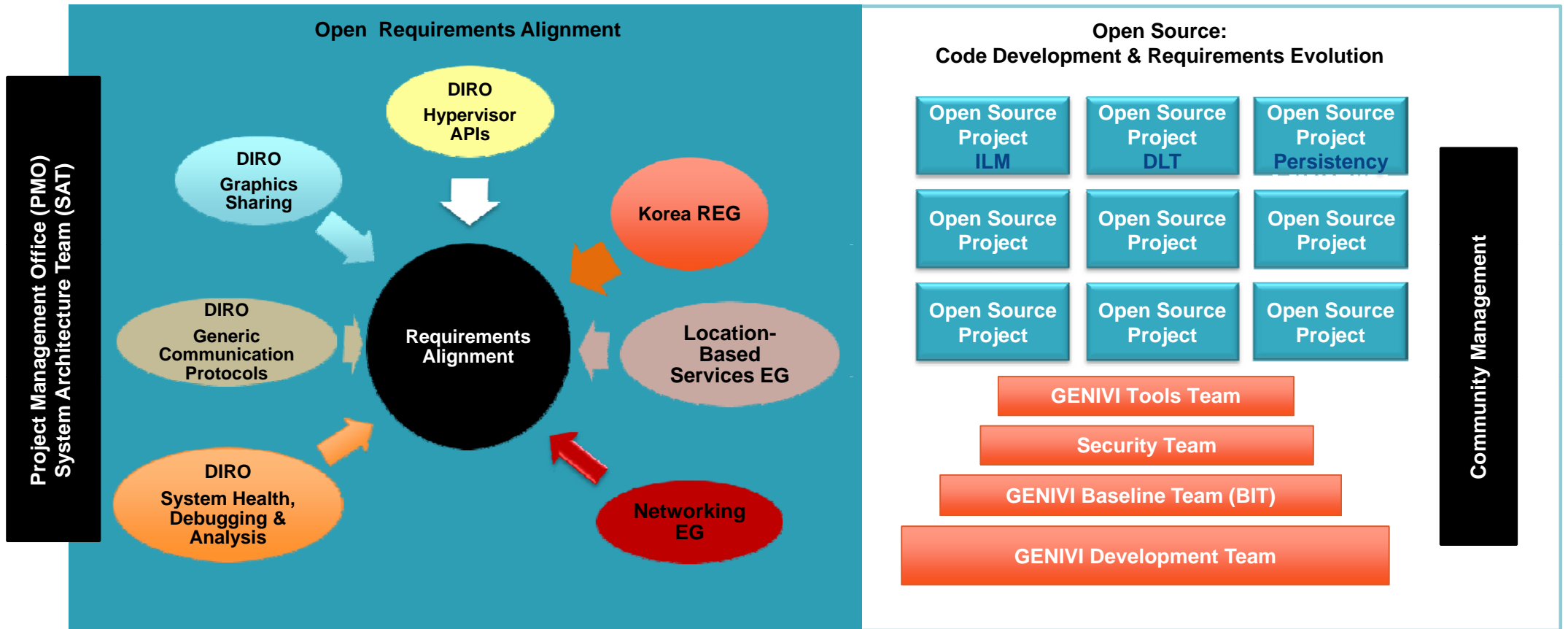


# Technical Status Overview

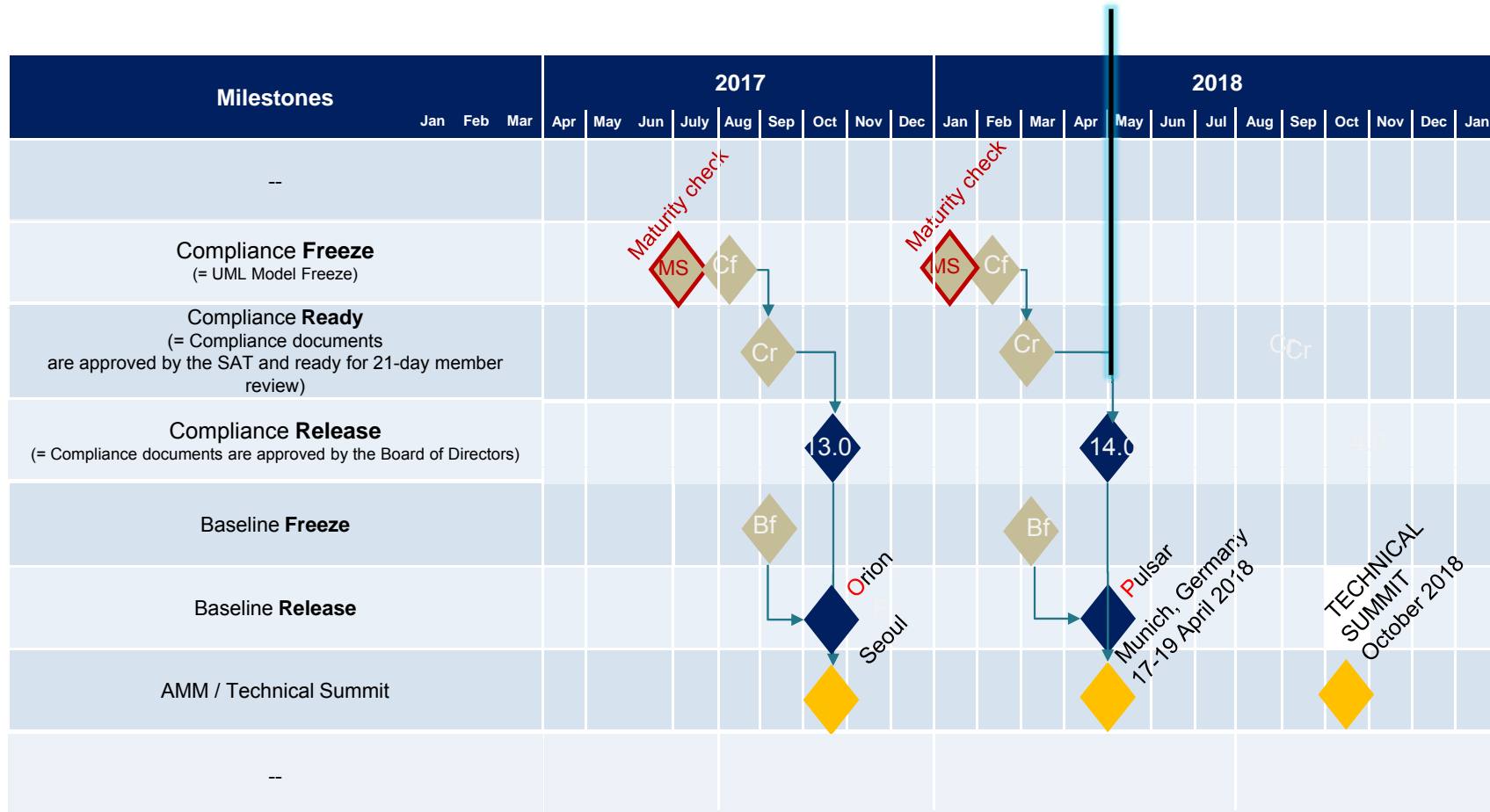
April 17, 2018 | All Member Meeting, Munich, Germany

