Global Platform™

Cybersecurity Vehicle Forum – Virtual (New Orleans)

3 April 2025

Richard Hayton, Chair of Automotive Task Force, Trustonic
Francesca Forestieri, Automotive Lead

Ground Rules for Cybersecurity Vehicle Forum

We aim to create a trusted environment to understand and resolve complex problems and identify future potential synergies.

We have representatives from key players and from key standardisation organisations.

Each speaker is speaking as an expert in the field, and not necessarily speaking on behalf of his company or standards organisation.

Therefore, participants are free to use the information received, but not attribute the affiliation of the speaker(s).

After the Cybersecurity Vehicle Forum, we will post the recording on our website, as well as the relevant slides (as made available by speakers) for your reference.

https://globalplatform.org/blog-overview/

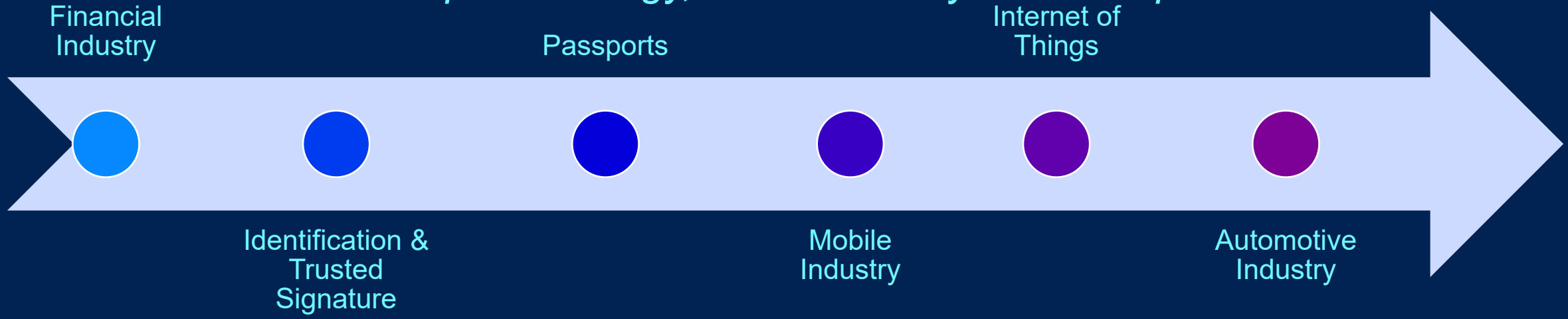
Cybersecurity Vehicle Forum Agenda

09:00	**Welcome & Update**	**Francesca Forestieri, GlobalPlatform**
09:15	Security for MCUs & Micro TEEs	Richard Hayton, GlobalPlatform, Automotive Task Force GlobalPlatfom and Trustonic, CISO
09:25		Nicolas Devillard, ARM
09:45	Discussion on Automotive Requirements	ALL
10:00	MACsec and Key Management in Automotive	Philip Lapczynski, Renesas
10:20	GlobalPlatform on Key Management (injection, renewal)	Gil Bernabeu, GlobalPlatform
10:35	Discussion on Automotive Requirements	All
10:45	Bio Break	ALL
10:55	Updates on the Cybersecurity Assurance Levels work 8475 PAS – Annex of SAE/ISO 21434	Susan Lightman, NIST
11:10	Protection Profiles in Automotive	Namseok Kim LGE Jorge Wallace, Dekra interview by Francesca Forestieri GlobalPlatform
11:30	Discussion on Automotive Requirements	ALL
11:40	Fireside Chat: Priorities in Automotive Security Standardisation	Steve Tengler, Vice President of Engineering Excellence Bill Mazzara, Chair of SAE's Vehicle Electrical Hardware Security Task Force
12:00	Goodbye	ALL

The recording and slides will be posted in our Blog section (as with our previous CSVFs): https://globalplatform.org/blog-overview/

GlobalPlatform

THE standard for managing applications on secure chip technology, with over 20 years of experience



Mass Market deployment of industries has required: agreed functionality for transactions and transparent robust security to create trust among competitors and in the overall ecosystem

Why GlobalPlatform: Market Presence in Automotive

Secure Element

OVER 192 Million Connected Cars in 2023

- Digital Car Key
- Electrical Vehicle Charging
- All eUICCs (embedded Sims)
- Key Management

