FEDERATE

European Software-Defined Vehicle of the Future (SDVoF) Initiative – Vision and Roadmap

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Reviewed by the Sherpa Governance Group

As the automotive industry moves towards autonomous, electric, connected, and service-oriented vehicles, hardware and software are becoming increasingly important in managing their operations and enabling new features. In the future, "software-defined vehicles" will offer more features and value than conventional vehicles, whereby electronics and software will play a key role in this new paradigm. Customers cherish new software applications such as infotainment, connectivity, ADAS/AD functionality, and regular over-the-air updates for new or improved functionalities for vehicle operation, automatically or on-demand. New apps are also combining cloud with vehicle functionalities to increase the comfort and safety of the driver for day-to-day operations such as charging, parking, and driving. Customers are willing to switch brands for better applications and features.

In the new paradigm software drives value creation, serving functions and services both within vehicles (on-board) and in the cloud (off-board) as well as the infrastructure around the vehicle, which will provide mobility services. This transition fuels demand for next-generation system-on-chip designs and high-performance processors, fundamentally reshaping software development and integration, and opens the opportunity to re-think and re-design the vehicle software stack to match the need of the vehicle of the future.

Therefore, in late 2022, the European Directorate-General for Communications Networks, Content, and Technology (DG CNECT) initiated a consultation process, leading to the establishment of the **Software Defined Vehicle of the Future (SDVoF) initiative,** which specifically emphasizes collaboration across European Original Equipment Manufacturers (OEMs) and suppliers.

The **SDVoF initiative is a partnership** between the European Commission, public authorities of participating states in funding programs as Chips-JU, and the industry to tackle the challenges in the global SDV market together. The initiative is guided by the SDV Sherpa Governance Group (SDV-SGG) acting as a decision-making board, providing direction, vision and validating roadmaps.

By fostering coordination among existing alliances and establishing **close ties with EU initiatives related to an open automotive hardware platform**, as well as initiatives **on connected and automated vehicles** or **zero emission mobility**, the SDVoF initiative aims to create a robust ecosystem. Additionally, where appropriate, open-source software initiatives will be seamlessly integrated.

The SDVoF initiative takes a system-level approach and focuses on non-differentiating elements (also known as building blocks) within the vehicle software stack. It will also engage in collaborative research, development, and innovation (RDI) projects. These projects will focus on creating essential building blocks, defining the overall structure, and establishing standardized interfaces. Furthermore, a coordination and governance concept will guide decision-making, foster collaboration, and ensure alignment with European actors' strategic objectives.

Find out more about the approach, objectives, and goals of the SDVoF initiative as well as it's defined governance structure and expected results in the **Vision and Roadmap Paper on the FEDERATE website.**

EUROPEAN PARTNERSHIP

chips JU

Advancing Automated Mobility with SDVoF:
# A Collaborative Co-Design Effort

Author: Gereon Meyer

(EPoSS), Co-Leader of CCAM Cluster 2 "Vehicle Technologies"

The European Partnership on Connected, Cooperative and Automat-ed Mobility (CCAM) and the Software-Defined Vehicle of the Future initiative (SDVoF) of the Chips JU will collaborate more closely to push the boundaries of automated mobility through smart co-design in the future. This collaboration is set in their strategic research agendas, aiming to fuel mutually beneficial initiatives that follow a value chain approach. The CCAM partnership focuses on improving auto-mated vehicles' functionalities and mobility services, including envi-ronment perception, decision-making, and active safety, by integrat-ing the Chips JU's hardware and software building blocks and defining future performance requirements for such components. The Chips JU, in turn, is dedicated to developing such components as e.g. sen-sors, controls, actuators, along with the necessary software systems.

