

The art of security orchestration

Managing tomorrow's disruptive security challenges

Dr. Thomas Wollinger | ESCRYPT GmbH



Drive today's business successfully and meet futu<u>re requirements</u>



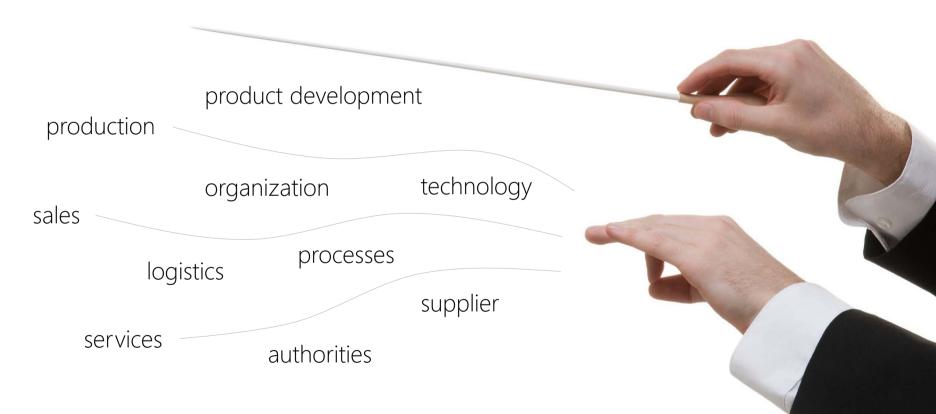


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OEMs are already conducting their core business





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Orchestration as a competitive necessity

OEMs are already conducting their core business



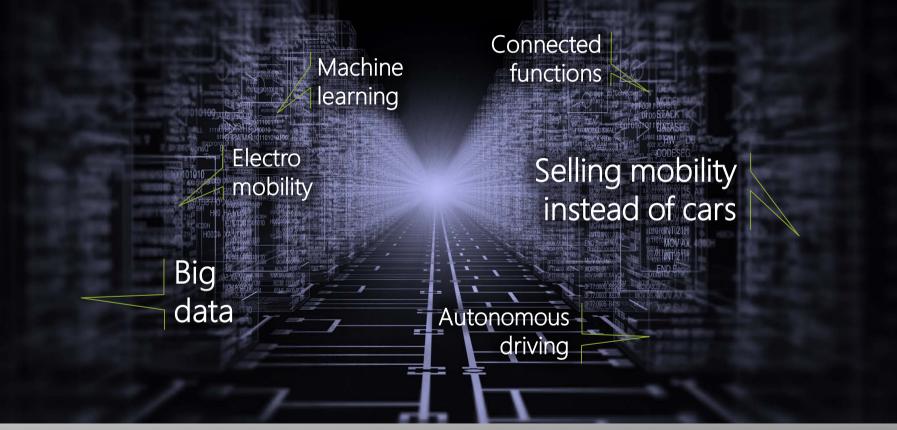
Digital transformation causes disruption

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Digital transformation causes disruption Smart Mobility Trends





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CAN YOU HANDLE SECURITY IN DIGITAL DISRUPTION?



Digital transformation causes disruption Security challenges





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2+3 findings for future security management

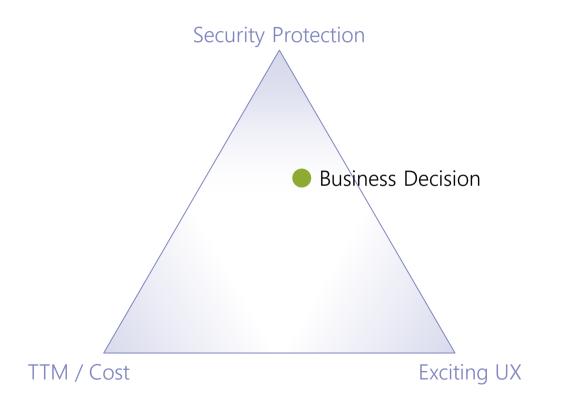
How to meet security needs





Defining the adequate security approach Product Security Risk Management - Area of Tension





