



# Train Control System

Concurrently enabling flexibility, scalability and obsolescence

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

**SYSGO**  
EMBEDDING INNOVATIONS

- **One SW-platform for all applications**
- **Consolidation of functionalities**
- **Safe use of Linux**

EN 50128 SIL 3/4 • IEC 61508 SIL 3 • Common Criteria EAL3+  
Trusted by leading OEMs & Tier-1s • Quality „Made in Germany“

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## Challenge

Flexibility and scalability are the most prominent needs for future train control system software platforms. The requirement of being pre-certified up to the highest assurance level according to EN 50128 is self-evident.

- Flexibility shall allow for various heterogeneous functions, legacy applications and sub-systems to be seamlessly integrated and to assure the highest level of independence from the underlying hardware architecture.
- Scalability shall ensure that, whatever complexity, performance, safety and security demands the final use-case may require, the software platform doesn't have to be changed.
- Furthermore, it shall guarantee that the knowledge gained while developing the first system can be re-used for a number of systems to be developed in the future.

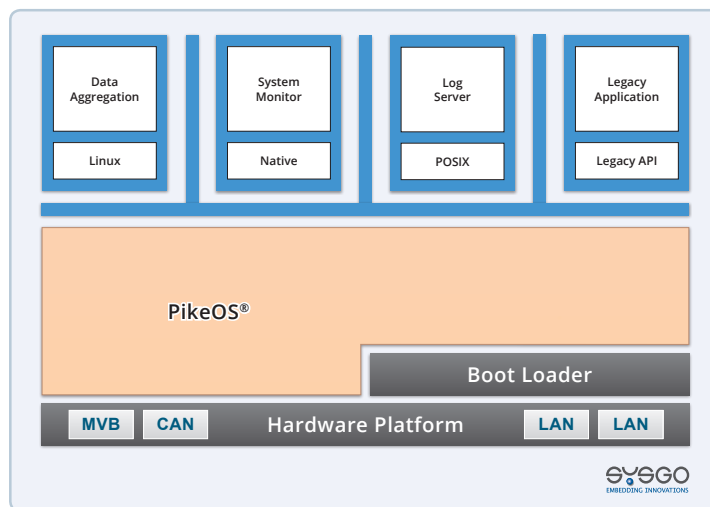
## Solution

Any future train control system implementation, be it ATO, ATC, ATP or any other TCS instance, will require robust separation of applications to run in a safe and secure manner, as well as meeting Safety & Security standards applicable for the railway industry.

- The PikeOS RTOS/Hypervisor runs on all industry standard hardware architectures and platforms, supports several APIs (e.g. native, POSIX, legacy APIs) and guest OSes (e.g. Linux) while being an EN 50128 pre-certified platform.
- PikeOS scales from being a pure embedded RTOS running a single application to a hypervisor concurrently hosting multiple OSes and multiple instances thereof as well as real-time applications.
- While allowing this concurrency, PikeOS guarantees the independence of each of the concurrent running OSes and applications, allowing these OSes and applications to have various criticalities.



### 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)