

“Harmonious interplay”

Dr. Thomas Wollinger discusses holistic security for the networked vehicle

The automotive industry is in a state of flux, and automotive security is emerging as a key success factor. Dr. Thomas Wollinger, Managing Director of ESCRYPT GmbH, explains how mindsets and actions are changing direction – and why this calls for a conductor.

Dr. Wollinger, is the automotive industry starting to pay more attention to security issues?

Dr. Thomas Wollinger:

It's really exciting to see how things are taking shape. The industry is facing a fundamental shift, including completely new business models based less on selling cars and more on data-driven services. As digitalization and connectivity extend their reach, we are continuing to witness the death knell of traditional vehicle platforms with static control units and the advent of Ethernet-based platforms with distributed and connected ECUs. Individual embedded security functions just don't cut it anymore. We must think and act beyond the vehicle and take a holistic approach.

What do you mean by that?

Dr. Thomas Wollinger:

When we talk about the future, we're talking about connected and automated driving. And this is based on exchanging data in real time, which provides a bigger target for attacks and means that threats take on a whole new dimension. When vehicles become rolling computers in a network, IT security becomes a question of personal safety.

So the car as a system needs to be completely protected, as does the communication among vehicles and between vehicles and roadside equipment, as well as the traffic infrastructure itself. And we must do this throughout the entire life cycle. We need to protect vehicles that will be on the road for 15 years or more from cyber attack methods we haven't even experienced yet. Achieving that means having the right processes and organization in place right from the start. Holistic automotive security, as we at ESCRYPT

understand it, requires effective protection for the entire system and its infrastructure. We need to apply that to the entire life cycle and provide the corresponding organizational support.

So that's the theory – but how does it translate into practice?

Dr. Thomas Wollinger:

A prime example is our intrusion detection and prevention solution: Security software in the vehicle monitors the central ECUs and gateways. 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 a cyber attack, 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, so immediate steps can be taken to protect 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 and supported by the organization.

In other words, the IT security of an automaker's fleet hinges less on the security measures themselves and much more on how these are coordinated and managed.

Dr. Thomas Wollinger:

Absolutely. For OEMs, protecting their vehicle fleets will be a constant, complex, and crucial task. They will require predictive concepts, concrete security structures, and sufficient resources. And they will need a central security management function that

Dr. Thomas Wollinger –
Managing Director of ESCRYPT GmbH



ensures the harmonious interplay of all the security measures, providing guidance to everyone involved at the OEM as well as to external service providers, suppliers, and workshop participants – similar to how a conductor leads and develops an orchestra.

Just as automakers already orchestrate the processes and requirements of their core business, in the future they will have to orchestrate automotive security. The only route to smart mobility is through effective IT security. ■

“When vehicles become rolling computers in a network, IT security becomes a question of personal safety.”