Automotive Security

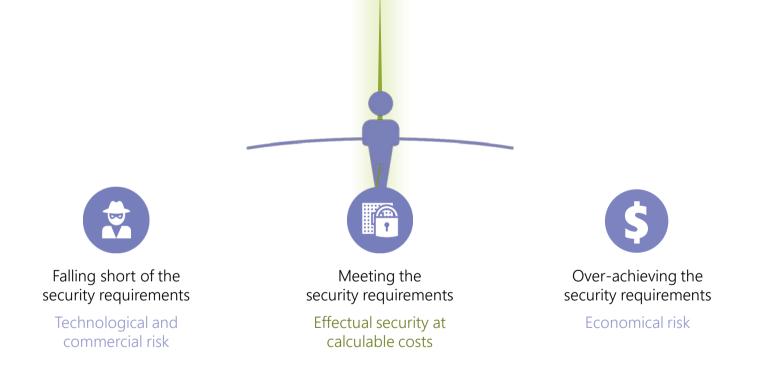
- Loss due to fraud
- Higher security cost
- Lower UX due to better authentication

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Defining the adequate security approach

Effectual security at calculable costs









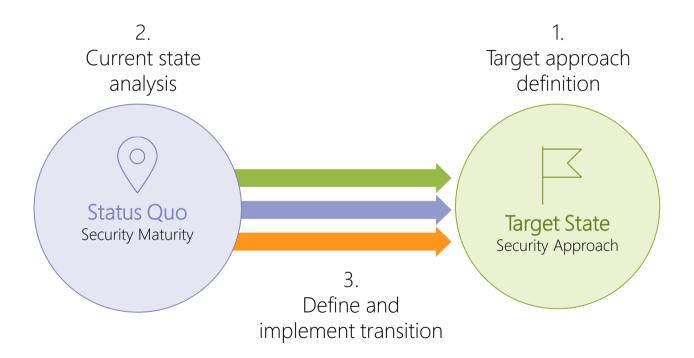
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Defining the adequate security approach

Defining the adequate security approach





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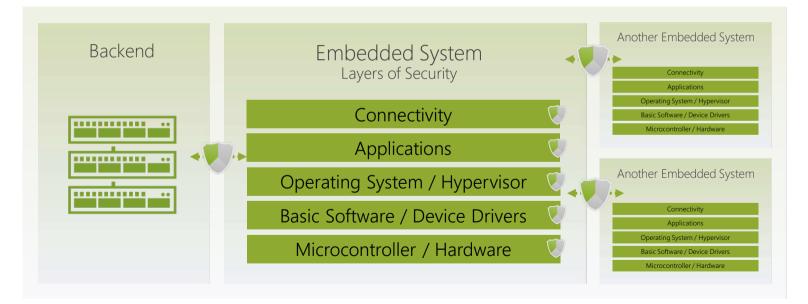
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Security for the complete embedded system and infrastructure

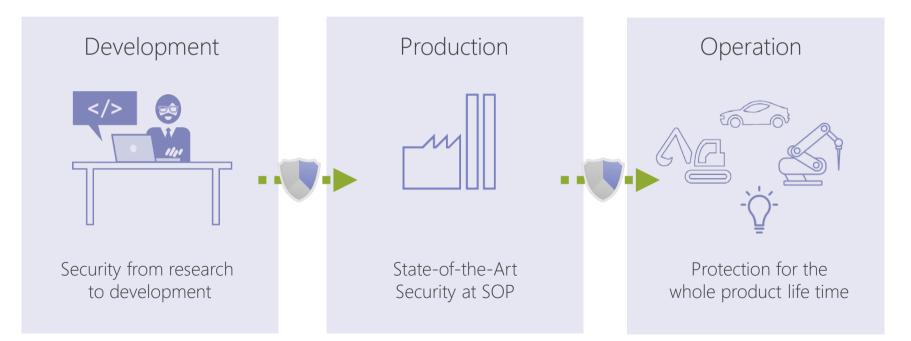


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Security for the entire life cycle of an embedded system