---

# GENIVI Working Mode



# GENIVI Release Roadmap



# Speakers

Sessions	Group	Speaker	Company
Introduction	PMO	Philippe Robin	GENIVI
Location Based Services	LBS	Philippe Colliot	PSA
IVI Layer Management	SAT	Christian Schulenberg	BMW
Baseline Integration Team	BIT	Stephen Lawrence	Renesas
W3C update	W3C	Gunnar Andersson	GENIVI
Security Team	SAT	Stacy Janes	Irdeto
Tools Team	TT	Jeremiah Foster	Luxoft
Community Manager	CM	Jeremiah Foster	Luxoft

# Location Based Services

Compliance Update

Philippe Colliot  
PSA Group



# Update on work done on LBS APIs

- ❑ Some updates needed to align the official compliance content with the GitHub content (each commit has been traced with a Jira issue)
- ❑ Thanks to internal project in PSA Group (a new infotainment system based on GENIVI) some missing Franca definitions are now available in the repository (GNSSService and SensorsService)
- ❑ All the POCs have been rebuilt with gcc 7.2.0
- ❑ The engagement of a very committed developer  enabled all the APIs to be used and updated
- ❑ Philippe Colliot subscribed as a mentor in Google Summer Of Code

# Session announcement

- Thursday 2:45 PM, 45' session
  - Testing the Navigation Interfaces in a shared and connected Architecture

# IVI Layer Management

Compliance Update

Christian Schulenberg

BMW

GENIVI System Architects Team Lead





# Update on work done on ILM

In order to reduce the communication between compositor and graphical client and improve the protocol in general, a redesign of the underlying Wayland protocol was necessary.

This affected both sites of the protocol: Client and Server

- Client -> Compositor
- Server -> LayerManagement Component

Component	Compliance Level		Change Type	Comment
	13.0	14.0		
Compositor	AC	AC	Modified	Upgraded specification version. Upgraded implementation version to 3.0.0.
Layer Management	AC	AC	Modified	Upgraded specification version. Upgraded implementation version to 2.1.0.

# Update on work done on ILM

## Compositor changes:

- Compositor implementation is essential to support the ivi use-cases
- Will stay P1 AC
- The ivi-controller protocol has been reworked completely and was renamed to ivi-wm protocol. Number of interface and Wayland global objects changed a lot but it is still possible to realize same ivi use-cases as before.

# Update on work done on ILM

## LayerManagement changes:

- LayerManagement implementation is a wrapper around the Wayland client protocol and provides you a simple interface which enables developer to use this API without knowing Wayland well.
- Will stay a P2 AC
- Interfaces in LayerManagement component are divided into 3 different parts:
  - ilmCommon
  - ilmControl
  - ilmClient

With the new implementation of the Wayland protocol the ilmClient API become irrelevant.

- ilmClient API is removed from the compliance!

# Update on work done on ILM

## LayerManagement changes:

### **Removed ilmControl APIs**

- ilm\_surfaceGetPixelFormat
- ilm\_takeLayerScreenshot
- ilm\_layerSetOrientation
- ilm\_layerGetOrientation
- ilm\_surfaceSetOrientation
- ilm\_surfaceGetOrientation

### **New ilmControl API's**

- ilm\_surfaceSetType
- ilm\_getError

# Update on work done on ILM

- ILM reference implementation in the P-1.0 release of meta-ivi for the Renesas R-Car M3 Starter Kit successfully build
- The board started Weston and could successfully run the Mock Navigation, ivi-extension enabled example application
- Change is documentend in the compliance Specification for GENIVI 14 (Pulsar):

Compositor:           8.1.11  
Layer Manager:       8.2.17

- Detailed change description:  
<https://collab.genivi.org/wiki/display/genivi/ILM+Documents+for+GENIVI+compliance+14.0+Pulsar>
- Source link on github:  
<https://github.com/GENIVI/wayland-ivi-extension>

# Platform Compliance Approvals

## 1. LG Electronics

GENIVI Release 12.0 (Nostromo) approval of LG Electronics, Leopard v1.7 Release for multiple platforms:

- Intel
- Freescale
- Renesas

## 2. Renesas

GENIVI Release 13.0 (Orion) approval of Renesas R-Car GEN 3 family

# Other Projects Update

Philippe Robin  
GENIVI



# Schedule of Other Projects updates

## Wayland support in open source browsers (Networking EG)

Wednesday 18 April  
10:15 am - 11:00 am

Salon Matisse

Open Projects #1



## Vehicle Data for Semantic Web and Ontology (Networking EG)

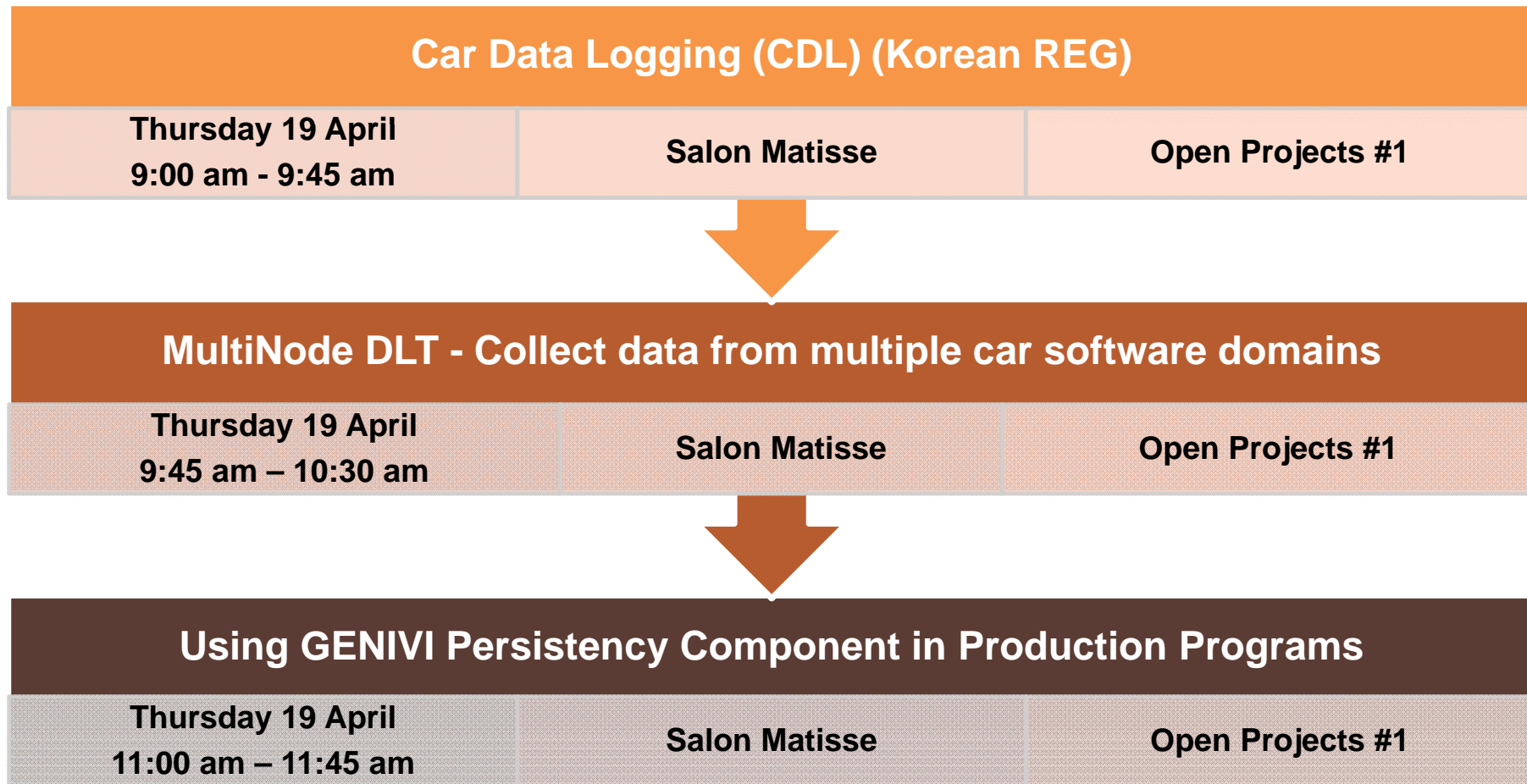
Wednesday 18 April  
3:00pm – 3:45 pm

Salon Matisse

Open Projects #1



# Schedule of Other Projects updates



# Baseline Integration Team

Update

Stephen Lawrence  
Baseline Integration Team Co-Lead  
Renesas Electronics



# BIT: Genivi 14 (Pulsar) Yocto Baseline

- Genivi Yocto Baseline = meta-ivi + Yocto Project Poky ref distro
  - Meta-ivi aligns Poky with the needs of the car and the Genivi specification ready to be the basis of a wide range of projects, e.g. GDP and commercial platforms
- New release is v14.0.0 (P-1.0) ([source](#), [wiki](#))
  - YP 2.4 (Rocko) aligned
  - Updates to various Genivi components
    - e.g: audio manager 7.6
    - dlt-daemon 2.17.0
    - wayland ivi-extension 2.1
    - vsomeip 2.10.10
    - node startup controller 1.0.3
    - persistence client library (PCL)
  - And of course numerous upstream components in poky and meta-oe etc.
  - Please use, test, provide feedback and fixes

## BIT: Further news..

- New Yocto Baseline Maintainer
  - Thank you to Wind River and all the maintainers they have provided.
  - Oscar Andreasson from Luxoft is the new maintainer
- CI scripting improvement
  - Provide CI build script in meta-ivi source
  - More closely integrating meta-ivi into Genivi CI infrastructure
    - Automatic builds of pull requests etc.
- Particular areas for contribution
  - Testing: both automated and manual
  - xGPLv3 free image
    - Meta-gplv2

# Liaison with W3C

## Update

Gunnar Andersson  
GENIVI



# GENIVI – W3C collaboration

GENIVI has a long standing relationship with W3C, which is bearing fruit  
Vehicle Information Service Specification (VISS), based on  
GENIVI Vehicle Signal Specification (VSS) now entered  
Candidate Recommendation (CR) stage.

**This week** a W3C face-to-face meeting is co-located with GENIVI AMM  
Thursday-Friday – (by invitation/registration)

Good working relationship in the W3C automotive group  
– all parties seem willing to work towards **convergence of standards!**

Interesting to see new automotive companies showing  
interest in standards through joining W3C discussions

# 2018 - 2019 W3C work outlook

## Overview of the updated charter for the W3C Automotive working group, 2018-2019

- Update **VISS** to version 2, by adding REST/HTTP API definition
- Converging ideas from **GENIVI interfaces**, Volkswagen **VIWI** specification, and **VISS v1** backward compatibility
- Functions like Media(\*) and Navigation(\*) called out in particular, but others are anticipated.
- Generic approach, data model != protocol.  
Try to be applicable to multiple Automotive APIs
- (\*) Coincidentally, GENIVI has a **great starting point** based on previous API standards work here!
- Next step in process: proof of additional independent VISS implementations (call for action !)

# 2018 - 2019 W3C work outlook (continued)

**WebPay initiative**, started late 2017

- Reusing already mature standards for secure web payments, in the car.
- For fuelling stations? (Major security issues today with CreditCards and other)
- For toll roads

Early discussions about potential WebPay proof of concepts on GDP

- (Makes sense following the Las Vegas smart city pilot, which already included fleet of cars with prototype hardware and cloud connections?)

→ Development resources need to be secured!



