LEVERAGING OPEN SOURCE PROJECTS FOR OPEN SOURCE MANAGEMENT

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Open Source Management

Four business sectors

- Mobility Solutions
- Industrial Technology
- Energy and Building Technology
- Consumer Goods

Researchers and developers across the globe

- 45,700 associates in research and development
- 3,000 developers for the Internet of Things
- 15,000 software engineers
- 94 research and development locations in 25 countries

Bosch founded 15. November 1886, Stuttgart, Germany
Open Source Management
Spearheading the Internet of Things

Market presence
6.2m
connected devices using Bosch IoT Suite

Know-how
800+
IoT experts around the world (Germany, Bulgaria, Singapore, China, Japan, USA)

Experience
250+
IoT international projects in the areas of manufacturing, mobility, energy, home & building, city, agriculture ...

Mobility
Solutions for electromobility, intermodal transportation, and connected vehicles

Industry
Solutions for connected manufacturing

Agriculture
Solutions to support the sustainable intensification of food production

Energy
Solutions for smart and simple energy management

Smart Home & Building
Solutions for connected homes and commercial buildings

Smart City
Connected solutions for urbanites to make life easy and efficient

Bosch IoT Suite
Open Source Management
Current members of Eclipse IoT Working Group

Source: http://iot.eclipse.org/working-group/
Open Source Management

Introduction

Compliance management is a set of actions that manages OSS components used in products. Companies may have similar processes in place for proprietary components. FOSS components are called "Supplied Software" in the OpenChain specification.

Such actions often include:
- Identifying all the FOSS components used in Supplied Software
- Identifying and tracking all obligations created by those components
- Confirming that all obligations have been or will be met
- Small companies may use a simple checklist and enterprises a detailed process.
Open Source Management
Example enterprise process

Queued for Process
- Own Proprietary Software
- 3rd Party Software
- FOSS

Identification
- Identify FOSS components for review

Audit
- Scan or audit source code – and – confirm origin and license of source code

Resolve Issues
- Resolve any audit issues in line with company FOSS policies

Reviews
- Review & approve compliance record of FOSS software components

Approvals
- Record approved software/version in inventory per product and per release

Registration

Notices
- Verify source code packages for distribution – and – verify appropriate notices are provided

Verifications
- Compile notices for publication

Distribution
- Post publication verifications

Verifications

Example of Compliance Management End-to-End Process
Source: https://www.openchainproject.org/
Open Source Management

Tooling landscape?

CI/CD needs a high degree of automation, thus the automated tooling is inevitable.

In 2017: some Open Source Tooling Projects available, but no central overview and nearly no harmonization in between the projects

This presentation is an update of last year’s talk from Prague/Ludwigsburg:
http://sched.co/Bylj; https://youtu.be/z19ifXKAkgE;
Open Source Management
Examples for Cooperation

Level of differentiation

Harvesting → Agricultural cooperative → Wine making cooperative → Wine press (Kelter) → Bread → Beer → Whiskey → Grape juice → Wine → Spirits

Area of potential collaboration

low

high
Open Source Management
Collaboration in Open Source Management

Area of potential collaboration

Level of differentiation

low

high

Open Source Management Community
- Open Source Management Infrastructure
- Tools
- Trainings

Cleared FOSS material
Refining of FOSS raw material

Cloud Service
Software Applications
Embedded Systems
Open Source Management

Precondition for collaboration

- Release-based Open Source Management
- Component-based Open Source Management
Open Source Management

What is necessary to make a community run?

1. People need to know about each other!
2. People need to get together
3. People need to find out the “commons” and the common problems to motivate the further cooperation
4. Harmonize the wording – get on the same page
5. Make it transparent and visible!
6. Invite other for networking

Establish and maintain the ecosystem!
Open Source Management
Retrospective – the journey of the last months “Tooling landscape”

1. People need to know about each other!
   - Talks at LinuxCon 2017 and EclipseCon 2017 in 10/2017

2. People need to get together
   - First common meeting in 02/2018

3. People need to find out the “commons” and the common problems to motivate the further cooperation
   - First collection and visualization of problem space in the first meetings