Security in corporate functions and processes

Security Organization

- Company-wide security awareness, governance, and assurance
- Security engineering processes, roles, responsibilities, and policies
- Security consulting, support, instructions, audits, and trainings

Security Operation

- Security research, intelligence, and monitoring
- Security incident preparation, forensics, and response
- Security operations (credential and update management)

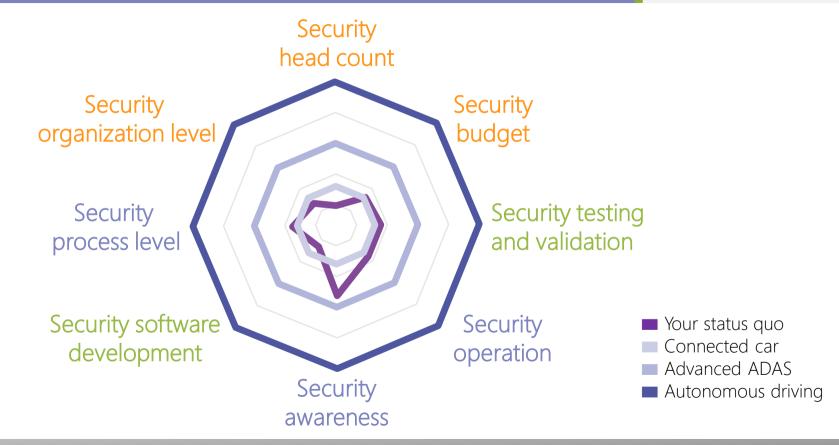
Security Development

- Strategic security development, security vision and roadmap
- Security standardization, lobbying, and strategic cooperation
- Legal and other cross-divisional issues



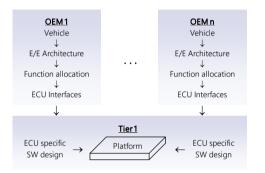
Comparing your status quo with your targeted security approach





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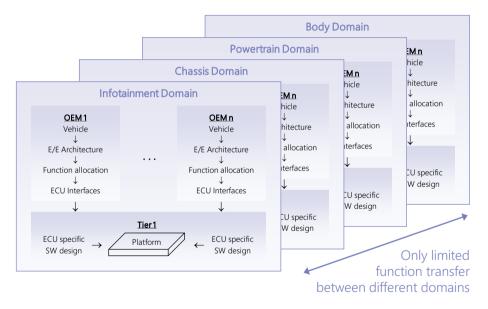
ECU Platform development within domain



Domain specific SW platform design as a consequence of organization structure (Conway's¹ Law)

¹ Conway, Melvin E. (1968): How do committees invent? <u>http://www.melconway.com/Home/Conways_Law.html</u>

Structure on vehicle level



Vehicle Computer Campus & (R)Evolution of the Automotive SW

SW \neq SW: Different types of SW entering Automotive Domain



Vehicle Computer	POSIX opera Virtualization Ethernet	ating systems C++ Cross-domain applications	Cloud Server Different IT language
CAN, FlexRay, Functional Safety	C language	Open Source SW µ-Processor Connectivity	DevOps approach Service business
V-Model, ASPICE Security		ty WLAN, 3G, 4G,	
	Real Time OS algorithms o physics	Android, iOS	Mobile Apps Dedicated SDKs

Security concepts need to address different computing devices and different software technologies related to automotive

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The art of security orchestration

Centralized management of security approach level adaption



Targeted security approach level

Security lifecycle

Operation, monitoring, alignment, and adjustments (if needed) of all cyber security functions and stakeholders

Security technology

Development, implementation, operation, and validation of cyber security solutions, software, functions

