HOW SEMICONDUCTORS ARE ENABLING THE ELECTRIC VEHICLE REVOLUTION

SIA WEBINAR JUNE 8TH 2021

RAY CORNYN VP&GM, AUTOMOTIVE PROCESSORS

SECURE CONNECTIONS FOR A SMARTER WORLD

NXP SEMICONDUCTORS WORLDWIDE

AUTOMOTIVE

Enabling carmakers to develop smarter solutions for complex autonomy, connectivity, and electrification challenges

Accelerating the shift to greater mobility

INDUSTRIAL

Reducing wasted time, money, and effort by helping business run more efficiently.

Enabling more efficient data processing

MOBILE

Giving wearable and mobile devices easier access to the services that make modern life more convenient without compromising security and safety.

Transforming how people and devices connect

SMART HOME

Solutions that listen, learn, and adapt into the places we call home for more comfort, affordability, safety, and convenience.

Powering the intelligence behind the technologies

SMART CITY

Simplifying how people access and interact with local services to achieve new standards of sustainability, efficiency, mobility, and economic growth.

Anticipating the demands of tomorrow

COMMUNICATION INFRASTRUCTURE

Powering insights and inspiring performance with hardware solutions for handling 5G connectivity across the emerging communications spectrum.

Delivering real-time responsiveness at the speed of 5G

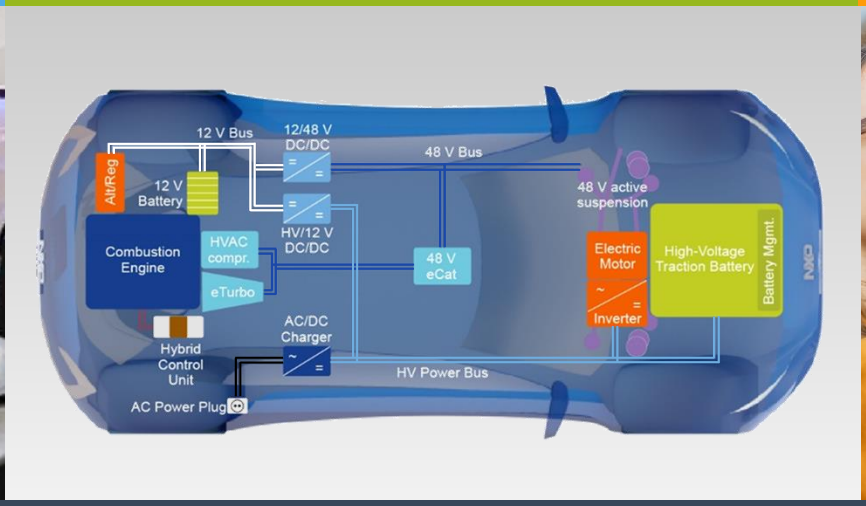
60 years of combined experience and expertise