Trusted Execution Environment

In Over 100 Million Vehicles as of 2023*

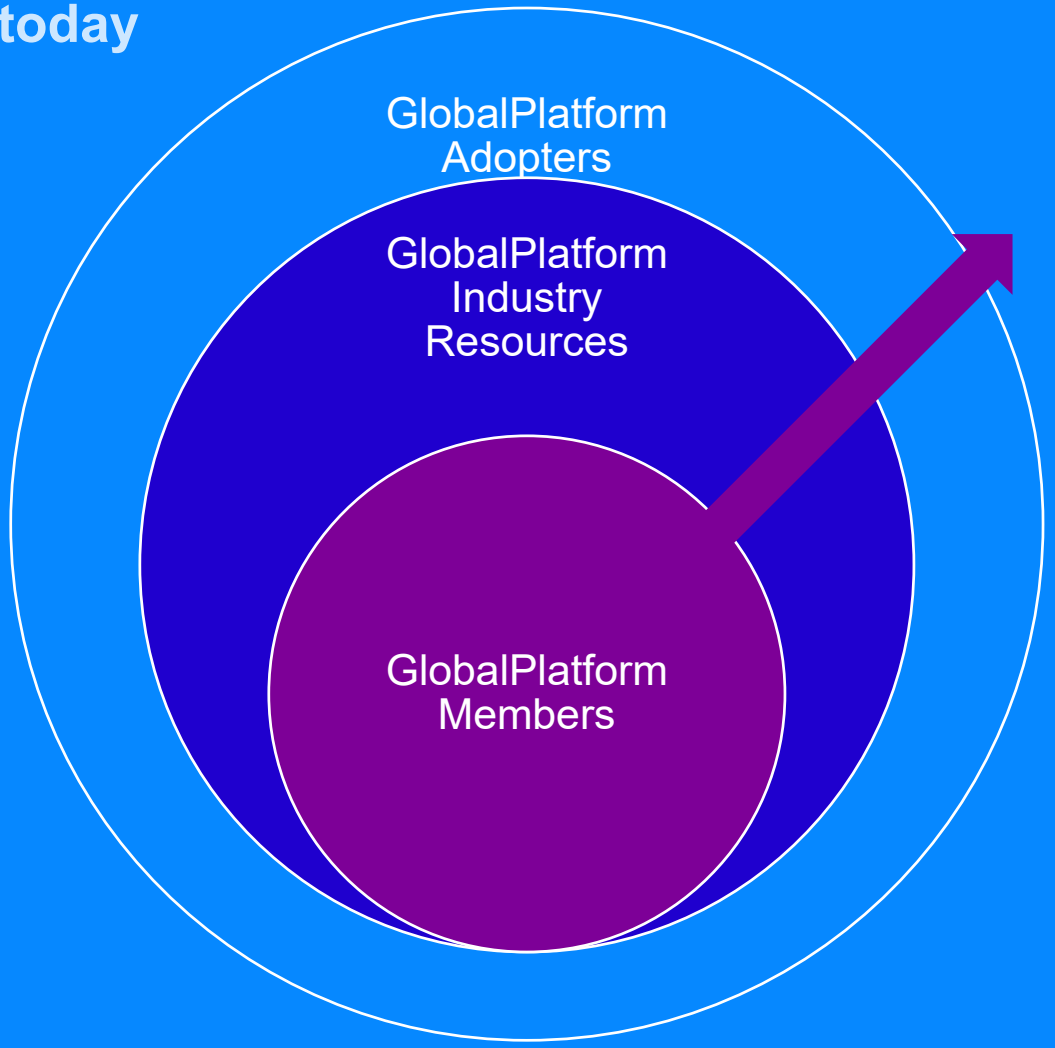
- Digital Rights Management / Media for Advanced Infotainment
- Protecting High Value Assets such as ADAS
- Key and Certificate management
- Personal Data and Biometric

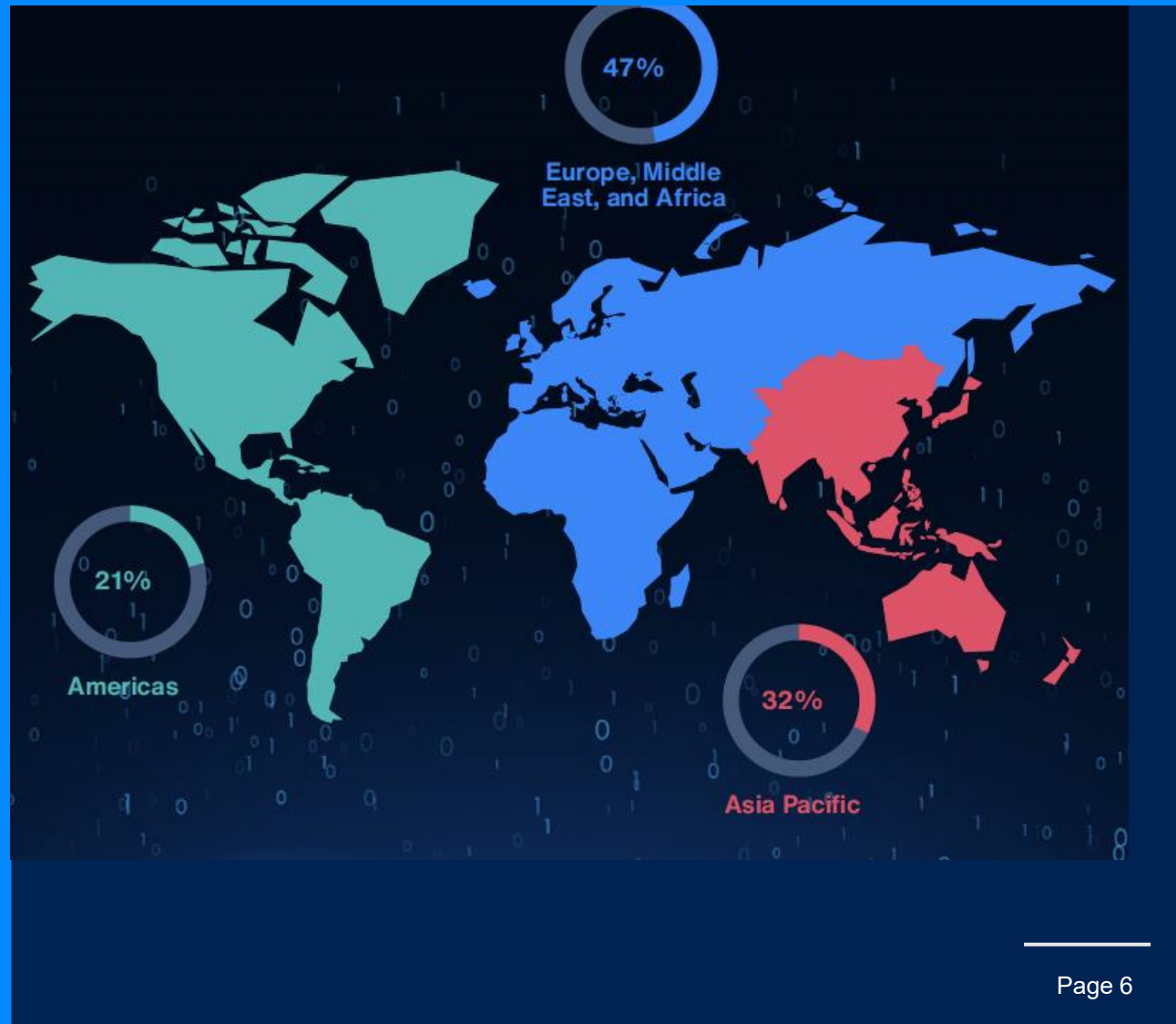
192 Million Connected Cars in 2023 by Juniper Research
https://www.juniperresearch.com/press/connected-vehicles-to-surpass-367-million-globally#:~:text=Hampshire%2C%20UK%20–%209th%20January%202023,from%20192%20million%20in%202023.

