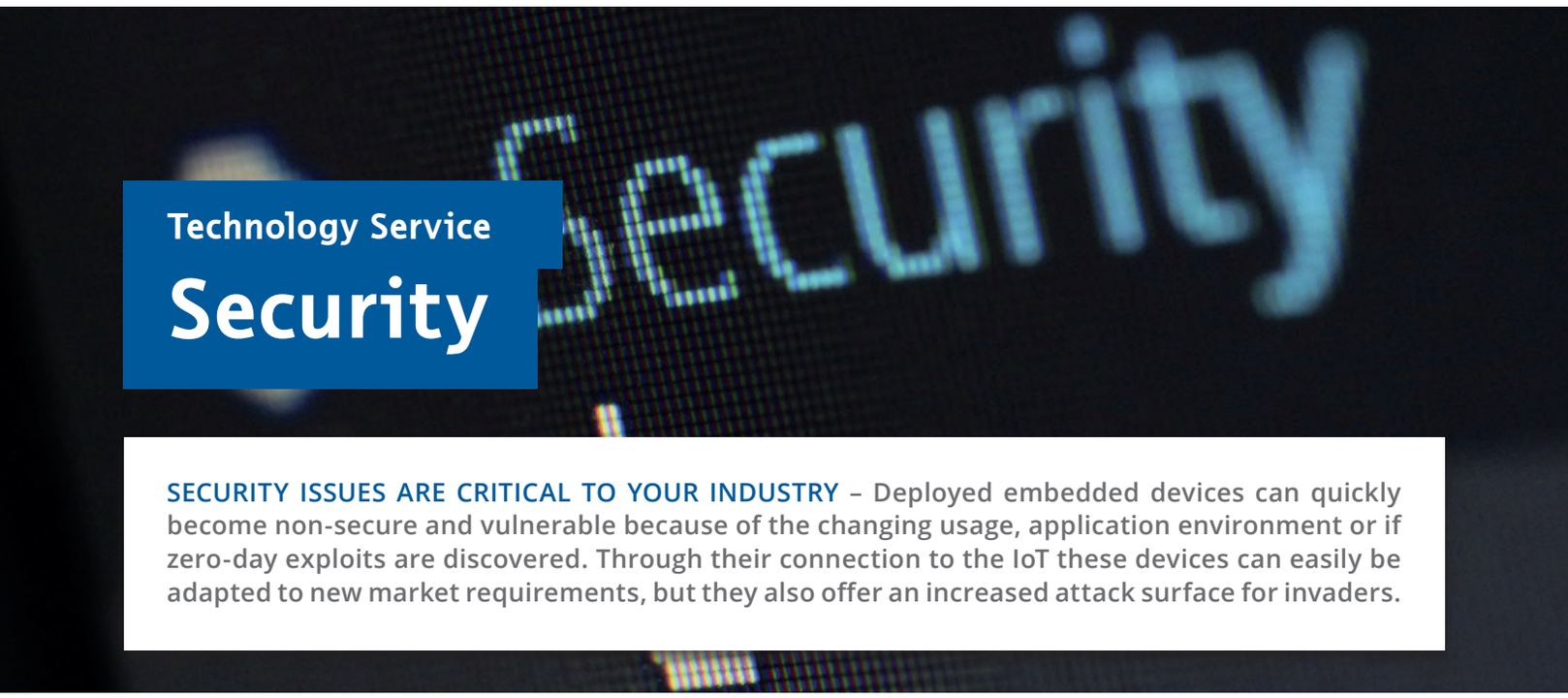
SYSGO
EMBEDDING INNOVATIONS



Technology Service

Security

SECURITY ISSUES ARE CRITICAL TO YOUR INDUSTRY – Deployed embedded devices can quickly become non-secure and vulnerable because of the changing usage, application environment or if zero-day exploits are discovered. Through their connection to the IoT these devices can easily be adapted to new market requirements, but they also offer an increased attack surface for invaders.

PIKEOS® HYPERVISOR CERTIFIED ACCORDING TO COMMON CRITERIA

SYSGO's PikeOS hypervisor has been certified according to Common Criteria EAL3+. The subject of certification by the German Federal Office for Information Security (BSI) is the separation kernel in PikeOS, which ensures a strict separation of applications running on the same hardware through spatial and temporal partitioning.

Such a separation is required above all in security-critical systems and is generally mandatory for the certification of the overall system. The certification by the BSI was carried out for the PikeOS Separation Kernel Version 4.2.2 (build number s5400) for the platforms X86_64, ARMv7 and ARMv8.

PikeOS is thereby currently the only real-time operating system worldwide that holds a Common Criteria certification for its separation performance. In addition, PikeOS is also certified for various Safety standards, making it particularly suitable for applications that have both Safety and Security requirements, particulary in the Aerospace, Automotive and Railway industries as well as in Industrial or Medical systems.

PikeOS also supports the simultaneous operation of applications of different criticality and the combination of real-time applications with less time-critical applications.

