AUTOMOTIVE GRADE LINUX
ALL MEMBER MEETING

MAY 13 – 14, 2026
TOKYO, JAPAN

A Year of Momentum: Looking Back at the Growth of AGL Japan Community and What Comes Next

Hiroyuki Ishii
OSS Community Expert at Panasonic Automotive Systems
Linux Foundation Japan Evangelist

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About Me

Hiroyuki Ishii

- OSS Community Expert, **Panasonic Automotive Systems** (**Mobitera Inc.** from Apr. 2027)
- 15+ years of experience in Linux-based automotive software platforms; OSPO member
- **AGL steering committee** member; contributor to **SoDeV**, **AAA** (AGL Assessment Automation) and **OSPO-EG**
- **Linux Foundation Japan Evangelist**

Feel free to connect with me on Linkedin! →

Agenda

1. AGL So Far: Progress and Achievements
2. A New Phase for Automotive Open Source
3. AGL Community Evolution and Actions Taken
4. Wrapping Up & What Comes Next

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AGL So Far: Progress and Achievements

Automotive Grade Linux: How It Started

[Members – Automotive Grade Linux](#) (2026)

- Started around 2012 as a Linux Foundation project, led by Toyota
  - Since then, Japanese OEMs and suppliers have played a key role in running the project
- At the Time
  - IVI software scale & functionalities were growing fast, creating strong demand for a common platform
  - Using Linux and OSS in automotive products was still challenging
- AGL UCB (Unified Code Base)
  - First release in 2016; has kept twice-a-year release cycle

Key Characteristics of AGL

Code-first

Share working code early
to get quick alignment and decision-making

Vendor-neutral

Royalty-free

No mandatory certification that limits customization;
OEMs and suppliers stay in control

Upstream-aligned

Avoid re-inventing the wheel; reuse available OSS as much as possible

Stay close to upstream OSS communities;
avoid fragmentations and share best practices

Integration-proven

Find and solve real OSS pain points
by building and running full-stack automotive systems

Achievements: Broad Adoption in Production and Beyond

- AGL-UCB proven in production worldwide
  - Starting with the 2018 Toyota Camry, widely used beyond AGL member companies
  - Since 2025, more OEM press coverage has highlighted AGL adoption
- Also used as:
  - Baseline BSP for automotive SoCs
  - Academic and industrial research

[Reference to a press release removed for distribution]

[The Latest Evolution of Toyota's Multimedia Coming to a Screen Near You - Toyota USA Newsroom] (2025/10/13)

[Reference to a press release removed for distribution]

[Suzuki chooses Qt to power its digital cockpit for mainstream Evs] (2025/9/17)

[Reference to a press release removed for distribution]

[Honda Considers AGL Adoption and Explores Alternatives to QNX | Nikkei Xtech](Japanese) (2025/6/10)

Achievements: Top Global Market Share

Latest survey confirms AGL's strong position

[Survey data source removed for distribution]

- AGL ranks #2 as a base automotive OS (#1 for Infortainment & Cluster purpose)
- Year-over-year growth is +5 points; the largest increase in the survey

https://www.perforce.com/press-releases/automotive-development-report-2026

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A New Phase for Automotive Open Source

Open Source Is Now Essential in Automotive

Why

- Open source has matured and improved greatly
- Automotive software keeps growing, and engineering resources are limited
- Shared code helps companies share best practices and solve issues together

→ **We need to expand OSS adoption to more domains and use cases in automotive**

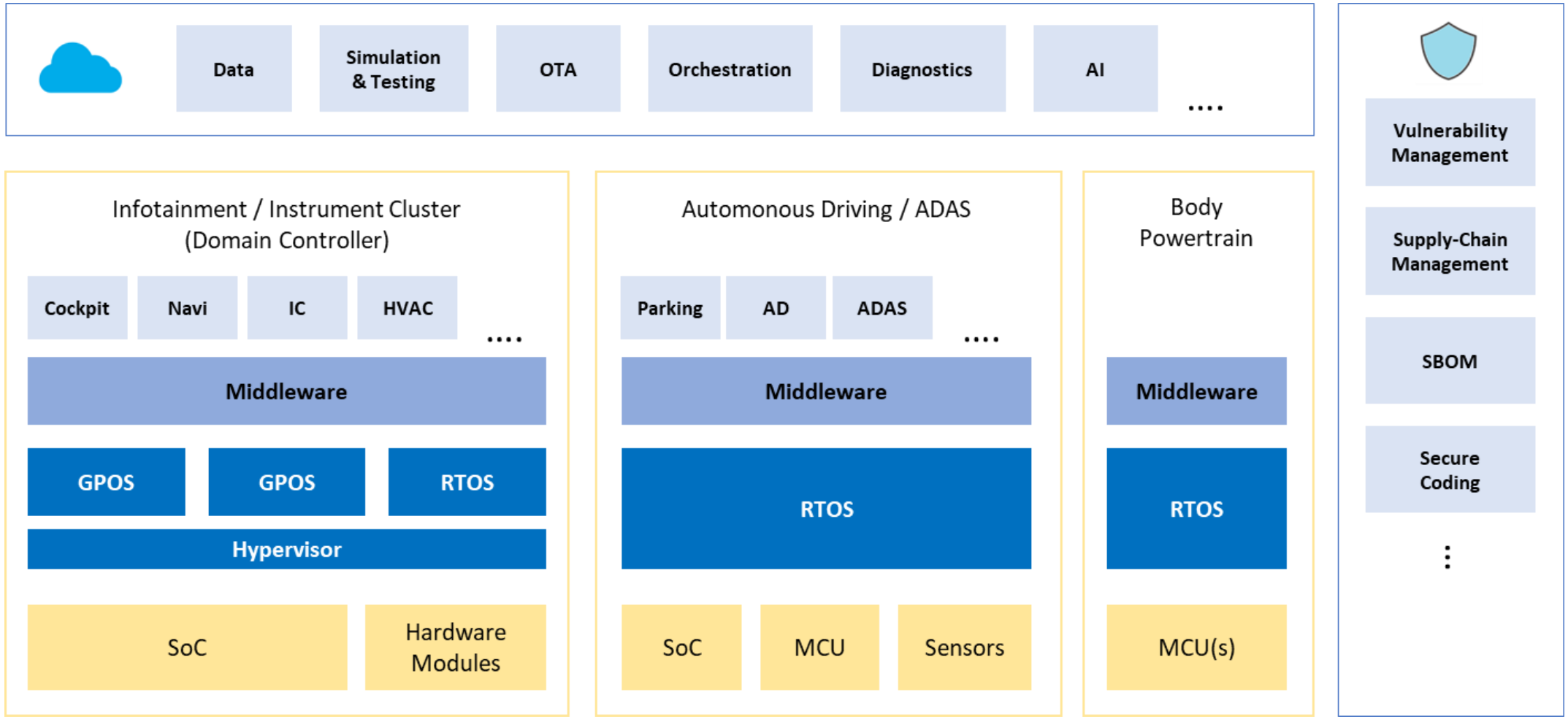
Q: Will AI replace open source?