*Confidential Source on Market Presence

GlobalPlatform's Market Adoption

- **62 billion+ Secure Elements shipped worldwide are based on GlobalPlatform specifications**
- **Over 10's of billions GlobalPlatform-compliant Trusted Execution Environment in the market today**





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GlobalPlatform Members 1/2

Payment Services

American Express
Cartes Bancaires
Discover Financial Services
FeliCa Networks, Inc.
JCB Co. Ltd.
Licel Cooperation
Mastercard
Visa Inc.

Mobile Device Manufacturers

Apple Inc.
Honor
Huawei Device Co., Ltd.
Xiaomi

Mobile Network Operators (MNOs)

AT&T, Deutsche Telekom
KONA International,Orange
SK Telink, Synapse Mobile Networks, T-Mobile

Automotive Tech Providers

CARIAD SE
ETAS GmbH
Woven

Semiconductor & Hardware Vendors

Analog Devices Inc. (ADI)
Arm Limited
Austriacard
Bundesdruckerei GmbH
Dai Nippon Printing
Eastcompeace Technology Co., Ltd
Feitian Technologies Co., Ltd
Giesecke+Devrient
HID Global
Infineon Technologies AG
Kigen Lda
MaskTech Intl GmbH
MK Smart JSC
NXP Semiconductors
Qualcomm Technologies Inc.
PQShield
Renesas
Samsung Electronics
Shanghai Fudan Microelectronics Group
Spreadtrum Communications
STMicroelectronics
Toshiba
Thales
Ubivelox
Xard Pay
XCure
Valid
Watchdata System
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WiseSecurity Technology
Zswipe Germany

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GlobalPlatform Members 2/2

OS & Software Platform Providers

CISCO

Google

Oracle

Rambus

Trustonic

Linaro

Public Sector & Government Entities

BSI - Bundesamt für Sicherheit in der Informationstechnik

Department of Defense (USA)

Institute for Information Industry

Wuhan University

Consulting & Integration Firms

Digital Cubes

Galitt

Internet of Trust SAS

Monetech

Nextendis

NthPermutation Security LLC

Safepay Systems

Security, Certification & Testing Labs

Applus+

BacTech

Beijing Unionpay Card Technology

Beijing ZhiHuiYunCe (DPLS Lab)

Brightsight BV

CEA - Leti

COMPRION GmbH

DEKRA

FIME

Kaspersky Lab

Keysight

SERMA

TrustCB

Quarkslab

UL (Underwriters Laboratories)

GlobalPlatform's Success in International Digital Security Services

Protection Profiles

3rd Party Certification

Publicly available on a royalty free basis

- Common set of security needs
- "I want" this level of security

- A mechanism to provide Vendors the ability to make claims regarding their security products
- I "Provide"

Common Criteria definitions source: https://commoncriteriaportal.org/files/ccfiles/CC2022PART1R1.pdf

GlobalPlatform Brings Lessons to Automotive

GlobalPlatform standards create a fertile environment for mass market growth and innovation of services and hardware

Services are key dynamic of industry BUT hardware remains a critical base for trust

High Evolution in Markets over time, with issuance of new services on very short timelines (3-6 months).

With standardised portability and updatability, device product life is extended since it can adapt to requirements of new services.

