



Engaging the Open Source Gear

Impact on an Automotive Supplier

June 2, 2015



The Automotive Supply Chain

June 2, 2015

The Automotive Supply Chain

Where we stand



*Source CLEPA

June 2, 2015 | 3



A Look in the Rear-view Mirror

June 2, 2015

A Look in the Rear-view Mirror

Open Source Prehistory

- In the 90's, there were rarely free software or open source components in cars
- Software developed for embedded automotive computers (aka ECUs) were:
 - Small (several kB of ROM code)
 - Specific (different OEM requirements, different networks/interfaces, different suppliers)
 - Compliant to automotive standard (OSEK/VDX, AUTOSAR nowadays)
 - Usually built from scratch for each project
 - Not so important in the complete BoM

A Look in the Rear-view Mirror

Usage for Development

- Nevertheless, software engineers (should I say electronics engineers) often used free software or open source software to:
 - Write their source code (vi, Emacs, Eclipse more recently...)
 - Build their embedded software (GCC, make, ...)
 - Develop test tool or validation tool (Tcl/Tk, GTK+, Qt, Perl, Python, ...)
 - Control their sources (CVS, SVN, ...)
- They were familiar with them...
- ... less with their licenses

A Look in the Rear-view Mirror

The Path to Embedded Usage – 1/2

- Assistance features implemented in software developed to reach a safe (and autonomous) driving
 - ABS/ESP, Lane Guidance, Automatic Cruise Control, Parking Assistance (Valet Park4U), ...
- The Connected Car
 - BlueTooth, WiFi, 3G/4G, V2V / V2I
- Led to software explosion
 - From 10k+ to Million lines of code nowadays
 - And integrates more and more software non-automotive specific
- While development times have been reduced
 - From around 3 years to 18 months

A Look in the Rear-view Mirror

The Path to Embedded Usage – 2/2

- Like in other industries, automotive suppliers started to integrate open source components
- Mainly for:
 - Connectivity (Bluetooth, WiFi, ...)
 - Graphics stacks, Touch Screens, Displays, ...
 - Digital Signal/Image Processing Algorithms
 - Operating Systems (Linux, Android)
 - Communication stacks (TCP/IP)



[Chevy Volt](#), by Corey Seeman, [CC BY-NC-SA 2.0](#)



[Cadillac ATS](#), by Automotive Rhythms, [CC BY-NC-ND 2.0](#)



[New Renault Clio R.S. 200 EDC](#), by Renault, Sport [CC BY-NC-ND 2.0](#)

The Foss Turn

The GENIVI Alliance – From Sporadic to Massive Usage

- Creation in 2009 by BMW Group, GM, PSA, Delphi, Magneti-Marelli, Visteon, Wind River and Intel
- Non-profit industry alliance committed to driving the broad adoption of an In-Vehicle Infotainment (IVI) open-source development platform
- Made members be aware of the importance of free and open source software compliance along the supply chain



The Foss Turn

The GENIVI Alliance – License Review Team

- Manages the licensing and legal activities of the alliance
- Ensures that the technical work of the alliance is founded on legally sound approaches that are acceptable:
 - to the membership of the alliance
 - and to the broader open source community



Other Roads Leading to Open Source

Automotive Initiatives



Open Automotive Alliance

Tizen is a trademark of the Linux Foundation.

The Android robot is reproduced or modified from work created and shared by Google and used according to terms described in the Creative Commons 3.0 Attribution License.

Property of Valeo. Duplication prohibited

June 2, 2015 | 11





Open Source Compliance Program

June 2, 2015

Open Source Compliance Program

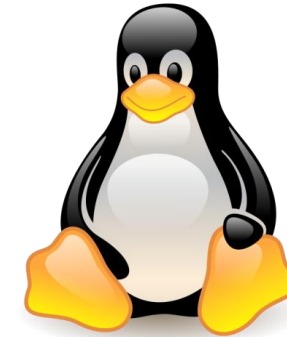
Open source is there!

- In-Vehicle Infotainment Systems
- Instrument Clusters
- Cameras
- ADAS
- Telematics

Open Source Compliance Program

And it's unavoidable!