A: No.

- AI can generate code, but it cannot create and maintain a common codebase
  - It can lead to silos and fragmentation
- Open sharing and upstream maintenance still matter

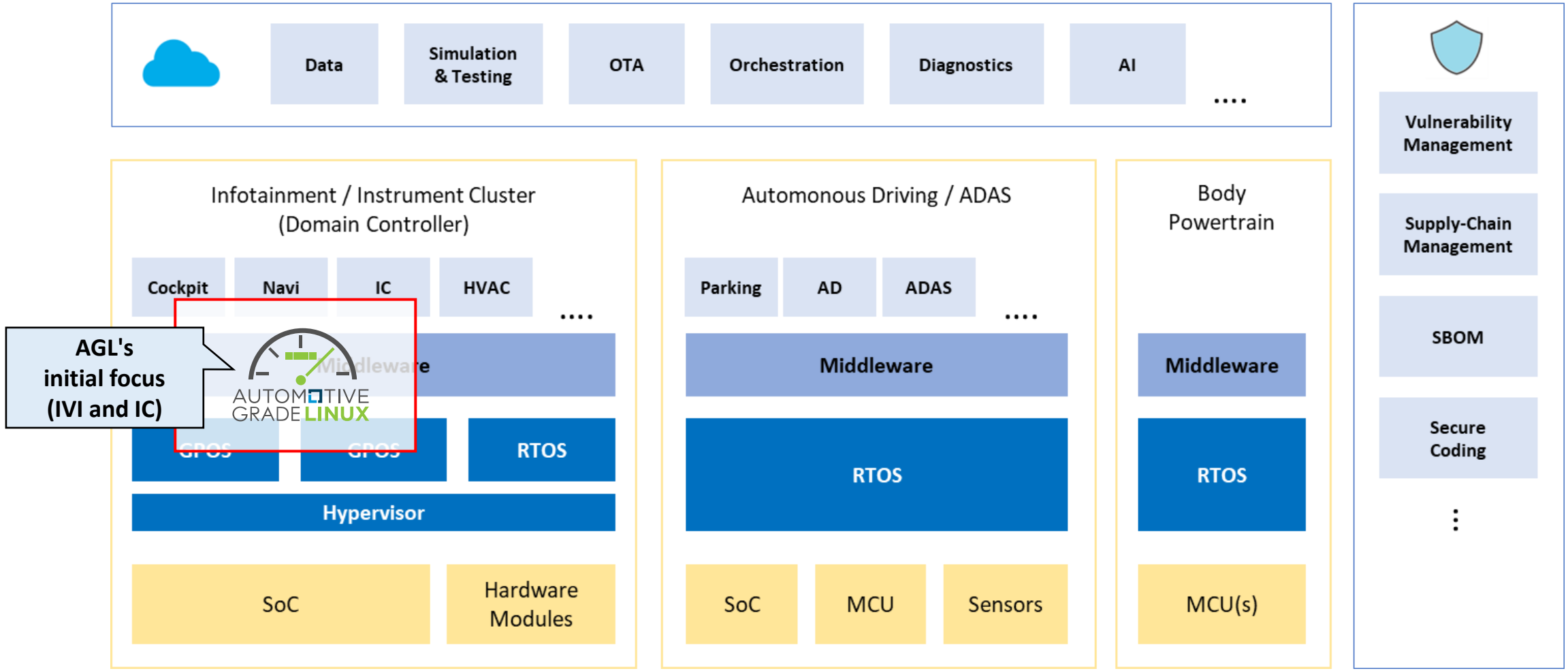
Key Challenges and Technologies for SDV era