Operations in more than **30 countries** worldwide

Approximately **29,000 employees**

Headquarters in The Netherlands – **Eindhoven**

NXP AUTOMOTIVE PROCESSORS

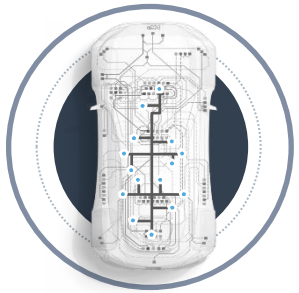


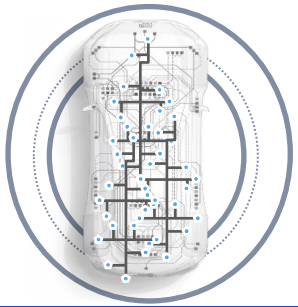
SAFETY

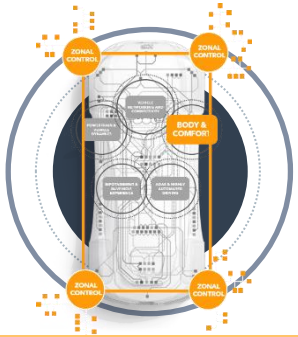
ELECTRIFICATION

CONNECTED CAR

VALUE SHIFT FROM COPPER TO MORE SAFE AND SECURE MPUS & MCUS







	YEAR 2000	YEAR 2010	YEAR 2020	YEAR 2030
TOTAL PROCESSORS PER CAR	~10	~30	~45	~60
DOMAIN/ZONAL CONTROLLERS			EMERGING	~4
LINES OF CODE	4K	10M	100 - 200M	500 - 1,000M
COPPER WIRING	20 m	0.5 Km	1.2 Km	COPPER WIRING REDUCED ~50%
WEIGHT OF WIRING HARNESS	10 Kg	30 Kg	75 Kg	WEIGHT REDUCED ~50%
DATA GENERATED PER DAY	MB's	2-3 GB	50 GB	10-12 TB
DATA TRANSFER PER DAY	MINIMAL	50 MB	1-2 GB	40-50 GB

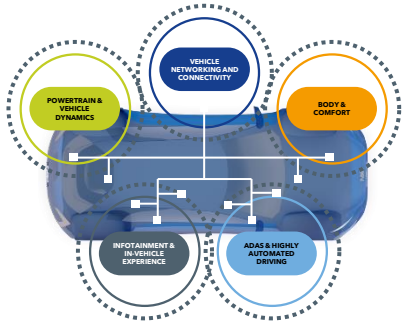
Source: Strategy Analytics, OEM/Tier1 public statements, New York Times, NXP CMI

LOGICAL AND PHYSICAL TRANSITIONS ACCELERATE MPU & MCU NEW FUNCTIONALITY

TODAY
TRADITIONAL
FLAT ARCHITECTURE

2025+
DOMAIN PLUS ZONALIZATION
PLATFORMS

FUNCTIONAL SOFTWARE DOMAINS



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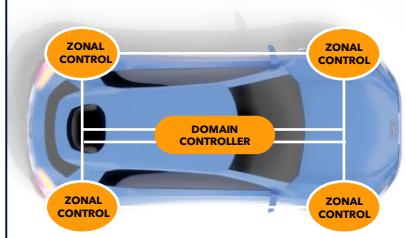
ZONAL TOPOLOGY



TWO PARALLEL ARCHITECTURAL CHANGES

1 **DOMAIN FOCUS: SCALABLE AND CENTRALIZED SOFTWARE DEVELOPMENT**

1. Flexible & scalable software environment
2. Efficiently supports the user defined vehicle
3. Centralized OTA, easily upgradable Software

+

2 **ZONAL FOCUS: SIMPLIFIED WIRING AND CONNECTIVITY**

1. Dramatically reduced wire routing and cable costs
2. Flexible data monetization
3. Easily upgradable Hardware

AUTOMOTIVE PROCESSORS AND APPLICATIONS:

