OPENSYNERGY

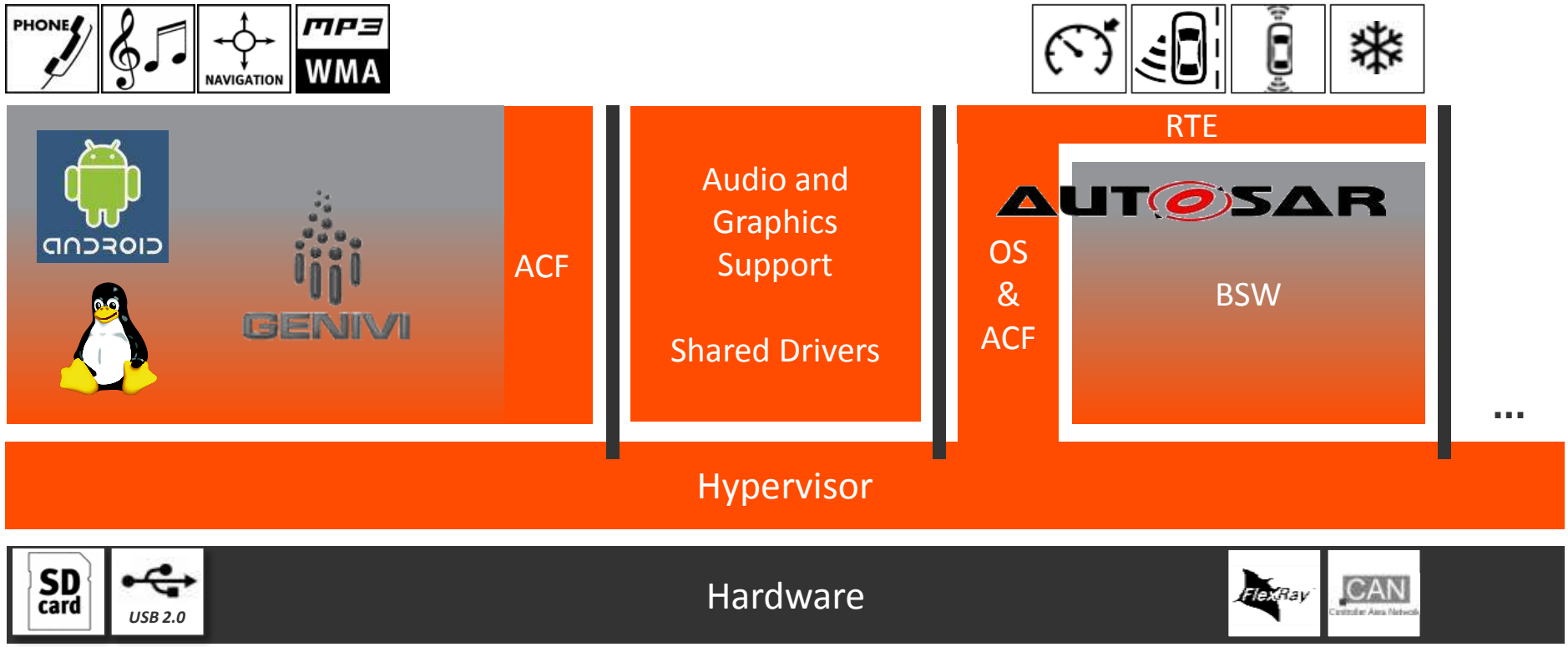
Shared GPU using Virtualization

About OpenSynergy

Short Profile

- Located in Berlin, Germany
- Worldwide customers and partners
- **Focused on automotive embedded software & development services**
- Approximately 50 employees
- Excellent expertise in AUTOSAR, Infotainment, Car2X, Linux in automotive
- Product development funded through Investments from Hasso-Plattner Ventures and VC Fonds Technology Berlin

COQOS virtualization approach



The product COQOS contains all orange modules.
It is based on PikeOS technology.

COQOS target platforms

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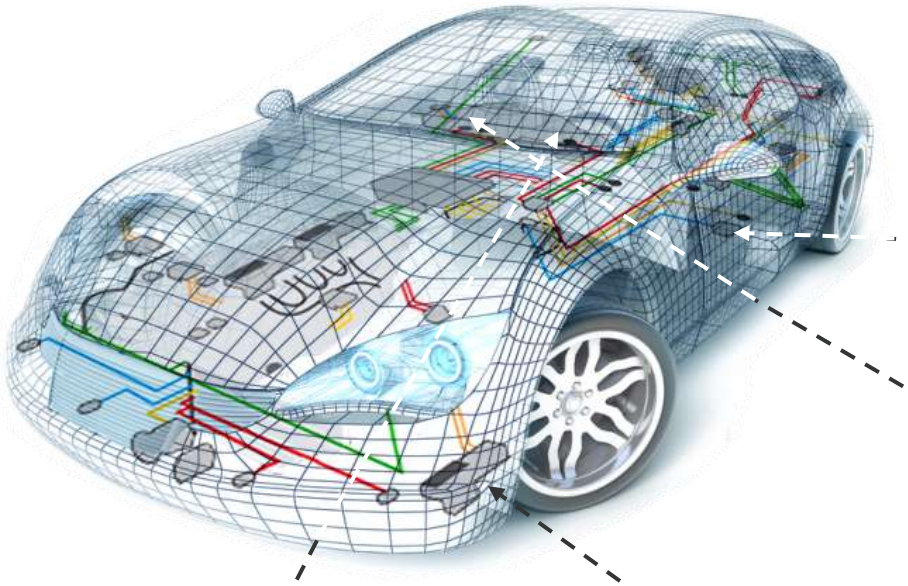