A Simplified View of Vehicle Architecture



Key Challenges and Technologies for SDV era

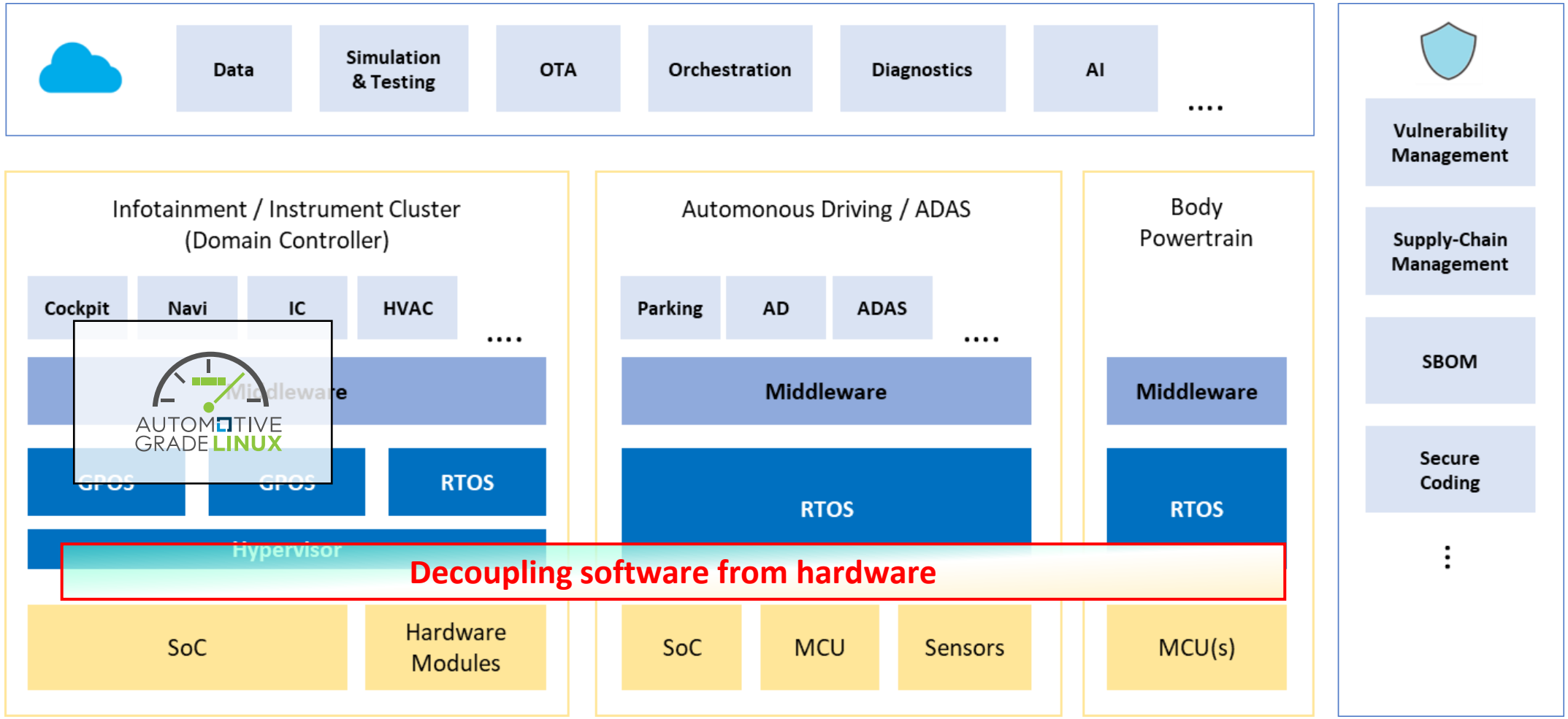
A Simplified View of Vehicle Architecture



Key Challenges and Technologies for SDV era

Decoupling software from hardware

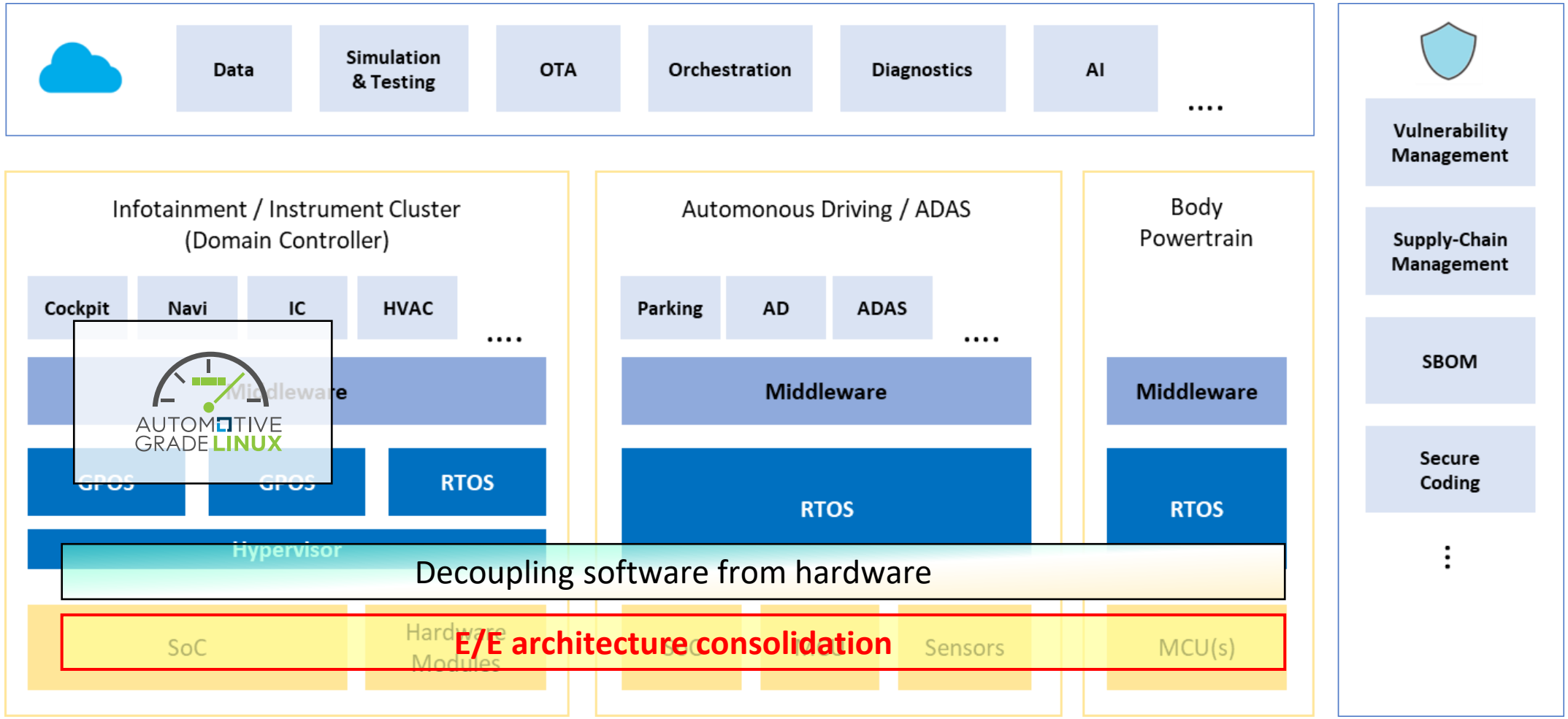
- Essential for portability and updatability, and for reducing vendor lock-in risk



