

# GM/Redhat announcement

## Open-source software hits the road

### 10-minute Insight

Software has become the new growth engine of the automotive industry, enabling car makers to offer consumers fresh and compelling digital experiences. But most software platforms developed by most OEMs remain highly proprietary and closed off to 3<sup>rd</sup> party collaborators.

In this bi-weekly insight we analyze the recent [partnership announced](#) between General Motors and Red Hat to develop in-vehicle open-source software (OSS) platforms, and explore whether it points towards a longer-term push towards collaborative coding.

#### Target audience

Engineering Strategy

Dev Teams Product Planning

#### Focus market(s)

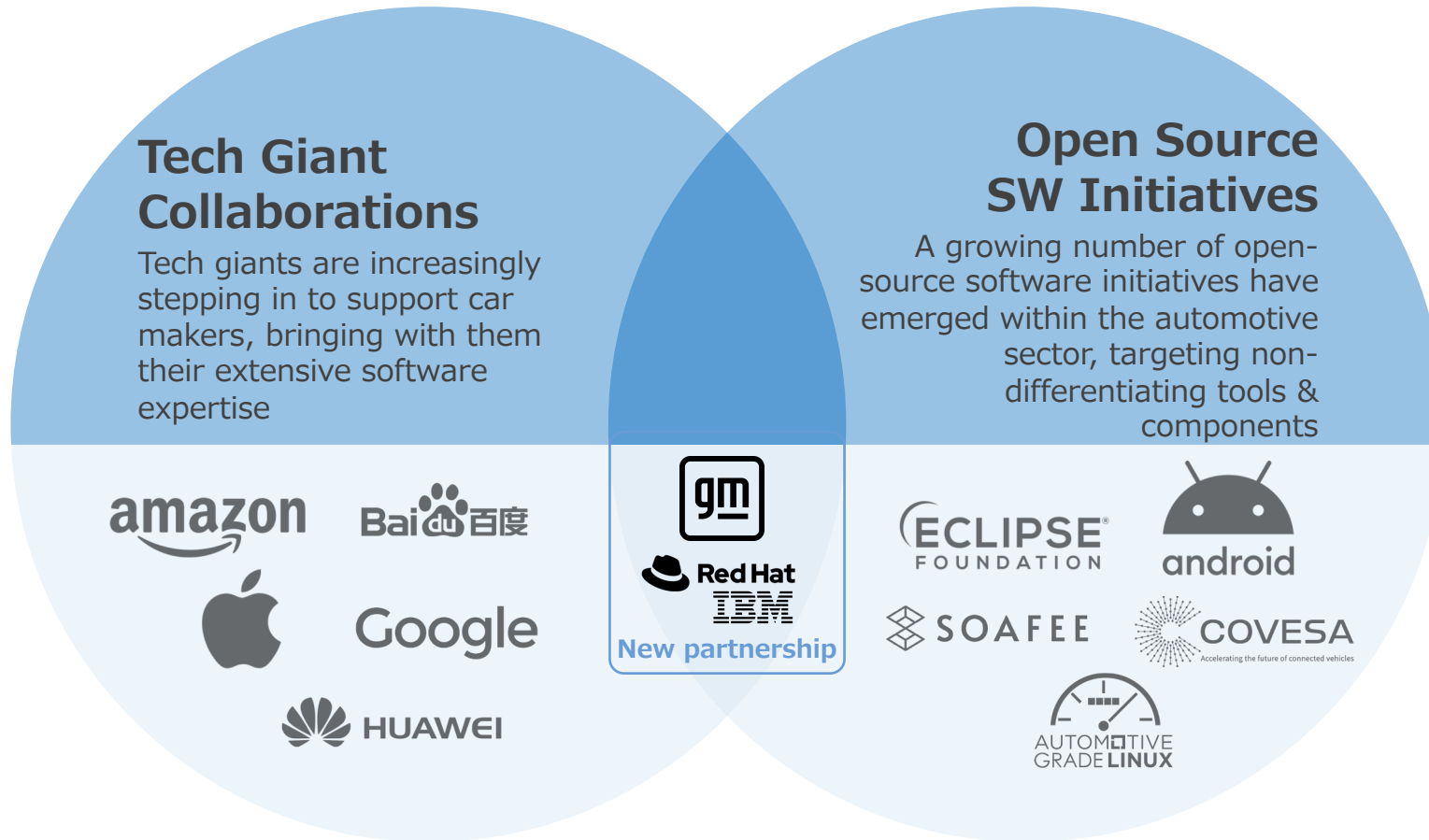
Global



# What is happening?

## Two worlds converging?

Open-source software isn't new in automotive, and neither are collaborations with Tech Giants. But the GM/Red Hat announcement does point to a convergence of those two trends.



## Key takeaway

**As the battle for in-vehicle software dominance heats up, differences between OEM strategies are beginning to emerge. In May 2022 GM [announced a new strategy](#), partnering with Red Hat to shift away from proprietary general purpose operating system software.**

- While open-source software (OSS) isn't new within the automotive industry, it has often been narrowly applied to certain in-vehicle functions such as infotainment (e.g. Android).
- Although there are significant benefits to OSS (e.g. speed of innovation), the main challenge in expanding its use within automotive has traditionally been ensuring safe execution of software and applications.
- Tech Giants like Red Hat (owned by IBM) are increasingly stepping in to help OEMs by taking over some of the heavy-lifting (e.g. warranty, maintenance, triage), enabling them to expand OSS beyond infotainment.

By 2026 the in-vehicle SW market is forecast to be worth...

**\$17** Billion\*

Capitalizing on SW requires that companies balance...