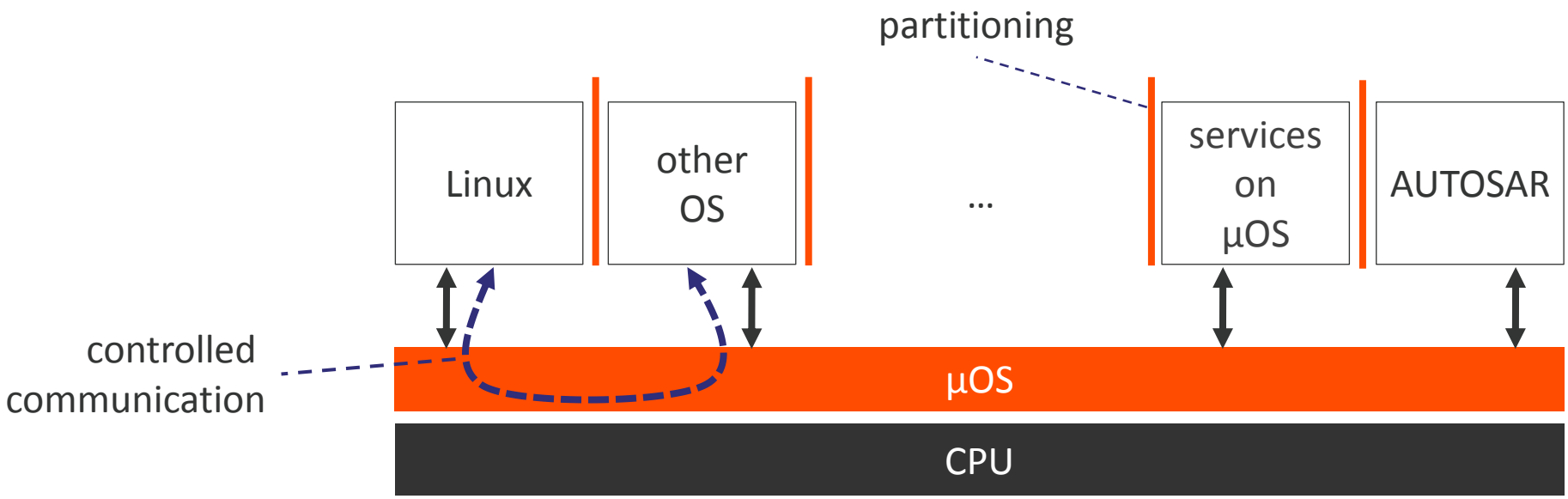
Connectivity Box

Instrument Cluster

Driver Assistance Systems

Infotainment Head Unit

µOS: Partitioning



The Micro Operating-System separates the hardware resources into „partitions“

- The µOS ensures proper separation
- The µOS provides communication mechanisms between the partitions