Key Challenges and Technologies for SDV era

E/E architecture consolidation

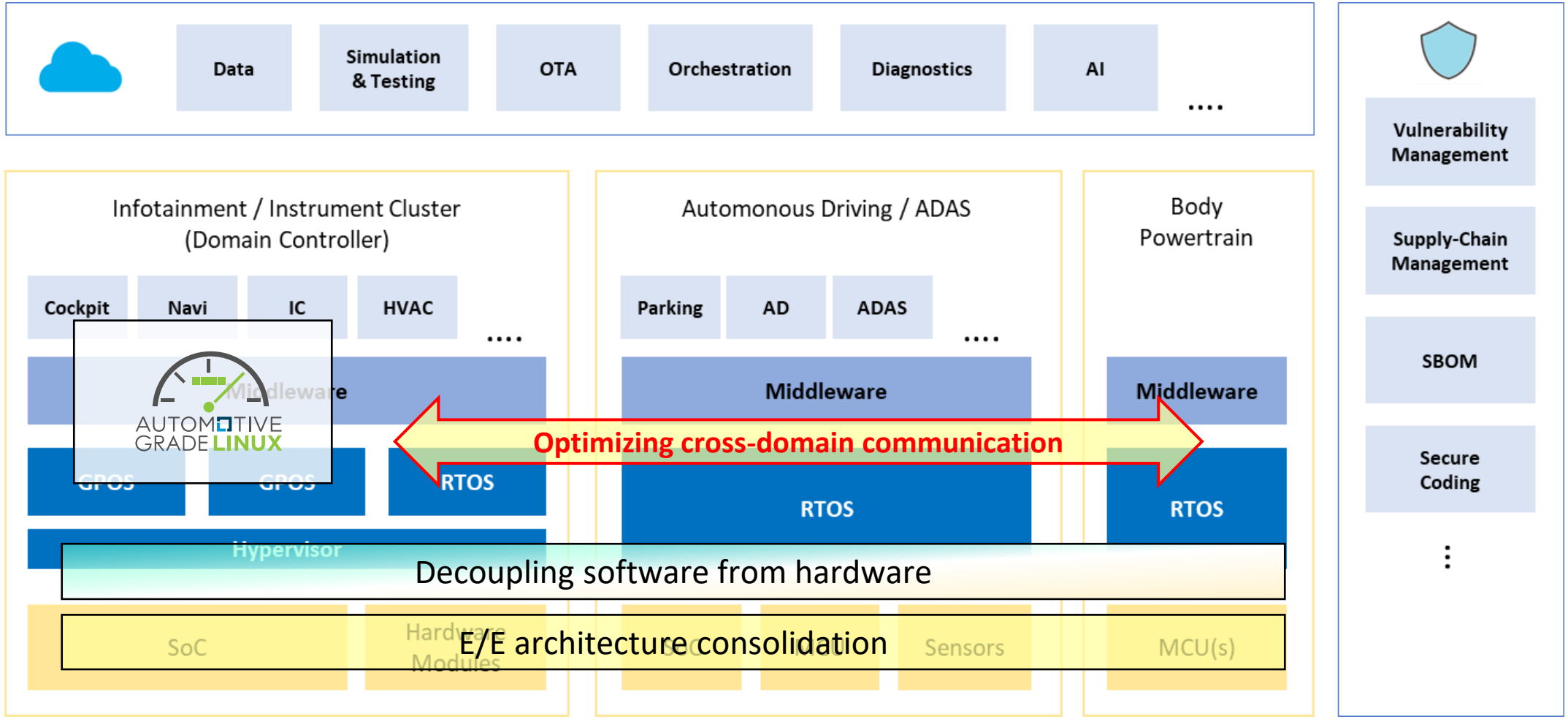
- Define boundaries and interfaces between safety and non-safety workloads
- Clarify what virtualization can and cannot do