For the complete vehicle platform from ECU to connectivity functions

From development over production and operation until vehicle phase-out

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Security organization

Guidance, development, training, alignment, and clearance of all internal and external cyber security stakeholders

> For all security function owners

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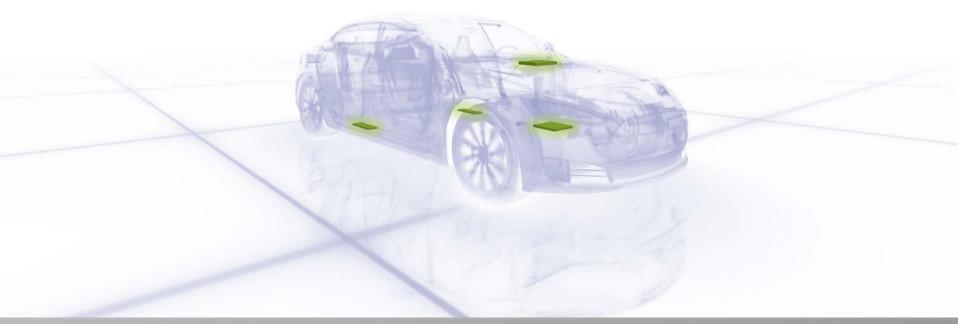
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Customized security orchestration approach

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Isolated ECUs, isolated functions, limited connectivity

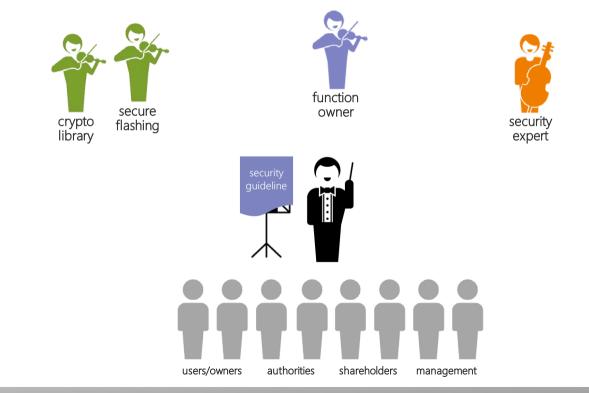


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Security orchestration of a "small ensemble" with **basic** security complexity



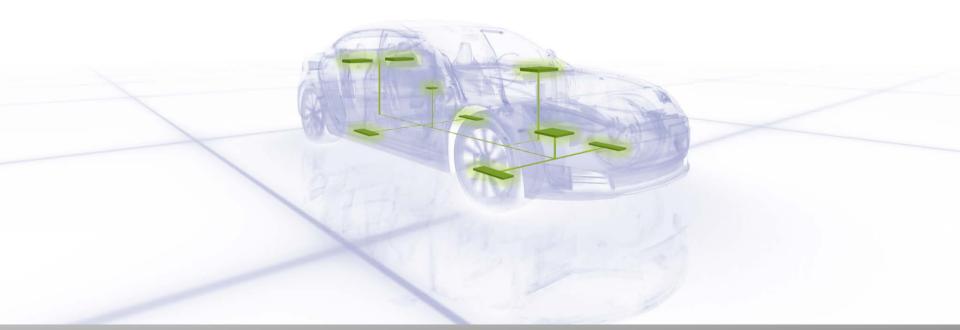
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Networked systems, distributed functions, connected vehicles



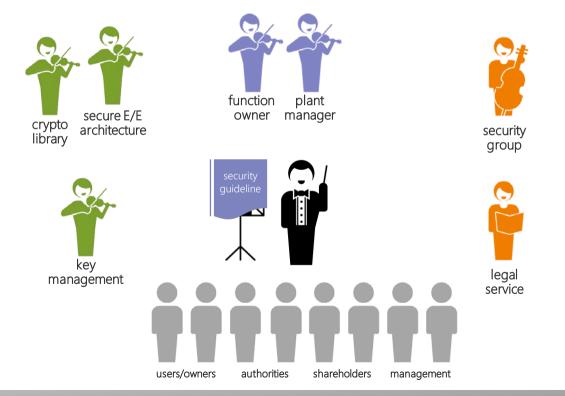
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Customized security orchestration approach