At a recent "Multicluster Meeting" of the CCAM partnership, where the SDVoF initiative was presented by the coordinator of the CSA FEDERATE, it was evident that a central area of shared interest is the development of the software-defined, hardware-enabled vehicle of the future, spearheaded by the Chips JU's SDVoF initiative. This initiative aligns with CCAM's Cluster 2 "Vehicle Technologies" and Cluster 5 "Key Enabling Technologies". The collaboration extends to

co-designing electronic architectures and software, enhancing ve-hicle applications, and piloting integrated software stacks. The Chips JU contributes with hardware components like high-performance com-puting using open RISC-V architectures, semiconductor components, and middleware that supports hardware/software integration.

For both CCAM and the Chips JU, synchronized strategic planning is key to maximizing the impact of their partnership. They share a commitment to good governance practices that promote fairness, openness, and transparency across the automotive value chain. This approach not only ensures European leadership in chips and auto-motive innovation but also supports the advancement of technical and societal improvements in road transport and mobility. In view of the strong interlinks, the creation of an Automotive Hardware Se-nior Expert Group has thus been proposed to enable a continuous exchange of thoughts and plans between the SDVoF community and application-focused partnerships such as CCAM. Such a high-level hardware group could e.g. be included in the CSA FEDERATE complementing the existing SDV Sherpa Governance Group (SDV-GG) and building on the group of RISC-V experts.
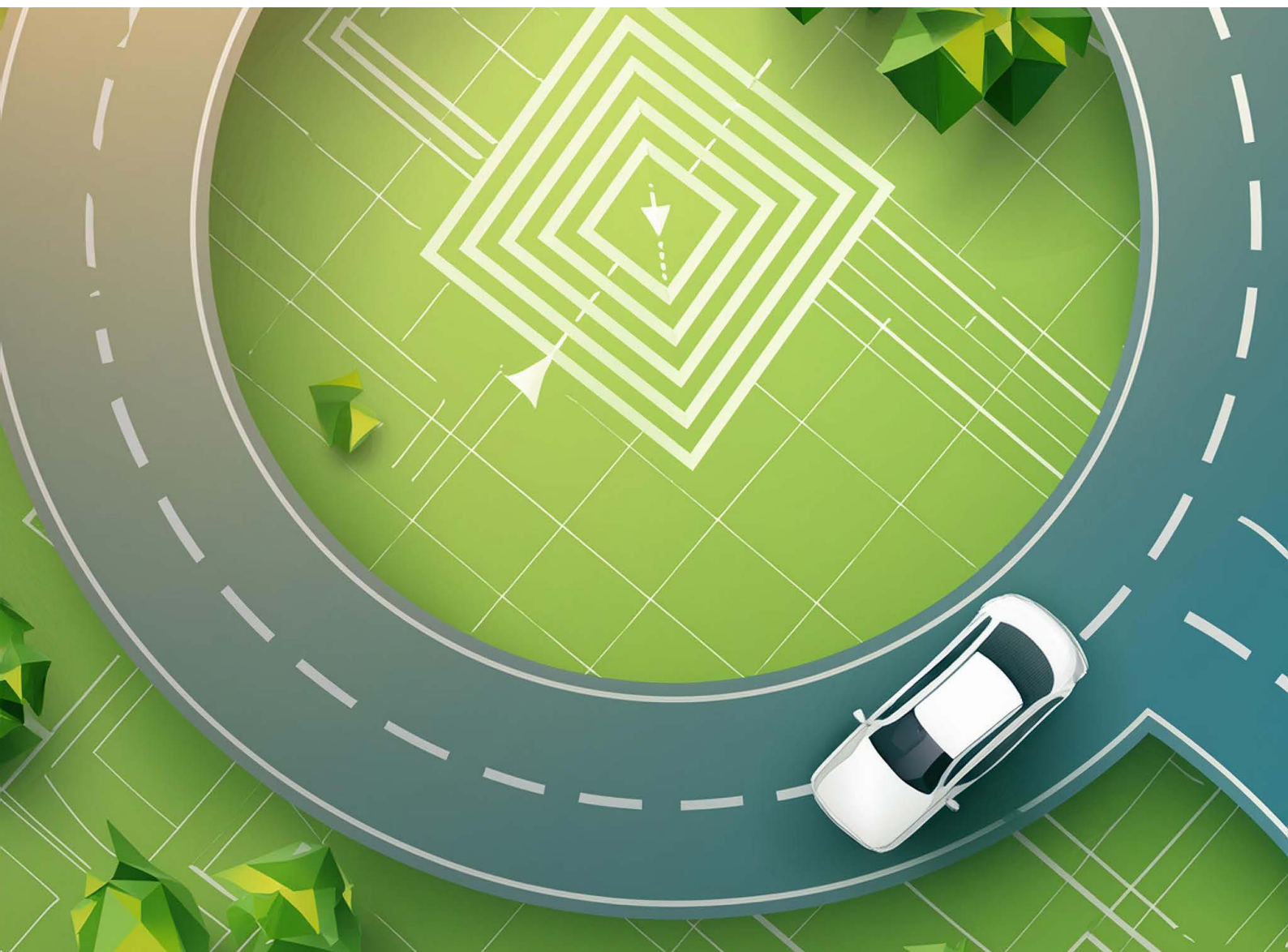
DISSEMINATION & COMMUNICATION

