



# Automotive Grade Linux Production Readiness Vision and Use Cases

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# AGL Vision For Product Readiness

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- If we look at next generation IVI systems (MY25+) what will AGL provide

# AGL Vision for Product Readiness

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## OEM

- OEMs have starting point for differentiation with competitors based on their own look and feel.
- Look and feel of the product is the same across an OEM product line regardless of the Tier One selected.
- Can use multiple Tier One suppliers for minimal additional NRE and schedule
- Avoid semiconductor vendor lock-in by having AGL provide a number of reference boards with BSPs from different vendors

# AGL Vision for Product Readiness

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## Tier 1 Supplier

- Reuse a single platform across multiple OEMs to allow a single internal platform team rather than maintaining OEM specific platforms
- Excellent starting point for product specific OEM specific boards based on AGL reference design(s) and BSPs

## Silicon/ Board Supplier

- Provide a reference hardware design and BSP that works for all members of AGL ecosystem.

# AGL Vision for Product Readiness

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- Developer experience
  - Easy to use SDK for rapid app development and deployment
  - Inexpensive and easy to obtain boards to get started (e.g, RPI4)
- Automotive Specific reference hardware to allow automotive suppliers to get a head start on product design
  - Open hardware design allows re-use by product designers
  - Well-tested, freely available BSP and base platform
  - Vertically integrated solutions in conjunction with ISVs
- Upstream First Open Source
  - Whenever possible use an open source component that is widely supported both in and outside of automotive (e.g., Linux, Weston, PipeWire, systemd)
  - Create new components that AGL must maintain only when necessary
- Product-Ready or Reference Applications?

# What is required in a Next Gen IVI Product?

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- Developer Experience – Download SDK and get image on target board within 15 minutes
- Modern UI and Graphics framework
- High end audio capabilities
- Camera and Video playback integration
- Bluetooth
- Tuner
- Virtualization / Resource sharing- VirtIO
- 4G/5G connectivity? Are moving to a world where this is not important locally but is provided entirely by the driver's personal device?
- GPS and location-based services - Same question above.
- Extensibility into next generation mobile applications and services
- Using the vehicle in a cashless and contactless society
- Built-in Speech Recognition or mobile device based only?

# What does AGL need to provide?

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- Modern UI and Graphics framework
  - High-end audio capabilities
  - Camera and Video playback integration
  - Bluetooth
  - Turber
  - Virtualization / Resource sharing- VirtIO
  - 4G/5G connectivity?
  - GPS and location-based services
  - Extensibility into next generation mobile applications and services
  - Using the vehicle in a cashless and contactless society
  - Built-in Speech Recognition or mobile device based only!
- SAMPLE – once we settle on the list of next gen features we can discuss what AGL should provide**

# Use Cases Decomposition

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- Decompose required use cases further to identify:
  - What does AGL already provide
  - Work packages for future open source development
  - Components that will be provided by Tier One suppliers or ISVs in future products



# Sample Use Case Decomposition

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- Bluetooth
  - Bluetooth Profiles provided by AGL, Tier One, or ISV
  - Common Bluetooth API for App developers
  - Bluetooth Service
  - Integrated Bluetooth stack

# Sample Use Case Decomposition

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- Modern UI and Graphics Framework
  - Native or Web Based
    - If native what technology
  - AGL Compositor based on Weston
  - GPU integration for reference boards