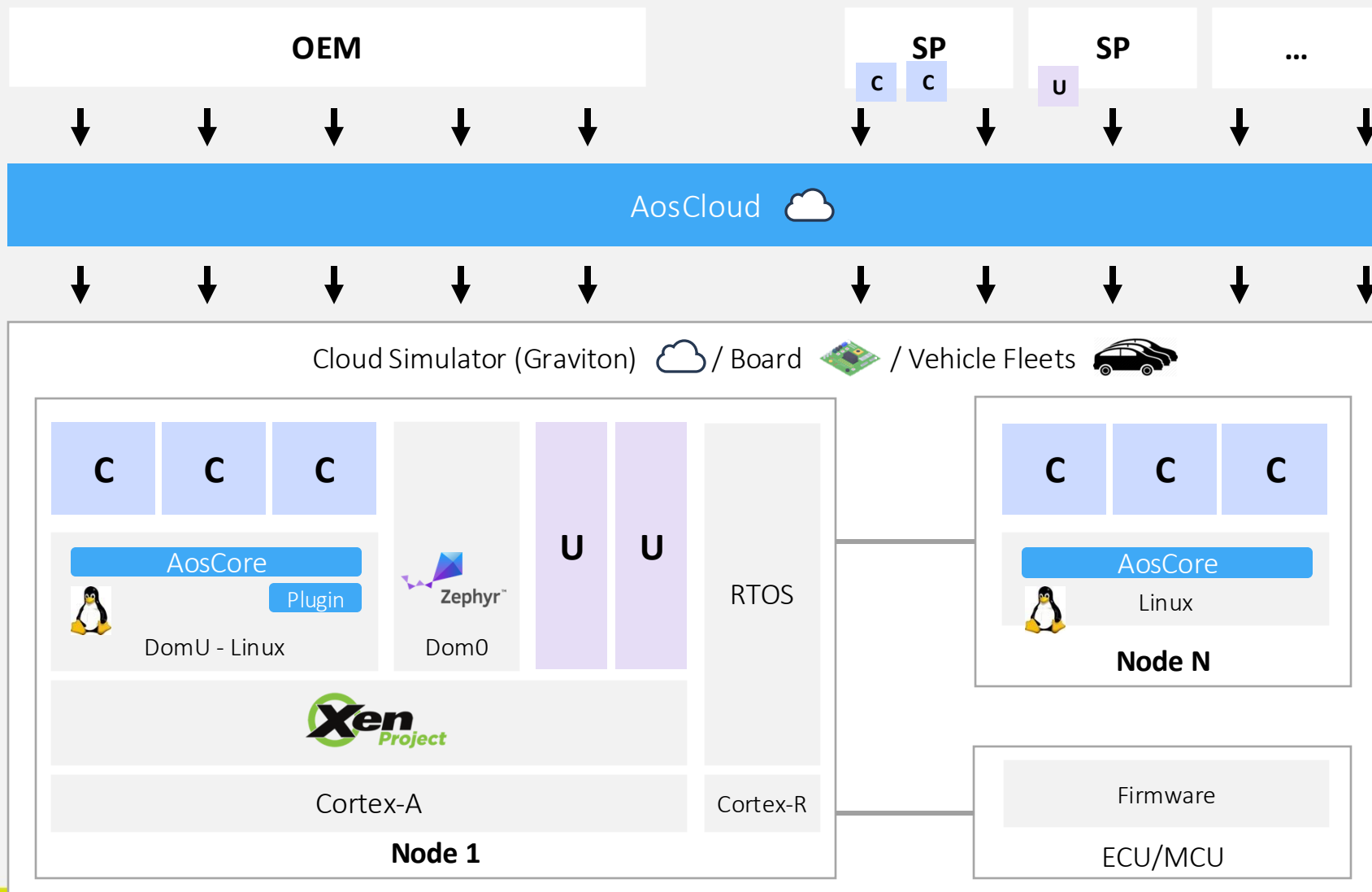
Current landscape is still ever so fragmented.
**Better have a holistic framework, automotive-centric,
with software/cloud/etc-native approach.**

cing to
-node HPC
n SW

Architecture Proposal

AosEdge

C Container
U Unikernel



AosEdge

Dashboard

SERVICES

Providers

Services

Service blacklist

UNITS

Units

Fleets

Unit-sets

Subjects

SOTA/FOTA

Validation batches

Target Systems

Layers

Components

Schedules

MANAGEMENT

Users

Unit System Logs

Audit Actions

> UNITS > OEM DEV, VM-DEV-DYNAMIC

Unit Details

System IDSK6UTGGZXCMQEFT90

ManufacturerOEM dev

Modelvm-dev-dynamic: 1.0

FleetDefault

Created atAug 22, 2024, 12:46:23 PM (5 days ago)