Key Challenges and Technologies for SDV era

Optimizing cross-domain communication

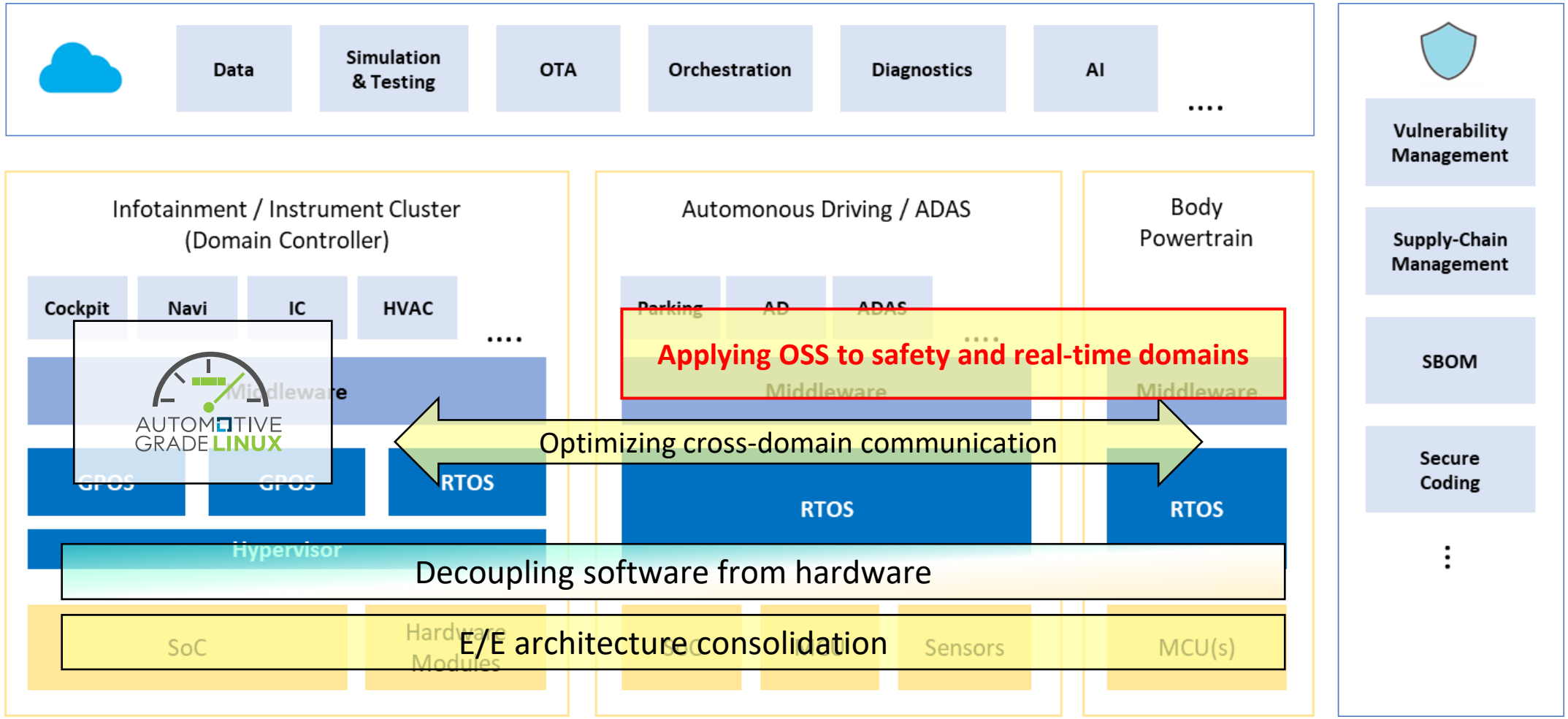
- Establish interfaces and data contracts across domains
- Balance performance, safety, and long term maintainability



Key Challenges and Technologies for SDV era

Applying OSS to safety and real time domains

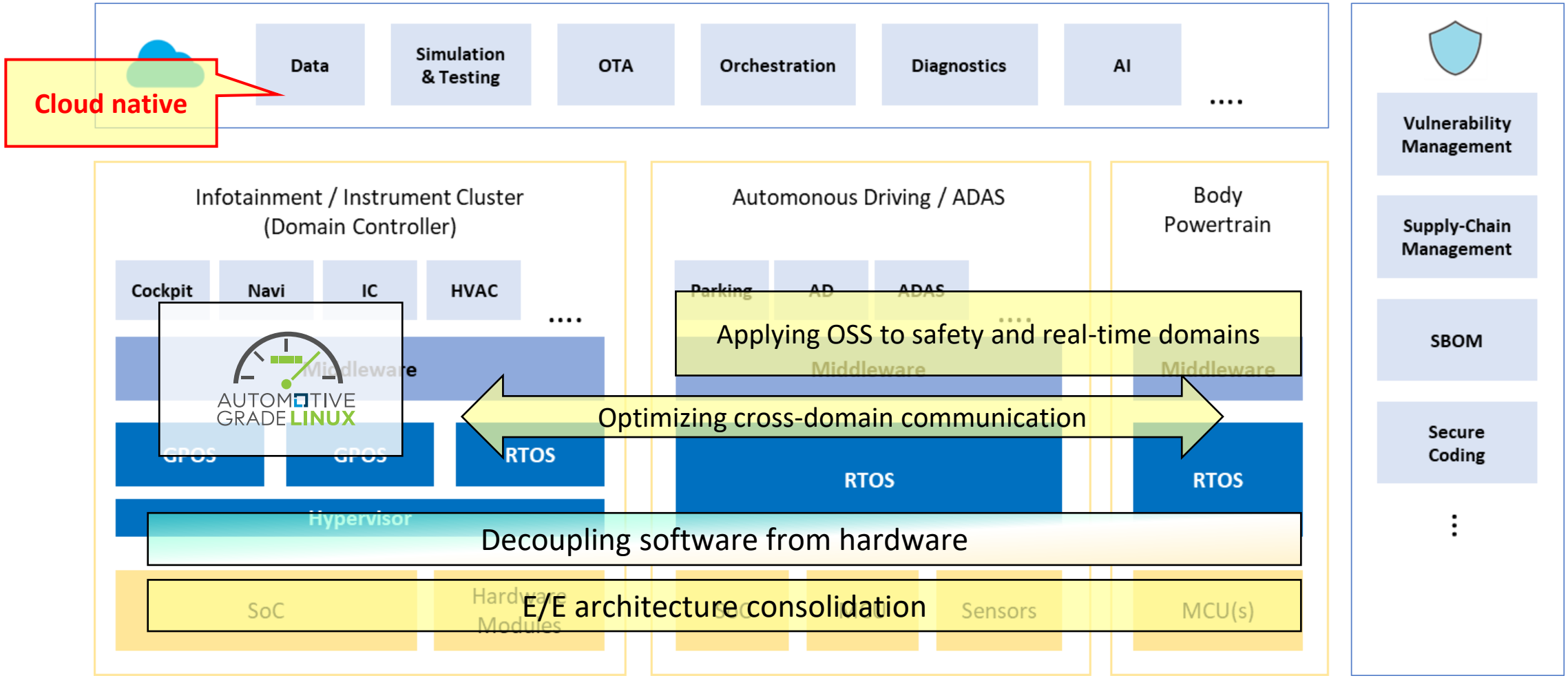
- Leverage open source RTOS ecosystems, for example Zephyr
- Could also be done in collaboration with external projects, such as ELISA and Eclipse S-core



