GENIVI Hypervisor Project
A standards-based approach to virtualization

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Evolution of Automotive Architectures

Domain Architecture

Central Architecture

Consolidation of functions into a single system
Virtualization-based ECU

- Adaptive Autosar VM
- Linux VM
- Android IVI VM
- Classic Autosar VM

Type-1 Safe, Secure and Real-Time Hypervisor

Multi-core Performance Platform
Virtualization Benefits

- Independent software modules
- Minimize influence
- Maximize parallel and independent development
- Safety and security domains
Key Role of Virtualization

Virtualization is the key enabler for exploiting the performance of today’s and future high-performance automotive systems in a safe and secure way.
Interoperability and Standardization

Cross-vendor virtual machine and hypervisor interoperability is a key capability

GENIVI Hypervisor Project

Make virtualization easily deployable in automotive environments
Standard for Hypervisor / VM Interaction

AVPS - Automotive Virtual Platform Specification
Effects of Standardization

- Virtual machines can be ported across hypervisors
- Common code (drivers, etc.)
- Shared validation tests
- Easier multi sourcing
- Standards can be referenced in OEM specifications
- Shortened development cycle
- Software/system re-use
Automotive Virtual Platform Specification

- Version 1 of AVPS has been released in January 2020
- Currently working on next Version of AVPS
- Planned to be released this year
GENIVI Hypervisor Project

- A collaborative group addressing challenges in Virtualization
- Disseminate knowledge on automotive virtualization:
  - AVPS and whitepapers
- A key activity since the start of GENIVI’s Domain Interaction and Multi-OS integration strategy - Active since early 2018
- Members from OEMs, TIER1’s, HW and SoC, and system software suppliers
  - Currently most active members: Arm, BMW, Bosch, Elektrobit, EPAM, Kernkonzept, OpenSynergy, Renesas
Genivi Hypervisor Project

• Weekly call every Monday at 10am CET
  • US-friendly call time is possible (let us know your interest)

• You are welcome!

• All documented on GENIVI Public Wiki: Minutes, Agenda announcements