Protocol version6

FOTA Schemenot set

SOTA Schemenot set

Update strategynot set

Unit-sets

Status

Manage Subjects

Deprovision

System

MonitoringNodesComponents

AosEdge

UNITSC4XXDM9M45ZXPBJXDashboard

Dashboard

SERVICES

Providers

Services

Service blacklist

UNITS

Units

Fleets

Unit-sets

Subjects

SOTA/FOTA

Validation batches

Target Systems

Layers

Components

Schedules

MANAGEMENT

Users

Unit System Logs

Audit Actions

Unit «C4XXDM9M45ZXPBJX»

System IDC4XXDM9M45ZXPBJX

ManufacturerOEM AOS Edge Demo

Modelrcar multiNode-aphyr-1.0

StatusONLINE

Created atApr 8, 2025, 9:36:13 PM

Nodes

10,000 DMIPS

3.62 GB

PROVISIONED

10,000 DMIPS

1.03 GB

PROVISIONED

10,000 DMIPS

3.62 GB

PROVISIONED

10,000 DMIPS

1.03 GB

PROVISIONED

Service (Instance #)

CPU

DMIPS

Total

Service (Instance #)

CPU

DMIPS

Total

Service (Instance #)

CPU

DMIPS

Total

Service (Instance #)

CPU

DMIPS

Total

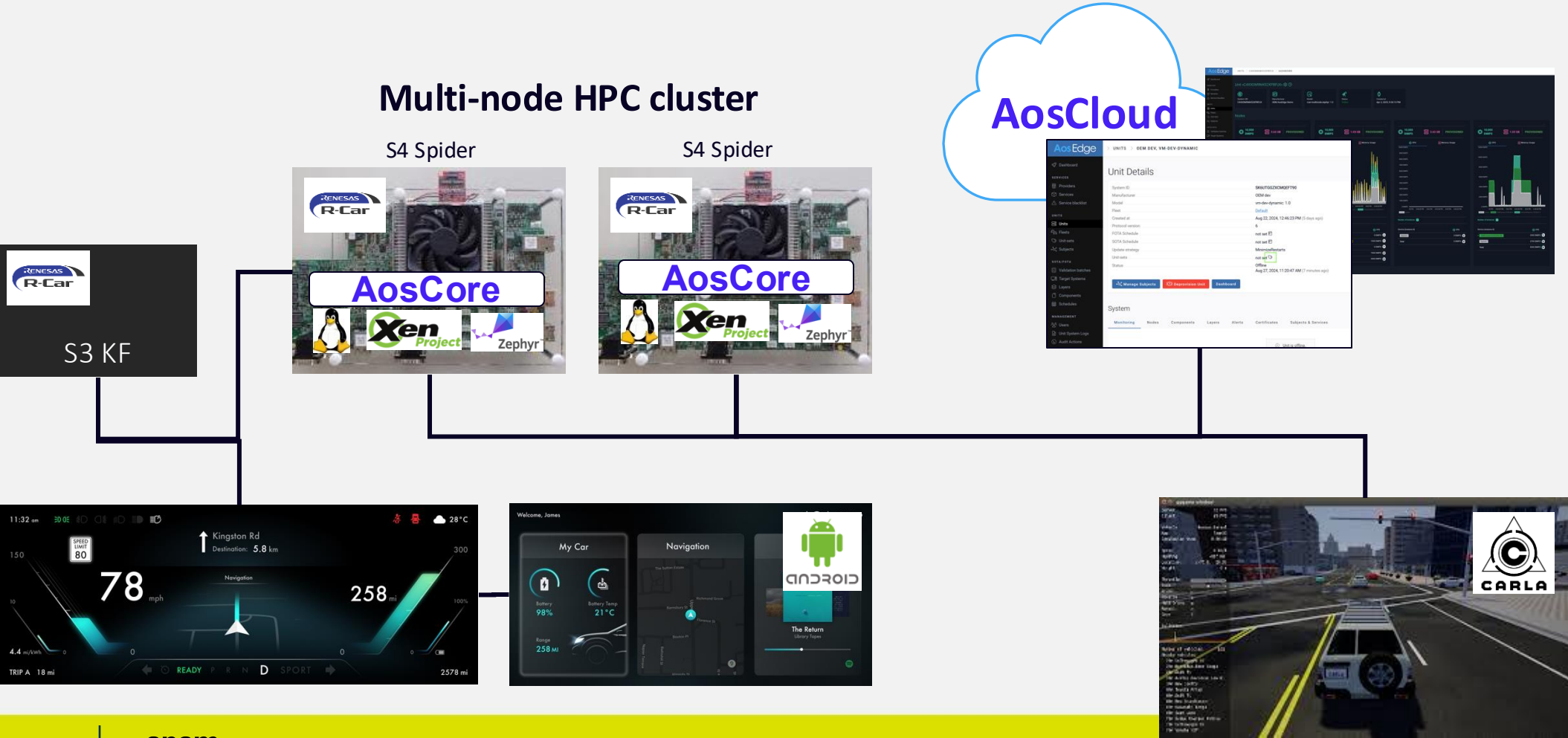
SOAFEE

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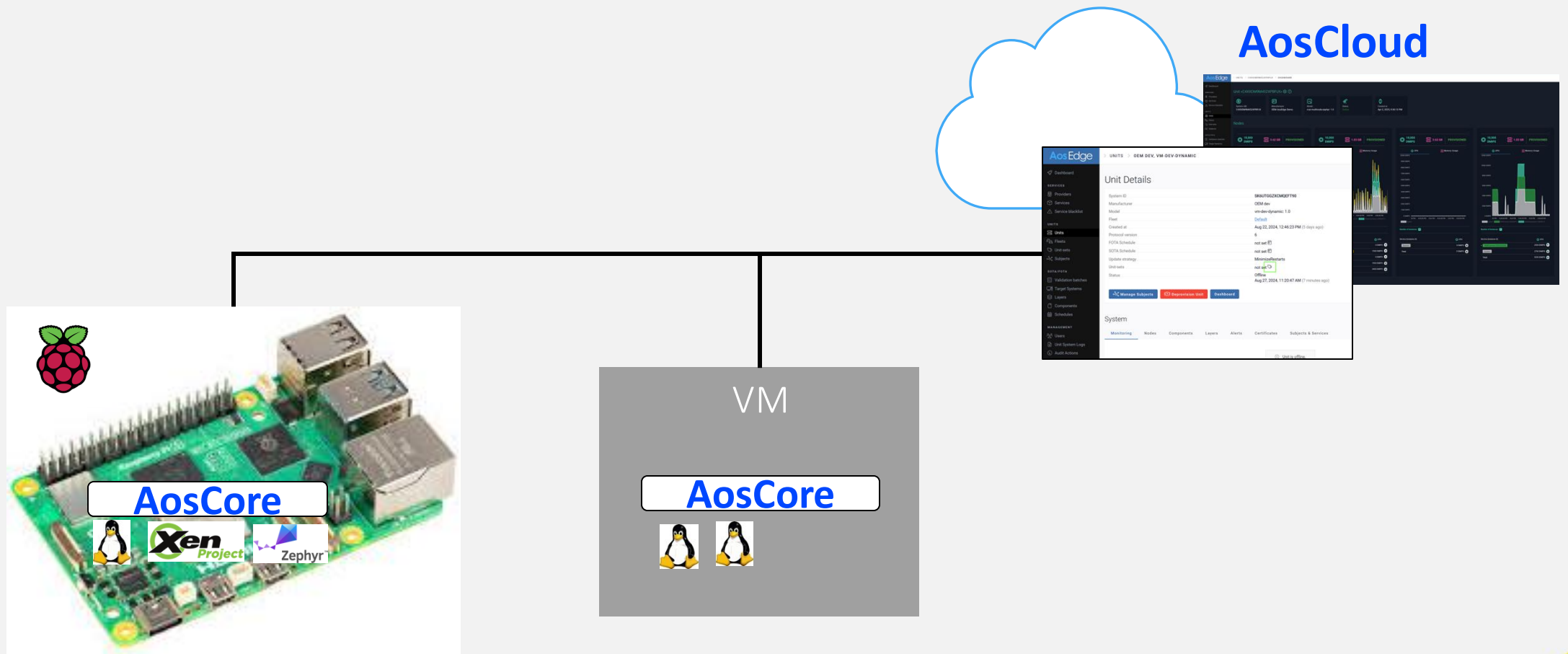
SOAFEE Special Interest Group

