A Car or an Expensive IoT device?
Why is Modern Car Expensive?

Automotive electronics cost as a percentage of total car cost

Automobile Software is Complex

Lines of code

145,000

12 million

25 million

100 million

Bosch press: [https://www.bosch-presse.de/pressportal/de-en/did-you-know-216258.html](https://www.bosch-presse.de/pressportal/de-en/did-you-know-216258.html)

Lines of code infographics: [https://www.visualcapitalist.com/millions-lines-of-code/](https://www.visualcapitalist.com/millions-lines-of-code/)
Who controls it, You or they?

Life threatening moment
Challenges with Automotive Software

- Extremely complex and convoluted supply chain
- Absence of Integrity tracking for software during its lifecycle (UNECE, NIS)
- Lack of reports on software assets and licenses OTA installed (RXSWIN) and running on cars
- Absence of ingredient list in Software recipe
- Centralized structure
- Unavailability of (DLT / Blockchain) signed history
Recent Regulations

• UN Regulations on Cybersecurity and Software Updates
• Whitehouse executive order (14028)
• NTIA framed definition of Software Bill of Materials (SBOM)
  • minimum elements, roles and benefits
What is D-SBOM?

• Use of DLT to store, access and transfer SBOM
• A distributed ledger establish single truth
• Track the trail of software in multitier hierarchy
• CVE vulnerability monitoring for their cybersecurity risk
• Popular SBOM formats
  • Software Package Data Exchange (SPDX) by the Linux Foundation
  • CycloneDX by the OWASP foundation
  • Software Identification (SWID) tags by NIST
Secure Software Supply Chain

- Software/Firmware Development
- QM/Auditing Approval
- Distribution Platform
- Over the Air Distribution
- Edge Device

Track and Trace report of a firmware
Immutable and Distributed Record

- Record the software meta information (license, versions and dependencies) on OTA shipment
- Analytics on software components in use
- Analytics on licenses and license dependencies for installed software
- Monitoring of software and license integrity
- Decentralized Ledger with secure API access for all actors in the software supply chain
- Immutable record of all of the above
What the Solution brings

- Decentralized structure
- Immutability
- One shared Truth
- Improved security
- Greater Trust and Transparency
- True Traceability and Auditability
- Resilience
Thanks