Challenge in sharing GPU

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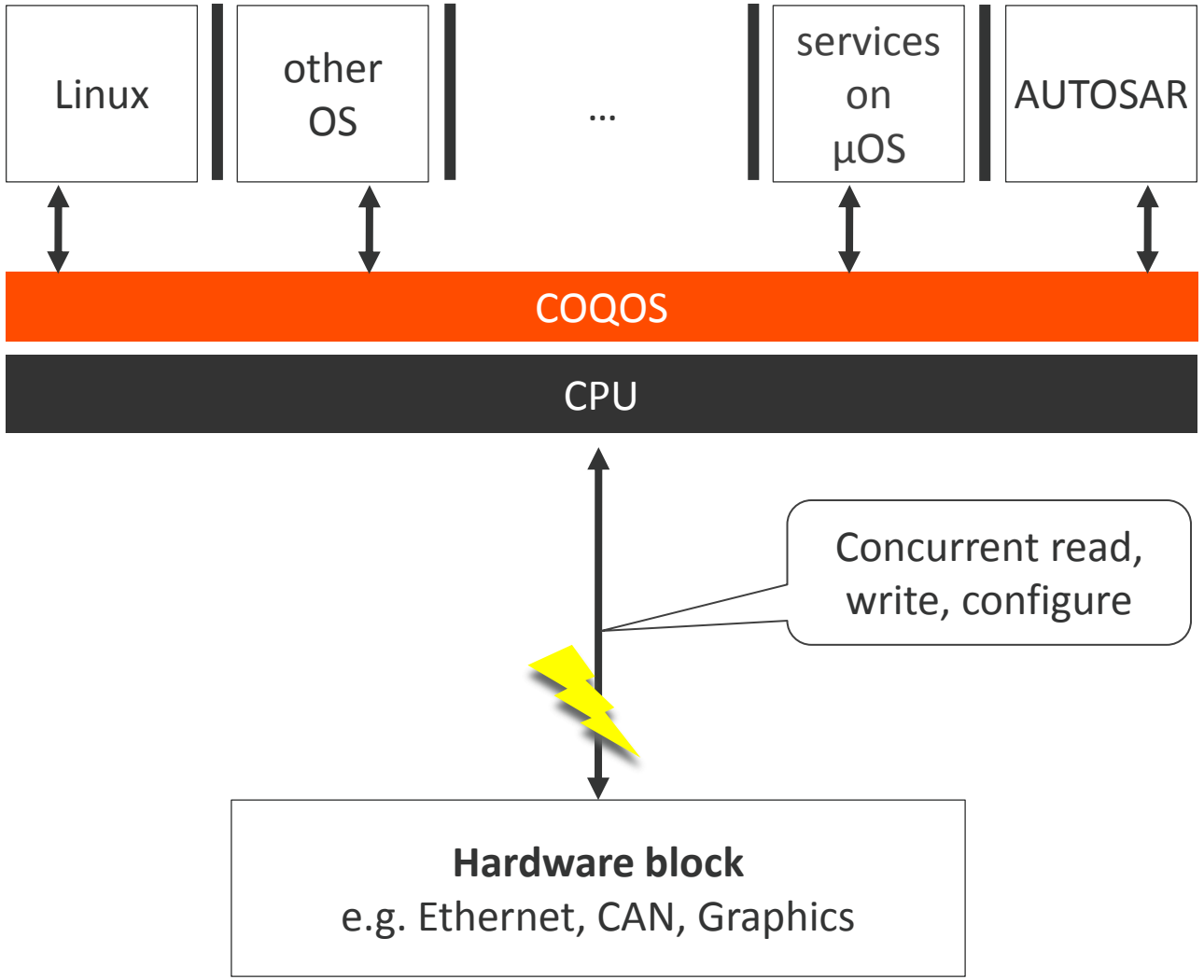
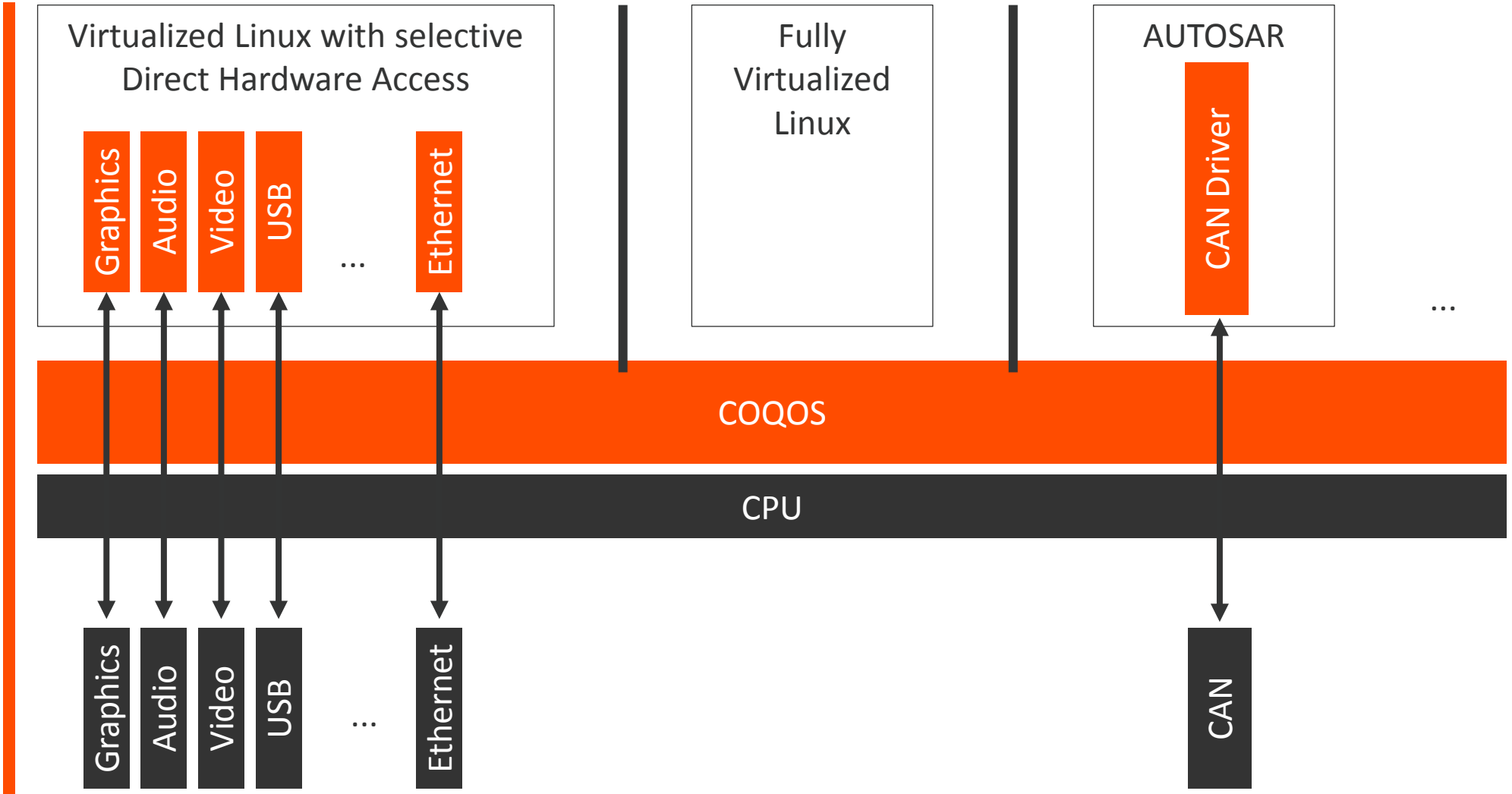


Drivers in local partition – exclusive access



Virtual drivers

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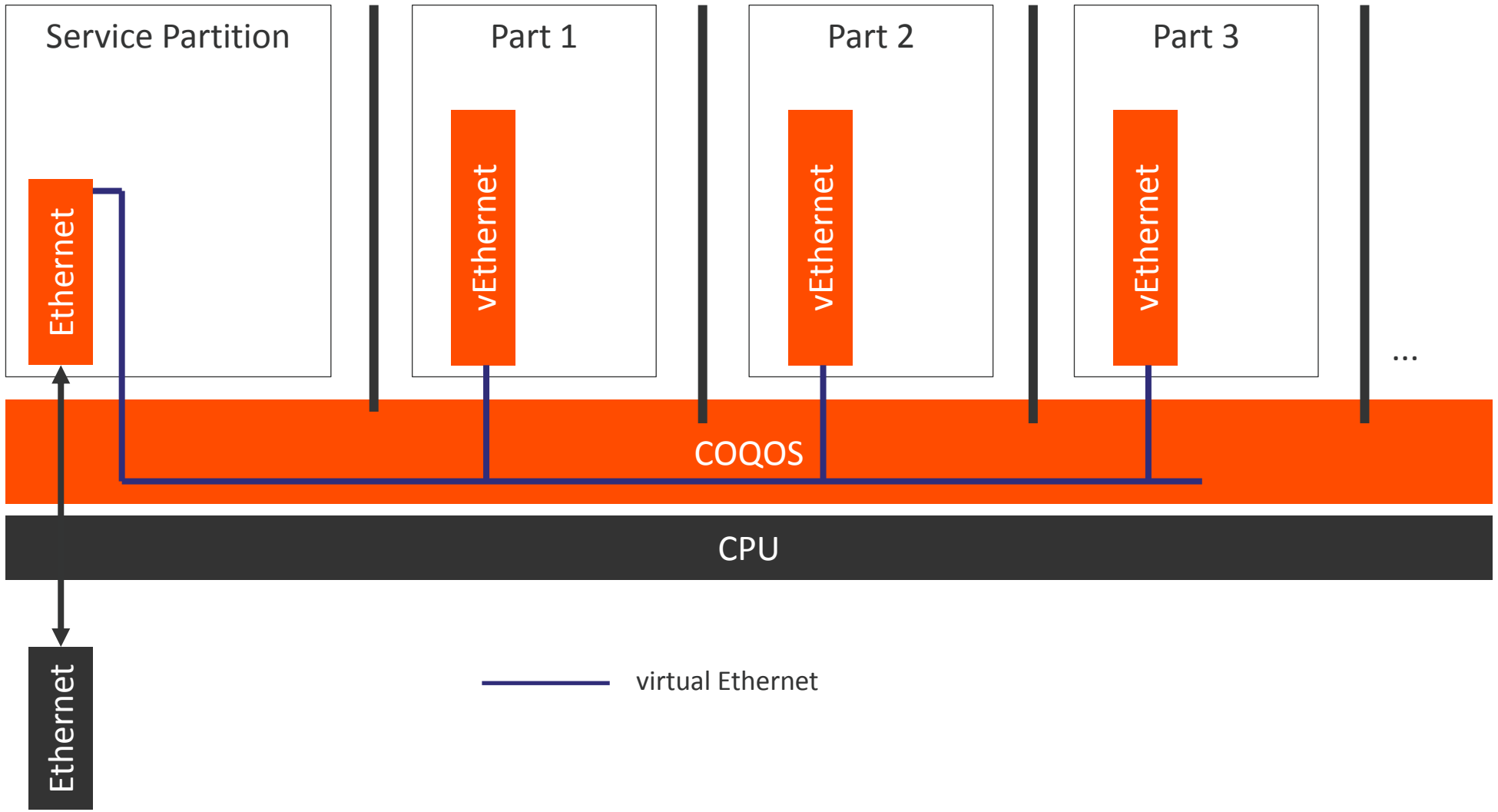