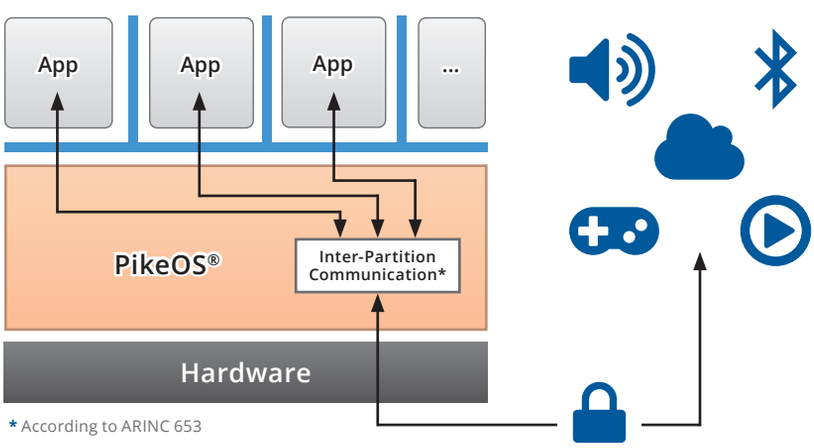


Figure 1: Scheme of the PikeOS Architecture with isolated Applications and secured Communication to IoT / Cloud-bound Services (e.g. Entertainment)

SECURE BY DESIGN

- PikeOS Security architecture
- Data Security
- Live detection of cyber-attacks
- Partition re-boot
- Non-interferences between multiple complex applications
- Certified to Common Criteria
- EAL3+ (Security)
- Ready for upcoming standards
- Secure consolidation of functionalities of different levels of Safety & Security

PIKEOS HYPERVISOR HAS BEEN AWARDED IMPORTANT CERTIFICATIONS FOR SAFETY & SECURITY-CRITICAL APPLICATIONS

CERTIFICATION FOR DIFFERENT INDUSTRIES

SYSGO has been awarded a number of important additional industry-specific Safety certifications from TÜV Süd and a Common Criteria Security certification from the Federal Office for Information Security (Bundesamt für Sicherheit in der Informationstechnik - BSI) for its PikeOS real-time operating system.

MEETING HIGHEST INDUSTRY REQUIREMENTS

According to TÜV Süd, the hypervisor meets the requirements of Safety Integrity Level 2 of the IEC 61508 for Safety-relevant electrical and electronic systems. TÜV Süd also certifies compliance with SIL 2 for the railway-specific standard DIN EN 50128. In the automotive industry, it is certified as a SEooC (Safety Element Out Of Context) to ASIL B (Automotive Safety Integrity Level), as defined in the ISO 26262 standard. All certifications refer to PikeOS version 4.2.3 (S5577) for the target architectures x86-AMD 64bit, ARMv7 and ARMv8.

Additionally to the Safety certifications a Security certification according to Common Criteria EAL3+ for PikeOS 4.2.3 (S5577) was published by the Federal Office for Information Security (BSI) during a maintenance procedure. The most recent version was certified following an upstream analysis of critical points in an independent testing laboratory. Essential certification artefacts of the previous version PikeOS 4.2.2 are thus taken over.

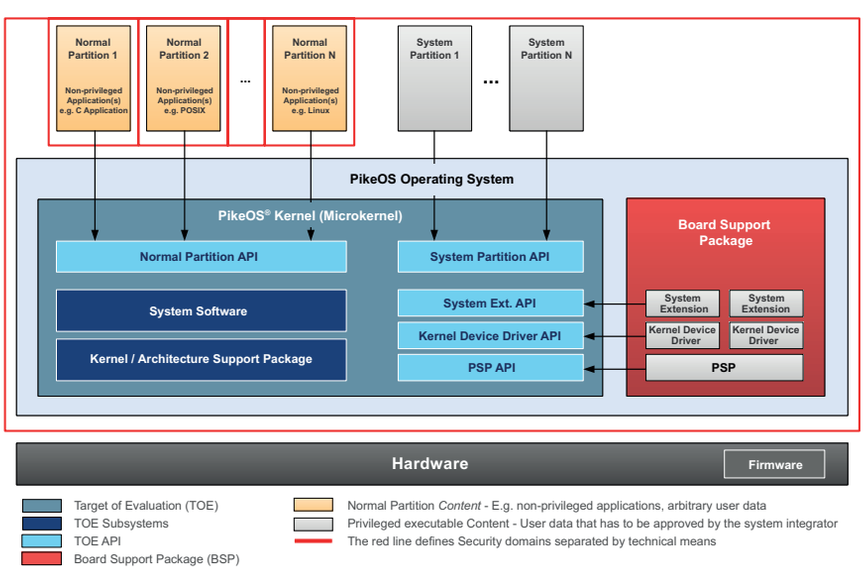
CONTINOUS IMPROVEMENTS

“Not only the Safety certification but also the renewed Security CC-certification by BSI emphasizes our path to provide customers with a reliable platform for certifiable applications in the most critical environments”, explained Sven Nordhoff, Director Certification at SYSGO. “In doing so, the architecture of PikeOS is designed to support the most stringent Safety and Security standards across all industries”.

The current version 4.2 of PikeOS focuses on “medium”-critical projects but we continue to follow our roadmap and provide PikeOS certifications for the highest Safety and Security standards up to DO-178C DAL A, EN 50128/IEC 61508 SIL 4 and ISO 26262 ASIL D. Sven Nordhoff continues: “We are actively involved in standardization initiatives, identify technological trends at an early stage and enabling us to quickly embrace evolving standards.”

DESIGN PRINCIPLE: SECURITY

In today’s connected world, developers of critical embedded systems need to make embedded security one of their design principles, just as it has always been the case with functional Safety. “While the certificates from TÜV Süd are related to functional Safety, the certification according to Common Criteria confirms PikeOS’ high standard of embedded Security”, says Markus Jastroch, Director of Marketing Communication at SYSGO. “PikeOS thus offers a unique combination of Safety and Security, serving as a suitable basis of all critical embedded applications.”



COMMON CRITERIA EVALUATION

The Target of Evaluation (TOE) is the PikeOS separation kernel, shown in the correspondingly labeled box. It consists of the PikeOS kernel and system software, which contains all TOE Security functions (TSF) claimed in the Security Target, and the TSF data (e.g. configuration data and run-time data such as Security attributes) necessary to configure and control them.

Figure 2: TOE and TOE operational environment during the operational use

About SYSGO: 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/security

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SYSGO EMBEDDING INNOVATIONS