Press release

Immune system for the next generation of connected vehicles

Bochum, November 27, 2018. The journey towards highly automated connected driving calls for integrated security solutions. In the future, highly connected vehicles will need effective protection against unauthorized access over many years. To this end, security specialist ESCRYPT is using an intelligent control system that comprises attack detection, analysis, and defense. The central element in the end-to-end solution is the CycurGATE automotive Ethernet firewall, which is already designed with the future vehicle electrical system architecture in mind.

Automotive Ethernet is increasingly becoming the communication standard for the next generation of digitally connected vehicles. Ethernet-based electrical systems allow for larger volumes of data and higher bitrates. But they also offer new attack vectors. At the same time, increasing automation of driving functions means that any security loopholes harbor even greater risks.

IT security for the entire vehicle life cycle

Providing effective protection for these vehicles over many years – long enough for many development cycles of cyberattacks – calls for integrated automotive security solutions in which attack detection and defense interact in a dynamically learning control system. To that end, automotive security provider ESCRYPT has united various IT security components within an integrated intrusion detection and prevention solution (IDPS).

This means security software in the vehicle monitors the central ECUs and gateways. Any anomalies in the electrical system communications are detected, documented, and forwarded to a security operations center in the backend. There, tools analyze the aggregated data and in the event of cyberattacks, security updates are carried out for the whole fleet in line with defined incident response procedures. The major advantage is that new attack patterns are detected as soon as one vehicle is targeted and trigger the roll-out of protection measures for the entire fleet. What you get is a kind of immune system in which IT security mechanisms are sustainably maintained over the entire life cycle.

Firewall for automotive Ethernet

Monitoring and controlling communications in the vehicle’s electrical system is then handled by the CycurGATE automotive Ethernet firewall. What’s special about this is that
the firewall is implemented directly in the Ethernet switch. In this way, the data traffic is monitored and managed centrally – with no resulting interference with the host controller or vehicle ECUs. This also means the firewall can make the most of the hardware acceleration on the switch and process most of the data packets at wire speed.

CycurGATE provides protection against denial-of-service attacks, controls the authorized communication within the vehicle’s own network, and supports its segmentation into virtual local area networks (VLANs). Since it is highly configurable, the firewall can be easily implemented into future automotive-Ethernet-based electrical system architectures. Tied into a comprehensive security solution with intrusion detection, attack analysis in the backend, and corresponding security updates for the vehicle fleet, the automotive firewall rule sets are updated continuously.

“Because of the growth in the volumes of data and in connectivity, an Ethernet-based E/E architecture in cars will become standard in the medium term,” explains Dr. Thomas Wollinger, General Manager of ECRYPT GmbH. “This is why we need Ethernet-specific security components such as CycurGATE as part of integrated concepts for prevention, detection, and defense when it comes to cyberattacks.”
About ESCRYPT

ESCRYPT is a leading supplier of IT security solutions in embedded systems and of consulting and services for enterprise security and IT-secured manufacturing. Millions of ESCRYPT solutions are currently in use, especially in automotive security and automotive manufacturing applications. In addition, ESCRYPT provides dedicated security services for corporate IT to the Bosch Group and its products.

ESCRYPT was acquired by the Bosch Group subsidiary ETAS GmbH in 2012 and is headquartered in Bochum, Germany. The company is active all over the world with locations in the UK, France, Sweden, the US, Canada, India, China, Korea, and Japan.

More information is available at [www.escrypt.com](http://www.escrypt.com)

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Image 1: Automotive Ethernet Firewall

Image 2: Dr. Thomas Wollinger, General Manager of ESCRYPT GmbH.
Bosch at CES 2019:

- **PRESS CONFERENCE:** In Ballrooms B, C, and D, Mandalay Bay Hotel, Las Vegas South Convention Center, Level 2, from 9:00 to 9:45 a.m. local time on Monday, January 7, 2019.
- **BOOTH:** Tuesday to Friday, January 8-11, 2019, in the Central Hall, booth #14020
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The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,000 associates worldwide (as of December 31, 2017). The company generated sales of 78.1 billion euros in 2017. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group’s strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is “Invented for life.”

The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in 60 countries. Including sales and service partners, Bosch’s global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company’s future growth is its innovative strength. At 125 locations across the globe, Bosch employs some 64,500 associates in research and development.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as “Workshop for Precision Mechanics and Electrical Engineering.” The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.