Share through high-level frameworks

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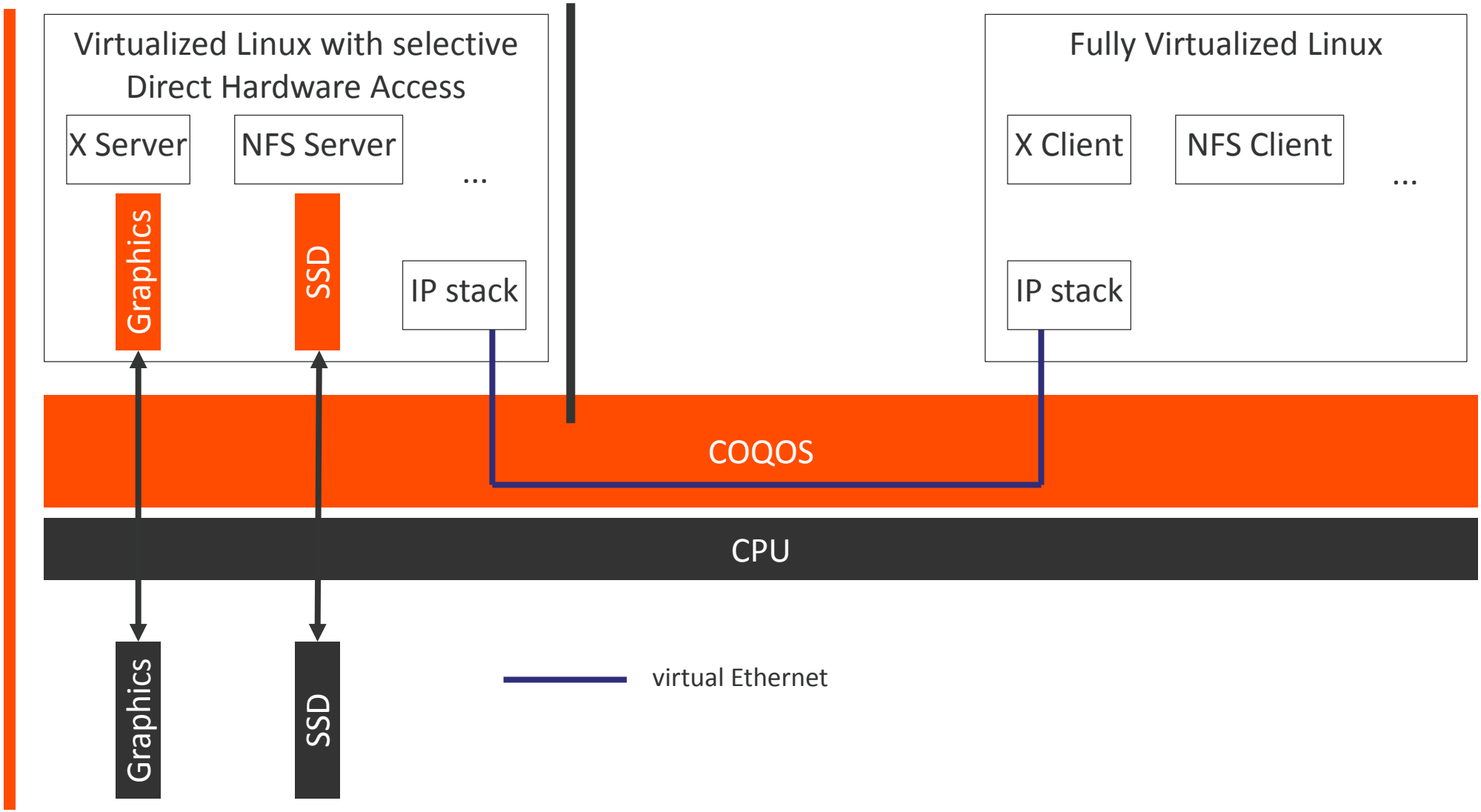