- Environment
 - GENIVI
 - AGL
 - Linux, Android
 - TCP/IP
- Suppliers
- Features
 - Connectivity
- Cost and Time



Android is a trademark of Google Inc.
The Android robot is reproduced or modified from work created and shared by Google
and used according to terms described in the Creative Commons 3.0 Attribution License.
Tux mascot, copyright Larry Ewing, Simon Budig, Anja Gerwinski

Property of Valeo. Duplication prohibited

June 2, 2015 | 14

Open Source Compliance Program

Where it all began at Valeo

- The importance and the risks of open source were highlighted first on the field, by software developers
- Management, Intellectual Property and Legal Department were warned from the ground
- Valeo understood the benefits but also the risks of Free and Open Source Software and wanted to engage the FOSS gear

Open Source Compliance Program

Mission

- Creation of a FOSS Compliance Program
- Goal: make every single product we develop compliant to open source licenses governing it
- Driven by a central team supporting software development
- Made of people from:
 - Software Departments
 - Legal Department
 - Intellectual Property Department

Open Source Compliance Program

Initial Open Source Usage

- Selection of products from each business group
 - Some using open source
 - Some not
- Analysis of their code bases
 - Open source identified
 - Various different licenses

Need for rules!

Open Source Compliance Program

FOSS Policy

- Rules about what we want to do or do not want to do with FOSS
 - FOSS Selection, Use and Approval
 - Compliance Analysis
 - Suppliers Contracts and Deliveries
 - Code Contribution
 - Community Interaction
- Way to check application of those rules
 - Organization
 - Processes

Open Source Compliance Program

Open Source License Policy

- Analysis of major and most common licenses at first
 - Performed jointly by software, legal and IP departments
- Publication of an Open Source License Policy
 - Accepted licenses
 - Prohibited licenses
 - Restricted licenses
- License Handbooks for developers



Open Source Governance

June 2, 2015

Open Source Governance

Impact on Existing Processes

- Our Policy defines the rules about ‘what’ can be done (and ‘why’)
- To govern the use of open source in our products (and make sure those rules are respected), we have been working on updating existing processes or practices, including
 - Software Development Processes
 - Supplier Management Processes

Open Source Governance

Creation of New Processes

- How to get approval for a component
- How to get approval for a license
- How to check a code base for compliance
- How to deliver open source information

Open Source Governance

Supplier Involvement

- Suppliers can also integrate open source in their deliveries (or their suppliers)
- They all need to be compliant so that we can be!
- Close work with suppliers needed
- Involvement of Purchasing and Legal Departments to work with suppliers on their own governance



Open Source Awareness

June 2, 2015

Open Source Awareness

Need for Information Distribution

- Benefits of open source are clear for developers
- ... Their (legal) risks less (not trained for that)

- Information needs to be distributed accross the company

Open Source Awareness

Spreading the Word

- Training Program developed
 - « Introduction to FOSS », for anyone involved in software development
 - « FOSS Governance at Valeo », for anyone using open source in their product
- Internal Web site
- Internal Mailing List



Conclusion

June 2, 2015

Conclusion

- Open source has definitely impacted us
 - Our development processes have been updated or adapted to make our products compliant to license terms
 - Dedicated teams (with new skills) have been created to govern our use of open source, made of people not used to work together in the past
 - New courses have been created to make people aware of open source benefits and risks, and to train people on how to use FOSS every day
- And shall still impact us in the future
 - Open source penetration growing
 - New standards or initiative coming (SPDX, OpenChain, ...)



Thank you!

June 2, 2015



Questions

June 2, 2015

Legal Terms

- The VALEO brand name, the VALEO logo, as well as the slogans used, are, unless otherwise stated, registered trademarks. All reproduction, use and/or modification made without the prior written permission of VALEO, is liable to constitute an infringement of copyright
- Drawings, photographs, images, texts, video sequences, with or without sound, and other documents of this presentation are subject to industrial and/or intellectual property laws and, as such, are the property of VALEO or of a third party having granted VALEO limited permission to use them
- As such, any reproduction, representation, adaptation, translation and/or transformation, be it whole or in part, or transfer to another document are prohibited, unless otherwise mentioned



Automotive technology, naturally

