



# Train & Wayside Communication

Pave the way to 5G and mixed-critical communication

PikeOS®: the proven platform for a  
**Safe & Secure Operation**

**SYSGO**  
EMBEDDING INNOVATIONS

- **Certified security for CBTC**
- **Allow secure predictive maintenance**
- **Increase serviceability through secure OTA**

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# Train/Wayside Communication

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## Challenge

In the foreseeable future, critical communication (ETCS, ATO, secure voice communication, provision for emergency calls), performance communication (predictive maintenance, wireless communication for on-train-staff, other non-critical telemetry) and passenger communication may find its way through the same 5G rolling stock gateway. Today's existing multi-modem 4G routers are only used for passenger communication or other non-critical data. This is due to the existing GSM-R network and the lack of safe and secure solutions for that matter. But due to the ever-increasing data communication bandwidth demand of emerging technologies (e.g. for autonomous rolling stock operations) the current GSM-R network will not be sufficient. Thus, new 5G multi-modem gateways with Safety & Security assurance, and therefore usable for all kinds of communication, will be vital for the success of these new technologies.

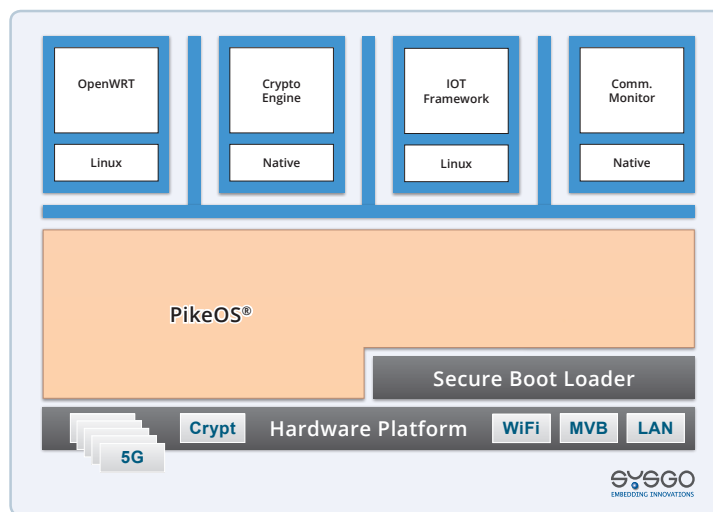
## Solution

To assure the safe and secure coexistence of communication streams of various criticality, the chosen software platform has to verifiably guarantee the secure separation of the underlying communication and security functions.

- The PikeOS RTOS/Hypervisor's secure separation is certified according to Common Criteria IT security standard.
- PikeOS allows the use of Linux as a guest OS and therefore enables the consolidation of common router and gateway platforms with IOT frameworks and other communication stacks – being executed side-by-side without the chance for interferences.
- Thanks to SYSGO's partner program, a whole range of additional security functionalities is available, e.g. for communication, key storage and management, etc.



### PikeOS Software Architecture



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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/railway](http://www.sysgo.com/railway)