Synergistic opportunities (also across “Frenemies”) for the development of new services (not everything has to be developed from scratch by a provider)

Based upon GlobalPlatform’s Experience in Over 25 Years with Smart Cards, Mobile, IoT

Driving Requirements into GlobalPlatform

Cybersecurity Vehicle Forum

Nov 2022 Munich
June 2023 Detroit
Sept 2023 Tokyo
Oct 2023 Beijing
Nov 2023 Hamburg
June 2024 Detroit
Oct 2024 Tokyo
Nov 2024 Berlin

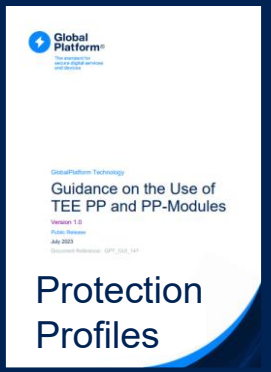
Inside GlobalPlatform

- Automotive Task Force
- Security Task Force
- Regional Task Forces

- Trusted Environments & Services Committee
- Secure Element Committee
- SESIP Committee

Whitepapers

Specifications



Protection Profiles

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Security for MCUs

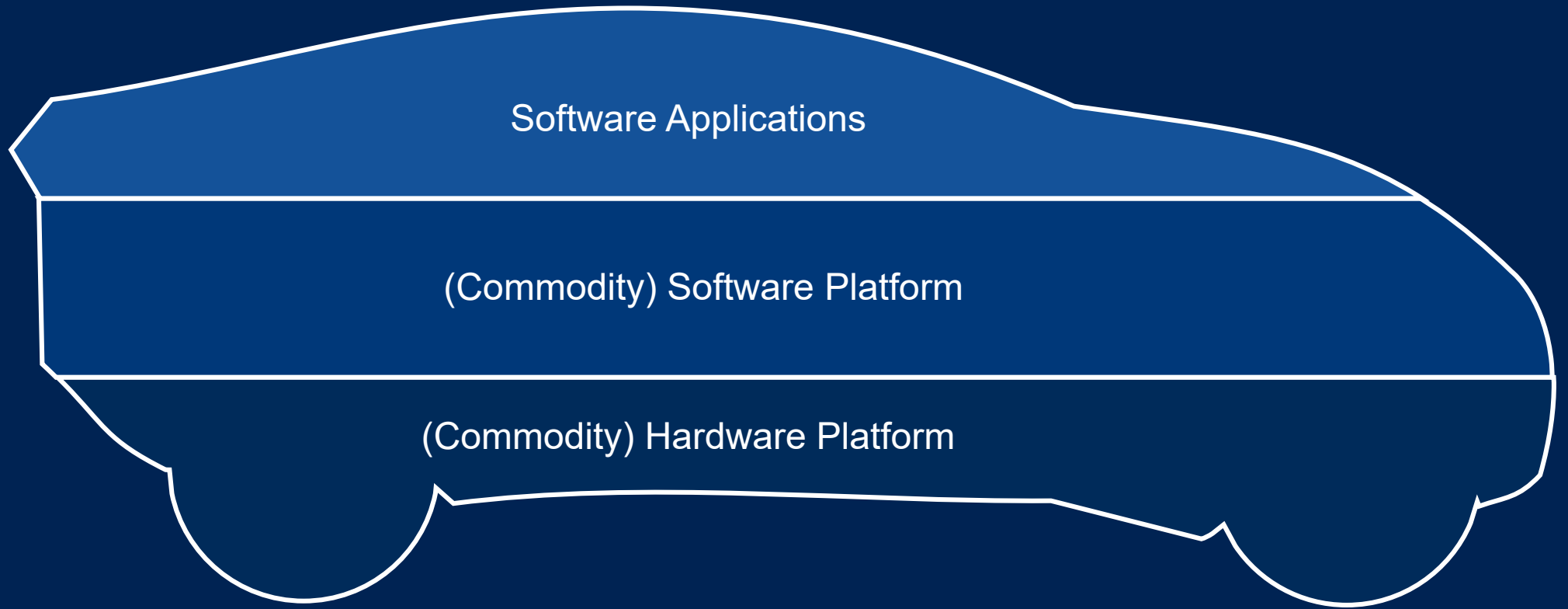
Richard Hayton, Trustonic
(& Chair of GlobalPlatform TES Committee)

