Onion Model

Dear Reader,

Whether you believe it or not, one of the main topics at the IAA was the onion. Some exhibitors, for example Bosch and Harman, were promoting the virtues of this humble vegetable. The onion was cultivated some 5000 years ago as a herbal and medicinal plant as well as a vegetable, and has even been named as the medicinal plant of 2015. Its leafless flower stalk can grow up to 1.2 m high.

But it is not the flower that we are interested in here but the onion's storage system, its bulb. It has a multi-layered structure, with dry outer leaves and between 10 and 15 inner shells. These shells are arranged concentrically around the core and enclose each other. But that's enough botany for now. What we are concerned with is the similarity between "allium cepa" and the onion model for the IT security of automotive software.

Cloud services and apps are increasingly entwining our infotainment systems. And security is falling by the wayside. BMW vehicles have recently been hacked via their communication system, said Michael Müller, managing director of Magility, writing in VDI-Nachrichten. The reason, he claimed, was that the encryption concept was not implemented consistently. BMW had not protected the data transmission with the secure internet protocol HTTPS, he said, which would have at least offered a certain amount of protection.

No car maker can afford to have security vulnerabilities – or a lack of onion layers – any longer. As long ago as 2012, Bosch acquired the company Escrypt, which is now the source of numerous developments against cyber-attacks. According to Bosch board member Markus Heyn, the automotive supplier uses an onion model system to separate the infotainment domain, which cannot be securely locked, from the powertrain and the

chassis. This is achieved by using secure gateways, filters and protocols, as he explained to us at the IAA.

Other "green shoots" at the IAA could be seen in the New Mobility World, which was newly created by VDA in Hall 3.1. There, Harman presented its 5+1 layer security framework solution in more detail. The multi-layer, six-stage defence and security model is aimed at ensuring that protection in the outer onion shell is always as up-to-date as possible by means of over-the-air updates. We are familiar with this procedure from our PC, which starts by loading the latest anti-virus software every morning when it is booted.

The onion model should quickly take root – to avoid tears in our eyes when the next hacker strikes.

Best regards,

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