



# SOAFEE APAC Seminar

Tokyo, Japan  
15<sup>th</sup> May 2025

Robert Day – SOAFEE Governing Body representative

# Welcome !!

To the 4<sup>th</sup> SOAFEE APAC seminar

Full day of “SOAFEE in action” from SOAFEE members

- SOAFEE update
- APAC Hub Update
- The voice of the OEM
- Deterministic SDV
- Blueprints
- Blueprint demos
- Networking breaks
- Networking reception

SOAFEE membership

**Broad Ecosystem**  
150+ members

**Strong Geographic Representation**  
40% APAC  
31% Americas  
29% Europe



# SOAFEE Ecosystem

Bringing automotive, software and cloud providers together for the development of the SDV

## Governing Body



## Voting members







# SOAFEE Update

2025 – the year of SOAFEE in action

Robert Day, SOAFEE MSC chair  
John Penn, SOAFEE TSC chair

# A solution for the software defined vehicle (SDV)

As vehicles become more advanced, their functionality is increasingly driven by software updates and AI enhancements, transforming everything from user experience to autonomous driving.

The SOAFEE initiative is transforming the automotive industry by integrating modern software development practices and tooling into vehicle development.

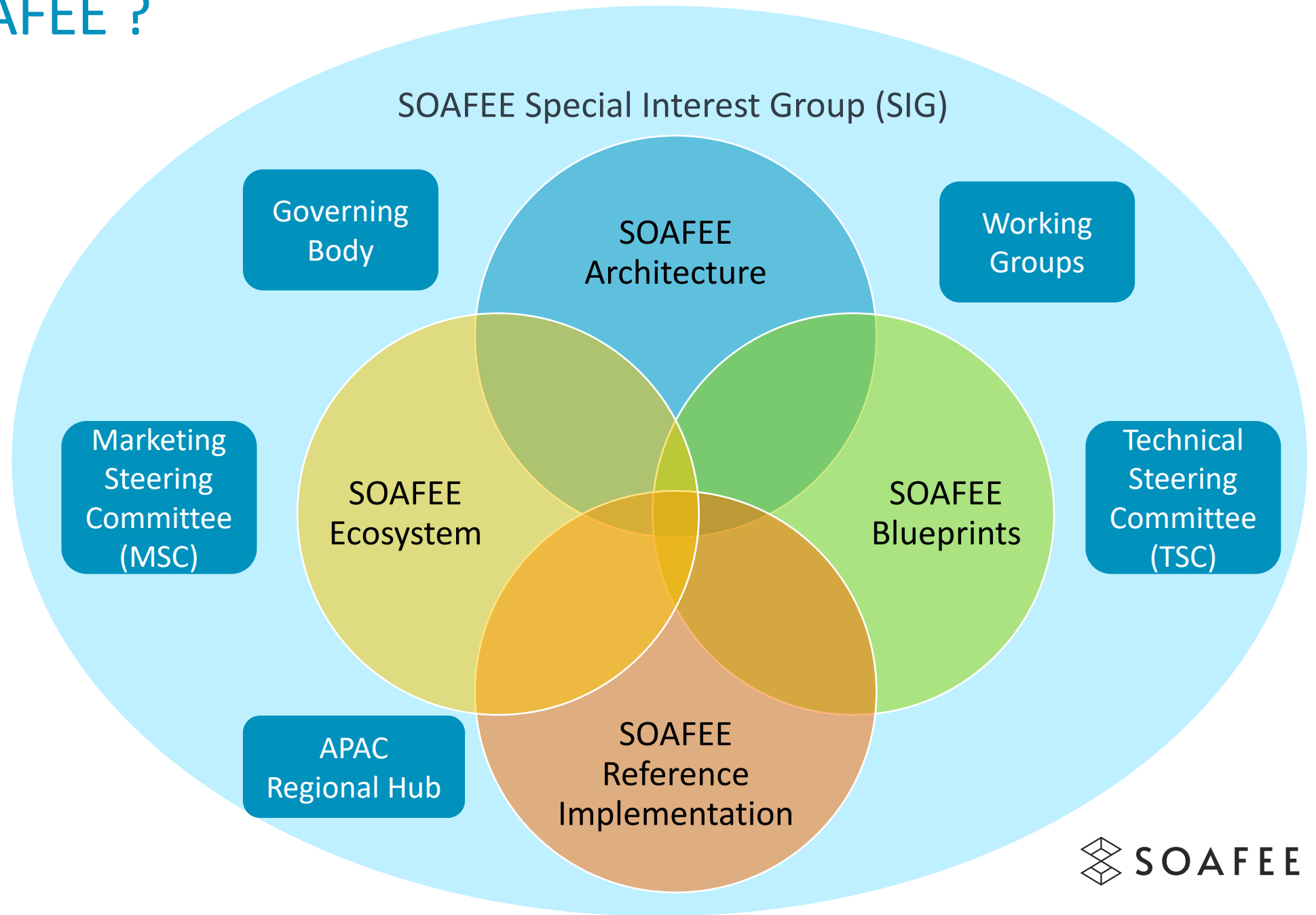


# What is SOAFEE ?



SOAFEE

Scalable  
Open  
Architecture  
For the  
Embedded  
Edge



# SOAFEE: The fundamentals



## Ecosystem

- **Members working together**, in a SIG, to create Standards based Commercial and Open-Source offerings for the Automotive world
- May belong to COVESA, EclipseSDV, AUTOSAR or other Automotive based technology organizations

