

Connectivity Gateway

Highest Security meets Time-to-Market Demand

PikeOS RTOS & Hypervisor

Connection needs Safety & Security



Security Level
EAL2+ required



High Network
Performance



Extensive
Connectivity

CHALLENGE

Today's vehicles are more and more connected. Connectivity is required by many different actors and some connectivity requirements are related to the user, such as being able to access mobile apps when driving. Some evolutions are pushed by the industry like accessing vehicle information remotely in order to improve predictive maintenance. Other evolutions are related to new business models such as car renting with your phone in order to open the car and start driving. The use cases mentioned here are already reality today, but new requirements such as V2X connectivity are

coming. The connectivity present in today's and future vehicles has one obvious effect which is the increase of attack surfaces, and bring new Security challenges in order to protect two major objectives: Data privacy and Safety.

SOLUTION

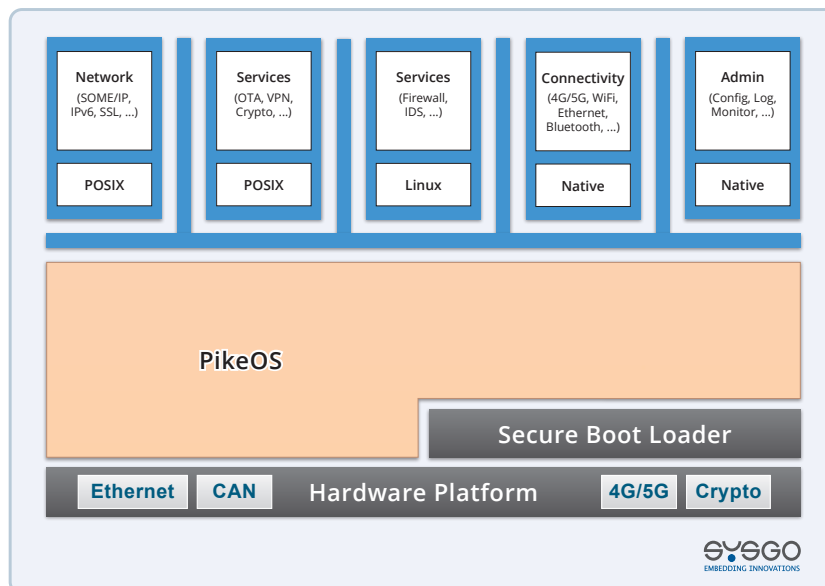
In order to increase the gateway's Security level, the complexity of the software interacting with the outside world should be reduced dramatically. This can be achieved by means of the hypervisor technology, that enables the minimalization of the software stack in the critical communication chain, but still running a feature-rich Linux OS side-by-side. This limits the probability for a zero-day attack to be present in all the gateway's software stacks. However, the hypervisor itself also needs to be protected:

- The PikeOS RTOS/Hypervisor follows the MILS concept and integrates several Security principles (Security by Default, economy of means, complete mediation).
- PikeOS has been certified according to Common Criteria EAL3+, ensuring highest levels of Security robustness.

When dealing with data Security, the major Security issue is related to the value of the data that one can extract from the car, but also the ownership of the data. When dealing with Safety, the effect is even worse as the user may potentially be in danger through the consequences of a Security breach.

- In addition to the Common Criteria evaluation, PikeOS is also audited and tested on regular bases by independent Security labs which challenge the robustness of the product.
- Thanks to the dual certification (Security & Safety) it is also possible to host Safety-relevant application on the gateway.
- PikeOS connectivity gateway comes with many pre-tested features (IPv4, IPv6, TLS, VLAN, OTA, cryptography support, management API, ...), but also a sample gateway architecture that enables the developer to drastically decrease the time-to-market realization.

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