PERSEUS

HIGH PERFORMANCE

HYPERVISOR & SECURITY SOLUTIONS

FOR CONNECTED CARS

BACKGROUND & ACHIEVEMENTS

Our executives pioneered Hypervisor technology for over a decade at Cambridge University, through Xen ARM open source community project (founded 2007) and in previous roles at Samsung Electronics. Since founding in 2016, we have developed a range of proprietary solutions and bespoke offerings for specific clients. Our solutions are certified through industry accredited white papers and successful PoCs.

INDUSTRY RECOGNITION

Perseus operates as the leader in Hypervisor API standardization projects at Genivi and is collaborating with Renesas on a number of R&D projects.

GENIVI®   **RENESAS**

INVESTOR SUPPORT

Perseus has raised a number of strategic investments from the likes of Kakao, one of Korea's top technology companies and The Wells Investment, as well as R&D grants from the Korean government.

kakaoventures   THE | WELLS | INVESTMENT

With over a decade pioneering Hypervisor & Hypervisor-based security as Xen ARM open source commmunity project founder (since 2007), Perseus guarantees that the automotive industry's top brands capture opportunities for enhanced security & performance in a connected world.

OUR SOLUTIONS

PEGASUS Hypervisor Solution	reduces SoC requirements (HW & SW) by ~75%
AEGIS Hypervisor-based Security Solution	delivers industry-leading protection for connected cars
TACHYON Linux Fast Boot Solution	reduces boot time for Linux powered rear-view cameras to 2 seconds

CONTACT US

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1. System Complexity

Rapid progress in automotive technology means that in-car systems are becoming ever more complex. Connected cars already carry up to 120 SoCs. Autonomous vehicles will carry more than 2,000 SoCs.

2. Security Risk

Existing security solutions fall short of safeguarding in-car connected services and data transfer with third-party entities. Soon, the connected car industry is at risk of becoming a battleground for malicious hackers.

3. Linux Boot up Woes

Linux has become the de facto operating system for in-car services like rear-view cameras. However, boot up speeds of up to fifteen seconds result in sub-par performance, safety concerns and regulatory non-compliance.

PEGASUS (Hypervisor Solution)

The Problem:

Increased in-car system complexity presents challenges for the automotive industry, including increased development, implementation and system management costs.

More critically, complex systems are more difficult to secure, putting vehicle fleets, the general population and corporate reputations at risk.

PEGASUS Key Benefits

- ✓ Run multiple operating systems from a single SoC
- ✓ Greatly enhance in-car HW and SW efficiency (by up to 75%)
- ✓ Improve ease of in-car system management and maintenance, including OTA (over-the-air updates)

Pegasus Solution:

Pegasus helps OEMs, T1s and T2s reduce SoC HW & SW requirements by up to 75% on average, improving efficiencies in software development, implementation and management, including OTA maintenance.

PERSEUS SOLUTIONS

PEGASUS
Hypervisor Solution

Reduces in-car HW & SW SoC requirements by ~75%

Maximises efficiency and performance

01 SOLUTION **02** SOLUTION

03 ADVANTAGE

AEGIS
Hypervisor-based Security Solution

Protects in-car systems and services from malicious attack

Flexible, real-time Hypervisor-based security

TACHYON
Linux Fast Boot Solution

Optimizes Linux boot speed

Rear-view camera boot time reduced to 2 seconds

AEGIS (Hypervisor-based Security Solution)

The Problem:

OEMs, T1s and T2s typically rely on system, application and device developers to secure their own solutions. However, system-wide security is the only way to guarantee safety and security for connected cars as connected services expand exponentially.

By 2023 it is expected that 50% of the global fleet will be connected and therefore prone to malicious attack.

AEGIS Key Benefits

- ✓ Run multiple, secure containers on a single SoC
- ✓ Per-solution data transfer parameters can be pre-programed or adjusted on the fly
- ✓ Real time, fine grained I/O rate control
- ✓ Device isolation sandboxes threats as they occur

Aegis Solution:

Aegis enables multiple, individually secured operating systems to run off a single SoC. Protection is 'always on' and fully flexible, according to specific per-application requirements.

| Normal Domain | | | | TrustZone Domain |
| Secure Domain | | | | Secure Domain |

Security Wall / Security Wall / Security Wall / Security Wall

Android | AUTOSAR | ... | Linux

Secure OS

Perseus Secure Hypervisor

ARM SoC | TZ Monitor

AEGIS SYSTEM ARCHITECTURE

Aegis delivers multiple secure containers in 'Normal Domain'

TACHYON (Linux Fast Boot Solution)

The Problem:

Linux-powered devices currently suffer from slow boot up speeds of ~15 seconds. This impacts performance, and safety (in the case of rear facing cameras) and means devices fall short of regulatory requirements.
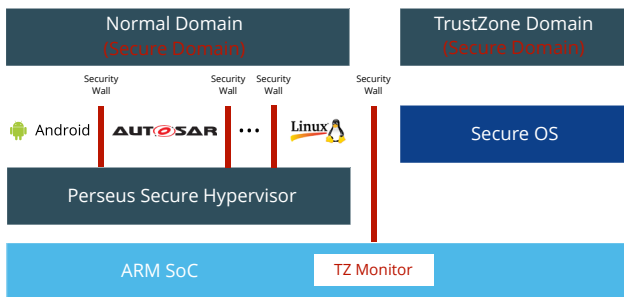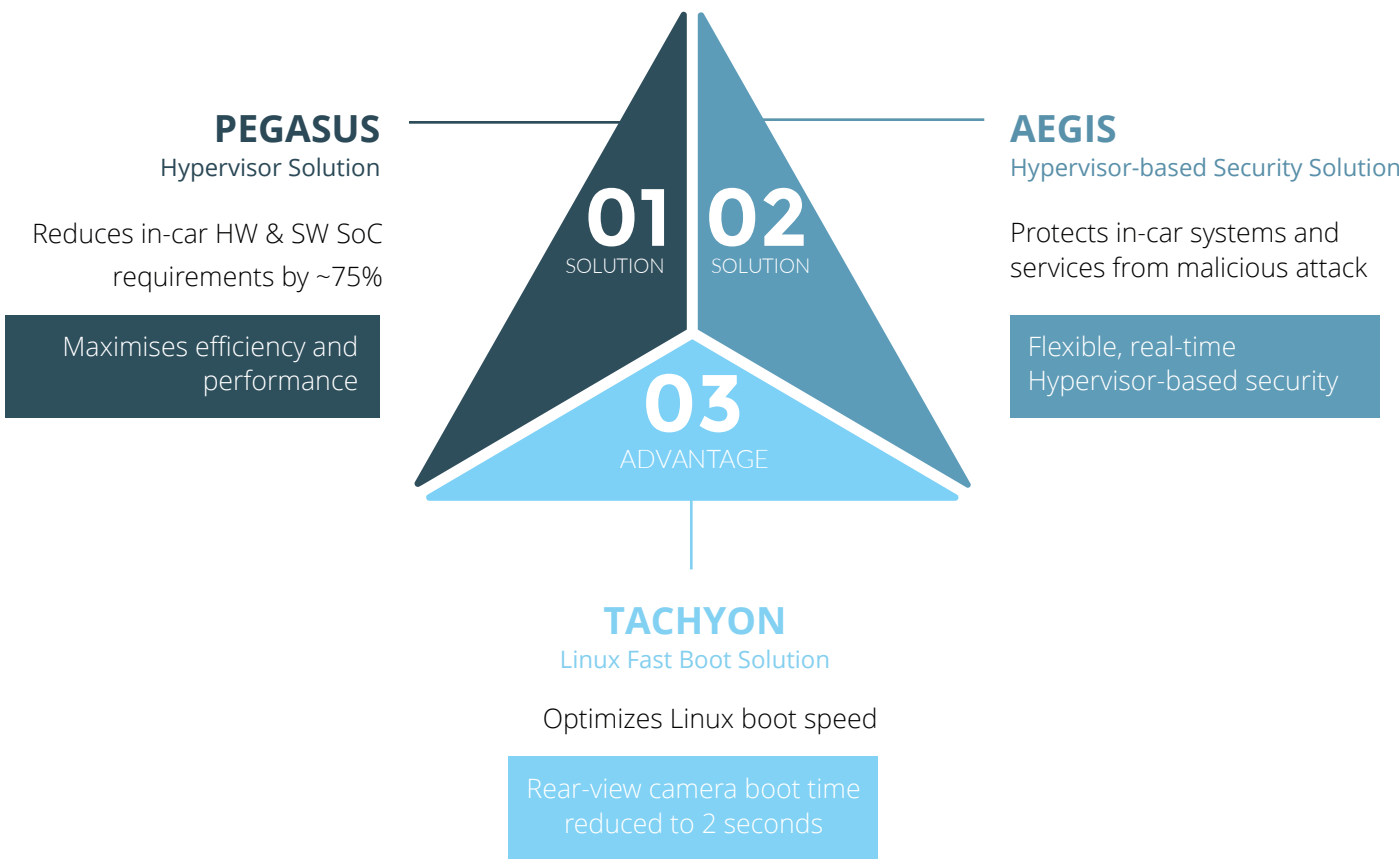
TACHYON Key Benefits

- ✓ Reduce boot speed for Linux-powered devices from around 15 seconds to just two
- ✓ Ensure compliance with new regulations for rear view safety cameras
- ✓ Improve performance of in-car devices and solutions, such as HUD, telematics and infotainment systems
- ✓ Full compatibility with Linux operating system ensures optimal performance enhancement with existing engineering resources and minimal disruption for existing partners

Tachyon Solution:

Tachyon reduces boot up speed of Linux-powered devices from around 15 seconds to just 2 seconds, delivering dramatically enhanced performance and regulatory compliance.