

The Eclipse Foundation Launches New Working Group for Software-Defined Vehicles

Europe's leading open source foundation is joined by industry leaders Accenture, Arm, AVL, Bosch, Capgemini, Continental Automotive, DMI, ETAS, Futurewei Technologies, Karakun, Microsoft, Red Hat, Reycom, SUSE, and ZF to drive automotive innovation

BRUSSELS – March 8, 2022 – [The Eclipse Foundation](#), one of the world's largest open source foundations, along with multiple industry leaders, including ETAS, Microsoft, ZF, and others, today announced the formation of the [Software-Defined Vehicle \(SDV\) Working Group](#), a new formal initiative focused specifically on automotive innovation. Using a “code first” approach, the working group's goal is to build one of the industry's first software stacks and associated tooling for the core functionality of a new class of automobile. These open source solutions will, in turn, be made available to any organization that wishes to leverage them for their own vehicle development. Multiple projects have already been proposed and work on these elements has already begun.

For the automotive industry, the move to open source software is a radical departure from conventional methods. However, as cars increasingly transform into “computers on wheels,” the criticality of software, and standardization, continues to increase. The Eclipse Foundation believes that software-defined vehicles will enable vehicle manufacturers, as well as automotive suppliers to put software at the very center of vehicle development. Doing so enables an order of magnitude increase in the speed of innovation, speed of production, and the ability to scale production of software-centric vehicles.

“Just as OSS has enabled rapid innovation and scale in other industries like manufacturing and healthcare, so too will the automotive industry benefit from leveraging the open source model,” said Mike Milinkovich, executive director of the Eclipse Foundation. “The industry leaders that have come together for this initial launch of the working group speaks volumes about the demand for this initiative. With the Eclipse Foundation's deep history within the automotive community, there is no other organization better equipped to lead this transformative shift.”

To achieve this significant change in the design process, the SDV working group will build the foundation of an open ecosystem for deploying, configuring, and monitoring vehicle software in a secure and safe way. Vehicle manufacturers and suppliers may then use this foundation to focus on differentiating customer features, like mobility services and end-user experience improvements. The ultimate goal is that industry players will benefit by being able to focus on innovation, while saving time and cost on the non-differentiating elements, like real-time operating systems, specific parts of the middleware layers or communication protocols.

To support this transformation to software-defined vehicles, major players from the broader technology industry, as well as the automotive industry are now collaboratively developing an open source in-vehicle application runtime stack, cloud-based vehicle operations, as well as highly integrated development toolchains. The open source software-defined vehicle initiative aims to deliver usable open source code for in-vehicle software across vehicle models, product lines, brands, organizations, and time.

The Eclipse Foundation has decades of experience managing the governance of complex technology initiatives and multi-vendor organizations, making it the ideal organization to help manage such an endeavor. Its commitment to transparency, vendor-neutrality, and a shared voice will ensure that all participants have the opportunity to shape the future of the working group.

To learn more about getting involved with the Eclipse Foundation's Software-Defined Vehicle initiative, please visit us at sdv.eclipse.org, or email us at membership@eclipse.org.

Quotes from Members

ETAS

"The creation of the Software-Defined Vehicle Working Group is the next milestone on the road to building a vibrant open-source community that lays the foundation for the realization of software-defined vehicles. The focus on 'code first' is what makes the difference from traditional consortia. At ETAS, we look forward to actively shaping the future of SDV. Our contributions will focus on what it takes for a developer to concentrate on software innovation and bring our embedded expertise to this new development approach. We look forward to the contributions of an active ecosystem and are committed to integrating the contributions of all partners into a strong joint technology package," Christoph Hartung, Chairman of the Board of Management of ETAS GmbH.

Microsoft

"Today, mobility companies need to focus on software innovation to provide their customers with personalized and differentiated services. At the same time, software development for vehicles comes with various non-differentiating challenges, driving the need to apply modern software engineering patterns. Collaborating in a cross-industry open source community creates a unique opportunity for businesses to serve ever changing customer needs more resiliently," said Ulrich Homann, corporate vice president and Distinguished Architect Cloud + AI, Microsoft.

ZF

"When developing new vehicle systems, we see all vehicles as software-defined, think 'software-first' and act in a networked way," said Dr. Dirk Walliser, senior vice president Corporate R&D at ZF Group. "Significant parts of in-vehicle software, such as the real-time operating system or specific parts of the middleware layer, are competitively non-differentiating for vehicle manufacturers and their end customers. In this area, we see great added value for the entire automotive industry when we develop in an open ecosystem according to the open source principle. In interaction with high-performance computers, intelligent sensors and smart actuators, such vendor-neutral software with associated tools forms the basis for all innovative and differentiating software functions for the vehicle of the future."

Accenture

"Software, cloud and emerging ecosystems are increasingly key to strategic growth initiatives in the automotive industry and will require even more collaboration and a focus on 'code-first' thinking," said Axel Schmidt, senior managing director and global automotive industry lead at Accenture. "By investing in critical areas such as operating systems and middleware components, and collaborating with a range of ecosystem players with expertise in tech, data and AI capabilities who can help advance innovation and drive value, the industry could make significant advancements."