# Security Team

## Overview

Stacy Janes  
Security Team Lead  
Irdeto

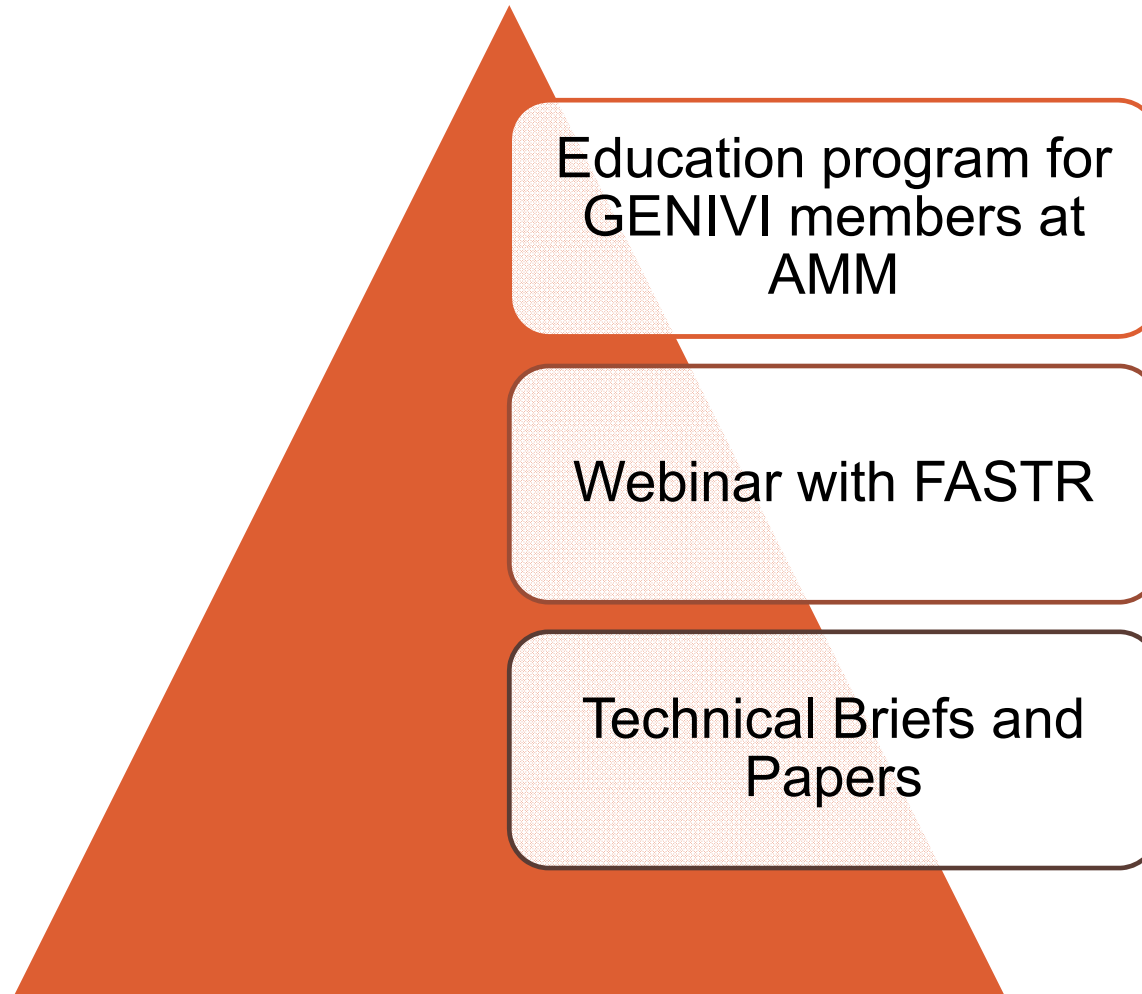


# Contributors

cloakware™  
*for connected transport* by ir.deta



# Education



# The Problem

Good security is about KNOWLEDGE.

The Security Team is looking for a way to bring that security knowledge to the GENIVI community.

It has to be in a format that is easy to consume, easy to understand and informative.



## The Answer (we hope)

Security Training  
Technical Briefs  
Technical Papers



# Security Training

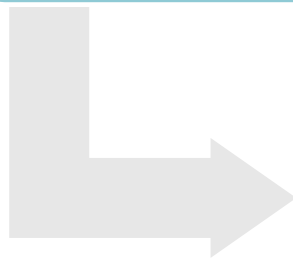
Security 101

From introductions to cryptography to the basics of software hacking.



Exploiting  
Buffer  
Overflows

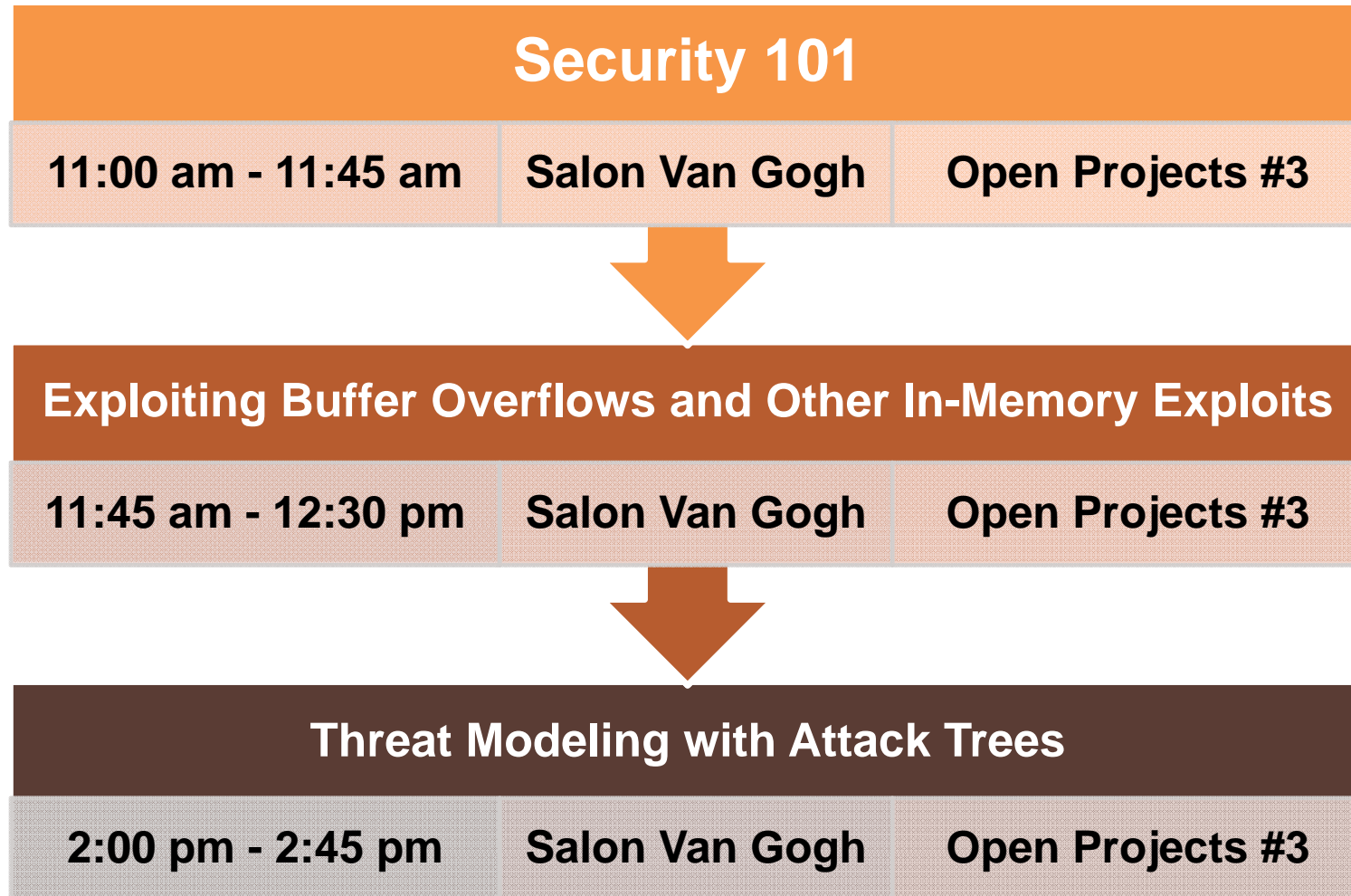
A hands-on experience that will demonstrate how a researcher works with memory , IDA Pro and debuggers.