Share through low-level frameworks

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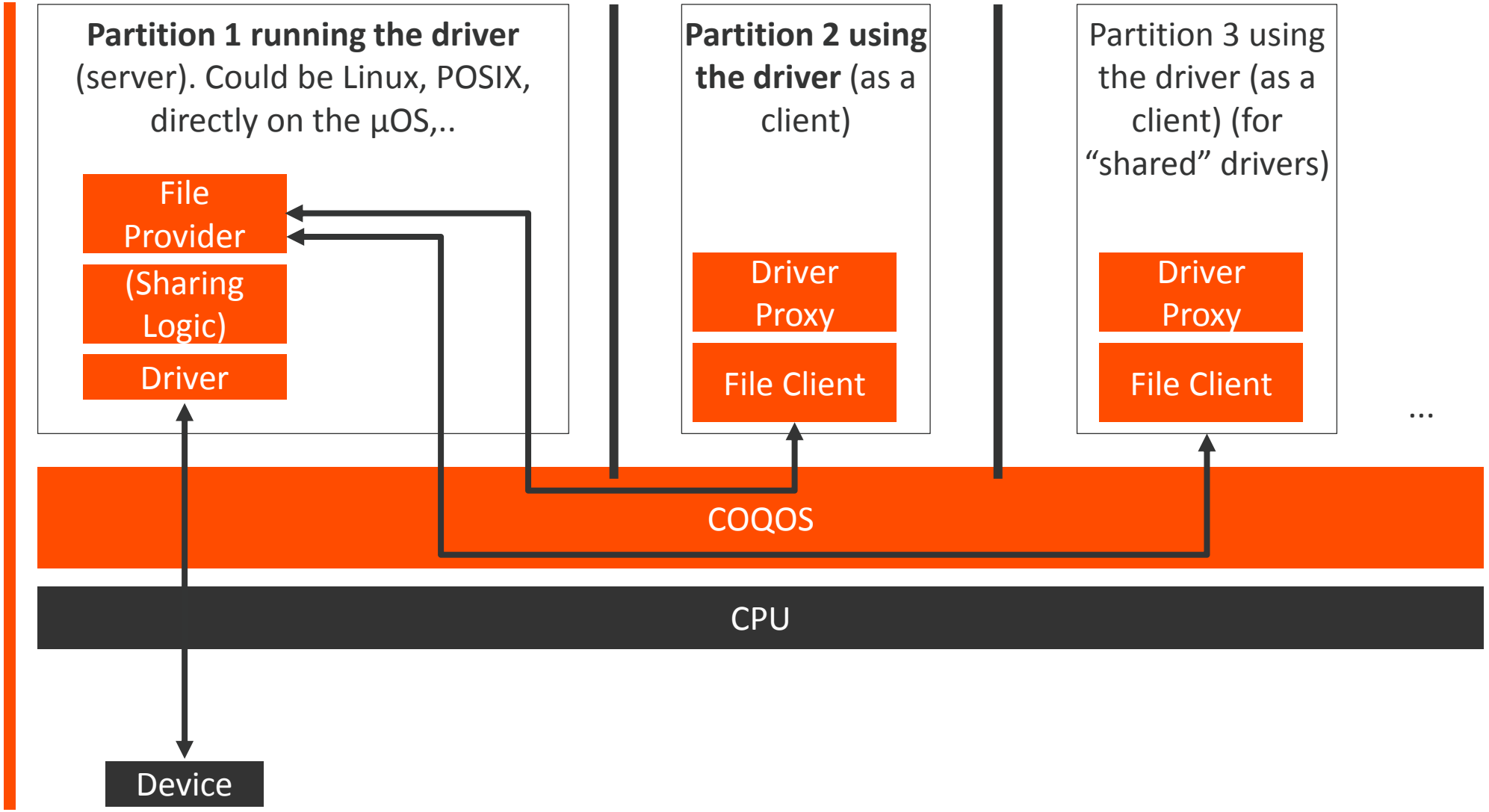
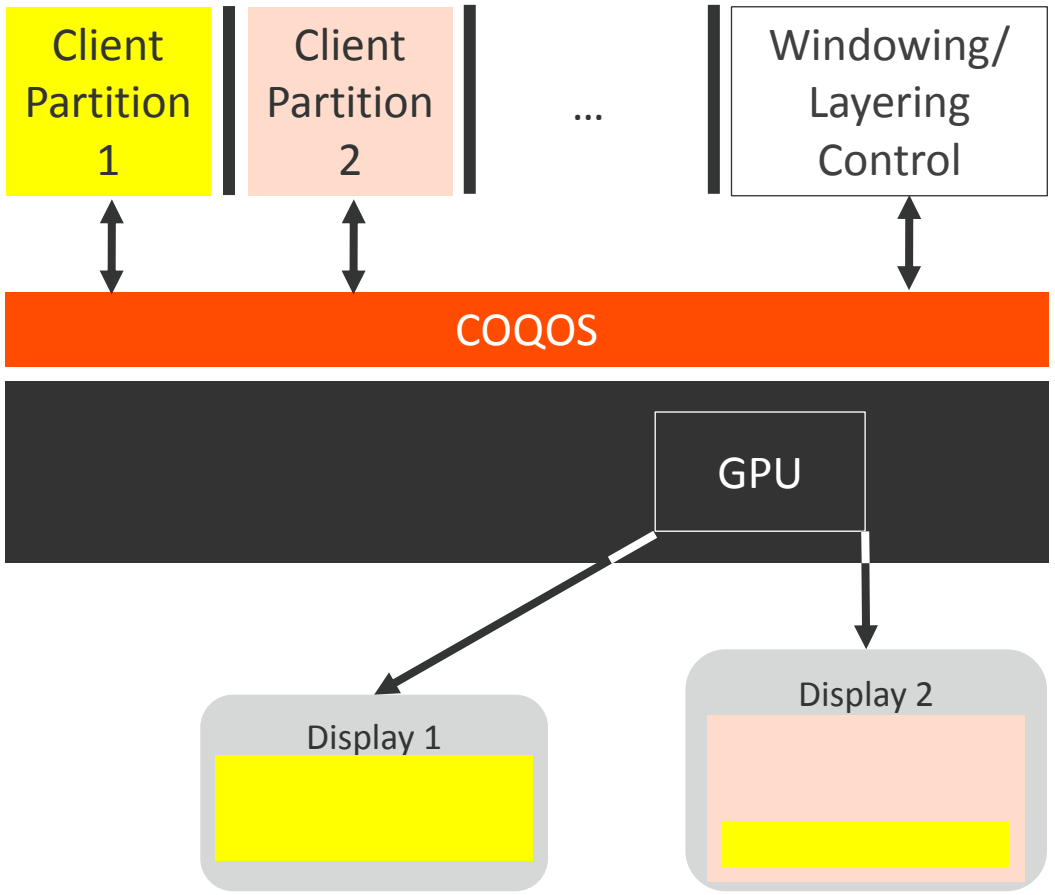