Key Challenges and Technologies for SDV era

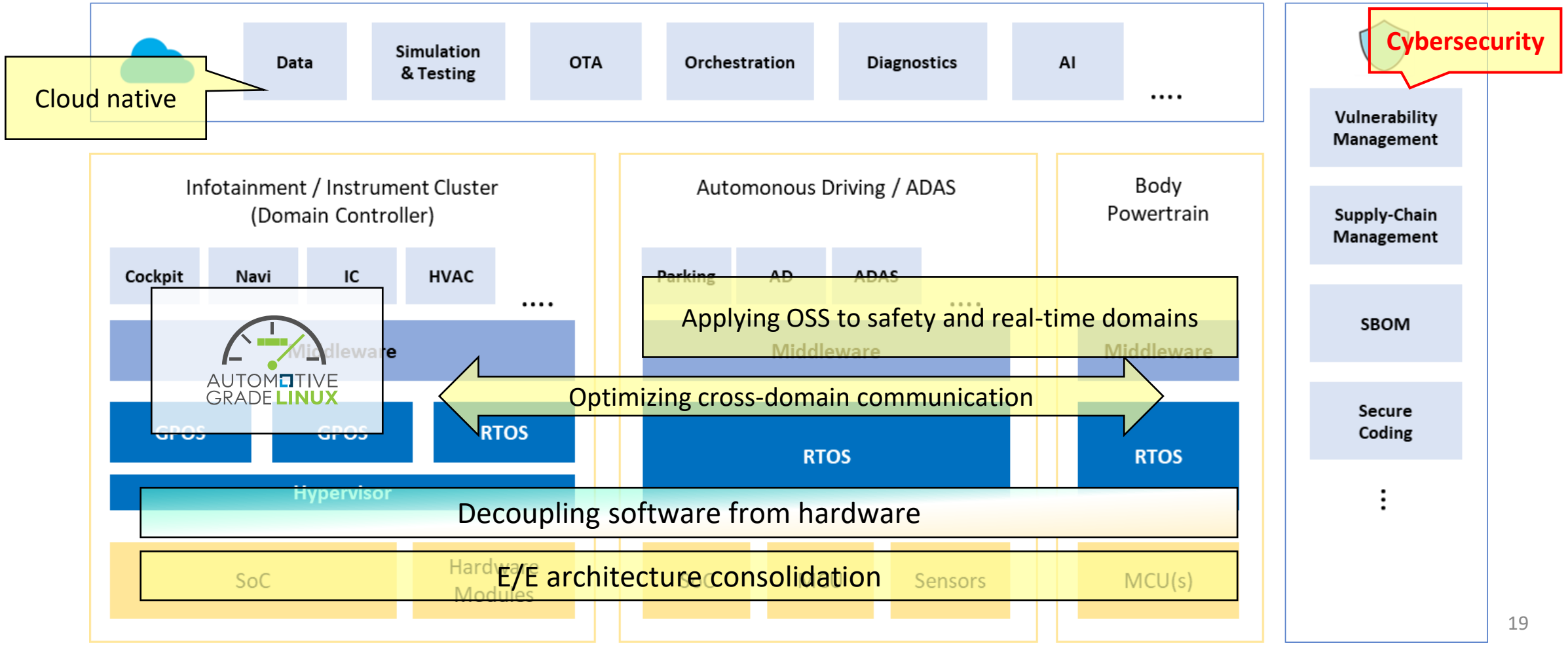
Cloud native

- Essential infrastructure for bringing cloud-proven technologies and practices into automotive domain