Threat  
Modeling with  
Attack Trees

A short training for engineers on threat models and attack trees.

# Schedule



# Security 101

**BY: STACY JANES**



This session will cover the basic of security. From introductions to cryptography to the basics of software hacking, this purpose of this session to give an introductory view to what security is about. It will cover the difference between symmetric and asymmetric cryptography and when to use them. It will the basic techniques hackers use to reverse engineer and modify software binary in order to change the behavior. It will also cover existing open source security solutions, what they protect against and just as importantly, what they do not protect against.





# Exploiting Buffer Overflows and Other In-Memory Exploits

BY: **ALEX ALEXANDROV**  
and **PAVEL ZHYTKO**



This team created few simple syntactic vulnerabilities and added them to GDP. In the Hands-on training, we will exploit them as part of GDP. An eye-opening, hands-on experience that will demonstrate how a researcher works with memory, IDA Pro, and debuggers.

# Threat Modeling with Attack Trees

**BY: BEVAN WATKISS**



A short training for engineers on threat models and attack trees. Threat modeling early in the design process yields much more robust systems. This presentation will give an engineer that is interested in securing their systems but with little to no knowledge of threat modeling the understanding necessary to perform attack tree analysis.

# Technical Briefs and Papers

## Technical Brief

A Technical Brief will be a single page technical article. This will be used as an introduction to a topic in a form that that is easily digestible.

## Technical Paper

A Technical Paper will be a multi-page, whitepaper style document that is designed to provided more in-depth coverage of a topic.

# Topics

## Published

- ✓ Published brief on Cert Pinning
- ✓ Published MITM Whitepaper

<https://www.genivi.org/resource-documents>

## Future

- Brief - The “Why” and the challenge of least privilege
- Brief and Paper - Ecosystem Security
- Brief - What security in depth means
- Brief or Paper - Security Design Lifecycle. What it means and how it affects you.

# Think of the Children.



# Tools Team

Overview

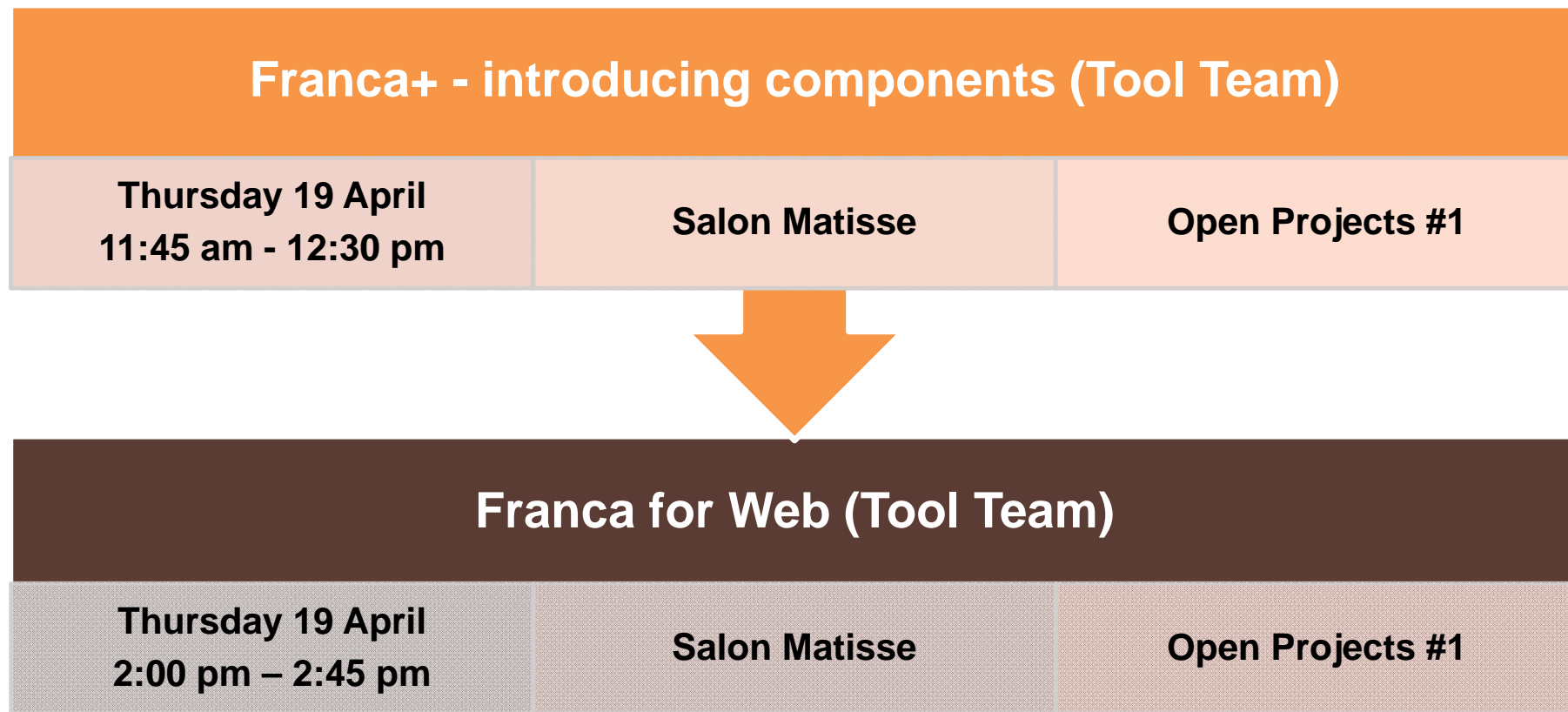
Jeremiah Foster, Pelagicore  
Klaus Birken, Itemis  
Tools Team Co-Leads



# Update on work done on component specification

- ❑ New Franca Release, 13 -- Franca for the Web
- ❑ There are lots of new features,
  - ❑ Extensible deployment models
  - ❑ JS code generator for client-side WAMP/Autobahn applications which talk to CommonAPI C++ servers.
- ❑ Tools team continues to work on the component specification
- ❑ Regular meetings, now using Zoom, are occurring -- feel free to ask me for an invite on the genivi-projects mailing list