## SIG

- Governing Body
- Marketing Steering Committee
- Technical Steering Committee
- Working Groups
- **Discussing, Exploring** and **Promoting** technologies & standards for the SDV in the SOAFEE Ecosystem

## Architecture Methodology

- Community driven architecture methodology focusing on a broad range of problem domains and technologies for the SDV
- **One way, not the only way!**

## Reference Implementation

- Edge **Workload Abstraction** and **Orchestration Layer** is a reference implementation for education about the SOAFEE Architecture and Vision
- “OS/Hypervisor layer and above”.

## Blueprints

- **Applications** that use, contributes to or extends the SOAFEE architecture
- i.e. Example applications, Tool methodologies, new OS components, enhancements, standards-based implementations or ...

# SOAFEE Architecture

From cloud-native technologies to SDV development and deployment

## The beginning



Prove that Cloud Native technologies have a place in Automotive

- Containers (OCI Compliant)
- Orchestrators
- Hypervisors

## Building the SDV Today



Delivering End-to-End Software Solutions for Automotive

- **AI – Standardize APIs for Workload scheduling**
- Heterogenous & Mixed Criticality
- Data Traffic Determinism (TSN)
- Functional Safety & Security
- **Standard APIs for Automotive HW**
- Secure Over-The-Air Update
- Multi-Tenant code repositories
- Multi-Project/Company CI

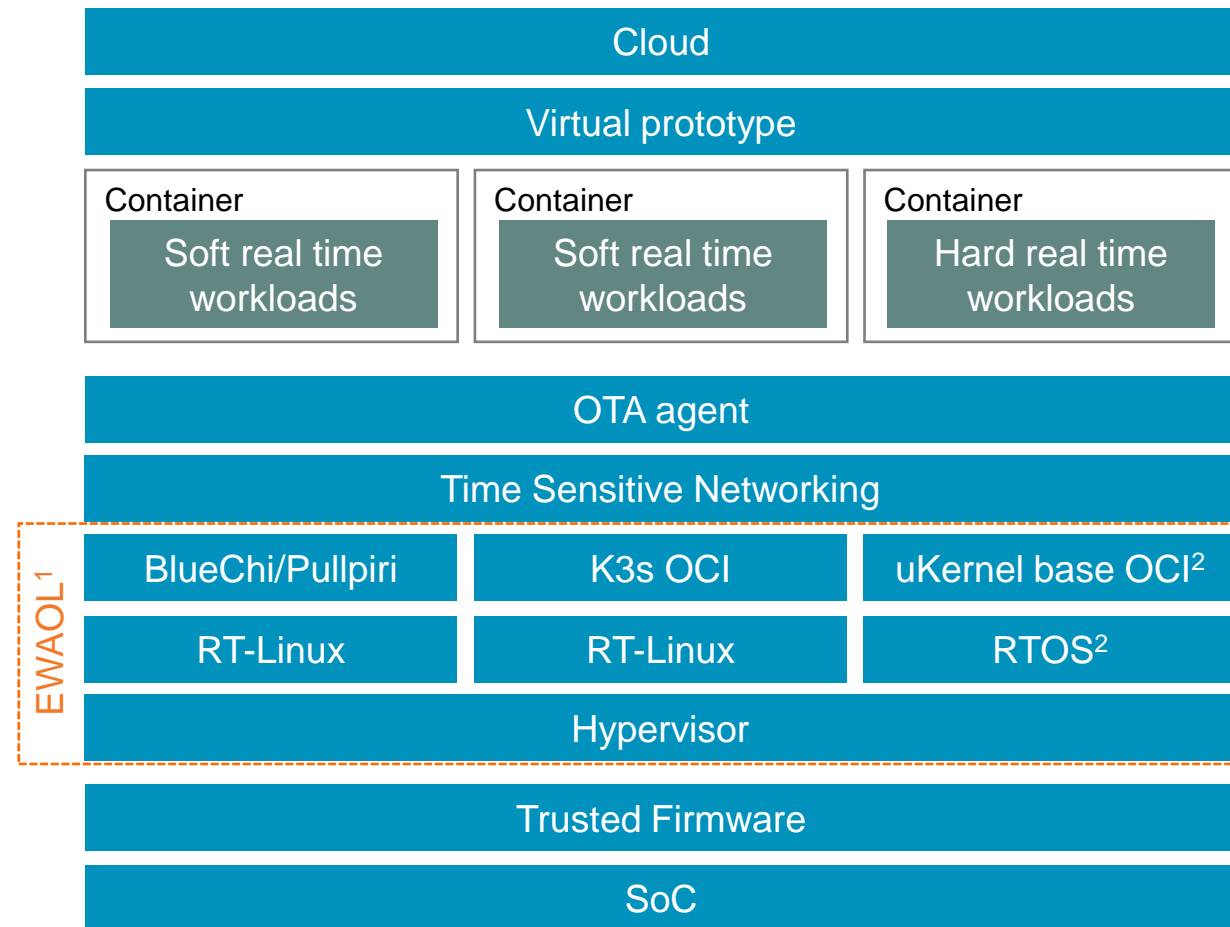
Software Portability and Hardware Abstraction!