Shared Graphics: Use Cases



Use-Cases:

- run ADAS (e.g. rear-view camera) in its own fast-booting partition
- drive 2 displays (e.g. instrument cluster and central head-unit display) from a single SoC
- combine critical (time-critical or safety-relevant) and uncritical information on a single display

Shared Frame-Buffer

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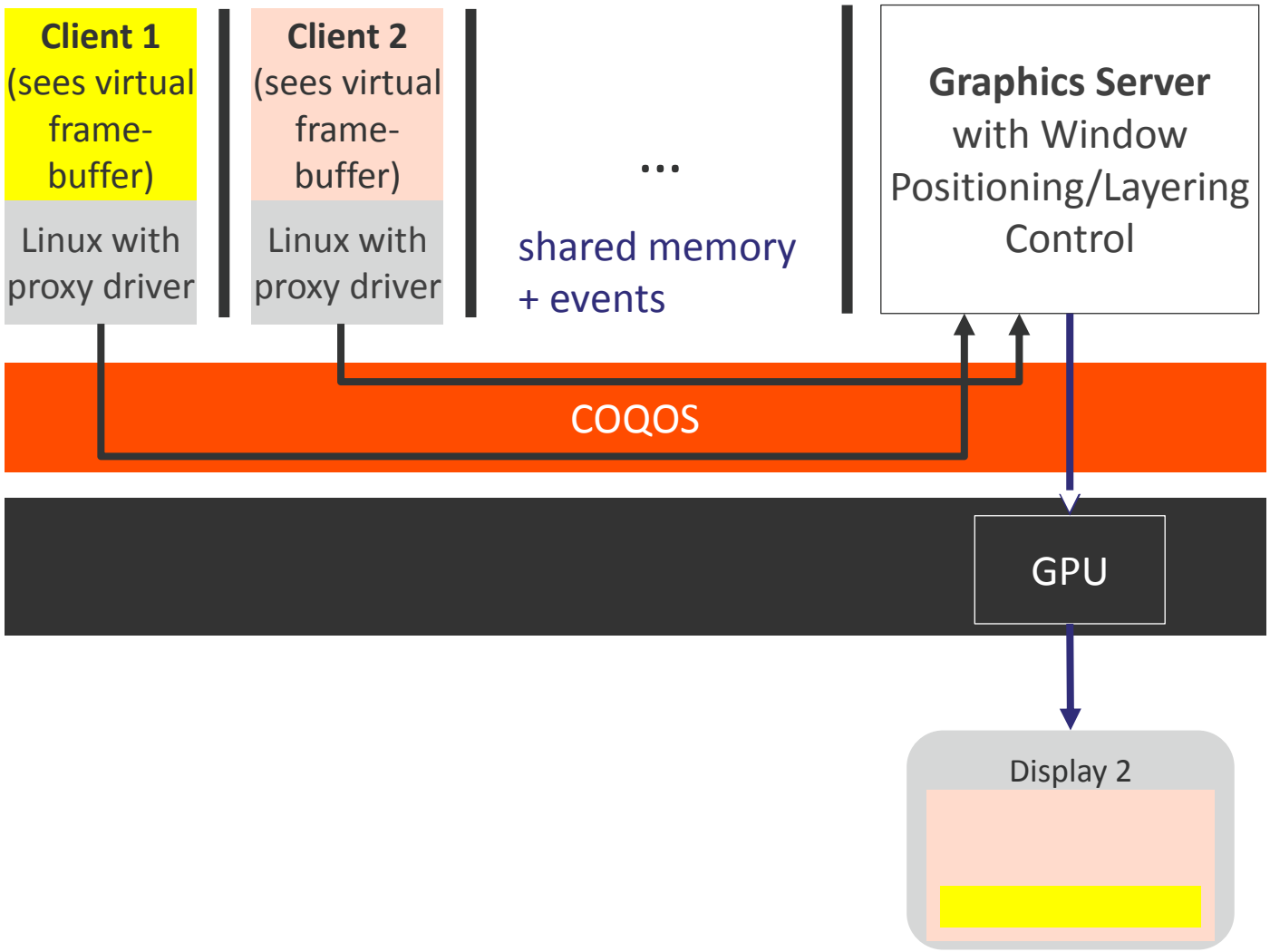