CORE VEHICLE PLATFORM DOMAINS

Focused on **safe control** and driver comfort

Auto quality: Robust, **safe, secure** and reliable

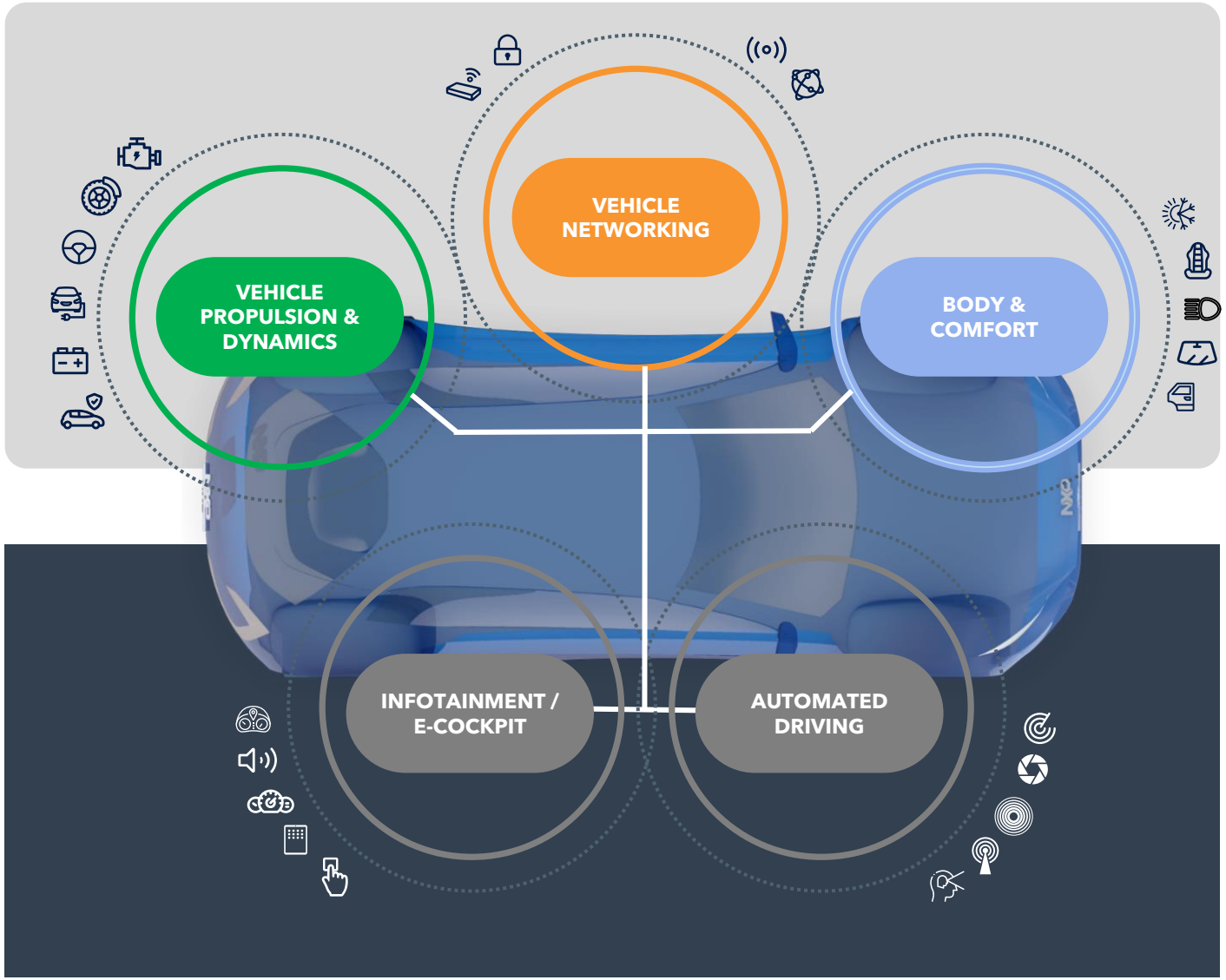
Foundational across all types of vehicles