# Schedule of Tool Team Projects update





# GENIVI Community Manager

## Update

Jeremiah Foster  
Luxoft  
GENIVI Community Manager



# Update on license compliance

- ❑ The License Review Team thanks Claus-Peter Wiedemann for all his work in the team!
- ❑ He and the LRT managed to produce two versions of GENIVI's public licensing policy, a real achievement that reflected the state of the art.
- ❑ Currently GENIVI has a virtual machine dedicated to scanning GENIVI source code. The goals are somewhat different now given the changes in the community as well as changes in GENIVI's release of source code.
- ❑ Because all of GENIVI's code is released in the open on GitHub, there are very little compliance issue to manage, we have an easy path to complying with FOSS licenses
- ❑ There are still some challenges in meta-ivi which we look into with a standard set of tooling;
  - A postgresql data base
  - Fossology server
  - ScanCode
- ❑ The use of ScanCode is new, but it provides a flexible way to scan a large body of source code quickly.
- ❑ There is also interest from other companies in helping scan source code with their tools, discussions ongoing with FossID about that.

# Update on license compliance, more

- ❑ Important changes continue to occur in the community with regard to FOSS license compliance. We now have something called “Common Cure” from Microsoft, Red Hat, et. al. --

- The GNU General Public License (GPL) and GNU Lesser General Public License (LGPL) are among the most widely used open source software licenses covering many important software projects, including the Linux kernel. GPL version 3 (GPLv3) introduced an approach to termination that offers distributors of the code an opportunity to correct errors and mistakes in license compliance. This approach allows for enforcement of license compliance consistent with a community in which heavy-handed approaches to enforcement, including for financial gain, are out of place.
- In Nov. 2017, [Red Hat, Facebook, Google, and IBM](#) each committed to extending the GPLv3 approach for license compliance errors to the software code each has contributed under GPLv2 and LGPLv2.1 and v2. There are now 10 companies that have publicly committed to providing greater predictability to open source users. The large ecosystems of projects using the GPLv2 and LGPLv2.x licenses will benefit from adoption of this more balanced approach to termination derived from GPLv3.

- ❑ What we have is a community of companies that are ‘publicly committed to providing greater predictability’

# Update on license compliance, even more

- ❑ Recent conference at Columbia Law School on Software Governance and Automobiles shared information from Canonical Ltd. regarding their approach to copyleft license compliance in automotive.
- ❑ They propose using Ubuntu Core and ‘Snaps’ to provide isolation and modularity, replacing the typical ‘deb’ or ‘rpm’ package
- ❑ In addition, they propose using the vehicle’s VIN to allow vehicle owners to receive “installation information” and source code which can be modified
- ❑ To install the user modified software, a “signed pair of assertions from the OEM” can be used, the signed assertions are required for the snapd daemon to install the software
- ❑ User modified software, even with signed assertions, may lose some access rights on the in-vehicle network. Access can entirely be based on the OEM’s security and isolation policies and fine grained interface access rights provided by the snapd agent.
- ❑ Snapd allows for rolling back user modifications to a “known good state” based on warranty, service, or other criteria

## Diversity of interpretation regarding exchangeability in LGPL v2.1

### 1. Panicked interpretation:

- ▶ Avoid any possible risk and interdict use of FOSS / copyleft components / LGPL and GPL / e.g.
  - > no implementation of GNU/Linux based operating system possible as LGPL v2.1 components are included

### 2. Conservative interpretation:

- ▶ Potential legal risk of non-compliance because of question of construction
  - > avoid implementation in TiVo-ized systems or use technical construction for exchangeability

### 3. Liberal interpretation:

- ▶ No explicit wording or jurisdiction interdicting TiVo-ization
  - > implementation possible, especially if unavoidable from a technical point of view

### 4. Indifferent interpretation:

- ▶ Up to now most legal claims mainly based on copyleft issues not TiVo-ization so compliance with copyleft is main goal

Outdated?  
Linux widely  
used in industry

Risky: original  
case TiVo / Linux

# Key Performance Indicators

<u>Measure</u>	<u>Description</u>	<u>Target</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Currently</u>
GDP Downloads	Download of built GENIVI Dev. Platform images for various hardware platforms	20% increase in GDP downloads	392	1534	297	~20% less
Increased code flow	Commits in comparison to last year	25% increase	855	2087	695	20%
Code contribution	Increase in new contributors to GENIVI projects	25% increase	52	29	11	9%

# Update on open source projects

## Code Commits 2017 Top ten 'authors'

**These are the people  
who authored the  
commit, not  
necessarily who  
committed it.**

- 1.130 "Yong-iL Joh"
- 2.126 "Klaus Birken"
- 3.115 "philippe colliot"
- 4.111 "Gunnar Andersson"
- 5.108 "Remigiusz Kołłątaj"
- 6.101 "Emre Ucan"
- 7.88 "Travis Reitter"
- 8.80 "Tatiana Jamison"
- 9.70 "Viktor Sjöling"
- 10.61 "Changhyeok Bae"
- 11.54 "Jeremiah C. Foster"
- 12.43 "Calum McCall"

# Update on open source projects

**Code Commits 2018 so far  
Top ten 'authors'**

**These are the people  
who authored the  
commit, not  
necessarily who  
committed it.**

- 1.114 "Emre Ucan"
- 2.113 "Benjamin Klotz"
- 3.88 "Juergen Gehring"
- 4.66 "Markus Mühlbrandt"
- 5.50 "Klaus Birken"
- 6.45 "Oscar Andreasson"
- 7.39 "Philippe COLLIOT"
- 8.25 "Remigiusz Kołłątaj"
- 9.18 "Maxim Danilov"
- 10.18 "Gunnar Andersson"
- 11.14 "Jens Lorenz"
- 12.10 "Bernhard Hennlich"