GPU sharing

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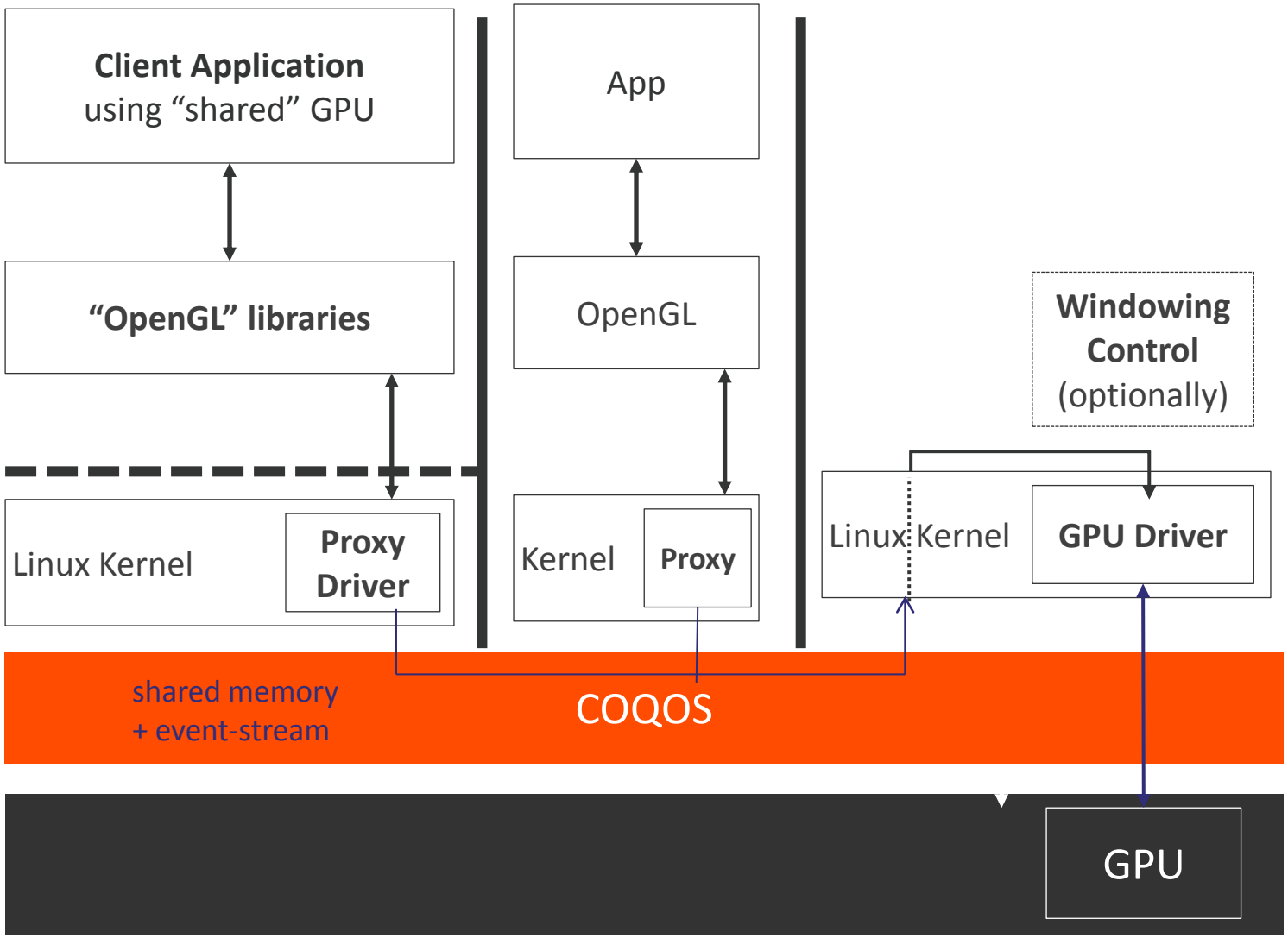
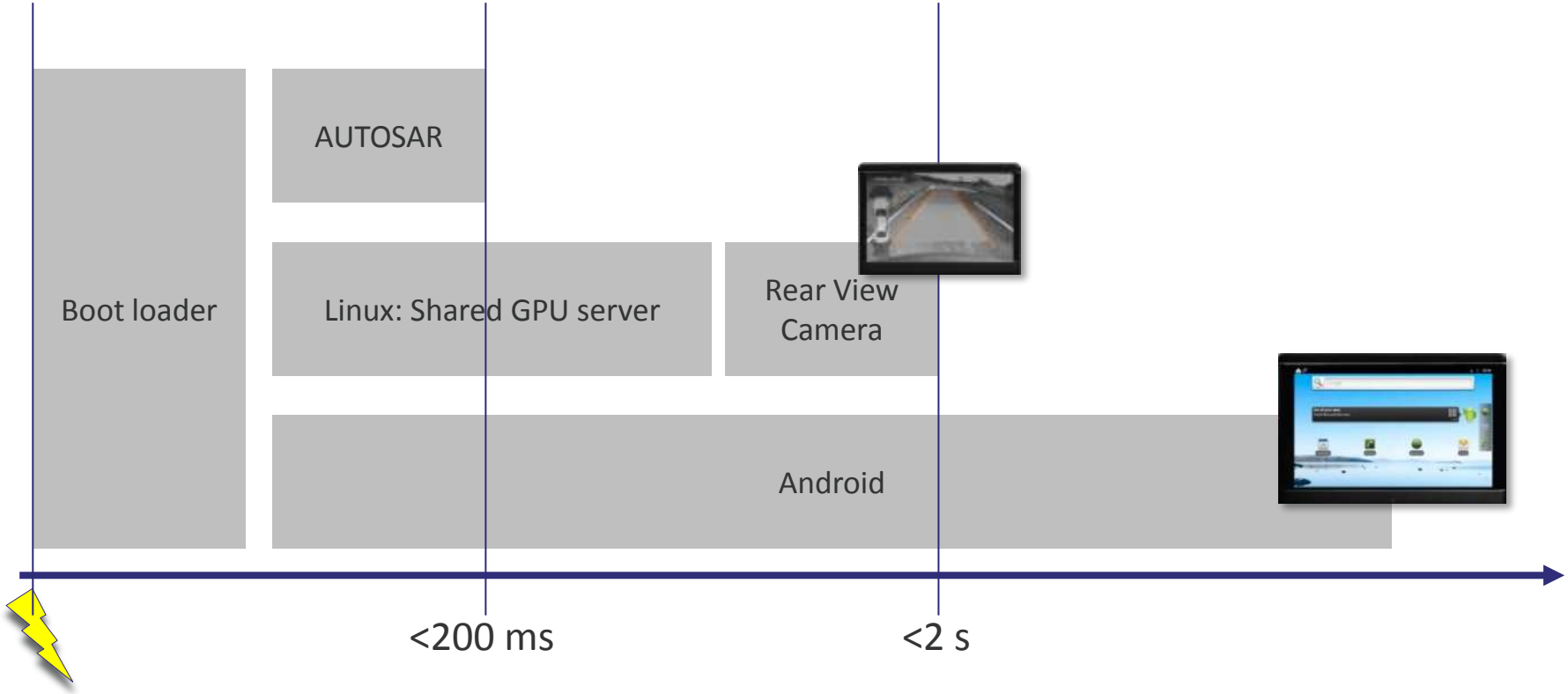
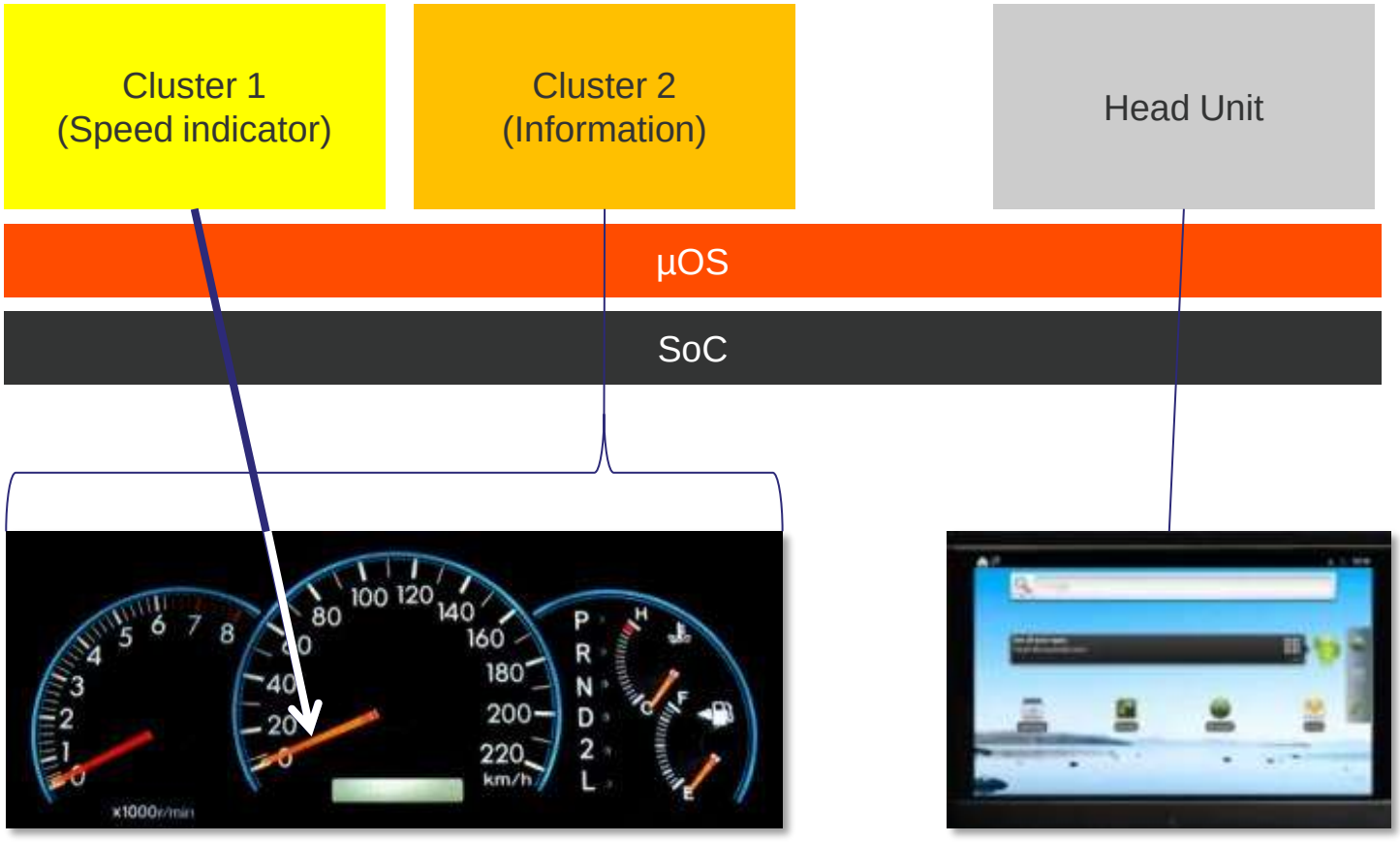