Nicolas Devillard, ARM

TRUSTONIC

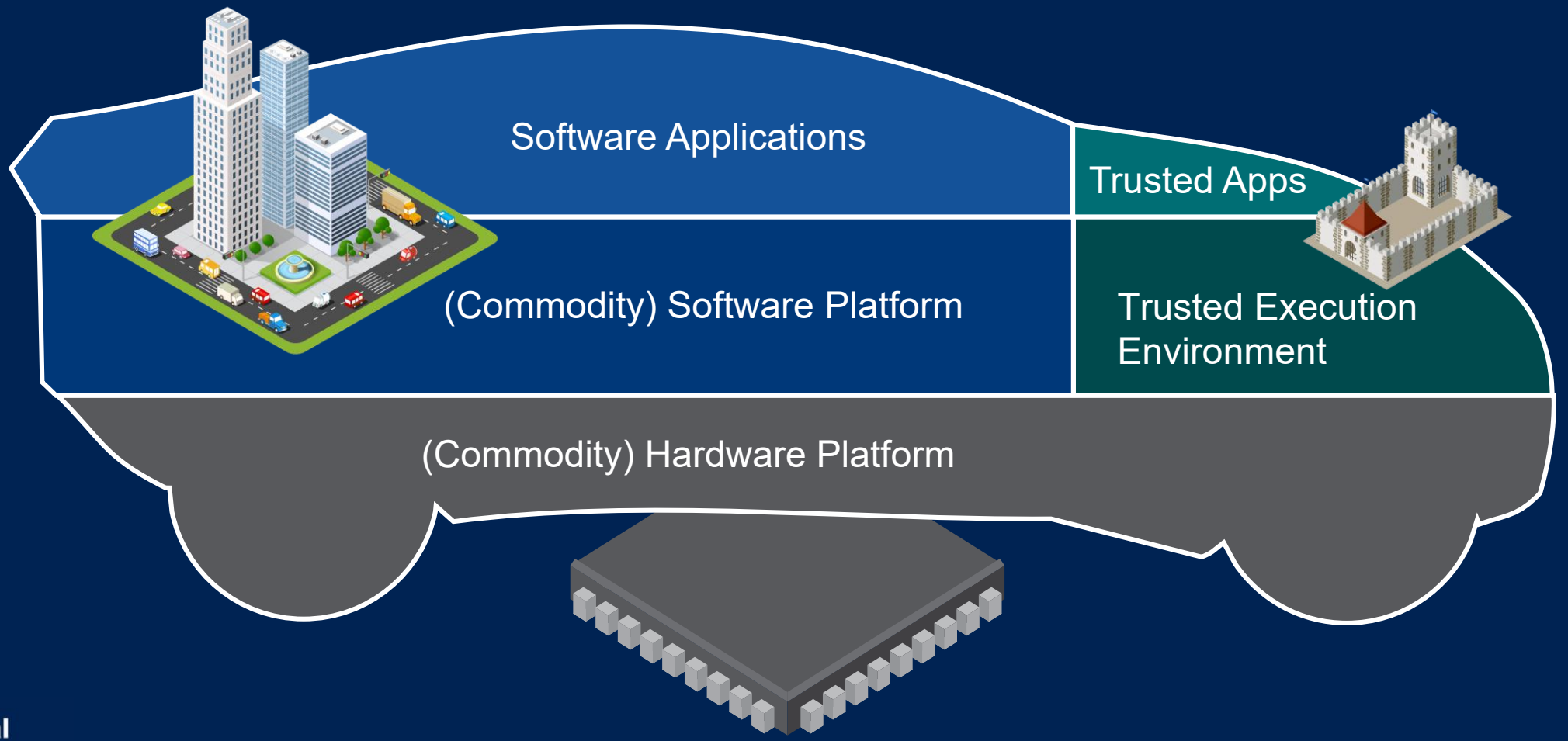
arm

Software Defined Vehicles

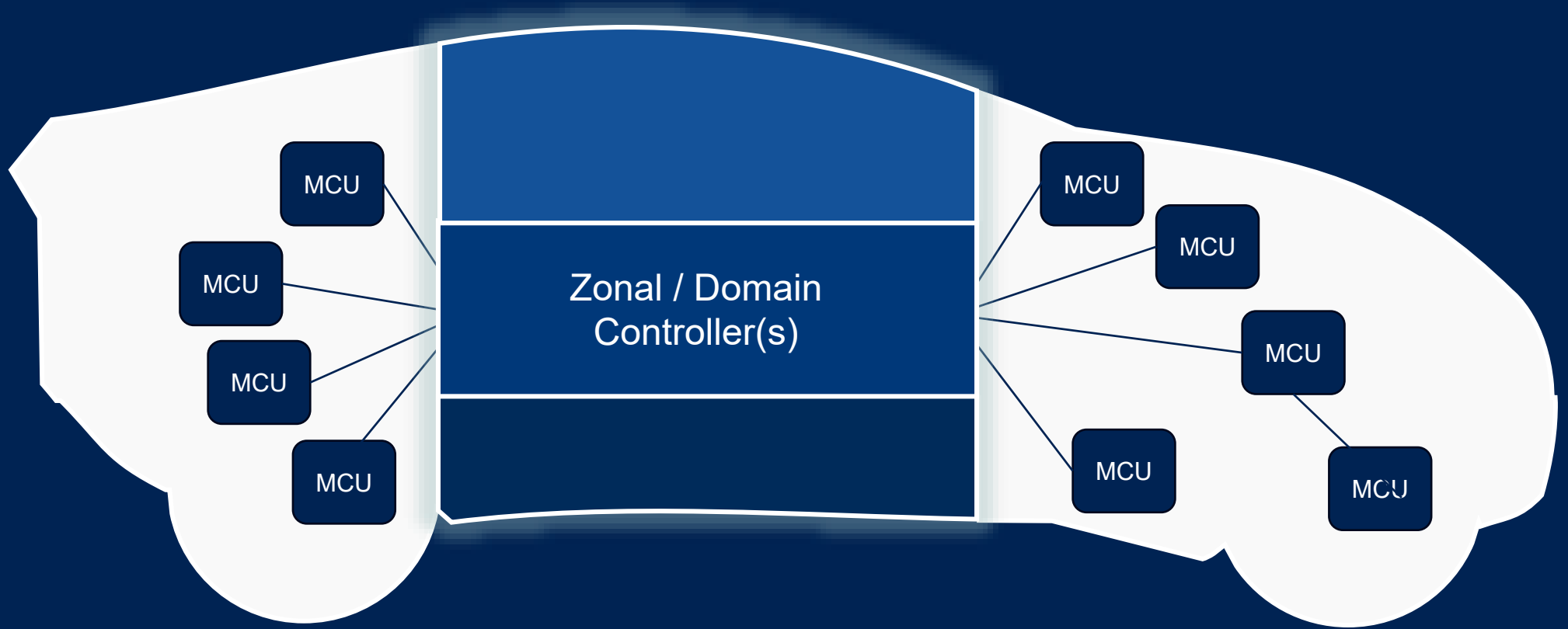


Trusted Execution Environments

TEE within Software Defined Vehicle



Reality is more complex – Lots of MCUs



Q. Can (& should) we put TEEs on MCUs?

Is the MCU problem different from the CPU problem?

