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HYUNDAI
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Ideas, Skills, Community

✅ GENIVI introduced open source software and Linux operating system into the automotive industry
  - Idea sparked by BMW, Intel, Wind River
  - Much learning in early days until Linux & open source software skills established

✅ GENIVI built a global, collaborative community where standards and software could be jointly developed, demonstrated, and adopted in commercial products
  - Grew to 150 members worldwide
  - GENIVI software in 25+ brand/model combinations around the world

✅ GENIVI established a global, buyers/sellers community and facilitated high-visibility events where business relationships could develop and grow
  - Well attended annual GENIVI events, showcases & receptions at CES, TU-Automotive
GENIVI is a front door open to other industry bodies

Collaborations
- NAB (Radio)
- FASTR (Security)
- W3C (Web)
- OCF (Smart Home)
- FSF (FOSS)
GENIVI Priorities

Aid OEMs and suppliers with the **increasing complexity of vehicle software development and deployment**

Identify and leverage automotive trends for the **software-powered vehicle** beginning with **vehicle domain interaction**

Define **integrated security concepts** for the **highly connected vehicle**
Increasing Complexity of Vehicle Software

- Many OEMs are moving from a pure, Tier-1 delivery model to becoming (partial) software houses either in-house or by acquisition
- As OEMs deploy features over the air, software change management issues increase
- Size of code base has resulted in quality issues
Preparing for the Software-powered Vehicle

• Service-oriented architecture (SOA) based on generalized computing platforms
• Differentiation in software-driven features, not merely in traditional vehicle hardware
• Virtualization of software functionality and abstraction from hardware
• Open interfaces to deploy 3rd party content, software upgrades, and new features
Defining Integrated Security Concepts

- Increased connectivity increases attack surfaces
- End-to-end security solution across all layers of the software stack outside the vehicle to the ECUs in the vehicle
- Requires holistic view of vehicle context and an understanding of methods and models for mitigating attacks
- Developer training essential to deliver reliable and secure solutions
Event Theme: The Multi-domain Challenge

• A unified, in-car experience now requires interaction between multiple car software domains (e.g., safety, IVI, consumer electronics, cloud)
• Multi-domain product complexity increases proportionally to the number of cross-connected domain’s interfaces
  • Many suppliers building one product using many APIs
  • OEMs pushing suppliers to standardize internal interfaces
  • Dynamic API changes – 4-5 times per year for 2 to 4-year lifecycle -> big development impact
• Because of that – low SW reuse, maturity and efficiency
Vehicle Domain Interaction Strategy

- Essential vehicle software architecture & software required for cross vehicle domain functions
What is on GENIVI’s mind? (GENIVI Member Survey)

- Car to Cloud Connectivity
- Driver Monitoring
- Standard method for managing messaging apps
- Integrated personal assistants
- Blockchain in automotive
- Standard method for managing streaming content
- Personalization/User Profiles
- V2X/Smart Mobility/Smart Cities
- V2V Safety

- Car as a Service (e.g., key provisioning)
- In-vehicle networking
- Hybrid radio
- Software platform for autonomous vehicles
- Automotive Cybersecurity
- Other Topics (please specify)
Q1: Please indicate your organization's role in the automotive industry (select all that apply).

- Automotive OEM (18)
- Tier 1 Supplier (10)
- Tier 2 Supplier (6)
- Silicon Provider (5)
- Operating System Vendor (3)
- Independent Software Vendor (5)
- Security Provider (1)
- Other (please specify) (4)

Other: Engineering Service Supplier (2); Vehicle data analytics (1); Location Services provider (1)
Q2 Please indicate your personal position in your organization (select only one).

Q3 Please indicate your organization's level of membership.
Q4: Please select which of the following potential GENIVI topics are of interest to your organization.

Other: Open APIs for all the above; Performance; Nav Map Stds (NDS); Loc-based nav service; Auto functional safety, AutoSAR, Common Architecture and nomenclature for autonomous driving software
Q5: In which of the following topics would your organization actively participate if GENIVI launched projects in them?

- AV Software Platform: 20
- Car to Cloud Connectivity: 15
- Driver Monitoring: 13
- Personalization/User Profiles: 11
- Automotive Cybersecurity: 11
- In-vehicle networking: 10
- Streaming Content API: 8
- Messaging App API: 7
- V2X/Smart Mobility/Smart Traffic: 7
- V2V Safety: 7
- Car as a Service (e.g., Uber): 7
- Integrated personal mobility: 6
- Hybrid Radio (i.e., AM/FM): 5
- My organization: 4
- Other topics (please specify): 4
- Blockchain in automotive: 3

Other: OTA for GENIVI Platform; Loc-based nav service; Auto functional safety, AutoSAR, Common Architecture and nomenclature for autonomous driving software
Survey Conclusions

• New GENIVI work in car to cloud is under active discussion
  • Contact Philippe Robin, PMO Lead (philippe.robin@technoveo.com) to participate
• GENIVI Security Team is becoming core to future work
  • Contact Stacy Janes, Security Team Lead (stacy.janes@irdeto.com) to participate
• Learn more in next session about other new projects launching soon
Consumer Electronics Show (CES) 2019 Connect2Car Panels

- Panel topics:
  - Connecting the Autonomous World
  - The Future of In-Vehicle Infotainment
Consumer Electronics Show (CES) 2019 Showcase & Networking Reception

• Over 40 showcase tables
• Over 1050 visitors
• Bigger, better in 2019!
Today’s Schedule

10:00-10:45 Vehicle Domain Interaction Strategy
10:45-11:00 Break
11:00-11:45 Remote Graphics & Distributed HMI Readout
11:45-12:30 GENIVI Development Platform Activities
12:30-2:00 Networking Lunch
2:00-3:30 Graphics Sharing & Distributed HMI Case Studies
3:30-3:45 Break
3:45-5:00 Hypervisor Project Readout
5:00-5:30 Bringing the Car to the Internet
5:30-8:00 Welcome Reception & GENIVI Member Demos
Thank you!

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