# SOAFEE Architecture Methodology

## Industry Collaboration to Standardize Automotive Software

- An open-source foundation to prove out SOAFEE fundamentals
- Enables base cloud-native fundamentals as a starting point for automotive DevOps
- Reference implementation for education about the SOAFEE Architecture and Vision
- OS/Hypervisor layer and above
- EWAOL Version 2.0 release 2024
- Available on the SOAFEE gitlab repository



1. Edge Workload Abstraction and Orchestration Layer; 2. In discussions

# SOAFEE Blueprints

Contributions from the SOAFEE community to forward the SOAFEE initiative



## What is a SOAFEE Blueprint?

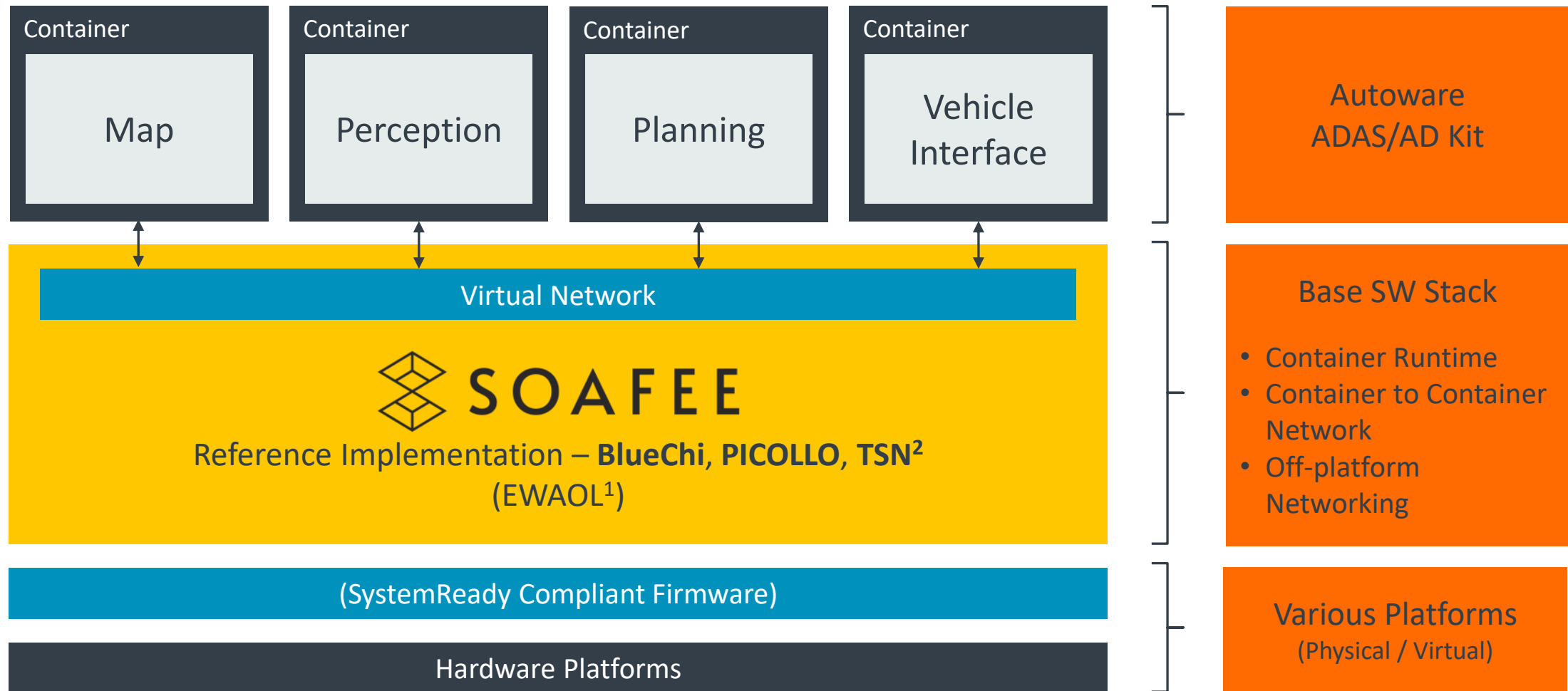
- A SOAFEE Blueprint is any use of, or contribution to, the SOAFEE architecture including, but not limited to, example reference applications.
- A SOAFEE Blueprint:
  - Can comprise work from multiple member companies.
  - Can involve members work/components as a part of their membership of other SDV Alliance Members (e.g. COVESA, AUTOSAR, and Eclipse SDV).
  - Should help advance the SOAFEE architecture through the technical working organization.
  - Will be promoted externally as part of ongoing SOAFEE marketing.