Key Challenges and Technologies for SDV era

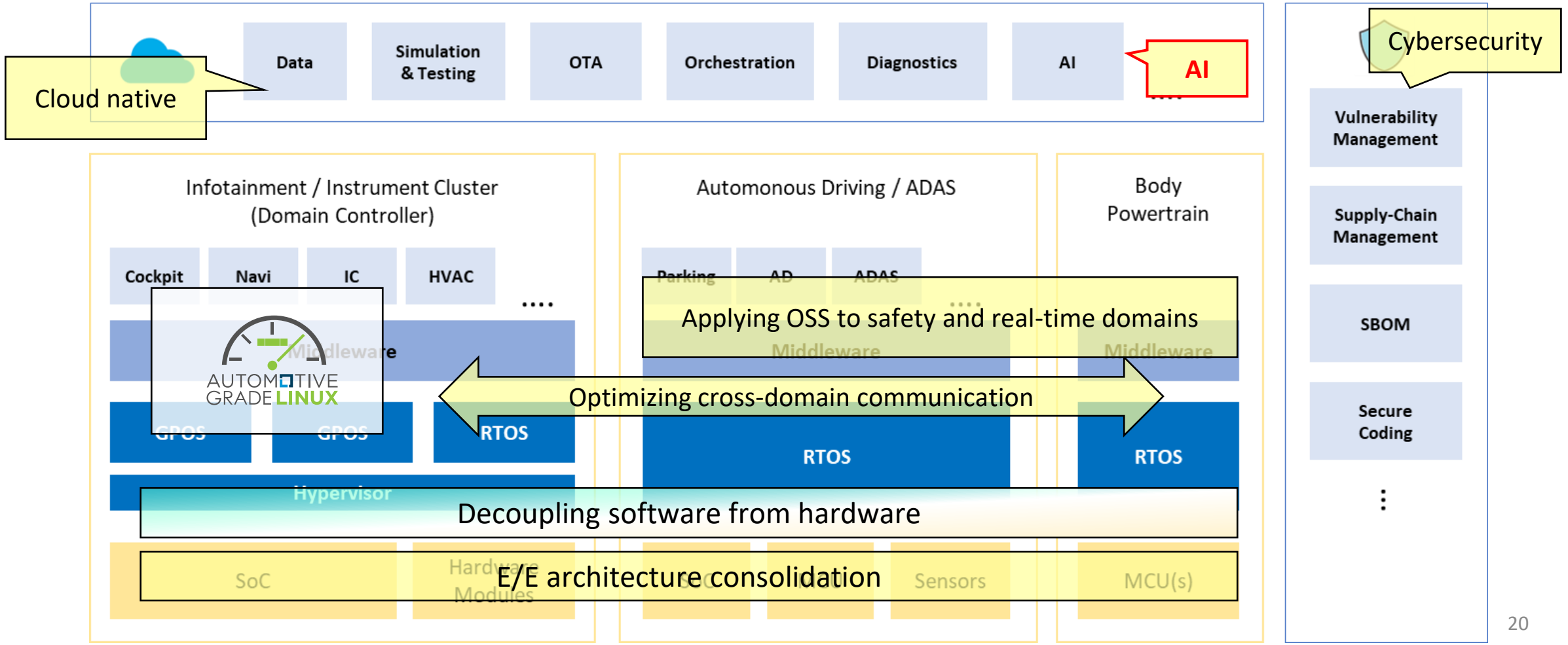
Cybersecurity
- Need best practices to meet evolving regulations across regions
- Supply chain security is challenging in automotive due to scale and complexity



Key Challenges and Technologies for SDV era

AI

- The boundary between competitive and non competitive parts is shifting
- The lifecycle gap between AI evolution and automotive development is significant



What We Considered to Revisit in AGL's Goals

What ***opportunities*** should AGL focus on?

Which ***direction*** should AGL take?

What should AGL do, and what should it ***avoid***?

How can AGL ***collaborate*** much more with other OSS projects?

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AGL Community Evolution and Actions Taken

Strategy Discussions (2024-2025)

Aim

- **Redefine AGL's goals and strategy** by reviewing the current status, expected changes in the SDV era, and other competing efforts

Members: Toyota, Honda, Mazda, Nissan, Panasonic, Aisin and Renesas

Key strategy

- **Use AGL's strengths** in IVI and IC, including a high market share and a ready to run full open source platform
- Prioritize **leveraging these strengths for incubation**, rather than focusing only on quality improvements or filling missing features
- Do not try to cover every SDV requirement only within AGL
  - Work with other OSS projects as needed, and **build a collaborative relationship**
- **Encourage contributions** from member companies
  - Speed up AGL development, shift company work closer to upstream, and develop engineering skills across member companies

OSPO-EG (2024-)

Launched in 2024, led by Toyota

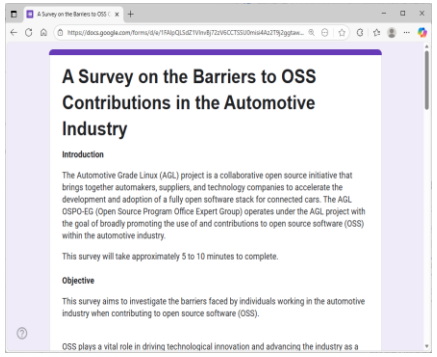
- Based on a strategy to encourage contributions
- I initiated OSPO-EG by inviting Endo-san and Itoh-san from Toyota as co-leads

Mission

- Make it easier for automotive engineers to contribute to OSS
- Another goal: Encourage more companies to join the AGL community, especially those that find code contributions challenging

Activities

- **Help member companies launch their OSPO**
  - Provide educational materials for both executives and engineers
  - Provide private consultation and support as needed
- Understand barriers to OSS contributions in automotive companies through a survey
- **Peer support for new AGL contributors**



SoDeV (2025-)

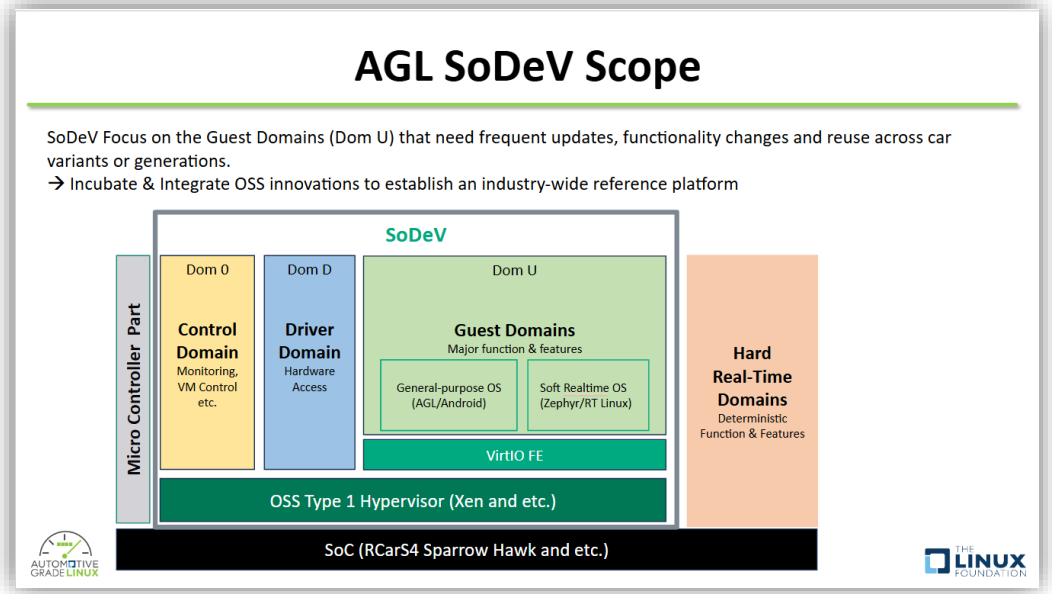
Launched in 2025, led by Honda and Panasonic