FEDERATE presented in the Plenary Session of the EARPA Spring Meeting

EARPA Spring Meeting 2024 to read more
EARPA Spring Meeting 2024 photo gallery

FEDERATE participated in the EUCAD Symposium 2024

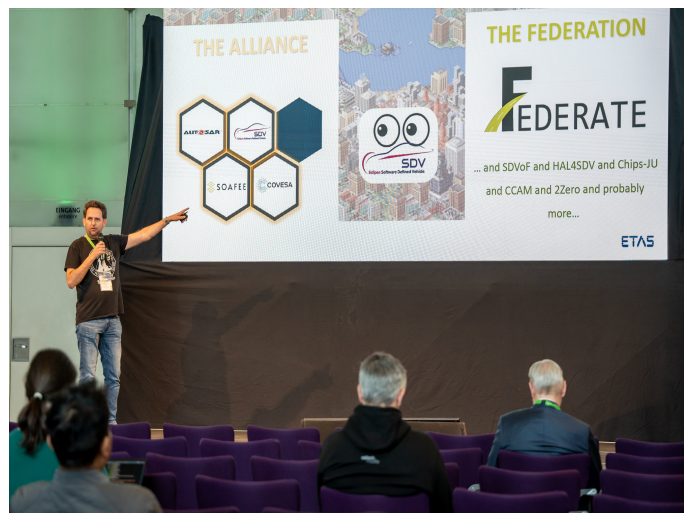EUCAD Symposium 2024 to read more:
EUCAD Symposium 2024

SDV Community Day at AVL List GmbH

Interviews

Photos

Event wrap-up video

Recordings from sessions

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SAVE THE DATE!

FEDERATE NETWORKING EVENT

Monday 23 September 2024
9:30 am to 5:00 pm
TTTech Auto AG, Operngasse
17-21, 1040 Wien, Austria

Event Highlights:
• Software-Defined Vehicle of the Future (SDVoF) initiative
• SDVoF projects
• Networking Opportunities

Registration will be possible via FEDERATE website soon!

FEDERATE contact information: federate-office@avl.com

Don't miss this opportunity to connect with the Software-Defined Vehicle community at our **FEDERATE Networking Event**, which will be held in conjunction with **Autonomous 2024** in Vienna!

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OCX 2024 – Registration opens in July!

OPEN COMMUNITY FOR AUTOMOTIVE

**22 – 24 October 2024
Mainz, Germany**

OCA – Open Community for Automotive in collaboration with the Eclipse Foundation @OCX24

Driving innovation – just as it's in our code,
it's at the core of the Open Community for Automotive.

Witness the future of automotive software fuelled by open source's transformative power, we'll push boundaries, explore beyond limitations, and redefine the connected car landscape. Collaborate with fellow innovators, thought leaders, and developers actively shaping the future of open-source automotive software and redefining the connected vehicle landscape.