TRANSPORTATION (https://venturebeat.com/category/transportation) GUEST

How open source software will drive the future of auto innovations

TED SERBINSKI, TECHSTARS (HTTPS://VENTUREBEAT.COM/AUTHOR/TED-SERBINSKI) @TEDSERBINSKI (HTTPS://TWITTER.COM/TEDSERBINSKI) MAY 22, 2017 2:10 PM

Image Credit: Screenshot

Automotive companies are shifting from bending metal to bending bits. Soon they will be offering software and services to complement their manufactured metal.

As these companies become software-driven, open source will become a staple to drive innovation faster and more reliably. Today's cloud is powered by open source software: 78 percent of businesses run open source software (http://www.zdnet.com/article/its-an-open-source-world-78-percent-of-companies-run-open-source-software/) in some form. With the convergence of automobiles and the cloud (supporting autonomous systems and connectivity), it's quite clear this open source paradigm that took over the cloud will take over the automobile.

This future of mobility includes the convergence of automotive hardware and software-driven cloud solutions. Open source will be at the core of this transformation and will drive innovation faster. Soon we will see Ford, GM, Fiat Chrysler, BMW, and other manufacturers launching their

own open source initiatives.

Open-sourcing parts of your automobile

Whether it be navigation, music and media, or mobile phone support, you might be interfacing with features built on top of open source software already.

Genivi (https://www.genivi.org/) is an open source framework for in-vehicle infotainment launched in 2009 (https://www.genivi.org/sites/default/files/press-releases/english/2009_03_02_Genivi_launch_press_release_final.pdf) with founding members BMW, GM, Intel, and Delphi. It launched with a goal of "driving innovation" to "reduce time-to-market and total cost of ownership."

This platform gives car makers more impact and leverage over the features available in an in-car experience. Automotive companies can reduce costs and enable richer experiences by leveraging an open source project like Genivi. This allows them to focus on what differentiates their own product.

Your engine, transmission, airbags, anti-lock brakes, and cruise control are all connected via a system called the CAN bus (https://en.wikipedia.org/wiki/CAN_bus). This protocol powers the backbone network in a vehicle. Like the HTTP protocol that powers the internet, systems can be built on top of the CAN bus to enable entirely new applications, like cars that drive themselves. In the automotive world, examples include:

- PolySync (https://polysync.io/) developed an open source car control project (http://oscc.io/) detailing the conversion of a vehicle into an autonomous driving vehicle.
- George Hotz is giving away the code behind his self-driving car project (http://www.theverge.com/2016/11/30/13779336/comma-ai-autopilot-canceled-autonomous-car-software-free), an open source alternative to Tesla's Autopilot.
- ROS, a robot operating system (http://www.ros.org/), is enabling R&D teams at automotive companies to quickly develop and prototype autonomous vehicles and sensor-rich vehicles.

Just like much of the web is built on Linux, much of the autonomous future will be built on open source projects. Today, it already seems clear that ROS is one of those emerging open source platforms.

The blueprints to design and build electric vehicles and transportation services

One of the more audacious open source projects is OSVehicle (https://www.osvehicle.com/company/), founded with a mission "to democratize mobility by enabling businesses and startups to design, prototype, and build custom electric vehicles and transportation services."

Renault's open source mass market vehicle platform (https://www.osvehicle.com/renaultpomsignup/) was the first major automotive company to leverage this product. This was the world's first open source mass market vehicle platform.

Other OSVehicle projects include (https://www.osvehicle.com/company/):

- BusyBee (https://www.osvehicle.com/busy-bee/), the first road-legal city car built on the open platform
- FabCar (https://www.osvehicle.com/fablab-fabcar/), a vehicle showcased at Fab10 in Barcelona that can be built inside a FabLab
- SPA's Luxury EV (https://www.osvehicle.com/luxury-ev/), from a historical Italian brand and made of new high-tech materials
- Maker's cars (http://makezine.com/2015/05/13/osvehicles-tabby-evo-build-open-source-ev-hour/), vehicles created by hobbyists with local materials such as fabric and wood
- Nika (https://www.osvehicle.com/connected-car-nika/), the first connected car made specifically to enable app development

The future of automotive is open source

The future of mobility will encompass services offered for getting around more freely. Automotive companies will shift from manufacturing steel to serving up bits. Software and data will drive this core differentiator, enabling new services and seamless experiences.

The entire internet infrastructure changed over the late '90s and early '00s, leveraging open source software. Those proprietary systems opened up, making it easier and cheaper to build websites. Content management systems became open, allowing publishers to focus on their core differentiator: their content. As a result, we saw a proliferation of amazing websites, apps, and tools online.

The automotive industry and emerging mobility companies will see the same result over the coming decade. It won't be limited to infotainment, autonomous systems, or vehicle design. Open source will enhance every aspect of a vehicle in the coming decade. Companies that embrace this change will drive innovation faster. They will be able to shift to enabling new services and experiences. This will drive up their competitive advantages while reducing costs associated with running commodity parts of their business.

Ted Serbinski (http://tedserbinski.com/) is the managing director of Techstars Mobility (http://www.techstars.com/programs/mobility-program/), a startup accelerator.

TRANSPORTATION (/category/transportation)

The voice memo feature in the Volvo V90 Cross Country actually works

JOHN BRANDON (HTTPS://VENTUREBEAT.COM/AUTHOR/JOHN-BRANDON) @JMBRANDONBB (HTTPS://TWITTER.COM/JMBRANDONBB) MAY 20, 2017 05:00 PM