Demo booth

Holistic SDV architecture - Concept demo

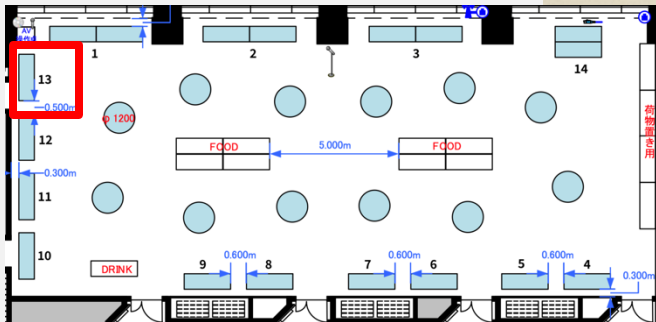


Seamless Deployment between Rpi5 & Virtual



AOS EDGE

Demo booth



EPAM Swags! ->
snack, phone holder, smart tag!



Holistic SDV architecture - Concept demo

Seamless Deployment between Rpi5 & Virtual

Get started

For more

Why edge computing for automotive?

Software-defined vehicle	"Divide and conquer" for ever-growing software size	Modern software development approaches
Recycle, reuse, reduce – but for software	Vehicle as a platform (VaaP) and new business models	Shift left: Virtual deployment and pre-validation

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2025 Open Source Summit Japan

AUTOMOTIVE LINUX SUMMIT @ THE LINUX FOUNDATION OPEN SOURCE SUMMIT JAPAN

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Possibility of Dynamic Rebalance in Multi-node HPC Vehicle Environment for SDV

Bucci Kawabuchi
Client Engagement, Product Manager
Automotive R&D, EPAM Japan

THE LINUX FOUNDATION #ossummit

2024 AWS session at CES 2024

aws FOR AUTOMOTIVE <epam> | AUTOMOTIVE

AWS THEATER SESSIONS | CES 2024

Edge computing in mixed-safety HPC clusters with AosEdge

Artem Mygaiev
Technology Solutions Director
EPAM Systems

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2022 SOAFEE Symposium

SOAFEE 2022 Symposium

Mixed safety orchestration with AosEdge

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Artem Mygaiev
16/Nov/2022

SOAFEE Special Interest Group

2019 Xen Summit

Xen Project DEVELOPER AND DESIGN SUMMIT

Keynote: Xen in Automotive

Artem Mygaiev, Director, Technology Solutions, EPAM Systems

Get started

Website

<https://aosedge.tech/>

Doc

<https://docs.aosedge.tech/>

GitHub

<https://github.com/AOSEdge>

Quick start

<https://docs.aosedge.tech/docs/quick-start/>

Rpi 5

<https://github.com/aosedge/meta-aos-rpi>

CONTACT

Bucci_Kawabuchi@epam.com

The screenshot displays the AOS Edge website. The top navigation bar includes links for 'Get started', 'AosEdge', 'AosCloud', 'AosCore', 'How-to', 'Reference', and 'AosEdge'. The 'Quick start' section is highlighted in the left sidebar, with a list of steps: 1. Set up your host, 2. Get access, 3. Create a unit, 4. Create a service, 5. Create a unit-set, and 6. Install service on the. The main content area shows the 'Quick start' heading and a paragraph explaining that the chapter provides detailed instructions for preparing the user environment to effectively utilize AOS Edge as a container deployment solution for connected devices. Below this, a diagram illustrates the 'software first approach for connected vehicle' architecture. The diagram shows a 'Smart Device (Open Source)' connected to 'AOS Edge' and 'Service Provider Cloud'. 'AOS Edge' is connected to 'AosCloud' and 'Service Provider'. 'AosCloud' is connected to 'Service Provider'. The diagram also shows 'Microservices orchestration' and 'End-to-end secured OTA management'. Below the diagram, a 'Sign Up' button is visible. The bottom section of the page lists various features and capabilities under the heading 'A software first approach for connected vehicle'.

- Microservices orchestration on embedded systems
- End-to-end secured OTA management
- Modern software development approach for constrained environments
- Multi-access edge computing for smart devices

[Sign Up](#)

A software first approach for connected vehicle

Delivery	Security	Multi-tenancy	Device Data	Software Development Kit (SDK)
OCI-Compliant Containers	System Isolation	Control Roles	Inter-service communication	Modern SW Frameworks
AMQP Command & Control	Containers	Usage Roles	Protected Hardware access	Service Debugging Tools
Campaign Planning	Cloud Connection	Device Level Service Isolation	Data abstraction models	Service Debugging Tools
Scaling	Service Runtime Introspection	Local Storage Support		



Thank You