## SOAFEE Blueprints in Action

- Recently submitted/published SOAFEE Blueprints
  - Open AD Kit v2 – Autoware
  - ADAS application – Leddartech
  - Orchestration (BlueChi) – Red Hat
  - Orchestration (Piccolo) – LGE
  - Orchestration (AosEdge) – EPAM
  - Determinism (Lingua Franca) – Denso
  - Virtual IVI (vSkipgen) – Panasonic Automotive
  - Hypervisor (Virtio) – Panasonic Automotive
- For blueprint demonstrations visit :
  - [www.soafee.io](http://www.soafee.io)
- For information on submitting blueprints visit :
  - [www.soafee.io/blueprint\\_form](http://www.soafee.io/blueprint_form)

# SOAFEE Blueprints – Example: Autoware Open AD Kit Blueprint

## V2 architecture







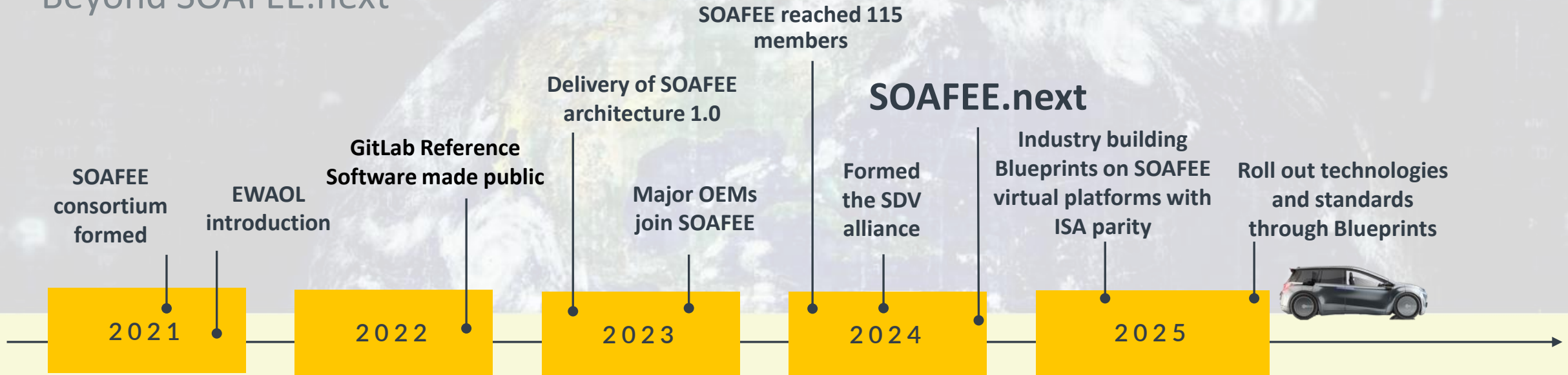
SOAFEE

# SOAFEE Year 4 – the year of execution and scaling



# SOAFEE Journey

Beyond SOAFEE.next

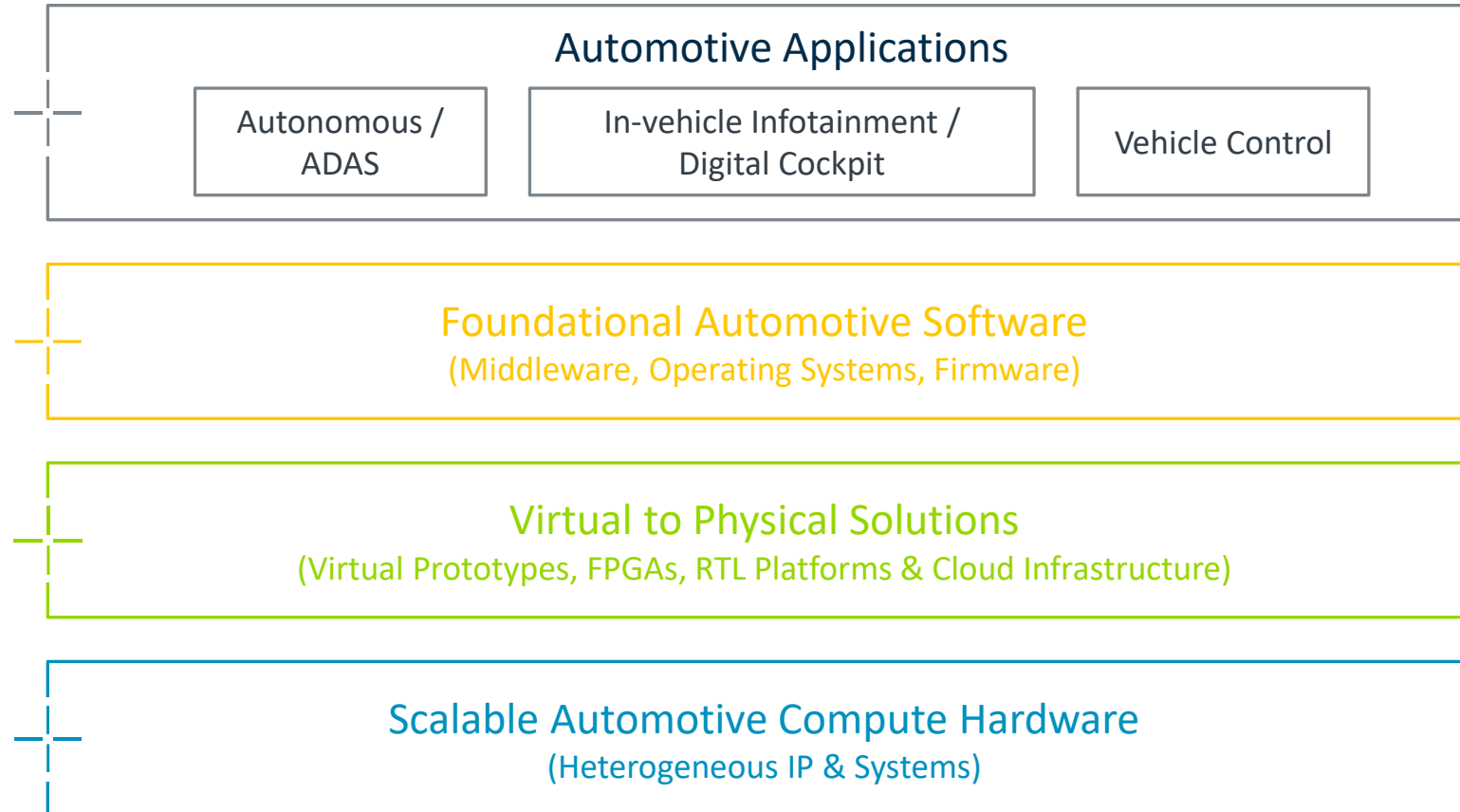


SOAFEE is an industry-led collaboration between companies across the automotive and technology sectors...

Working together to build open-source architecture for software-defined vehicles. Together we have one single goal - to create a shared platform for vehicles using cloud-native architecture that accommodates multiple hardware configurations. By making SOAFEE hardware agnostic, we plan to simplify vehicle software solutions radically.