Managing transition and operation of your individually required security approach

Security orchestration of a "chamber orchestra" with **advanced** security complexity



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Remotely connected, autonomous driving

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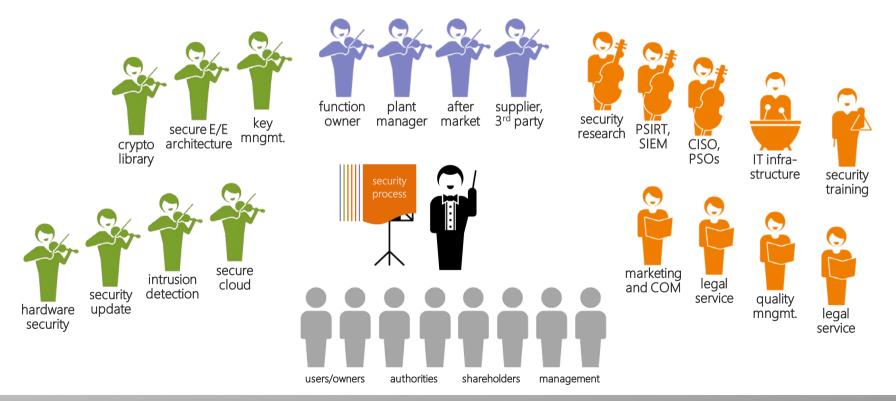
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Customized security orchestration approach Managing transition and operation of your individually required security approach

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Security Orchestration of a "symphony orchestra" with **disruptive** security complexity



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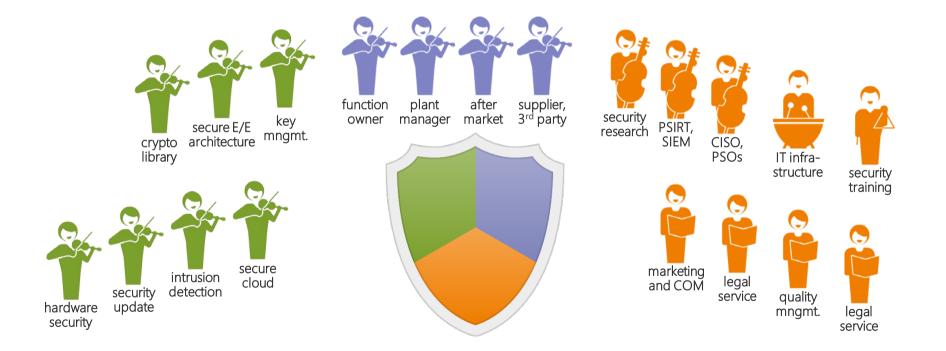
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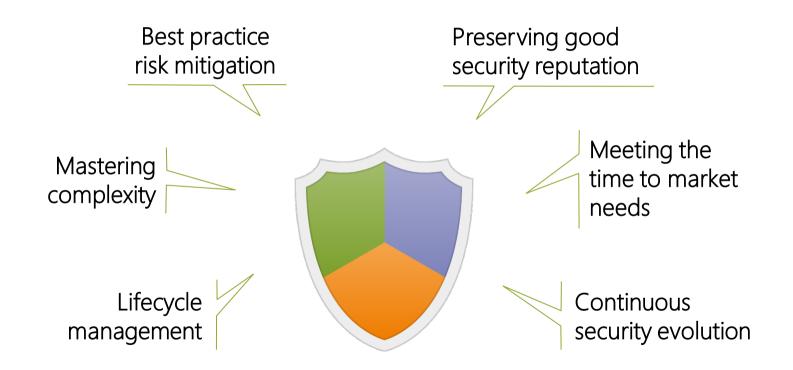
Customized security orchestration approach

Managing transition and operation of your individually required security approach













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