Goals

- **Build a full open source reference stack for SDVs**, including virtualization, ECU consolidation, and real time workloads
- Identify opportunities and pain points in mixed criticality systems
- Build complementary relationships with external OSS projects
  - Leverage partnerships with Linux Foundation projects → Xen, Zephyr, Yocto, and ELISA
  - Build new partnerships beyond them

My role

- Lead discussions in Japan and run regular workshops
- Maintain trial integration: https://github.com/automotive-grade-linux/sodev-demo-workspace
- Promote SoDeV in Japan; encourage companies and communities to join



UNIFIED HMI	VirtIO	Xen	yocto PROJECT	Zephyr
A flexible multi-display virtualization framework contributed to AGL by Panasonic.	An common interface for device virtualization standardized by OASIS and in the Linux Kernel.	Type 1 hypervisor used widely and hosted at the Linux Foundation.	Enables developers to build custom Linux images for embedded systems.	Provides a secure, modular RTOS for IoT and embedded systems.

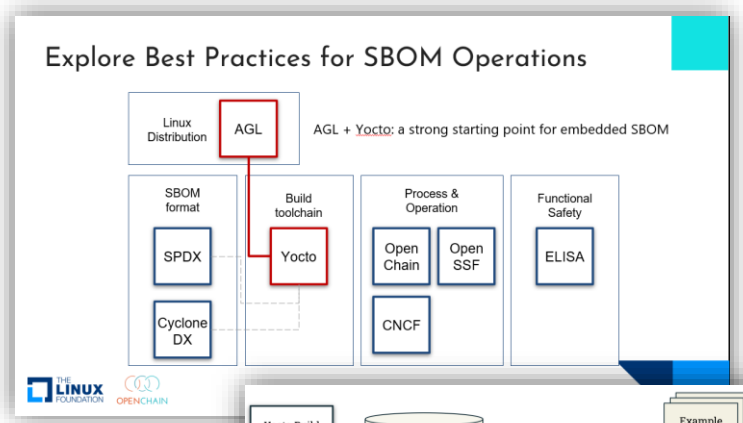
AGL Assessment Automation (AAA) (2025-)

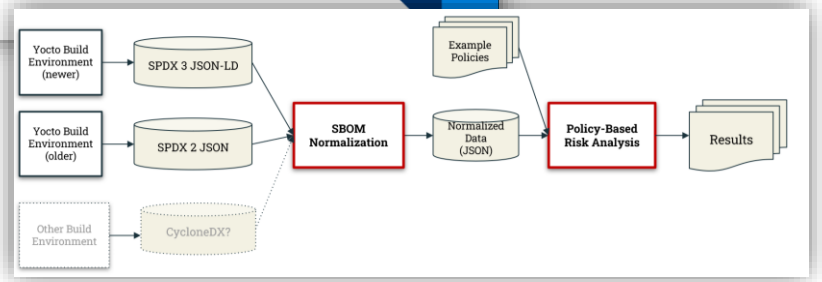
Launched in 2025 as an initiative within AGL CIAT-EG, led by Honda

- I contribute to this initiative, too

Goals

- **Build an open source reference pipeline architecture for SBOM operations in automotive**
  - Automate assessment workflows such as license compliance and security assurance
  - Validate and improve the approach by integrating it into the AGL CI CD pipeline
  - Consider cybersecurity regulations such as UN R155/R156
- Use a Yocto-generated SPDX 3 SBOM as input
  - **Target not only automotive, but also embedded industries** using Yocto
- Cooperate and align with communities such as OpenSSF, Yocto, OpenChain, SDPX and Eclipse SDV





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Wrapping Up & What Comes Next

Wrapping Up

- AGL has proven strong results in production and market share in IVI and clusters over past decade
- As the automotive industry shifts into the SDV era, AGL has updated its goals and strategy, led by core Japanese member companies
  - Key focus areas include:
    - Leveraging a ready to run platform
    - Incubating new technologies
    - Complementing each other with external projects
- AGL Japan community is leading new SDV era initiatives, and these efforts are attracting strong interest from both companies and communities

What Comes Next

- Closing the lifecycle gap between OSS and automotive development
  - The gap is even larger for cutting edge features such as AI
  - SoDeV can help by partitioning domains based on their lifecycle requirements
- Growing the community beyond automotive
  - Apply SoDeV to other safety critical domains (robotics, avionics, space …)
  - Expand industry neutral initiatives (AAA, OSPO-EG …)
- Strengthening the AGL ecosystem
  - Support more players involved in the AGL ecosystem, including lower tier suppliers and system integrators
  - Help companies using AGL contribute upstream
- Give us your ideas and collaborate with us!

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Thank you!
Questions or comments?


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