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# GENIVI Member Keynote

2019 All Member Meeting - Munich

14 May 2019



# Agenda

- GENIVI over the years
- Perspectives of early leaders
- Results from 2018 to Present
- GENIVI Scope Expansion and New Projects
- GENIVI Board Expansion
- Upcoming Events
- Google Summer of Code
- Compliance Approvals

# GENIVI Over the Years





# 2009 First AMM – Visteon Village



“Let’s get to work and make this thing happen!”



# 2010 – AMMs in Munich & Detroit



No cool photos available, but great meetings!





# First CES Showcase - 2011



“Ah...Vegas. How’s the wine?”



# 2011 AMMs – Dublin & Shanghai



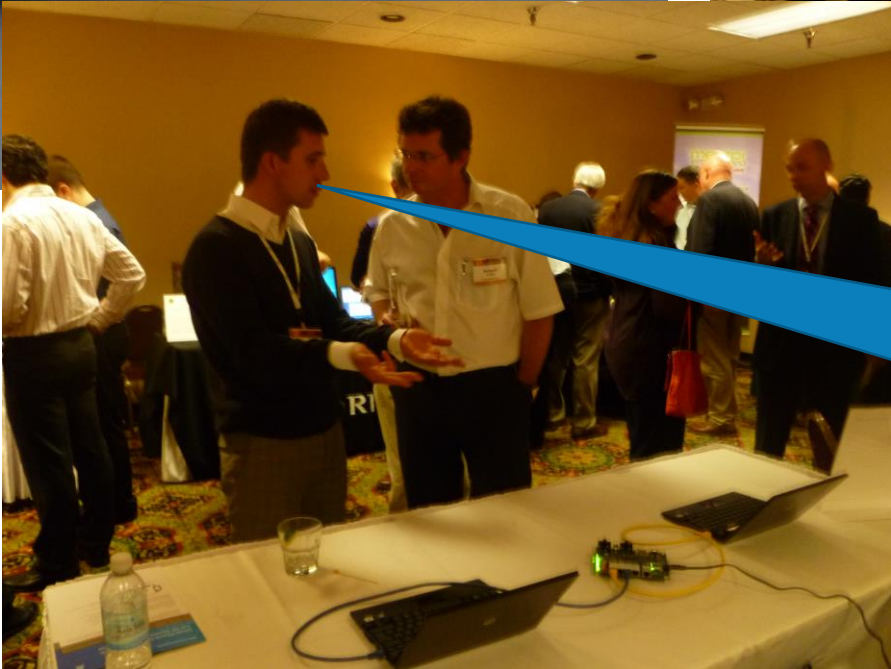
“Wasn't the Reception at the Guinness Brewery awesome?”

“Let's make an Android-based compliance program”





# 2012 AMMs in Paris & San Jose



“GENIVI is NOT a Micky Mouse organization!”  
(Event held at Disneyland Paris)

# Barcelona AMM - 2013



“GENIVI Software in production! Go team!”



# San Diego AMM 2013



“This cruise reception is really cool!”



# CES2014



“Being on the GENIVI Board is awesome...you should try it!”





# Gothenburg AMM 2014



“GENIVI did it...Linux is in the car. Now, let's get it connected!?”



# Compliance & Most Valuable Contributor (MVC) Awards



“Thank you,  
Tack, Danke”

“We are GENIVI  
Compliant”





# Detroit AMM 2014 & Casino Night Reception



“Thanks for the honor of serving as GENIVI President”



“Wait, Oktoberfest in Detroit...what’s wrong with this picture?”



# Stuttgart AMM 2015



“This GDP stuff is awesome! Thanks for the training”





# Seoul AMM 2015

“I can't believe this building floats!”

“Welcome to the GENIVI-equipped Genesis”







SAE World Congress 2016



“GENIVI receptions rock! Thank you to all our sponsors”



IESF 2016



Connected Car Detroit 2016



# Paris AMM 2016



“I’m German and I have to drink French beer!?”



“PSA welcomes you to Paris...and let us give GENIVI a few more things to do.”





# San Francisco AMM 2016



Startup Demo

New Innovation

GDP



ore



Renesas



"Smart Cities like Las Vegas need help from the automotive industry"



# CES 2017



“First year in the Bellagio, this is great!”



## GENIVI Networking Reception CES 2017



Moderator: John Ellis, Ellis & Associates

Ted Guild W3C	Magnus Feuer JLR	Andy Gryc C3X	Joel Hoffmann OMA	Kyle Walworth HARMAN	Steve Crumb GENIVI

**CONNECT2CAR**



# Birmingham AMM 2017



“Enjoy a hands-on GDP experience”



“Stay tuned, a new approach is coming”





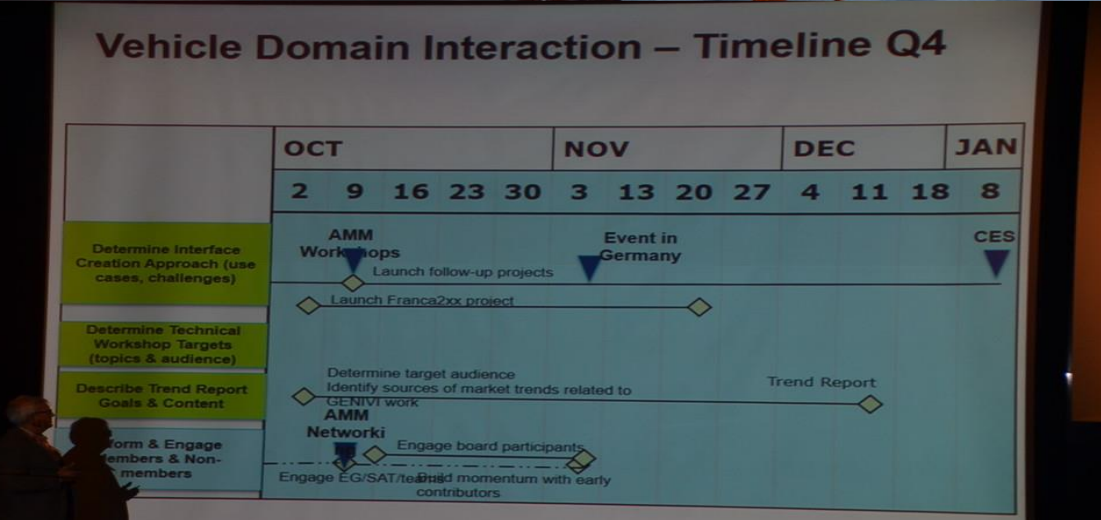
# Seoul AMM 2017



“This Domain Interaction strategy is spot on”



“Why can't all events have chairs like this?”