Example: Fast-boot rear-view camera



Example: Cockpit



Demo

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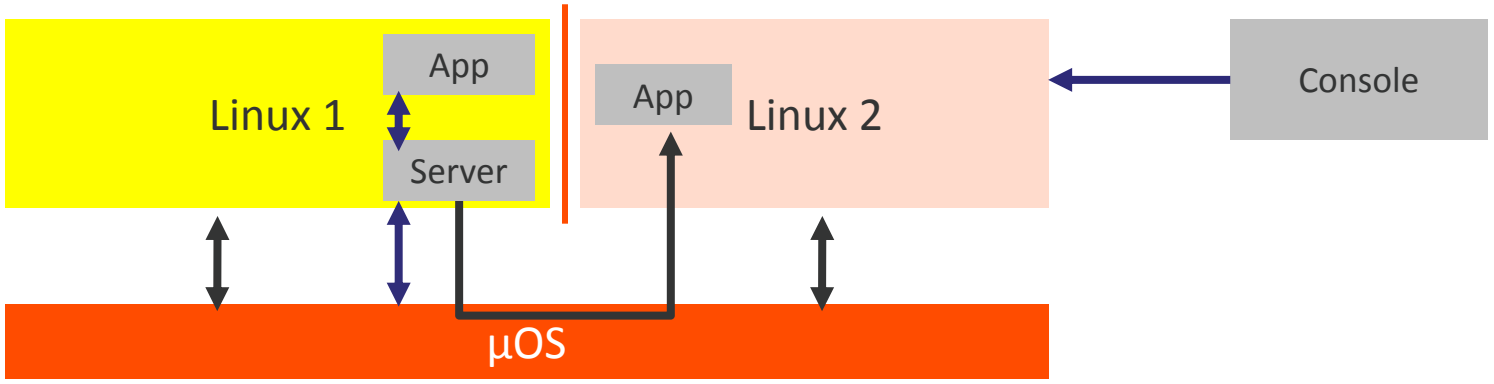

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