Software Define Vehicle BoF

Automotive Linux Summit

December 6, 2023

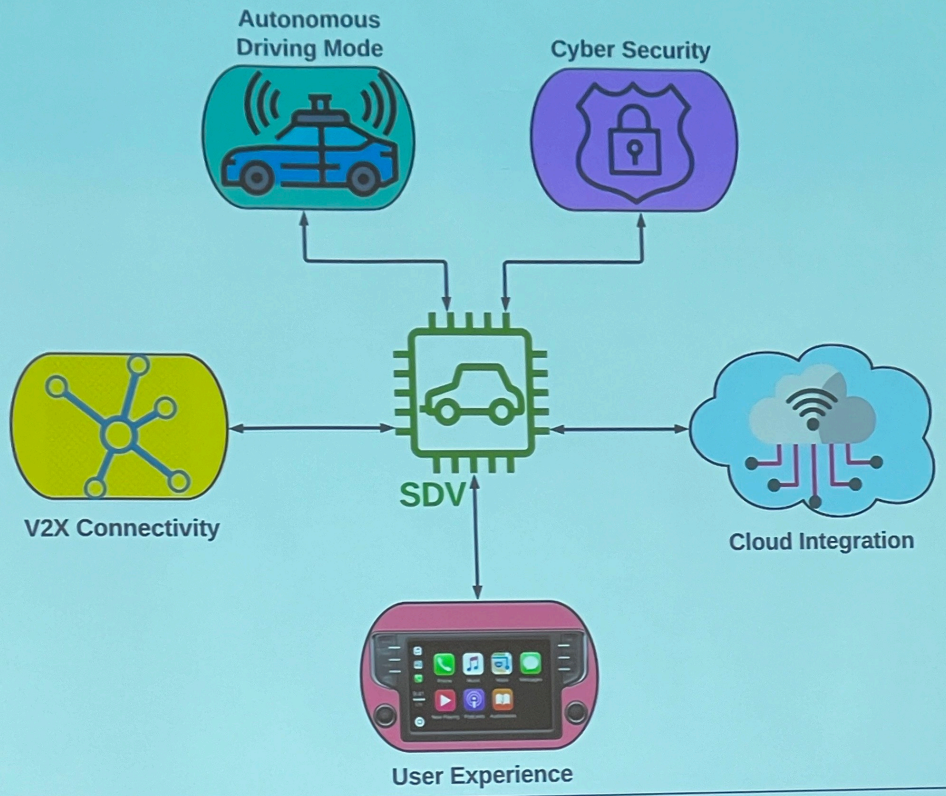
Walt Miner – Linux Foundation

THE LINUX FOUNDATION

What is an SDV?

- Delight the customer with new post-delivery features
- Faster, safer, more secure updates throughout the lifecycle of the vehicle
- High Compute Platform with hardware agnostic functionality that can be moved throughout the vehicle
- Vehicle Data Collector/Controller that collects data and sends to cloud and controls the vehicle from the cloud

What is an SDV?



woven by TOYOTA

SDVs and Open Source

- AGL is the only open-source project already in position for building the Software Defined Vehicles of the future
  - Built and tested using open source tools
  - Collaborating with a large number of embedded open source projects
  - Downloadable binaries for QEMU and a wide variety of boards
  - Other projects are captive to their corporate sponsors, interested in writing specs or have bit rotting orphaned code
- Not interested in writing specs or choosing winners and losers.
  - If it works and satisfies a need, we will use it
- Collaborate and share
  - Increase velocity
  - Reduce costs
  - When there is an open-source version of a standard everyone wins!

Virtual Open System Proposal 2024

- ➢ Additional virtio devices can be added
  ➢ Examples: virtio-video, virtio-bt, virtio-net, virtio-i2c, virtio-vsock, virtio-scmi
- Response: Additional Virtio devices should only be added if Linaro has the code for the back end already. We will check with Linaro and we do not want to implement from scratch.

- ➢ Add multi device support with prioritization of multiple clients for virtio- loopback-adapter
- Response: Check with Yamaguchi-san for virtio-gpu requirements. Audio has been demonstrated in the current loopback demo but we could make it more efficient and not require two loopback driver instances in kernel space.

Virtual Open System Proposal 2024

- ➢ AWS integration
  - Demo with migration of application/container from cloud to device
  - Execution of vhost-user-gpu remotely on AWS
- Response: Would like a cloud native demo of virtio-loopback with graphics and audio at a minimum.
- ➢ Decoupling the execution of the vhost-user program in cross-ECU or in another SoC/CPU on the same platform (SPEC-4835)
- Response: Jerry needs to check with UHMI team to see if they have something in the works in this area.

THANK YOU