# CES2018



["loud noise from over 1000 people talking at the same time"]

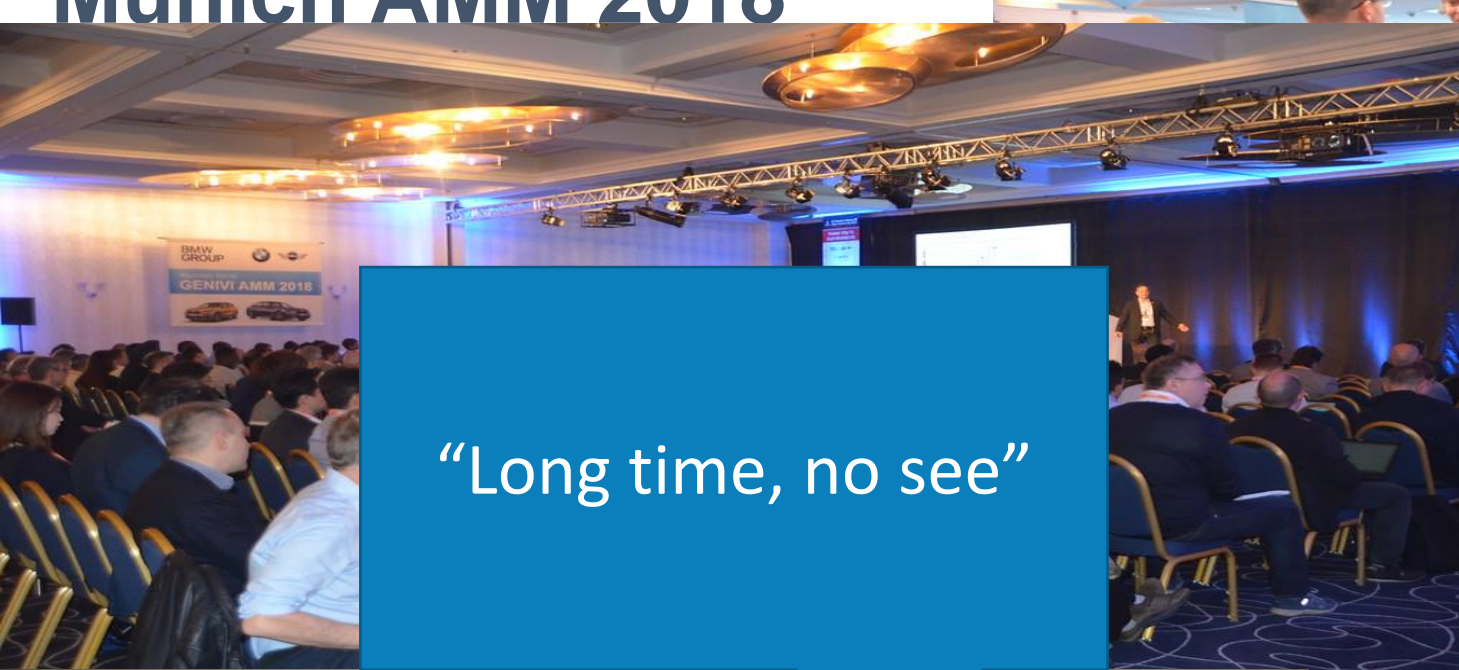


2017 Automobility LA





# Munich AMM 2018



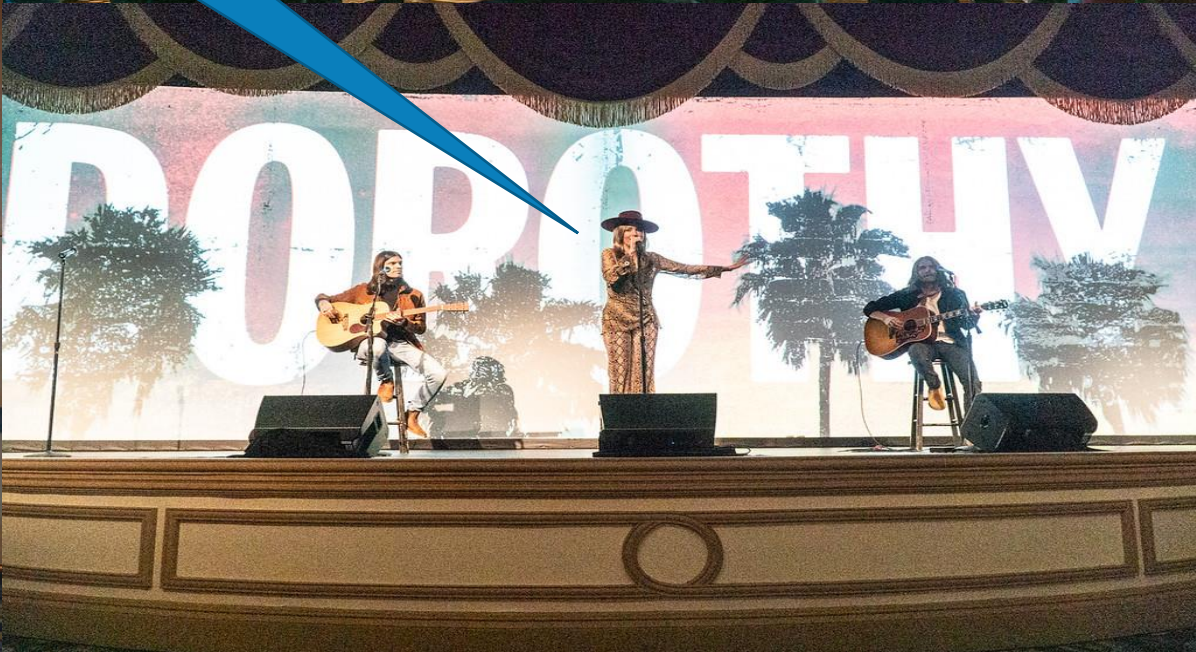
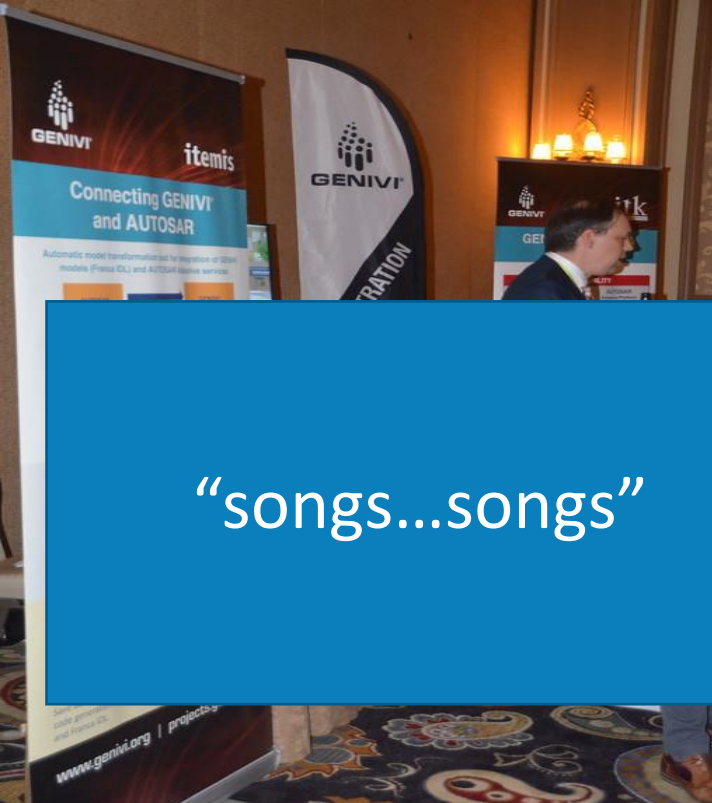
“Long time, no see”