Typically, similar needs but far less flexibility required (e.g. single purpose)

Are the GlobalPlatform TEE specifications suitable for MCUs?

Designed to be generic – but are arguably too broad / unnecessarily complex for MCU use cases

What products exist today / will exist in future?

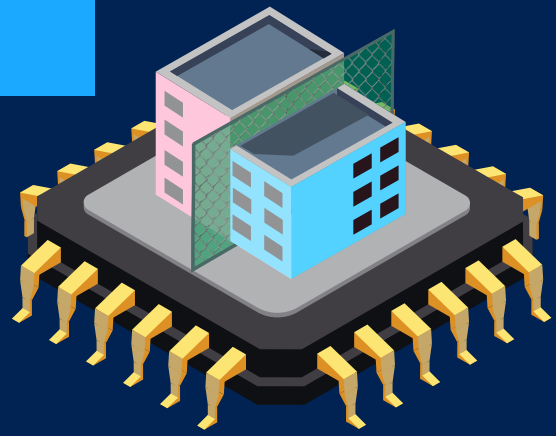
No commercial GP based MCU-TEEs
But many products using ARM PSU

A Micro-TEE?

APIs: GlobalPlatform, PSA or other?

M-REE

General Purpose Partition



M-TEE

Security Focused Partition

Certification / Compliance
Common Criteria, SESIP or other?

Current activities

Automotive Task Force has raised the desire for a Micro-TEE

Trusted Environments and Services Committee is looking into this

- First planned output is a whitepaper reviewing options

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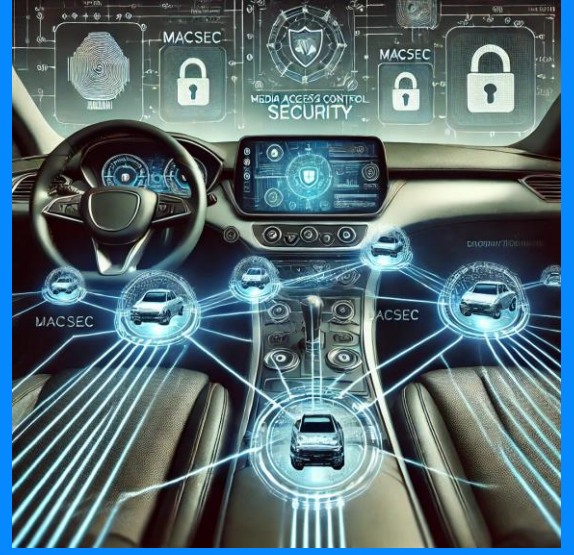

MACsec and Key Management in Automotive

Philip Lapczynski, Renesas

RENESAS
BIG IDEAS FOR EVERY SPACE

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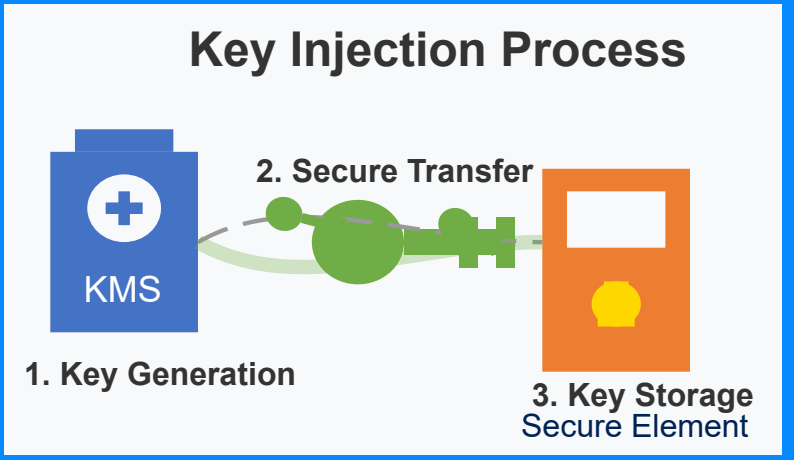

Key Management in Automotive

Gil Bernabeu, GlobalPlatform CTO

Cybersecurity Assurance Levels work 8475 PAS – Annex of SAE/ISO 21434

Susan Lightman, NIST

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Protection Profiles

Namseok Kim, LGE
Francesca Forestieri, GlobalPlatform
Jorge Wallace Ruiz, Dekra

LG Electronics

DEKRA

- Target of Evaluation (TOE)
- Security Objectives
- Threat Model
- Security Functional Requirements (SFRs)
- Security Assurance Requirements (SARs)
- Security Claims
- Implementation Guidance
- Evaluation Methodology
- Lifecycle Management
- Composition and Integration Requirements

Namseok Kim, LGE
Experiences in Certification in Automotive

What is the primary motivation for conducting certifications in automotive products (not just the process) ? Is it related to transparency on robustness levels?

Do you see security certifications of products as being relevant for the type approval activities for UNECE 155/156?

What was your experience in certifying against protection profiles? Has the certification aided in your approach to selling your product both to clients as well as to the overall ecosystem?