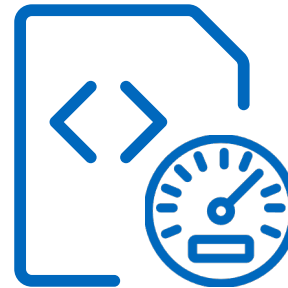
## Risk Management

- Robustness
- Security
- Safety



## Product Agility

- Speed
- Innovation
- Iteration



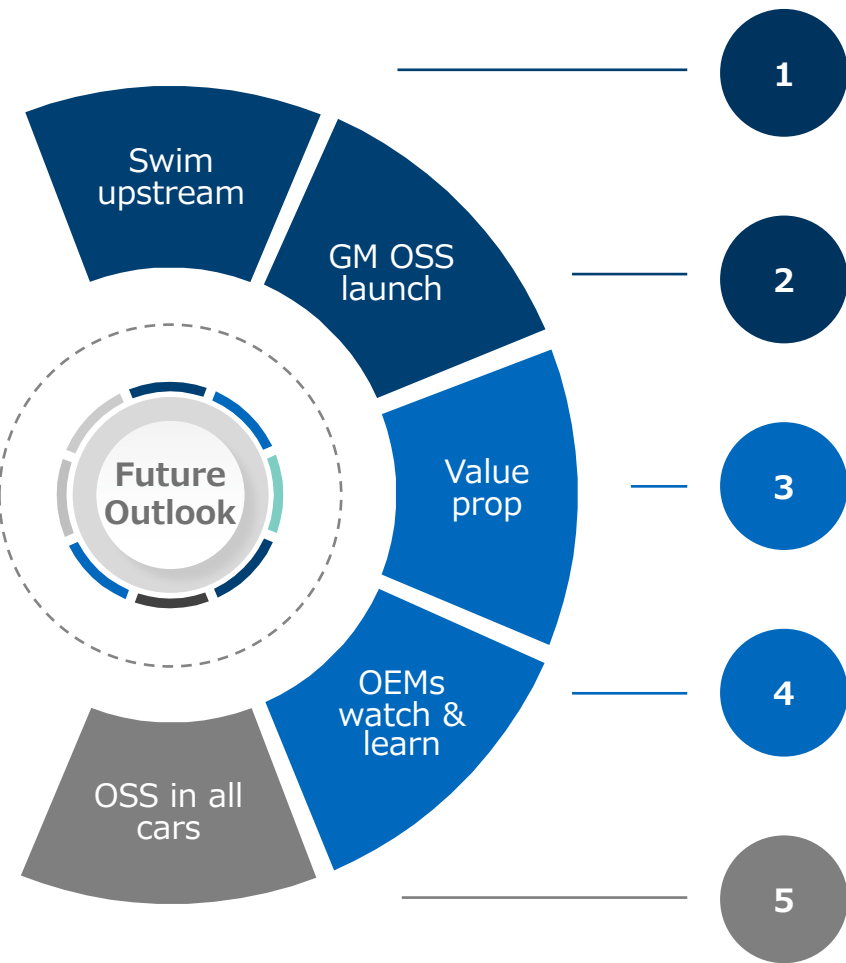
## Key takeaway

The market for in-vehicle software is forecast to grow at 7% CAGR during the next 4 years, reaching \$17 Billion by 2026\*. Maximizing the value all this software requires that OEMs carefully balance risk management and product agility.

- OSS has traditionally been used to cost-effectively maximize product agility – the ultimate case study for this outside the automotive industry is Google’s Android strategy.
- But delivering high levels of robustness and security in safety-critical in-vehicle environments has traditionally been tough using OSS with high levels of customization.
- Red Hat and GM’s goal is to achieve that balance. Red Hat’s primary role is to deliver the professional services & accompanying toolchain required to make OSS robust and secure enough to support ASIL-B compliant\*\* functions on a scalable OS architecture.