# CES 2019

“songs...songs”





# Perspectives of Early Leaders



# In the Early Days



Other Very  
Confused and  
Amused early  
leaders

Graham Smethurst  
Founding GENIVI  
President and Board  
Chairman

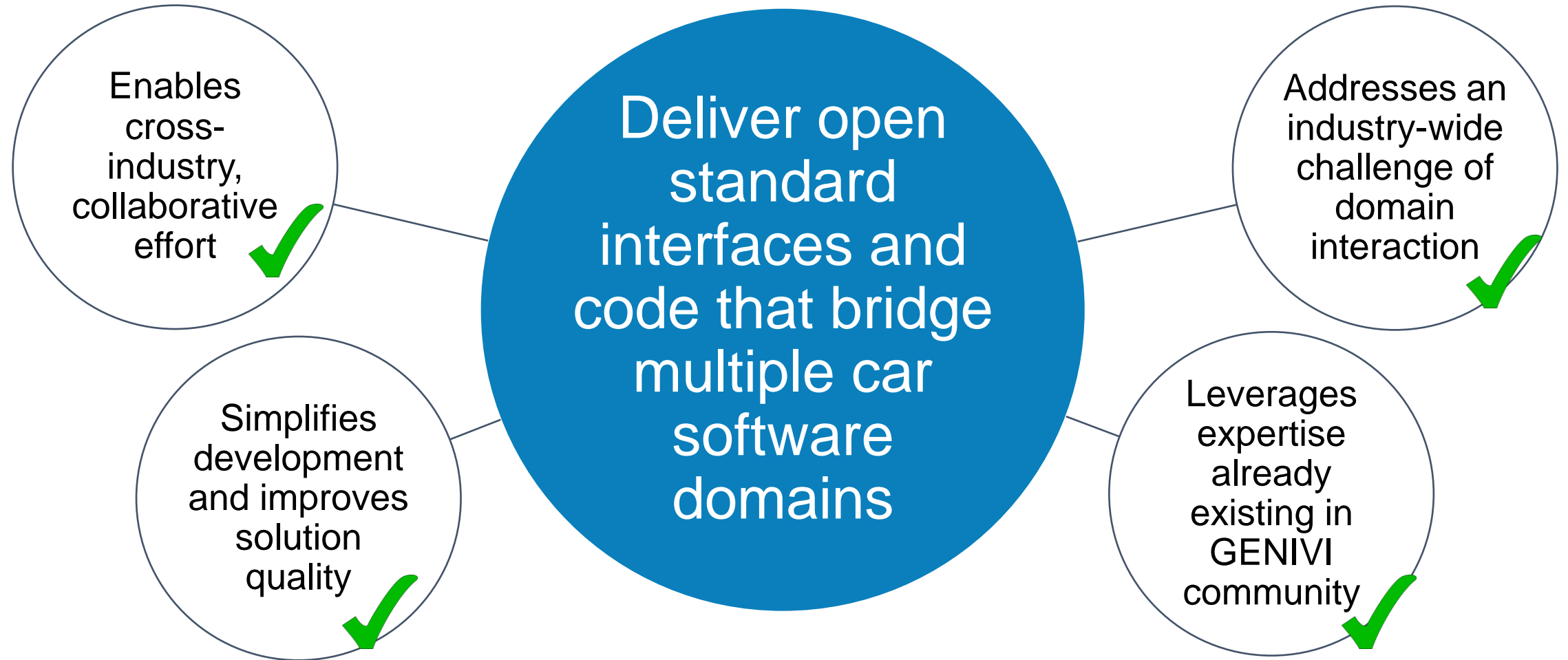
Markus Boje  
Founding GENIVI  
Technical Steering  
Committee Lead



# Results from 2018 to Present



# GENIVI Vehicle Domain Interaction Strategy - Achievements



# Results of Vehicle Domain Interaction Work (2018-2019)



- Developing or Extending Hypervisor APIs
  - Convened strong group of commercial and open source HV providers
  - [Publishing a single specification \(Automotive Virtualization Platform\) delivered openly and with multi-OS support](#)
- Graphics Sharing and Distributed Compositing
  - Comprehensive categorization of how graphics can be shared in cross-domain contexts
  - [Tech Briefs published for each category & Ramses code published](#)
- Determining Preferred Generic Communication Protocols
  - Results published from broad survey of protocol usage and preferences
  - [Delivered a prototype tool for enabling Adaptive AUTOSAR interop with non-AUTOSAR system \(GENIVI IVI\) through IDL transformation \(Tech Brief published and demo shown at CES\) \(picture on next slide\)](#)
- Vehicle Data / Cloud Service Models
  - [Supported W3C publication of Candidate Recommendation for Vehicle Interface Service Specification \(VISS\)](#)
  - Developing reference implementations of W3C VISS and Sensoris specs