Arm

“The Software-Defined Vehicle is driving changes in the design of the vehicle computing architecture, which Arm is addressing with high-performance, safety-enabled processing technologies,” said John Heinlein, VP of automotive partnerships, Automotive and IoT Line of Business, Arm. “The SOAFEE initiative, recently founded by Arm and many industry leaders, builds on this computing architecture to enable the shift to a cloud-native software development methodology for automotive applications. SOAFEE has strong synergy with the efforts of the Eclipse Foundation’s Software-Defined Vehicle Working Group, and we’re eager to join the working group to help bring to life the next-generation of vehicle innovation and enhanced driver experiences.”

AVL

“With vehicles becoming increasingly software-defined, the interplay between agile software and traditional hardware development needs to be clearly established,” says Dr. Wolfgang Puntigam, Global Business Unit Manager IODP at AVL. “We will contribute with our extensive expertise in vehicle development and validation methodology to bridge the gap between the software and the hardware worlds. The collaboration within this working group will provide us with vital insights into further improving methodologies and validation tools for software-defined vehicles.”

Bosch

“With our software-centric engineering approach, Bosch is speeding up and simplifying the way in which vehicle software is developed, tested, and deployed. In addition, we believe in an open ecosystem which will be a crucial key to success for the software-defined vehicle that is why we have strongly advocated the co-founding of this working group. After months of hard work, we are happy to reach the next stage and come closer to this ecosystem with the foundation of the Eclipse Software-Defined Vehicle working group,” says Sven Kappel, vice president - Head of Project Software Defined Vehicle at Bosch.

Capgemini

“Software-Defined Vehicles are shifting the paradigm for the automotive industry: end-to-end architectures, combining on-board and off-board services will facilitate future vehicle services across the ecosystem. Capgemini with its strong experience in business transformation, technology, and engineering is enabling businesses to realize this promise. We are happy to be a part of The Eclipse Software-Defined Vehicle Working Group, to play an active role in defining the future standards of safe and autonomous mobility, driving the future of the Automotive industry,” said Jean-Marie Lapeyre, chief technology & innovation officer for the Global Automotive Industry at Capgemini.

Continental Automotive

“A profound transformation of the vehicle’s architecture coming along with a shift towards centralized computing units is key for smart, safe, and autonomous mobility and empowers the user experience in the vehicles of the digital age,” said Gilles Mabire, CTO at Continental Automotive. “Continental is a pioneer in SW-defined vehicles; we do see collaboration as essential in order to create software-based innovation and bring it swiftly to market. With this in mind we are happy to contribute our expertise and software to the open architecture of the Software-Defined Vehicle Working Group.”

DMI

“During this massively disruptive time in auto, we believe that a solid and future-safe strategy and architecture for SDV will determine success and ability to manage change,” said Jenny Heinze, VP of Automotive & Software Mobility, DMI. “The DMI team is excited to bring our comprehensive in-vehicle and connected vehicle platform expertise to the Eclipse Software-Defined Vehicle open

source community in partnering with other strategic thought leaders to enable the future of community-enabled vehicle and connected ecosystem solutions.”

Red Hat

“As the automotive industry is transitioning to an open source, software-driven and service-oriented development cycle, Red Hat believes success will come by way of collaboration across the ecosystem and through the adoption of open standards with a common approach to standardization,” said Francis Chow, vice president, Red Hat In-Vehicle Operating System. “We are pleased to join the Eclipse Software-Defined Vehicle working group alongside other automotive partners to help the industry apply Linux-based open source and cloud-native approaches to connected vehicles.”

Reycom

“Reycom in collaboration with Liebherr, strategic partners for industrial and connected IoT solutions, appreciates the initiative of the SDV Working Group to jointly drive the activities in the field of software-defined vehicles,” said Pascal Rey, CEO and Founder at Reycom. “Reycom will incorporate the open source vehicle software into their hardware and software platform. Thanks to the joint development within the SDV Working Group, it should be possible to reduce the time and cost of bringing brand-specific, innovative and specialized end-products to market – better together.”

SUSE

“Through the efforts of the Software-Defined Vehicle Working Group, the core functionality of the next-generation automotive platform will advance by leveraging open source,” said Thomas Di Giacomo, SUSE chief technology and product officer. “At SUSE we believe collaboration toward cloud-native technologies, including the advancement of the operating system and container management, will be key to the success of this group. Containers have radically accelerated the development cycle of cloud-based applications, and they will also revolutionize how we bring software-defined features to the vehicle, from developing and testing them in the cloud to deploying them in the vehicle.”

About the Eclipse Foundation

The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable, and business-friendly environment for open source software collaboration and innovation. The Foundation is home to the Eclipse IDE, Jakarta EE, and over 400 open source projects, including runtimes, tools, and frameworks for cloud and edge applications, IoT, AI, automotive, systems engineering, distributed ledger technologies, open processor designs, and many others. The Eclipse Foundation is an international non-profit association supported by over 330 members, including industry leaders who value open source as a key enabler for their business strategies. To learn more, follow us on Twitter [@EclipseFdn](#), [LinkedIn](#) or visit eclipse.org.

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