



Cybersecurity in Electric Vehicles

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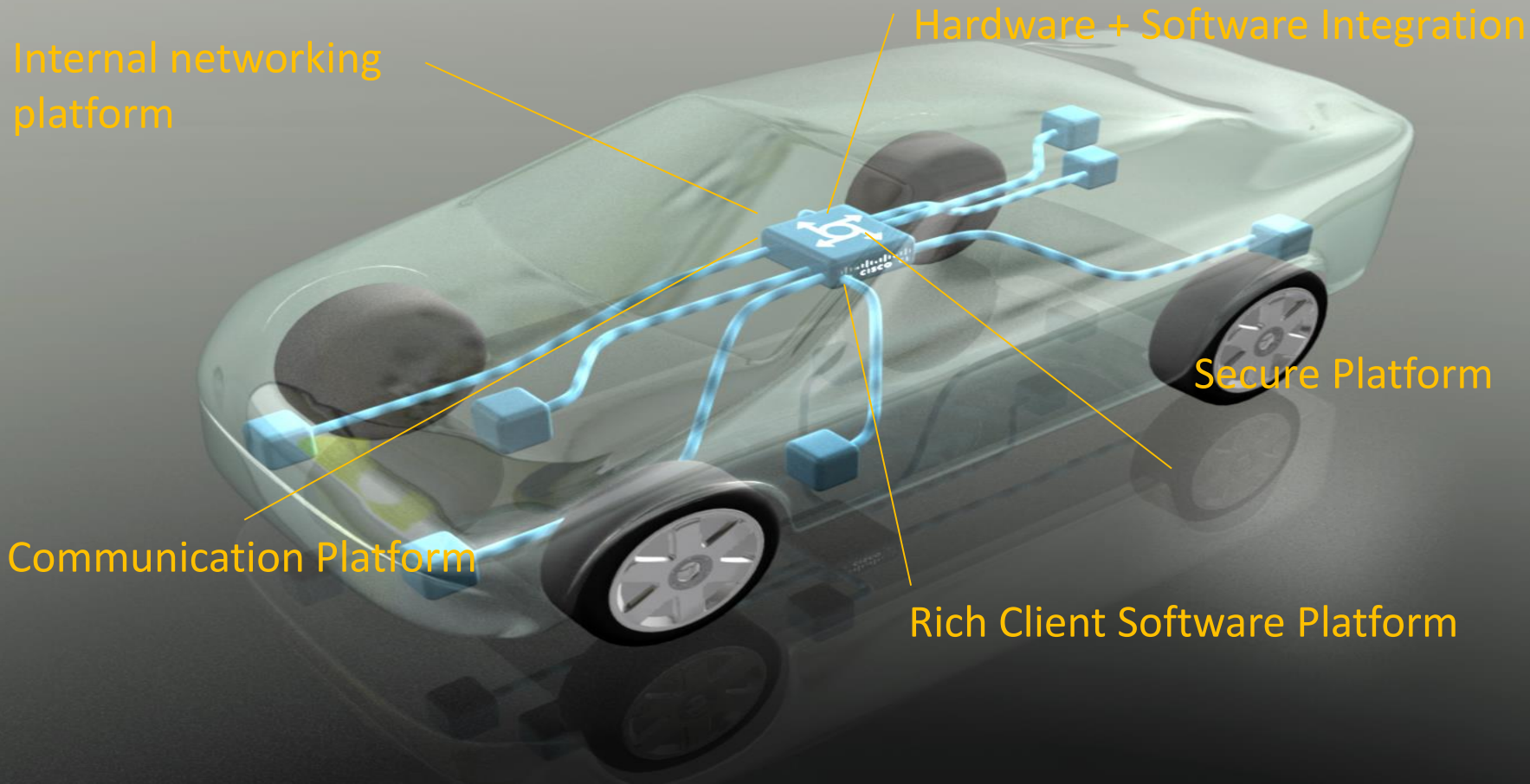
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Various Aspects of Security

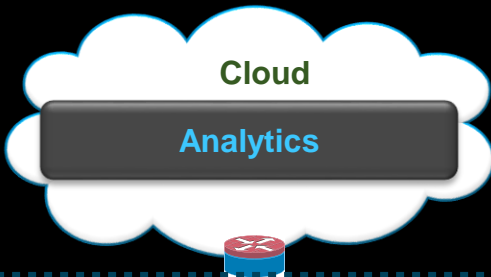
- In-Vehicle Secure Boot
- Intra Vehicle subsystem security
- Vehicle to Grid side controller security
- Vehicle to Data Center Security

In Vehicle Networks

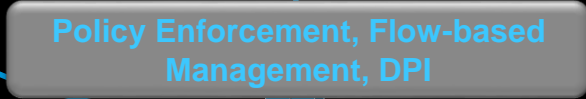


Wireless Power Transfer Architecture

Services

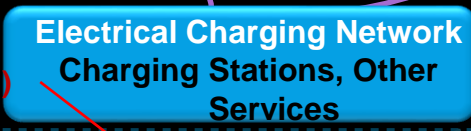


Operation

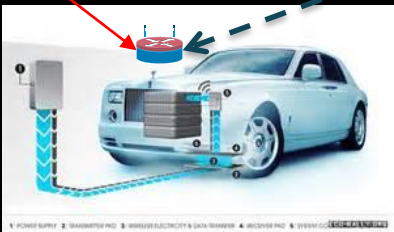


Infrastructure

In-Vehicle Communication Gateway (OBU)