Questions to Jorge Wallace Ruiz DEKRA

Could you briefly explain what SESIP Profiles are and why they are significant in the context of automotive security?

SESIP Profiles: What & Why for Automotive Security

Security Evaluation Standard for Platforms (SESIP) focuses on evaluating the security of embedded products.

SESIP Profiles: Tailored documents defining security objectives, threats, and assurance activities for a specific product or environment (e.g., automotive).

Why They Matter in Automotive

- **Consistency:** Offers a standardized way to assess and certify security across different automotive components.
- **Comparability:** Offers a mechanisms to compare different certified products.
- **Modular Approach:** Supports evaluating both low-level hardware (MCUs, MPUs) and higher-level systems.
- **Reusability:** Certification results can be reused across the supply chain, streamlining development.

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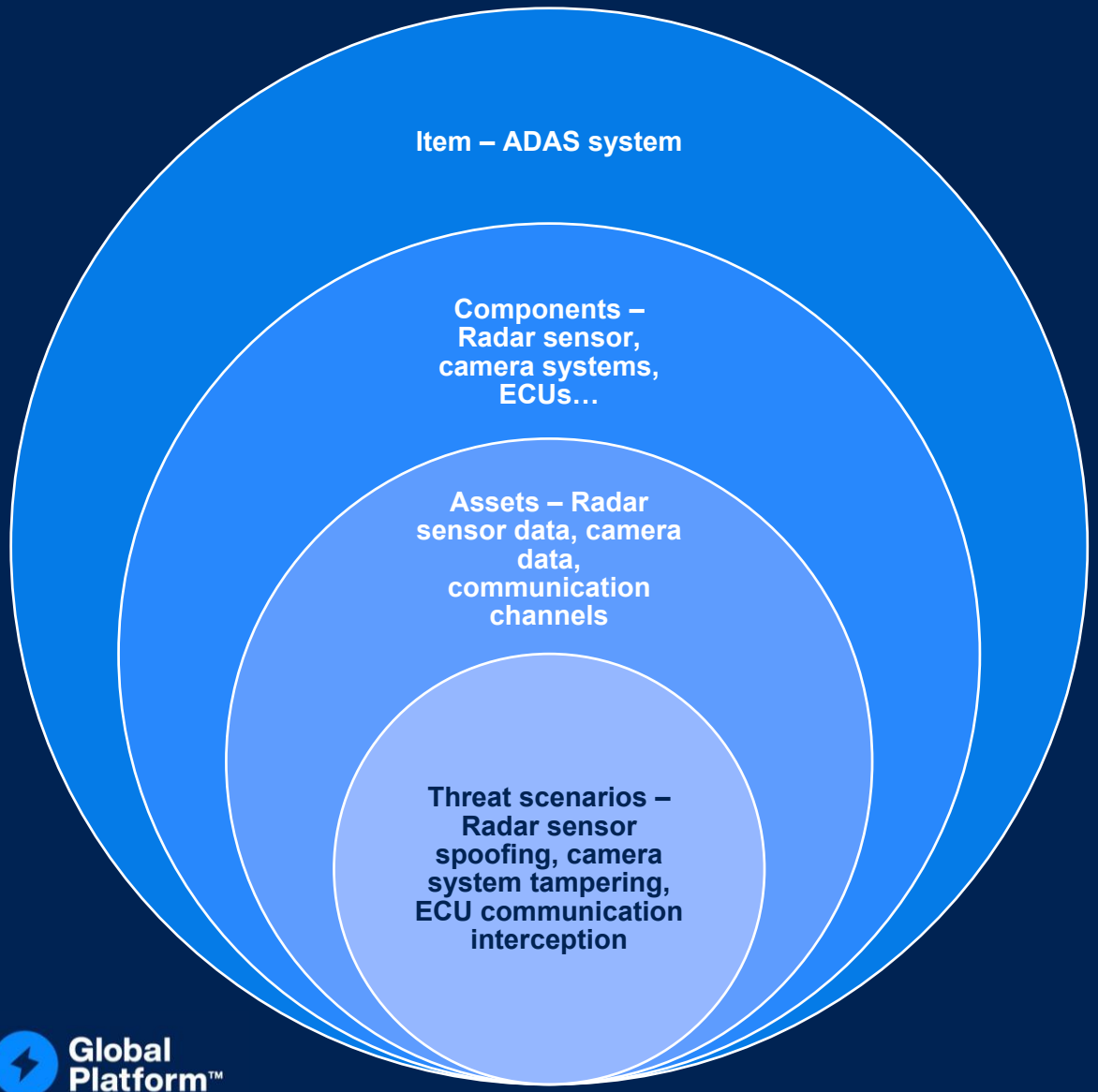
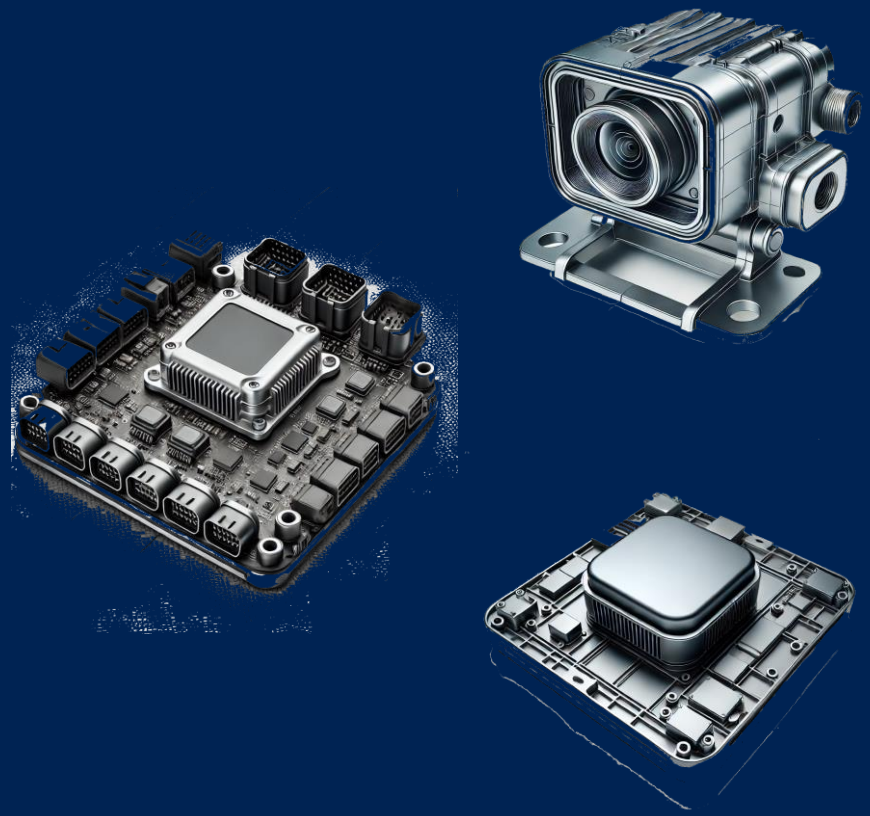
Questions to Jorge Wallace Ruiz DEKRA