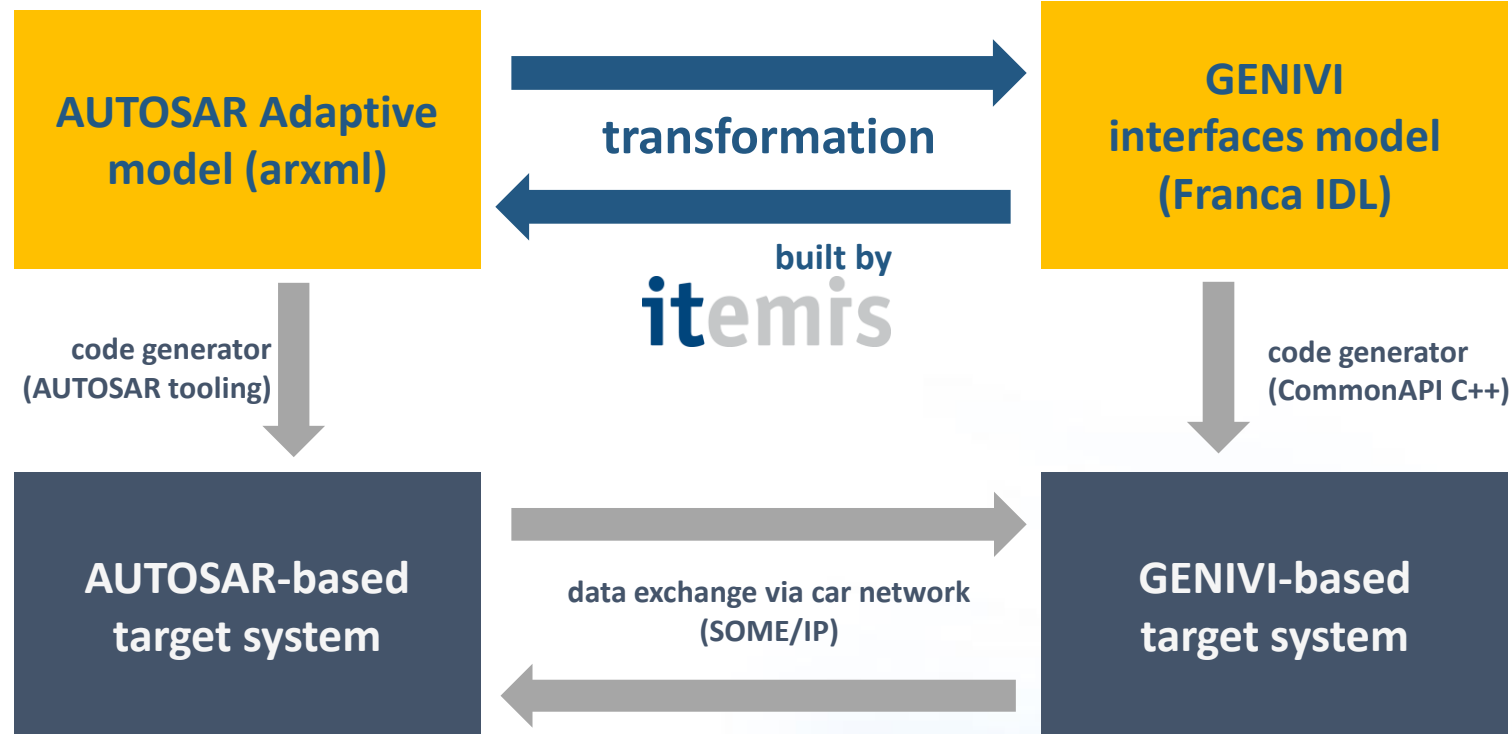


# Connecting GENIVI<sup>®</sup> and AUTOSAR

Automatic model transformation tool for integration of GENIVI models (Franca IDL) and AUTOSAR Adaptive services



**AUTOSAR**



# Parties involved on Domain Interaction : SW vendors, Tiers 1, OEMs

Graphics Sharing &  
Distributed  
Compositing  
GSHA

## Parties involved

1. The Qt Company
2. Mentor
3. ADIT
4. Bosch
5. Harman
6. Alpine
7. Allgo
8. Renesas
9. BMW

Developing or  
Extending  
Hypervisor APIs  
HV

## Parties involved

1. Opensynergy
2. EPAM
3. Green Hills
4. Perseus
5. Xen, Xvisor - open source
6. Elektrobit
7. ADIT
8. Bosch
9. KPIT
10. Alpine
11. ARM

Determining  
Preferred Generic  
Communication  
Protocols  
GPRO

## Parties involved

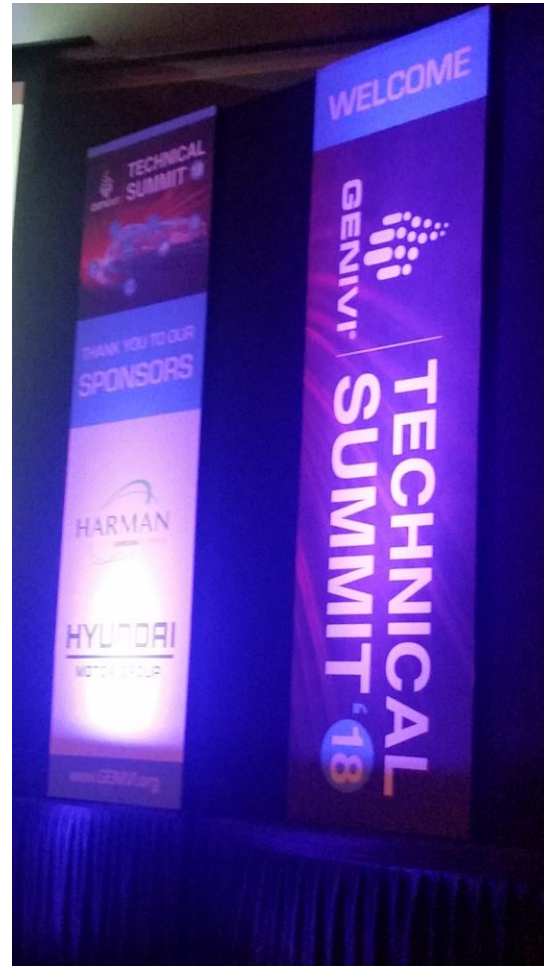
1. Itemis
2. Mentor
3. Visteon
4. Bosch
5. Renault



# 2018 Events



Technical Summit in Bangalore, India



GENIVI Networking Reception @ TU-Automotive

Munich AMM & Open Community Days

# CES2019 Connect2Car Program



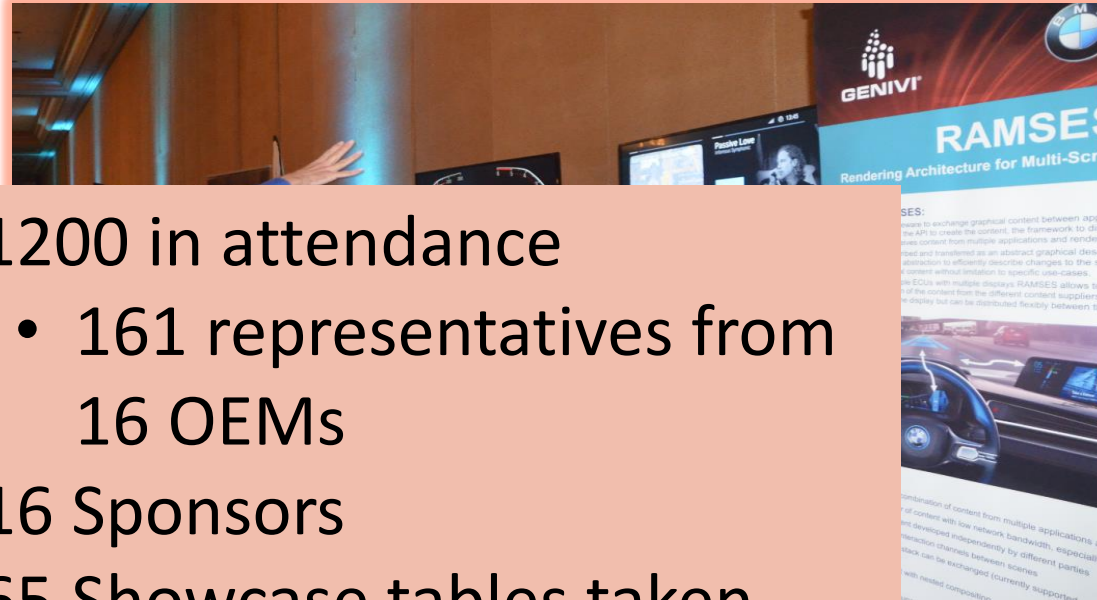
Connect2Car: A sixth year collaboration comprised of GENIVI, SAE, SEMA, and MEA. Each year Connect2Car introduces new thought leadership topics in a moderated panel format to a diverse CES audience seeking a deeper understanding of the current status, trends, opportunities, and challenges facing our connected ecosystem. This year the main sessions topics included:

- Connecting the Autonomous World
- The Future of In-Vehicle Infotainment
- Machine Learning & Artificial Intelligence
- Wireless: DSRC/5G, Bluetooth, WiFi
- Government vs. OEM Development
- Connected, Assisted and Automated





# GENIVI CES2019 Networking Reception and Showcase Highlights



- 1200 in attendance
  - 161 representatives from 16 OEMs
- 16 Sponsors
- 65 Showcase tables taken
- 33% larger facility than 2018
- Revenue positive
- 2 New Members joined

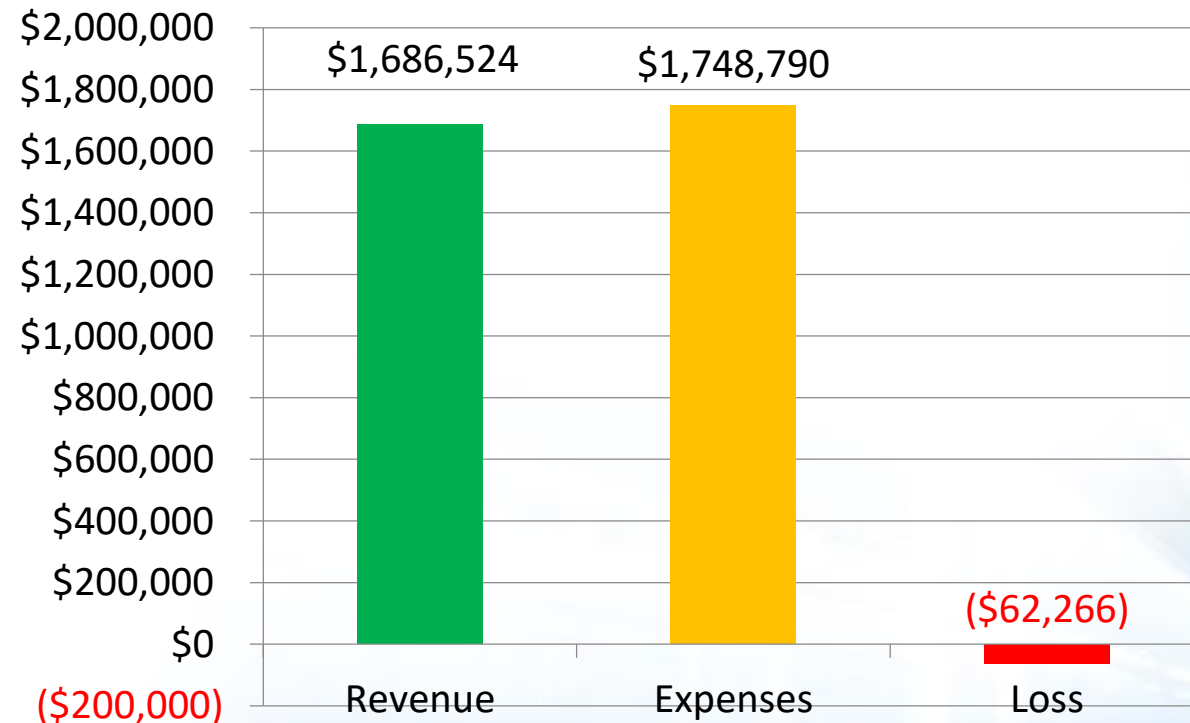


# Organizational Metrics



- Membership
  - 15 New Members Joined (Currently we have 101 members)
  - Members are equally distributed over North America, Europe and Asia/Pacific

## • 2018 Financial Results





# Scope Expansion & New Projects

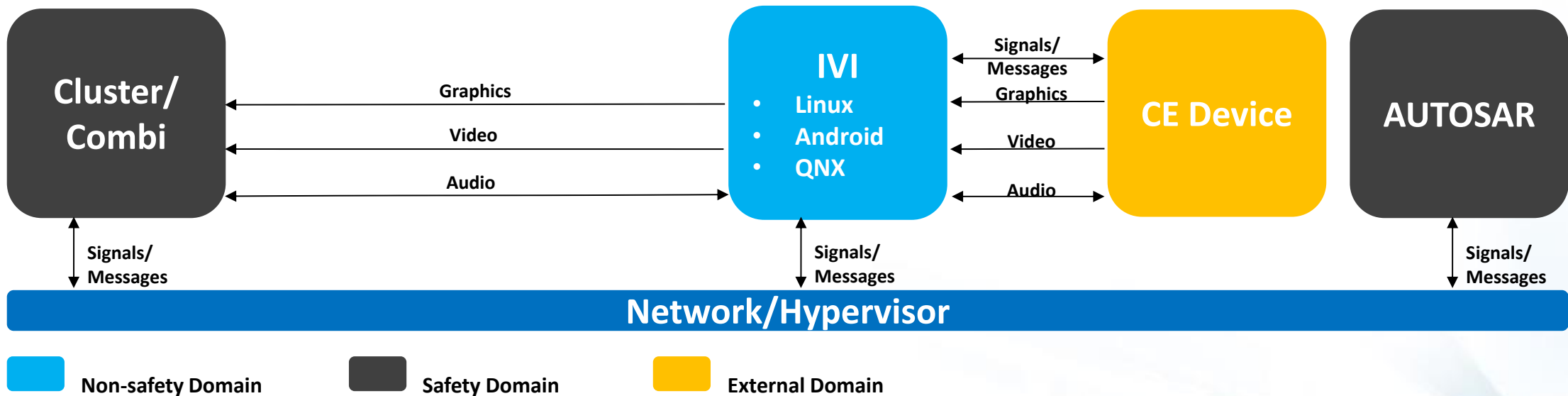
# GENIVI Accomplishments (2009-2017)

- ✓ Introduced open source software and Linux operating system into the automotive industry
  - Brought OEMs together to align requirements for IVI systems
  - Facilitated collaboration between suppliers to deliver reusable IVI software components and a reference platform based on open source software
- ✓ Built a global, collaborative community where standards and software could be jointly developed, demonstrated, and adopted in commercial products
  - GENIVI software in many brands worldwide
- ✓ Established a global, buyers/sellers network and facilitated high-visibility events where business relationships could develop and grow
  - Highly attended showcases & receptions at CES, TU-Automotive, and GENIVI annual events



# Vehicle Domain Interaction (2017-2018)

- Essential vehicle software architecture & software required for cross vehicle domain functions

