

# ECU Virtualization

Consolidation and Combination of complex Systems

PikeOS RTOS & Hypervisor

## Connection needs Safety & Security



Host multiple Guest Systems



Allow mixed Criticality



Safe GPU Sharing

## CHALLENGE

Driver display systems (or screen boards) are becoming more and more complex, while the integration of highly critical components with commodity functions become more common. This trend will continue, leading to configurable multi-function displays (MFDs), as known in avionic cockpits. This requires the execution of Safety-critical user interface (UI) components, which have to be certified, side-by-side with feature-rich non-critical commodity UI components.

These commodity UI components require the use of software standard components, while focusing on a sophisticated UI representation (e.g. through 2D/3D acceleration and rendering through hardware). However, Safety-critical UI components will focus on a leaner approach in order to reduce risks and cost of the certification while using a pre-certified UI framework.

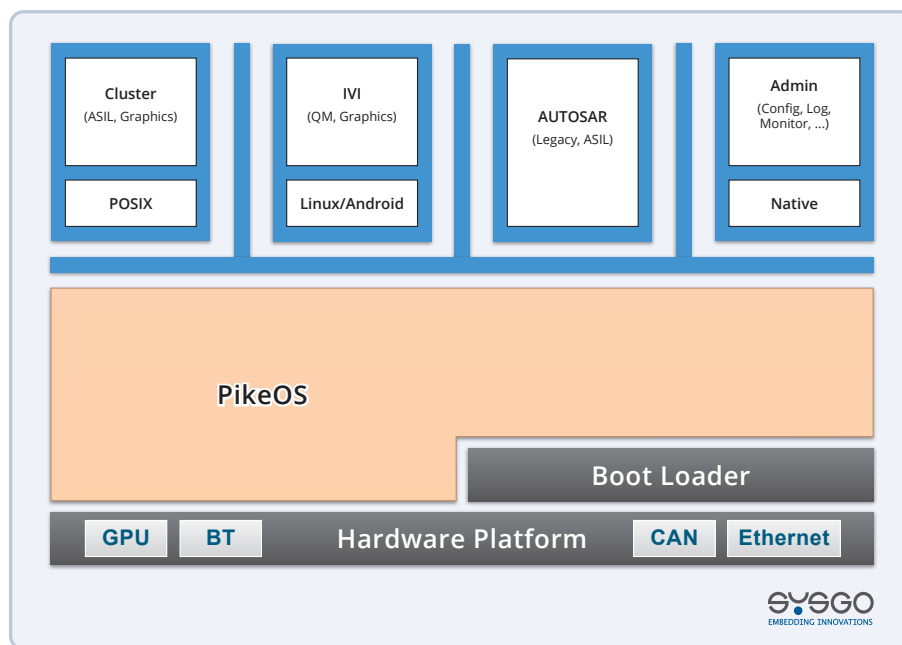
## SOLUTION

In order to have a cost-effective commodity UI implementation, the feature-richness of today's available UI frameworks have to be available. The co-existence of UIs of different criticality requires a strict separation of functionality, while being able to share the same graphic hardware.

The UI framework can share the GPU, while access to the GPU is controlled and managed by PikeOS.

- The pre-certified PikeOS RTOS/Hypervisor allows to use commodity functionality from an embedded Linux (e.g. HTML5) or Android side-by-side with a pre-certified UI framework.
- While implementing a feature-rich UI, PikeOS enables the concurrent execution of real-time tasks on the same platform.

## PIKEOS SOFTWARE ARCHITECTURE



Founded in 1991, SYSGO became a trusted advisor for Embedded Operating Systems and is the European leader in hypervisor-based OS technology offering worldwide product life cycle support. We are well positioned to meet customer needs in all industries and offer tailor-made solutions with highest expectations in Safety & Security. More information at [www.sysgo.com/automotive](http://www.sysgo.com/automotive)