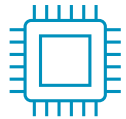
# The Automotive “Technology” Stack

A complex landscape that requires collaboration





## 3 key introductions moving the initiative forward using EWAOL 2.0



### RD-1 AE

- Functional Safety and Mixed Critical Orchestration Hardware and Software
  - Arm's new Automotive focused Reference Design 1 hardware solution for automotive.
  - Strong alignment through firmware abstraction (RD-1 AE) APIs to EWAOL 2.0 moving forward.
  - "Firmware and below" for all compute cores.



### Virtual Platforms

- + Development without silicon
  - Delivered through community members such as **Siemens, Cadence and Corellium**
  - Integrated with **SOAFEE SIG** for open-source development
  - Take advantage of environmental compute parity of the ISA in the Cloud and in the Car



### CI/CD & Services

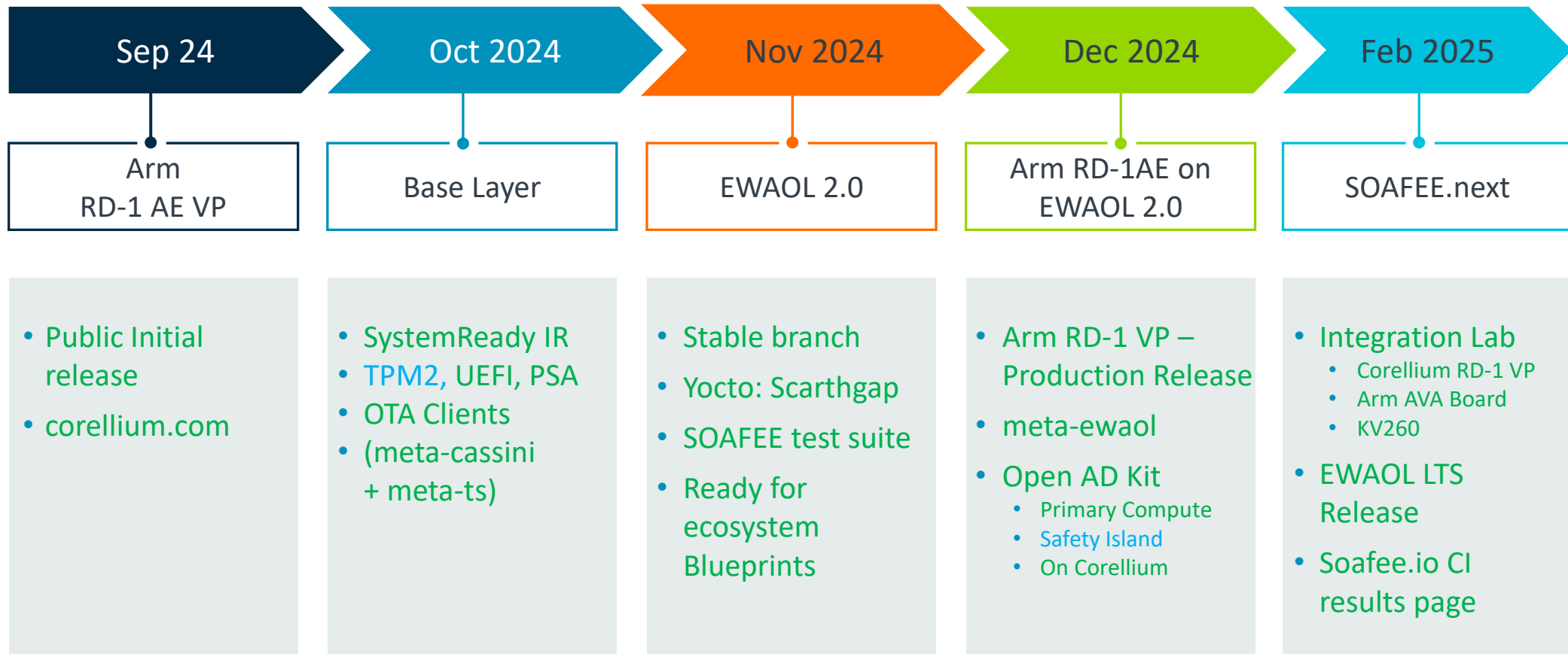
- + Software Assurance and services
  - **Linaro** – SOAFEE Integration Lab
  - Enabling the software stack SOAFEE validation

# SOAFEE.next Roadmap - DONE

COMPLETED

Next Phase

EWAOL 2.0, RD-1 VP and CI/CD Services



# What's next ? Bringing technologies & standards via Blueprints

Building on SOAFEE.next and SOAFEE Blueprints to bring SOAFEE in action

## Technologies

- TSN / OTA – example applications
- Virtio – hypervisor
- BlueChi/Pullpiri – Orchestration
- L4re – hypervisor – MCO
- AUTOSAR – Joint Group with SOAFEE
  - Adaptive and Classic