\* Source: SBD Automotive, 2021

\*\* ASIL = Automotive Safety Integrity Level



1 OEMs, Tier 1s, and other software vendors will look to an increasingly small club of upstream OSS as foundational to in-vehicle software.

2 GM is expected to launch the first OSS-based systems developed with support from Red Hat by 2024/25.

3 The vehicle will never be enabled by pure OSS – the stakes are too high. Strongly supported proprietary software from companies like BlackBerry will continue to enable critical infrastructure.

4 As initiatives like Red Hat's RHIVOS (Red Hat In-Vehicle OS) progress, other OEMs will keep a close eye and adjust their own SW strategies accordingly.

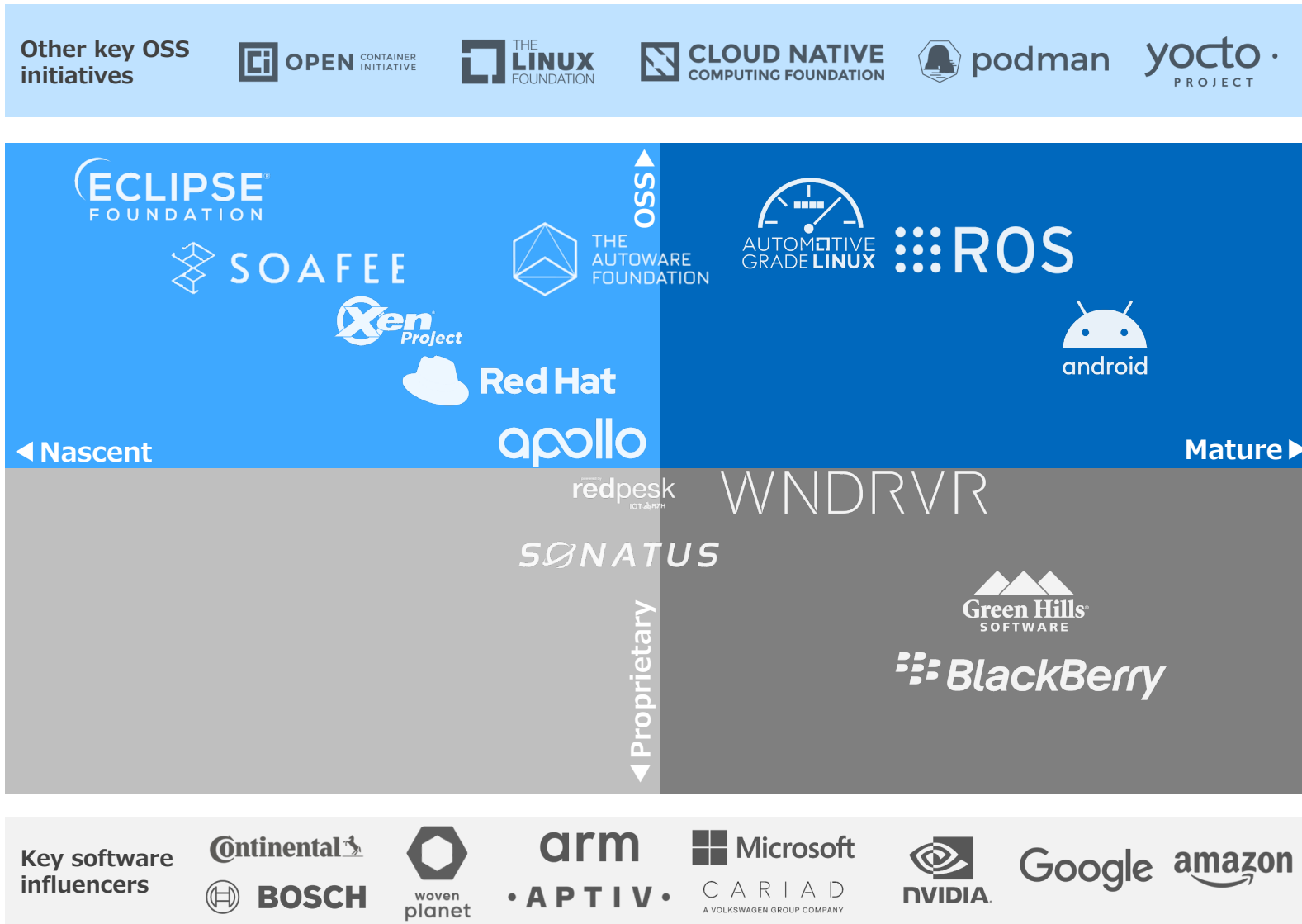
5 While OSS will never be suitable for every system in the car, expect it to eventually be a part of every car.