OPTIONAL AND MODEL DEPENDENT DOMAINS

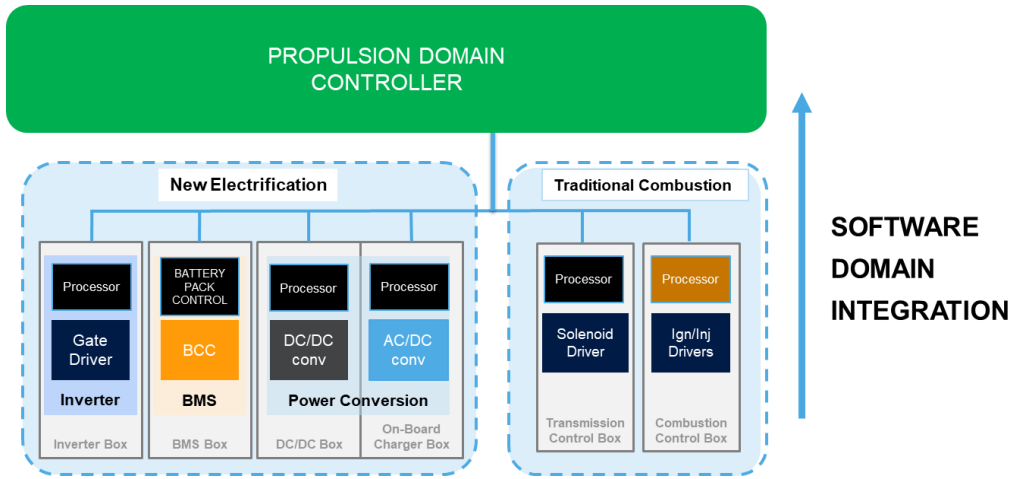
Regularly upgraded

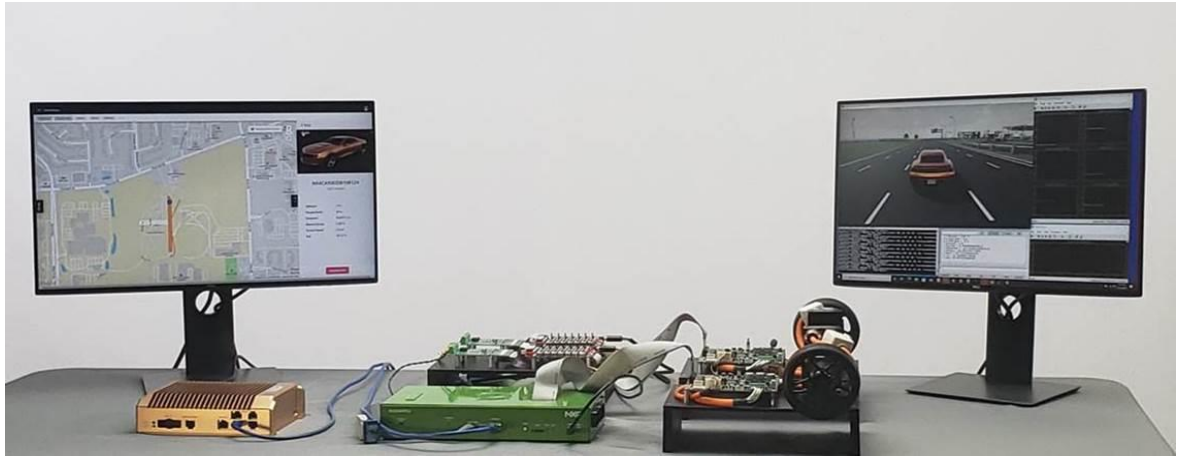
Optional features across a vehicle line

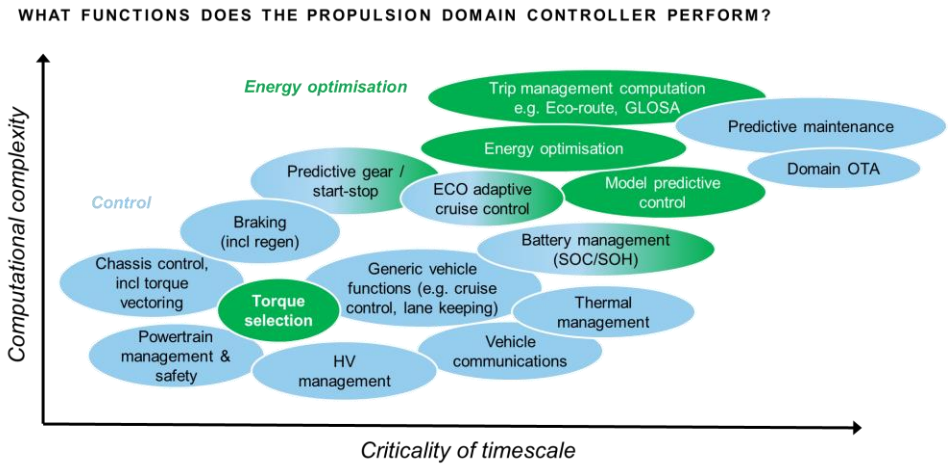
Fashion and time sensitive



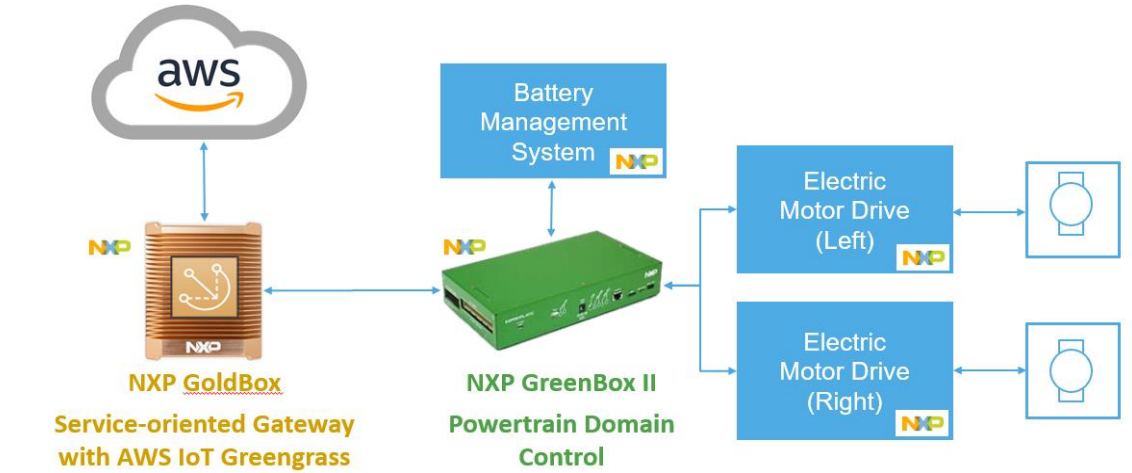