## Blueprints

- Open AD Kit – running on safety island - Autoware
- Piccolo – Orchestration – LG
- BlueChi – Orchestration – Red Hat
- Virtio – hypervisor – Panasonic
- AosEdge – Orchestration - EPAM
- Lingua Franca – determinism - Denso

## APIs/ Standards

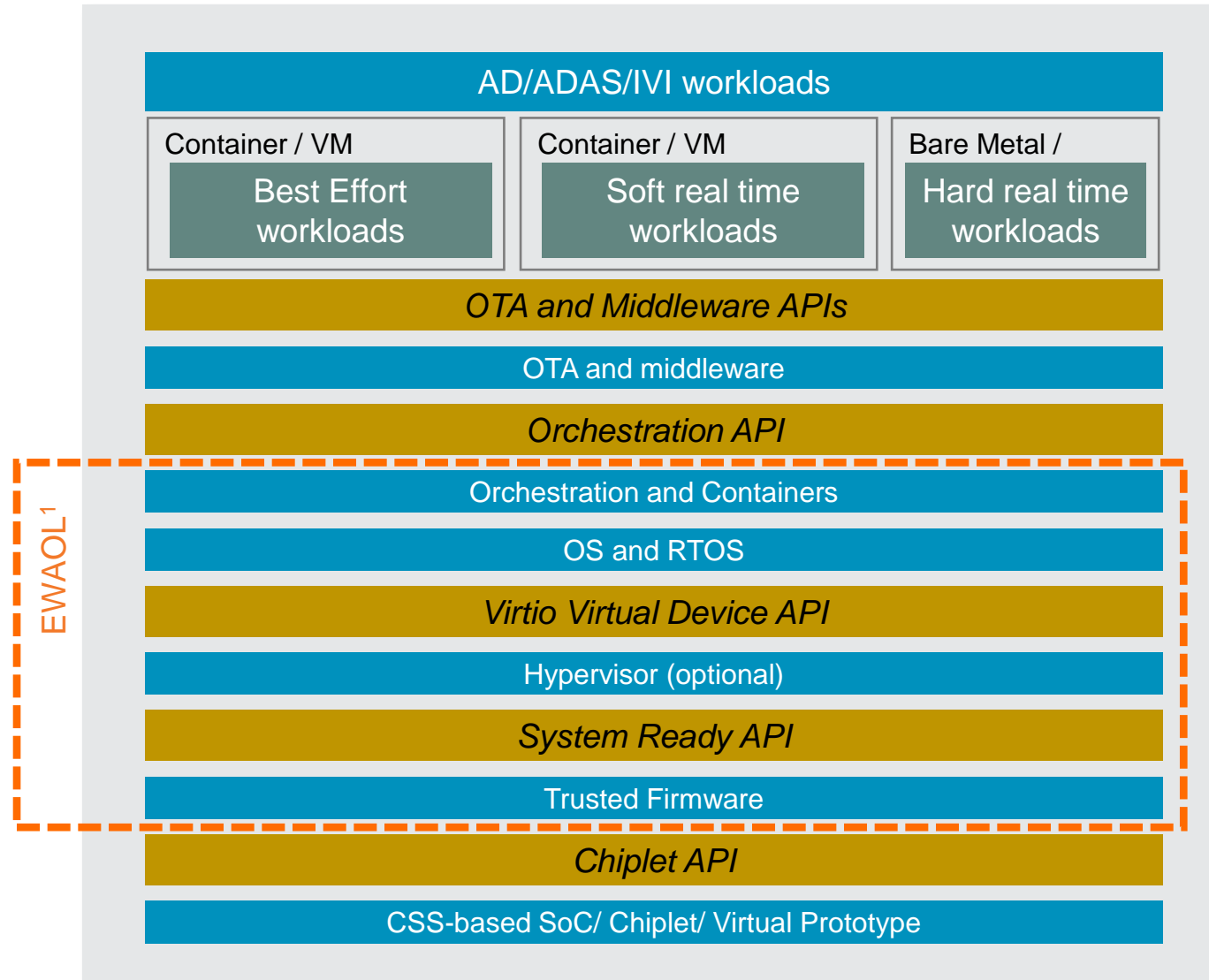
- eSync alliance – OTA
- Kubernetes – orchestration
- Virtio – Hypervisor
- System Ready - Hypervisor