# Update on open source projects

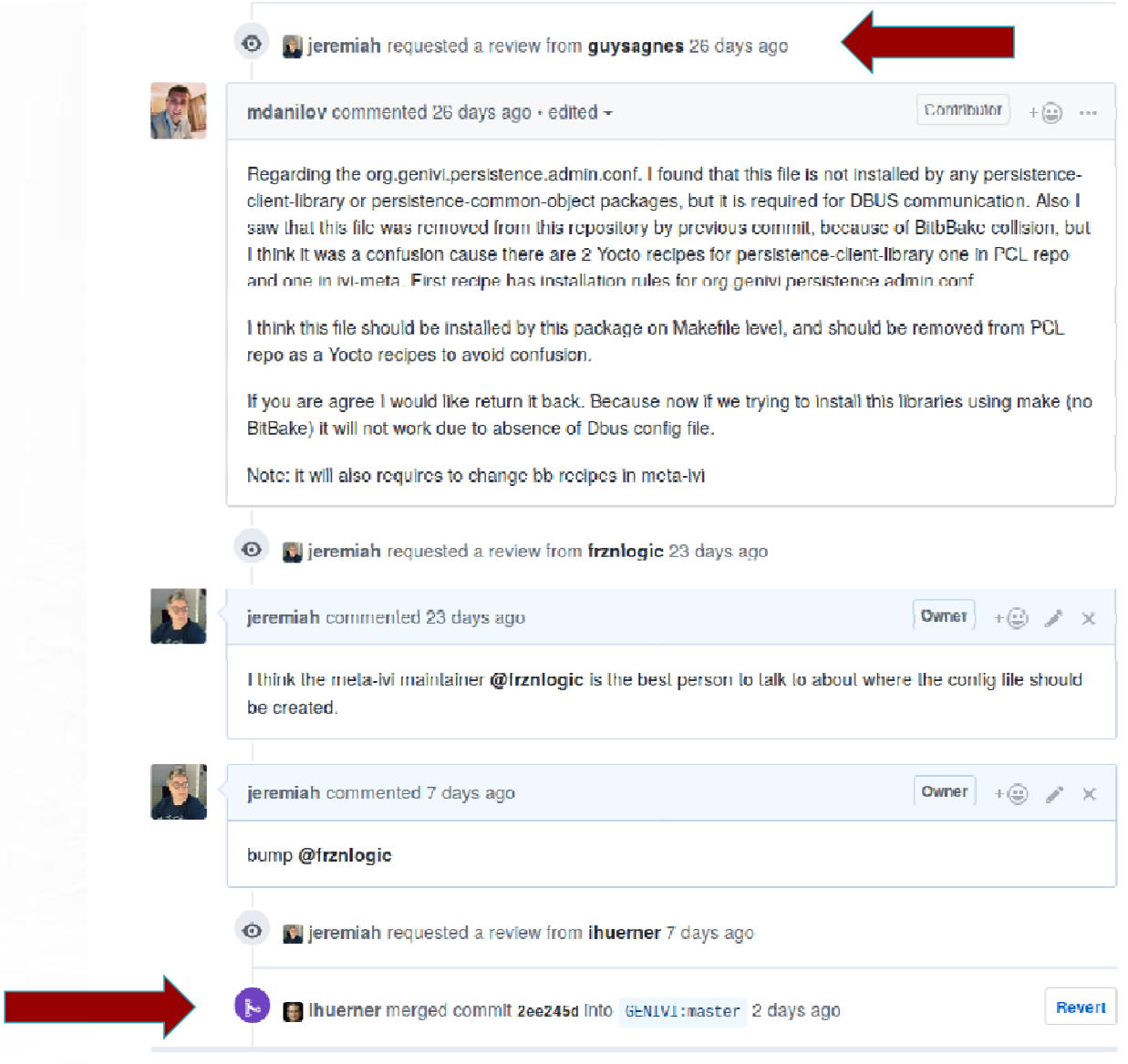
**Code Commits 2018 so far  
Top ten companies**

**These are the people  
who authored the  
commit, not  
necessarily who  
committed it.**

1. 208 BMW
2. 130 ADIT
3. 72 Luxoft / Pelagicore
4. 72 gmail.com
5. 66 itemis.de
6. 42 genivi.org
7. 39 hotmail.com
8. 16 mobica.com
9. 10 telecomsys.com
- 10.9 mentor.com
- 11.7 jaguarlandrover.com
- 12.6 renesas.com

# Using GitHub for code review

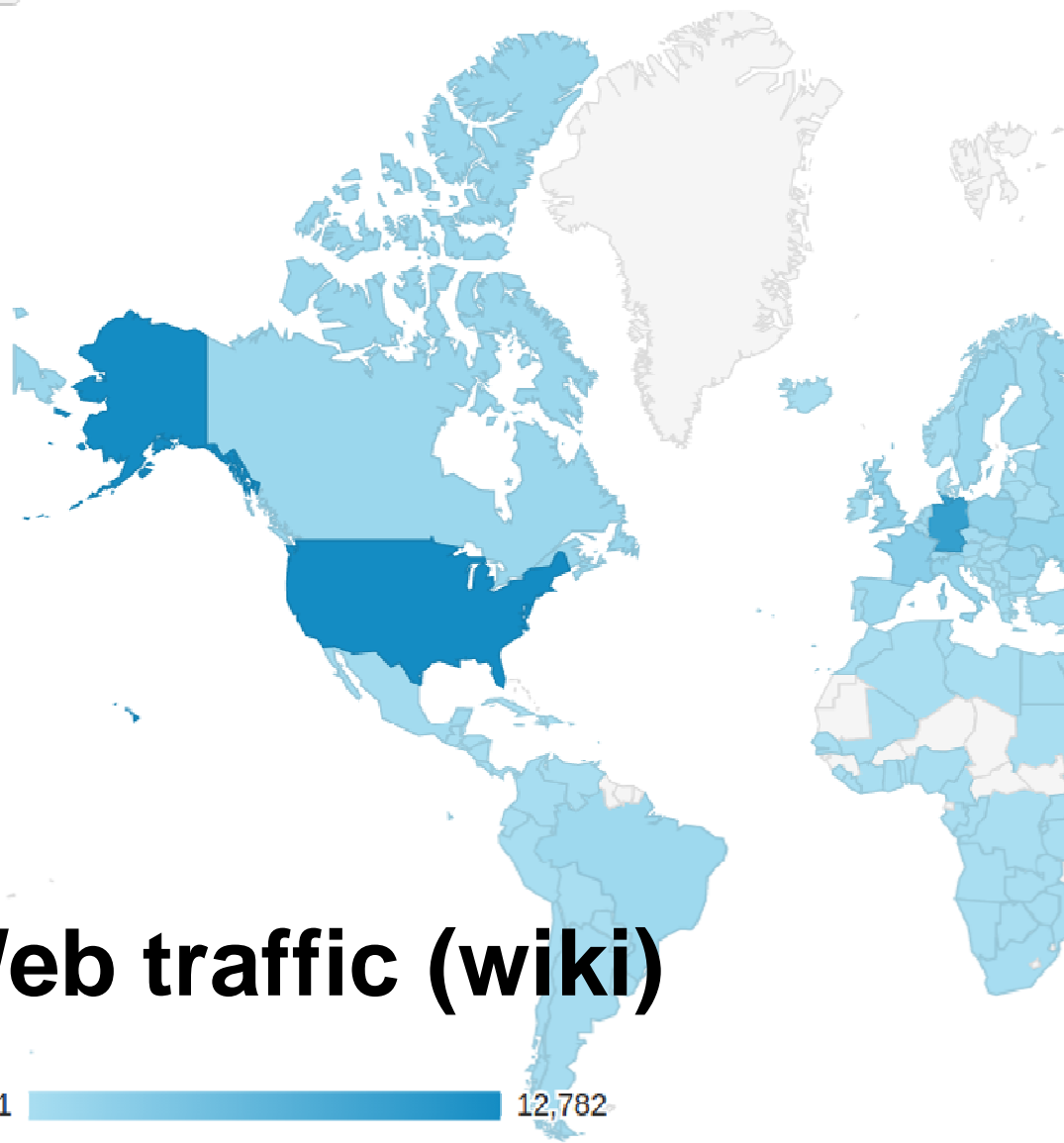
Simple and effective tools for communicating with maintainers