NXP-AWS CONNECTED ELECTRIC VEHICLE MANAGEMENT SOLUTION DEMONSTRATION







AWS Connected Mobility Solution

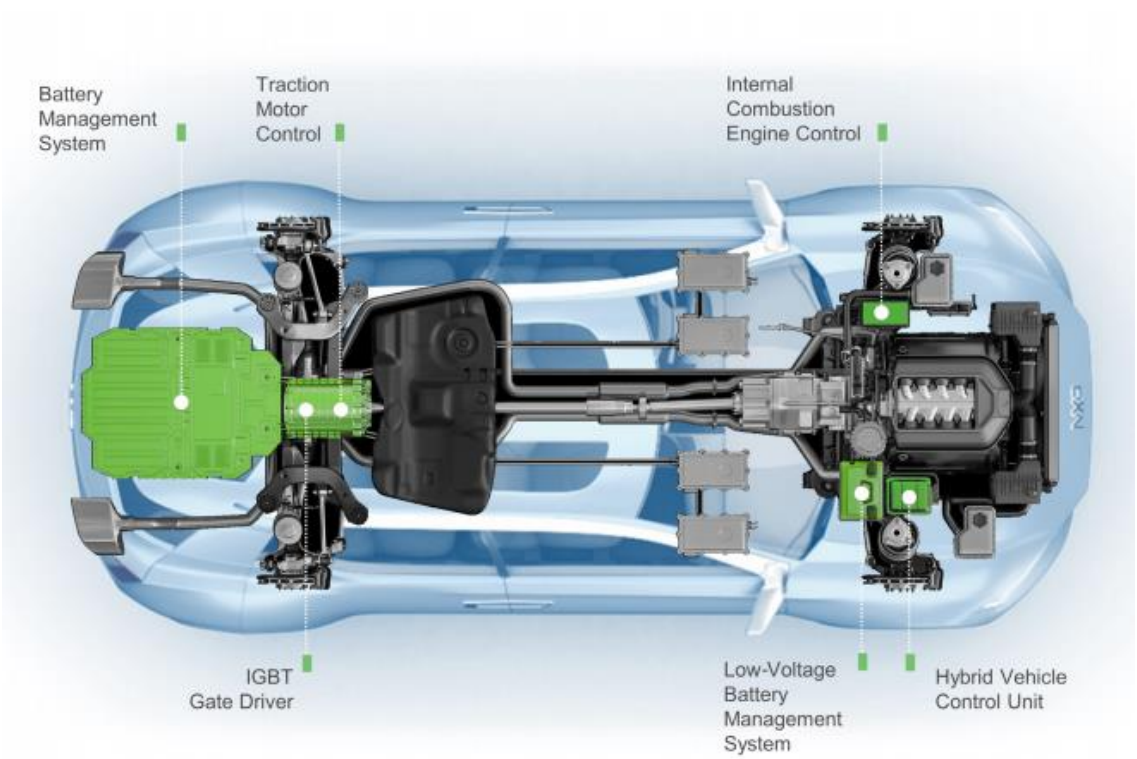


NXP AUTOMOTIVE PROCESSORS ELECTRIFICATION FOCUS

Battery Management

Electric Motor Control

xEV Domain Control



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FOR A SMARTER WORLD