## Key takeaway

**In the long-term, transitioning to Software-Defined Vehicles will require that car makers successfully leverage open-source software across a growing number of in-vehicle functions.**

- In many ways the automotive industry is following a similar journey than the Cloud and CE industries have taken over the last few decades – except with a distinct automotive twist that reflects the safety-critical realities of fast-moving 2-ton machines.
- Red Hat and GM are demonstrating one approach to undifferentiated software development, but it is still early days, and many other approaches are likely to co-exist
- Not all projects will succeed and OSS will realistically never take over the entire SW stack in a car, but OSS is here to stay, and every car maker should start considering how to leverage it and their ecosystems

# Who to watch out for?



## Key takeaway

While OEMs were historically forced to choose between a handful of proprietary software stacks, they now face a rapidly growing number of OSS initiatives, APIs, solutions and partners.

- These now stretch beyond IVI. Initiatives like [Autoware](#) and [Apollo](#) are pushing the boundaries of OSS towards safety-critical use cases, supporting rapid and collaborative improvements in autonomous driving.
- In parallel, many tech giants continue to straddle the space between OSS and proprietary, leveraging the former to support their growth and commercialization of the latter.
- Major OEMs investors in software such as Toyota ([Woven Planet](#)) and Volkswagen ([CARIAD](#)) are therefore torn between the comfort of proprietary robustness and the promise of OSS agility.

# How should you react?



# 1

## Explore

Software is now at the heart of every OEM and Tier-1's strategic planning – the next phase is to consider what balance of agility and robustness is required and therefore what role (if any) OSS could play.

# 2

## Engage

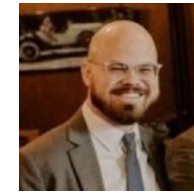
The eco-system for software is expanding quickly and engaging with different parts of it (including Tech Giants) can help build a more rounded view of OSS. This engagement can range from workshops, to joining forums, to building POCs.

# 3

## Focus

All companies will need to pick which side of the OSS fence they sit on. If OSS is seen as strategically important, a long-term focus will be required, as a commercial ROI could take as long as 5-10 years.

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## Interested in finding out more?

Most of our work is helping clients go deeper into new challenges and opportunities through custom projects. If you would like to discuss recent projects we've completed relating to **in-vehicle SW**, please [contact us](#).