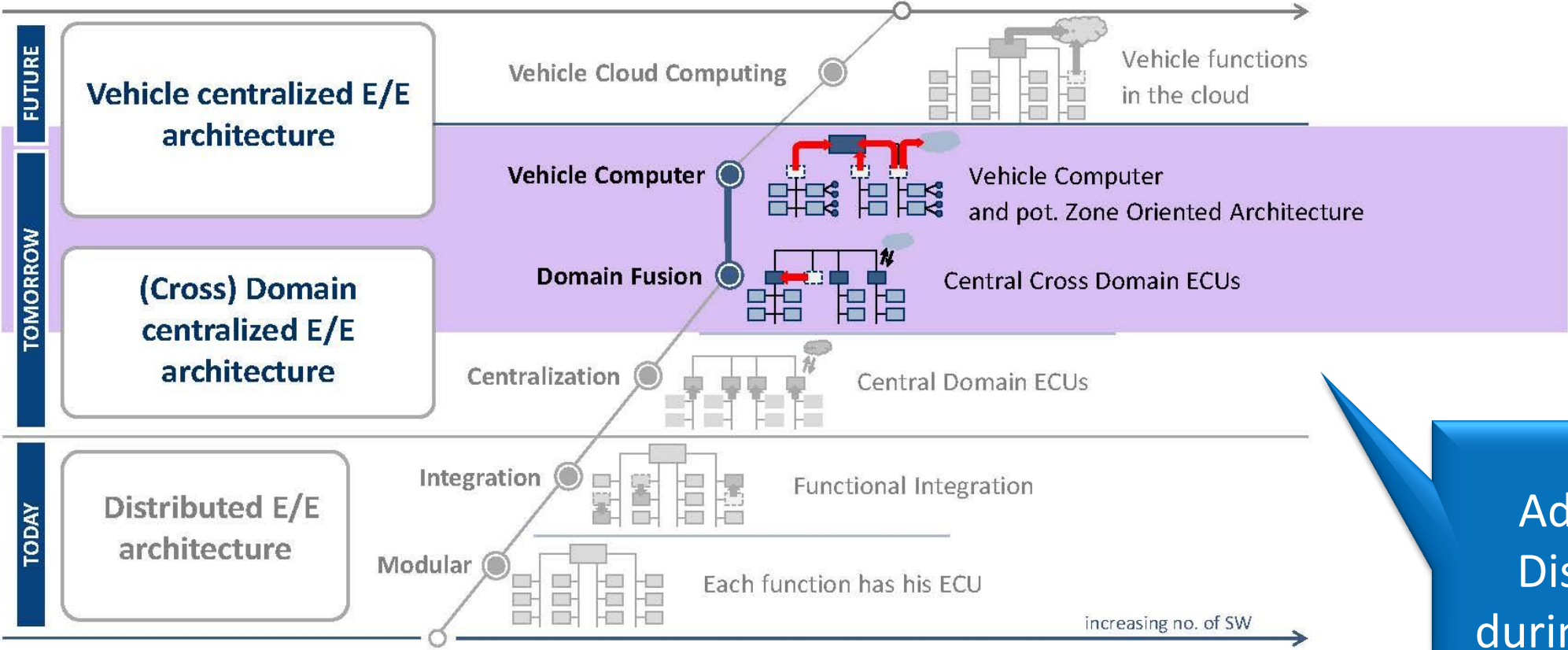


# Future Vehicle EE and Software Architecture

(GENIVI 2018+)

## Roadmap E/E architecture

Up to now

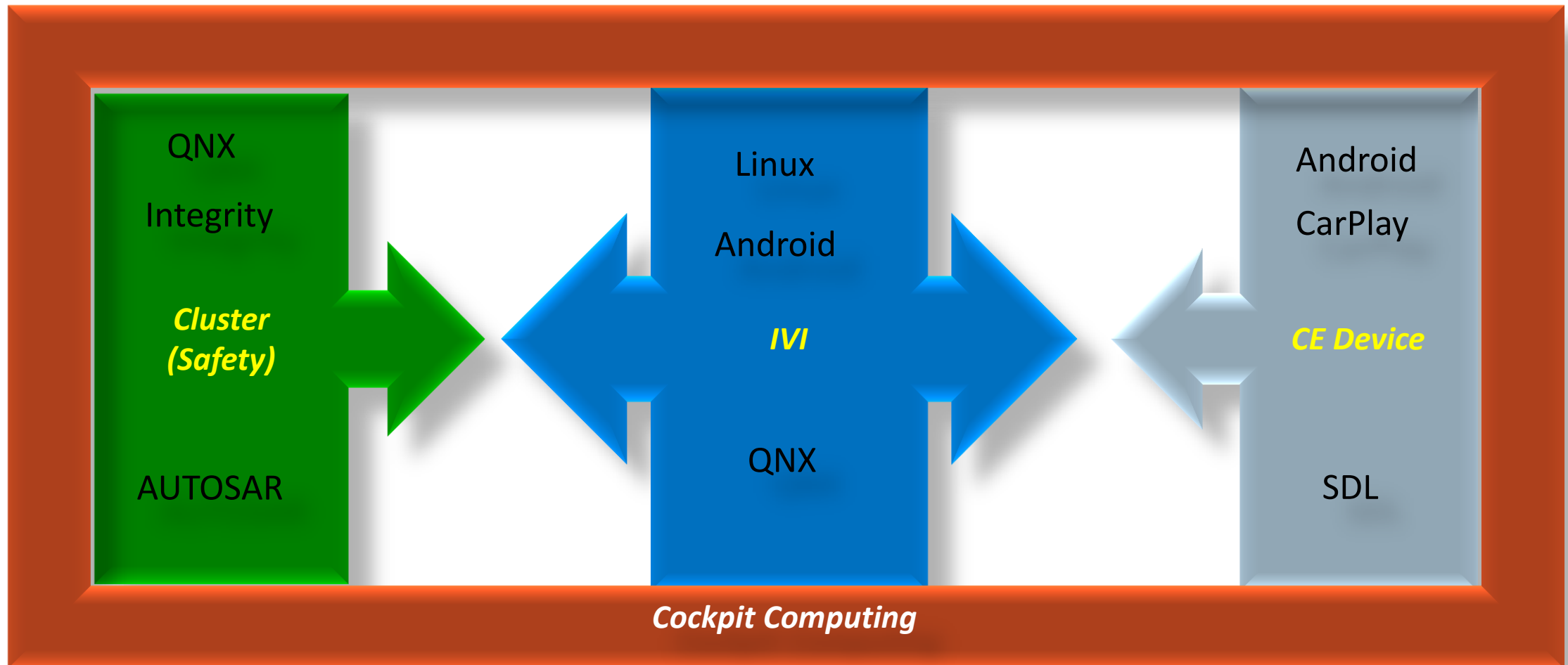


Additional Discussion during 9:00am panel tomorrow

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# The Future is Multi-OS Domain Integration (2019++)