# SOAFEE API layers

Industry Collaboration to Standardize Automotive Software



- Introducing standard APIs allows for portability through the full stack
- Example APIs shown
- EWAOL offers open-source reference implementations
- Blueprints bring in commercial offerings with technology demonstrators and workload examples



1. Edge Workload Abstraction and Orchestration Layer;

# How to Get Involved

## Participating and Contributing to SOAFEE

- Learn (more) about SOAFEE
  - Browse documents section at [soafee.io](https://soafee.io)
- Use the SOAFEE [slack channel](#) 
- Download SOAFEE reference integration and implement it in your system
- Follow SOAFEE on [LinkedIn](#) 
- Consider joining SOAFEE SIG
- Contacts :

[tobias.mcbride@arm.com](mailto:tobias.mcbride@arm.com)

for more information on  
becoming a SOAFEE member

[Robert.day@arm.com](mailto:Robert.day@arm.com)

for more information on  
SOAFEE marketing (MSC)

[John.penn@arm.com](mailto:John.penn@arm.com)

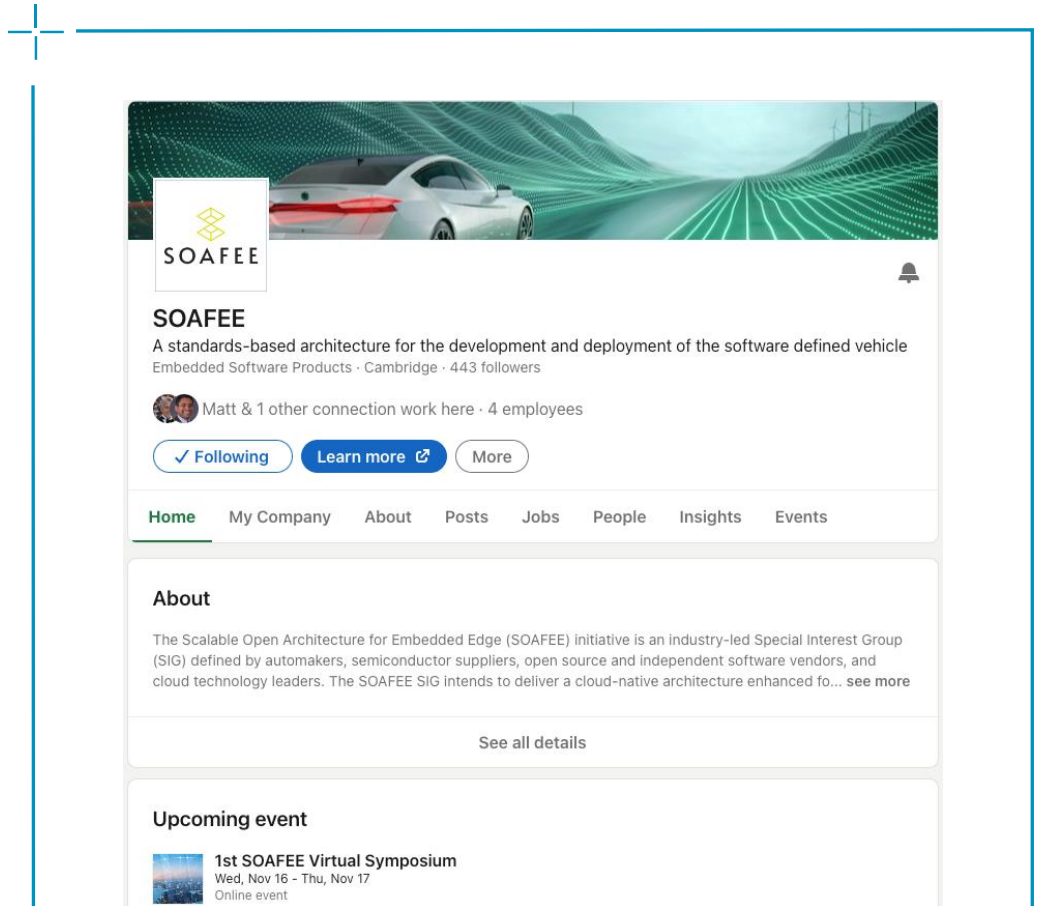
for more information on  
SOAFEE technical (TSC)

[Andrew.coombes@arm.com](mailto:Andrew.coombes@arm.com)

for more information on  
joining AUTOSAR JG-SOAFEE

[chou.kensou@jp.panasonic.com](mailto:chou.kensou@jp.panasonic.com) (Jerry Zhao)

for more information on joining  
SOAFEE APAC regional hub





Thank You

Danke

Gracias

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

شكراً

ধন্যবাদ

תודה





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