The screenshot shows a GitHub pull request discussion. At the top, a red arrow points to the text "jeremiah requested a review from guysagnes 26 days ago". Below this, a comment from "mdanilev" is shown, discussing the installation of a file and the need to change bb recipes. Another red arrow points to the text "jeremiah requested a review from frznlogic 23 days ago". Below this, a comment from "jeremiah" is shown, stating "I think the meta-ivi maintainer @frznlogic is the best person to talk to about where the config file should be created." A third comment from "jeremiah" says "bump @frznlogic". At the bottom, a red arrow points to the text "ihuemmer merged commit 2ee245d into GENIVI:master 2 days ago".



Users ▾



# Web traffic (wiki)

1.	 United States	12,782 (17.52%)
2.	 Germany	9,539 (13.07%)
3.	 India	9,147 (12.54%)
4.	 Japan	5,475 (7.50%)
5.	 South Korea	5,167 (7.08%)
6.	 China	2,531 (3.47%)
7.	 France	2,448 (3.35%)
8.	 United Kingdom	2,060 (2.82%)
9.	 Poland	1,687 (2.31%)
10.	 Ukraine	1,609 (2.21%)



# Google Summer of Code 2018

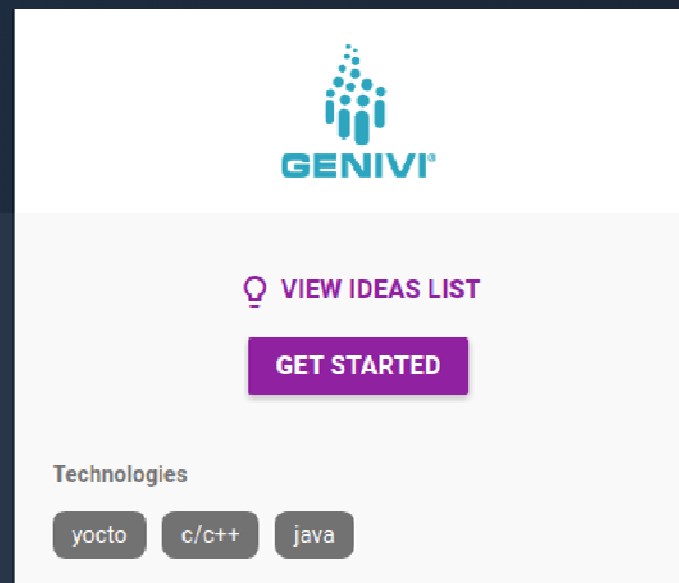
- So far two inquiries from only 2 students (students began inquiries on March 12th)
- Some positive response from GENIVI members for participation (Mycroft)
- GENIVI awarded two slots, likely only going to use one (one slot = one student project)

## GENIVI Alliance

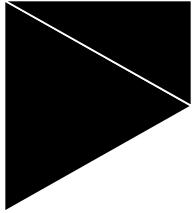
<https://www.genivi.org/>

Developing open software for IVI and the connected car.

The GENIVI Alliance provides standards and an open connectivity platform that accelerates innovative solutions based on open software for In-Vehicle Infotainment (IVI) systems and connected vehicles.

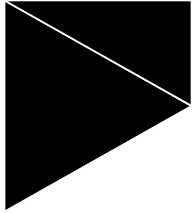


The screenshot shows the GENIVI website interface. At the top is the GENIVI logo, which consists of a stylized cluster of blue dots above the word "GENIVI" in blue. Below the logo is a purple link with a magnifying glass icon that says "VIEW IDEAS LIST". Underneath that is a prominent purple button labeled "GET STARTED". At the bottom of the screenshot, under the heading "Technologies", there are three grey buttons with rounded corners: "yocto", "c/c++", and "java".



**Saturday & Sunday  
March 24-25th  
Stata Center  
Massachusetts Institute of  
Technology  
Cambridge, Massachusetts**





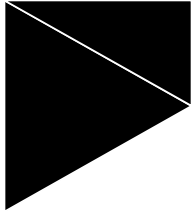
Software Freedom  
Law Center

# Software Governance and Automobiles: Building the Open Road

**Where:** Columbia Law School's Jerome Greene Hall, 435 West 116th Street, Room 101, New York, New York.

**When:** April 13, 2018 9:00am to 5:30pm EDT

**Who:** [Eben Moglen](#), [Mishi Choudhary](#), Software Freedom Law Center



# Software Freedom Law Center

## Conference Program:

- **Speakers:**

- **Eben Moglen, SFLC/CLS & Mark Shuttleworth, Canonical Ltd.:**

- *Automated Software Governance and Copyleft in Cars*

- **Daniel Patnaik, Audi:**

- *Security, TiVo-ization, and FOSS Licenses: an Industry View*

- **Nicholas McGuire, Open Source Automation Development Lab (OSADL e.G.), Safety Critical Linux Working Group:**

- *Systems Engineering and the Sins of Software*

- **Jeremiah Foster, Community Manager, GENIVI Alliance, Open Source Technologist, Luxoft:**

- *Industry Transformation: From Metal-Benders to Software Companies*

- **Alistair Adams, Qt: Automotive Adoption and Governance of FOSS:**

- *Qt's Challenges and Experience*

- **Leilani H Gilpin, Computer Science & Artificial Intelligence Laboratory, Massachusetts Institute of Technology:**

- *Self-Explanation and Self-Driving: How to Make Autonomous Vehicles Tell Us How They Work*

**The end.**

**Enjoy the All Member Meeting!**

Visit GENIVI at <http://www.genivi.org> or <http://projects.genivi.org>  
Contact us: [help@genivi.org](mailto:help@genivi.org)

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**BACK UP**



# Chart Slide



# Thank you!

Visit GENIVI at <http://www.genivi.org> or <http://projects.genivi.org>

Contact us: [help@genivi.org](mailto:help@genivi.org)

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