# Revised Mission

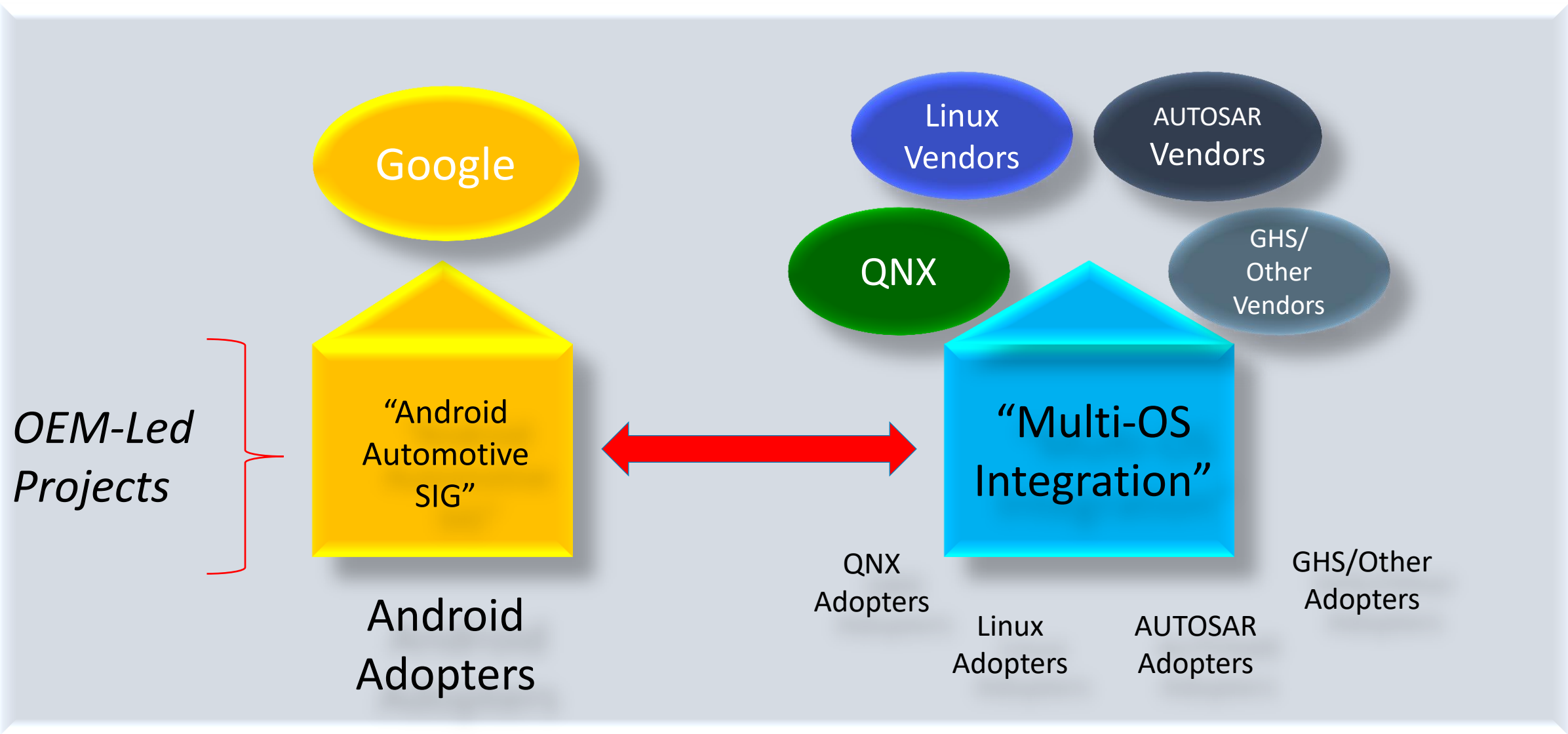


*The GENIVI Alliance develops standard approaches for integrating operating systems and middleware present in the centralized and connected vehicle cockpit.*

*The alliance links adopters of Android™ Automotive, AUTOSAR, Linux, and other in-vehicle software with solution suppliers resulting in a productive and collaborative community of 100+ members worldwide.*