Vehicle

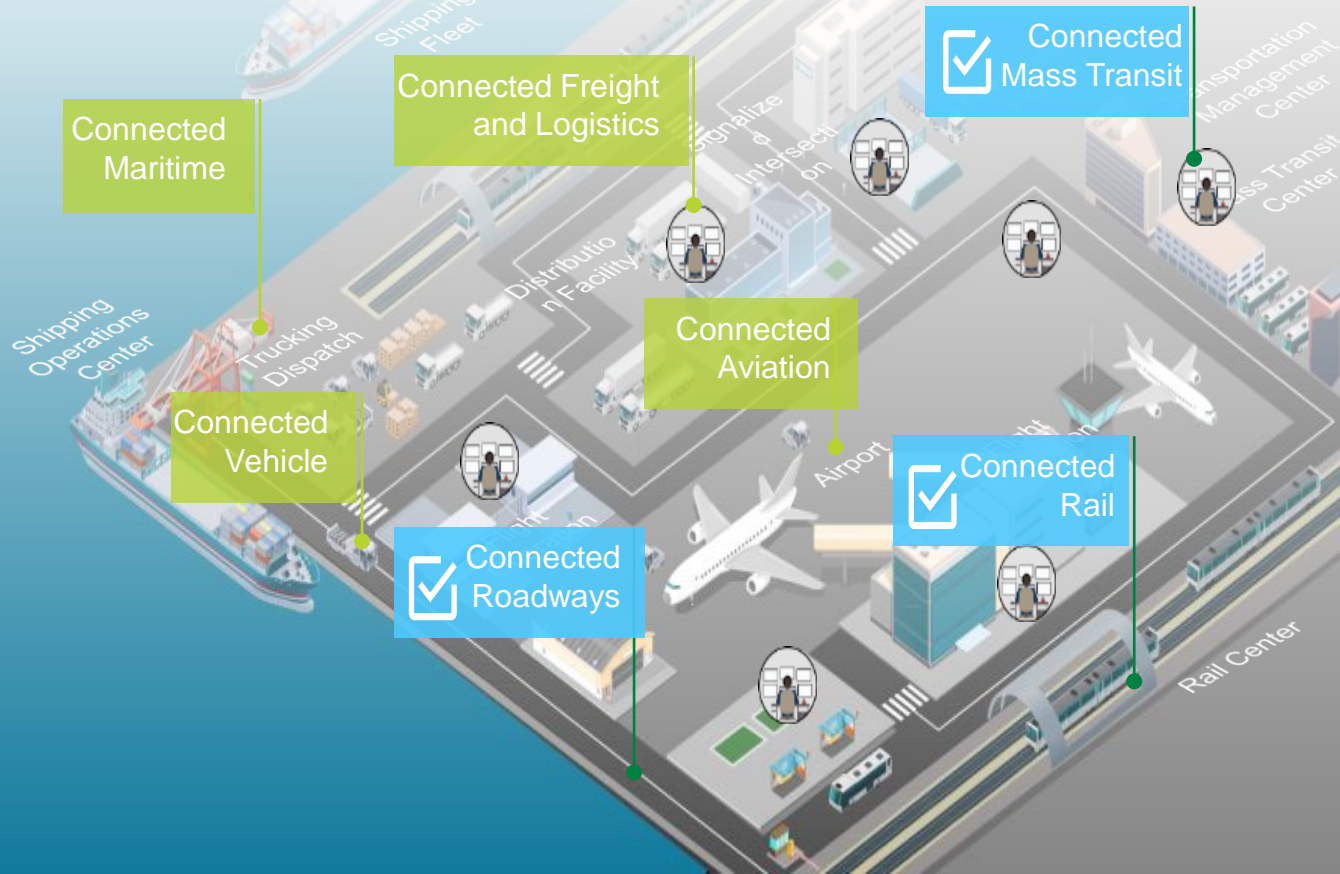


Security Framework Key Elements



- Role-Based Access Control
- Anti-Malware Control
- Identity and Information Rights Management
- Strong Authentication (SmartCard/Bio Metrics/RFID)
- Encryption (Dashboard, Messaging, Content, Vault)
- PKI (Integrity, Source Validation)
- Resilient Platform (Users, Applications, Hardware)
- Network Layer Protection - IPSec/VPN/SSL
- Monitoring, Detection, & Response (DPI/IDS/IPS)
- Careful Partitioning (Physical and Virtual) with Proxies
- Network Level Access Control
- Communications Standards
- Physical Security Controls
- Redundancies

Connected Transportation Sectors



The Cisco Vision

changing the way we
work, live, play, learn... SM



CONNECTED
to the cloud



CONNECTED
within the car



CONNECTED
to personal devices



CONNECTED
around the car

and drive ...