What does SESIP bring to the table in comparison to other certification schemes, and how do SESIP Profiles support robust security evaluations in automotive applications?

How can SESIP Profiles be extended to higher-level systems—like ECUs or ADAS—especially in alignment with ISO 21434? And where might ISO 8477 fit into this picture?

SESIP Profiles – From Components to Items





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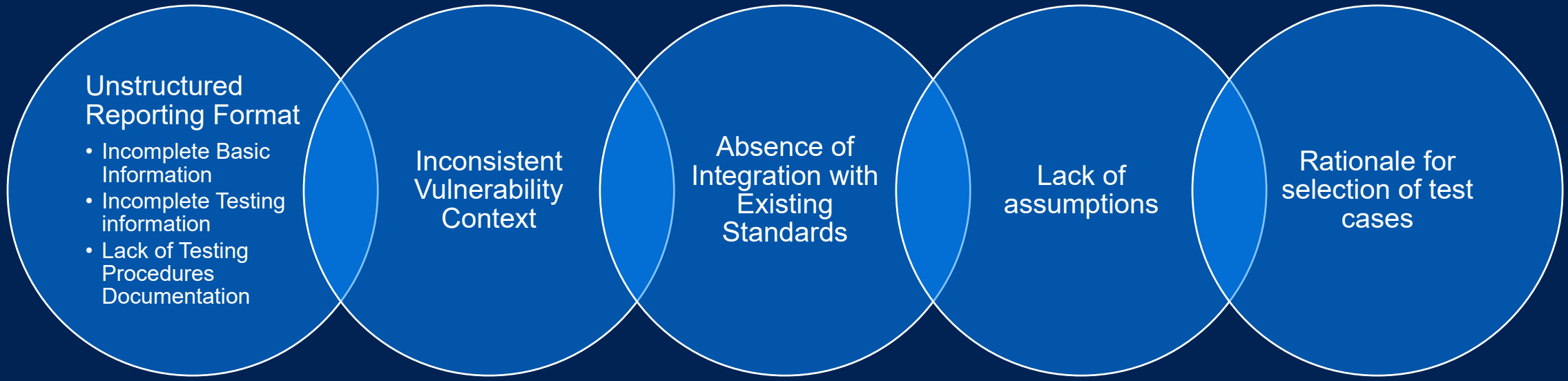
Questions to Jorge Wallace Ruiz DEKRA

What are the current challenges in conducting ISO 21434 security evaluations, and how do SESIP Profiles address these challenges to provide benefits for both hardware and software components in the automotive sector?

ISO/SAE 21434 Testing Method Challenges: Cybersecurity Evaluations

Reports rejected by OEMs and/or Technical Services



Questions to Jorge Wallace Ruiz DEKRA

How could regulators and industry bodies leverage standardized SESIP Profiles to enforce consistent testing and certification requirements in automotive security? Are there any ongoing initiatives to have these Profiles recognized by entities like UNECE or the European Commission?

SESIP Certification Benefits: OEMs

Simplify Verification and Validation Phase

- given composite certification for chips? ECUs? components? etc.

Proves Achievement of Security Targets

Generates artefacts for Type Approval under UNECE R155.

Enhances trust in vehicle cybersecurity for customers and regulators.

Simplifies procurement of secure items or components.

- transparency on security characteristics and interoperability functionality

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Fireside Chat: Priorities in Automotive Security Standardisation

Steve Tengler,
Vice President of Engineering Excellence, Envorso
Bill Mazzara,
Chair of SAE's Vehicle Electrical Hardware Security TF

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