4. Harmonize the wording – get on the same page
   - Glossary was established and is continuously maintained

5. Make it transparent and visible!
   - Meeting results were shared in Github and collaboratively improved

6. Invite other for networking
   - BoF Meeting at this Linux OSSEU 2018

Establish and maintain the ecosystem!
Open Source Management

Parameters that influence your OSM system setup

License constraints
▶ E.g. only permissive licenses vs. strict copyleft licenses

Used technologies
▶ E.g. JAVA and Maven vs. C-Code on real-time systems

Development approach
▶ E.g. platform development vs. customer specific project development

+ the company legacy systems have a strong influence on your OSM system
Open Source Management

Key elements

- Artifact repository
- Source code repository
- Component metadata database
- License database
  - Obligation catalogue
  - Obligation fulfillment guidelines
- Open source code archive

- Thesis: those key elements exist (at least virtually) in every OSM system independently from
  - License constraints
  - SW technology
  - Development approach
- Those building blocks are not differentiating (only the managed content and the integration maybe)

Update
Most elements confirmed, but naming adapted!
A glossary of terms was started!

Open Source Management
Key elements

- Artifact Repository
- Source Code Repository
- Software Build
- Software Metadata
- Licenses Metadata
- Obligation Identification
- What components?
  - What licenses?
  - What obligations?
  - What necessary measures?
- Open Source Code Archive
- Guidance
- Obligation Fulfillment
- Software Release
- FOSS Bundle
Open Source Management

Key elements


Source: https://osseu17.sched.com/event/ByIj...

Update
Common abstract representation is currently worked out! (using plantuml)

https://github.com/Open-Source-Compliance/Sharing-creates-value/blob/master/Tooling-Landscape/Unanimous-Understanding/OSS_Tooling_Landscape_UMLComp.plantuml
MOTIVATION
Open Source Management
Basic OSM-maturity through the supply chain

- Value the work of the open source communities by establishing and maintaining a professional Open Source Management
- Share good practices with suppliers and partners
- Spread the good practices to increase the overall OSM-maturity in the business
- Continuous delivery needs automated processes!
OPEN SOURCE PROJECTS FOR OPEN SOURCE MANAGEMENT
Open Source Management
Collaborative projects

Processes
- TODO

Source Code
- Software Heritage
- ClearlyDefined

Data
- SW360
- ORT

Standards
- SPDX
- Antenna
- ScanCode

Tooling
- fossology
- SW360

Development Integration

Update
The tooling landscape community collects the list of Open Source OSM Tools and shares it via Github
See BoF-Session

Bosch participation currently under investigation
OUTLOOK
Open Source Management
Two aspects of Open Source Communities

Working together

Funding together
SUMMARY
# Open Source Management

## What do you need?

<table>
<thead>
<tr>
<th>Need</th>
<th>Potential community to collaborate with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Source Strategy and Policy, Best Practices</td>
<td>TODO-Group, sharing-create-value</td>
</tr>
<tr>
<td>Awareness and Trainings</td>
<td>Open Chain Curriculum</td>
</tr>
<tr>
<td>Open Source Processes, Roles and Artifacts</td>
<td>Open Chain Specification</td>
</tr>
<tr>
<td>Open Source Management Infrastructure consisting of</td>
<td>“Tooling Landscape”</td>
</tr>
<tr>
<td>▶ Open Source Development Monitoring Tools</td>
<td>see mapping in “Tooling Landscape”</td>
</tr>
<tr>
<td>▶ Open Source Clearing Tools and Services</td>
<td>see mapping in “Tooling Landscape”</td>
</tr>
<tr>
<td>▶ Open Source Obligation Fulfillment system</td>
<td>see mapping in “Tooling Landscape”</td>
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<tr>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>
Open Source Management Process

- Development
- Identification
- Open Metadatabase
- Collecting Data

Optional steps:
- Complete metadata
- Legal / risk review
- Obligation fulfilment

Mandatory:
- Deployment / Release

Software tools:
- Clearly Defined
- SW360
- ScanCode

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Open Source Management
The OSM Community

Let’s enable a professional Open Source Management for everyone!

You are invited to join the current activities

If you need help, ask!

https://github.com/Open-Source-Compliance/Sharing-creates-value/tree/master/Tooling-Landscape
THANK YOU

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