# A United Cockpit Computing Software Ecosystem is Possible



# Strong Foundation Laid for Multi-OS Integration Work

*OEM-Led  
Projects*



More on these  
two projects in  
the next panel  
session



# Implications of new strategy on GENIVI Development Platform (GDP)

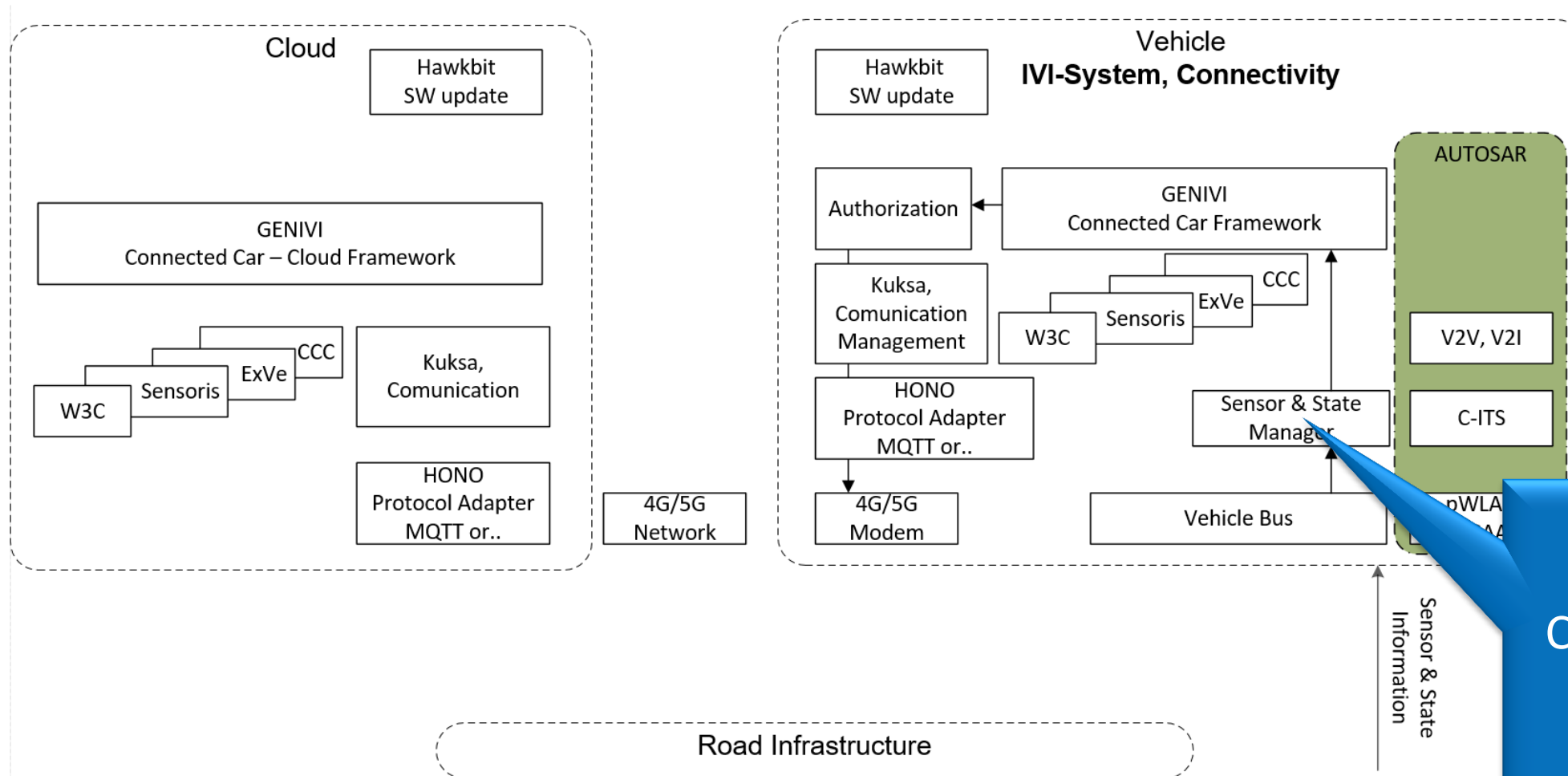


- GDP will continue to be available in the GENIVI github and will include the GENIVI Baseline (consisting of all mandatory GENIVI software components for GENIVI compliance)
- Continued contributions to GDP are welcome; however, several other Linux platforms are good candidates for integration and therefore, GDP will not be as actively maintained as in the past
- GENIVI will use other in-vehicle platforms as needed based on the intended purposes of the (multi-OS) integration activities
  - Other Linux platforms such as Apertis, webOS, AGL
  - Android Automotive OS platform
  - Adaptive AUTOSAR
  - Others as needed
- Gunnar Andersson continues to be primary contact point for GDP-related topics (gandersson@genivi.org)

# But let's not forget the Future ... Vehicle Cloud Computing

## Connected Car and Cloud

### Exemplary SW Reference architecture



Attend the Car2Cloud BoF @ 11am on Thursday



# Scope Expansion Summary

- GENIVI has had a productive and impactful past
- Trends toward domain fusion and centralization has led GENIVI to pivot toward a mission of easing integration of multiple in-vehicle operating system present in the vehicle cockpit
- Two new projects are being launched this week to explore needed extensions for Android Automotive deployment and to focus on challenges faced by multi-OS integration
- Domain Interaction work completed and in progress lays a strong foundation for the new projects
- GENIVI to consider usage of other development platforms as appropriate for each project
- We invite you to attend new project kick-off activities:
  - Multi-OS Integration Panel: Next Session
  - Android Automotive SIG: 9:00 am Wednesday
  - Multi-OS Future & System Integration: 2:00 pm Wednesday
  - Car2Cloud BoF: 11:00 am Thursday
- **GENIVI welcomes additional project ideas within the expanded scope of multi-OS integration in the cockpit**

# GENIVI Board of Directors Expansion





# 2019 Board of Directors



**Jochen Böhm**

Area-Lead Development LINUX-/GENIVI-Platform  
BMW CarIT



**Dr. Andree Zahir**

*Senior Vice President, Head of Business Unit CI1 (Automotive Navigation and Infotainment Systems)  
Robert Bosch Car Multimedia GmbH*



**Michael Ziganek**

*General Manager, Automotive Business Unit  
Mentor a Siemens Business*



**Sujal Shah**

*Android Automotive CoE &  
Advance Market Product Management at HARMAN International*



**Hyungjin Jeon**

*Research Fellow, Advanced Research & Product Planning / Vehicle component Solution Company at LG Electronics*

# Expanded Mission means Expanded Leadership

- Annual Board election in March resulted in one new Board member (Congrats to LGE!)
- **Opening a new Board nomination period effective today that will close on 21 June**
- Board seats are now available to Charter, Core and Associate members
  - Elected Associate members receive a 6-month term, after which they must upgrade to Core or Charter level to remain on the Board
- Bylaws-required “Board adder fee” has been waived for 2019
- **Nominations should be sent to the Executive Director ([scrumb@genivi.org](mailto:scrumb@genivi.org)) by not later than 21 June**
  - **Should include: Company Name, name & title of representative that will sit on the Board**
- Election held in early July and first Board meeting is in late July
  - Board Officer Elections will be held during the July BoD meeting (new Board members eligible)
- Contact Steve or any Board member this week if you have questions



# Next Event



# TU-Automotive Detroit Activities

June 4<sup>th</sup>

- 12:00 – 3:00pm 2<sup>nd</sup> Annual “Future of Radio Workshop”
  - Presentations, panels and open dialog discussions
  - Expecting 50+ in attendance

June 5<sup>th</sup>

- 2:30 – 4:30pm NAB VIP Tour of TU-Detroit Show Floor (GENIVI & NAB guided)
- 4:00 – 6:00pm SDLC & Detroit Regional Partnership (startups) VIP Networking
- 6:00 – 9:00pm GENIVI TU Networking Event (Michigan Beer Company)
  - Expecting 750+ in attendance (OEMs, Tier 1s, etc.)
  - 11 Event sponsors



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Michigan. Where big ideas in mobility are born. | NATIONAL ASSOCIATION OF BROADCASTERS

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# Google Summer of Code



# Google Summer of Code – 2 projects to be started

- 1. RAMSES 3D Graphics (Project Mentor: Violin Yanev, BMW)
  - Improve RAMSES by connecting a 3D design tool
    - Previous discussion to connect Qt Designer tool seems stalled
    - **Blender** is a well established, often professionally used 3D modeling tool, which is 100% open source
    - Main task: Develop a plugin for **Blender** to output graphical designs in a format appropriate for **RAMSES**
    - Secondary task: Use the framework to extend the Helsinki Navigation demo with graphical content (for example advertisements on buildings)
- 2. Speech control and machine learning (Project Mentor: Gunnar, GENIVI)
  - Phase 2 of previous year's project – extending understanding of natural speech by machine learning algorithms
  - Will target alternative GDP platform (e.g. Apertis)



# Compliance Approvals



## RECENT COMPLIANT APPROVALS

Since the last AMM

### ADIT

V 14.0	12/19/2018	I.MX8 QuadXPlus Multisensory Enablement Kit
V 14.0	12/19/2018	I.MX8 QuadXPlus Multisensory Enablement Kit

### NXP Semiconductors

V 14.0	2/25/2019	I.MX8 QuadXPlus Multisensory Enablement Kit
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### Renesas

V 14.0	12/19/2018	R-Car Salvator-X with M3W fitted
V 14.0	12/19/2018	R-Car Salvator-XS with H3 fitted
V 14.0	12/19/2018	R-Car M3 Starter Kit Pro
V 14.0	12/19/2018	R-Car H3 Starter Kit Premium.



# What is the Ask Me! Initiative?



# Introducing the GENIVI Ask Me! Experts



Bevan Watkiss  
Irdeto  
Security Team



Marc Bellanger  
Renault Software Labs  
Franca-ARA Project

Stephen Lawrence  
Renesas  
Graphics Sharing &  
HMI Composting Project



Gunnar Andersson  
GENIVI Development  
Lead  
Multi-OS Integration



Eugen Friedrich  
ADIT  
Graphics Sharing  
& HMI Composting  
Project



Giovanni Vergine  
Visteon  
Generic Protocols Project

# Wrap-up



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# Thank you!

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