Introducing NXP S32 CoreRide Platform for SDV Development

恩智浦用于软件定义汽车开发的 S32 CoreRide 平台介绍

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Waves of innovation through software + hardware integration

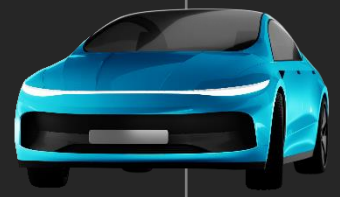
New levels of performance across industries

- Computing
- Smart phones
- Networking equipment

- Wearable technologies
- Smart home devices
- Gaming consoles

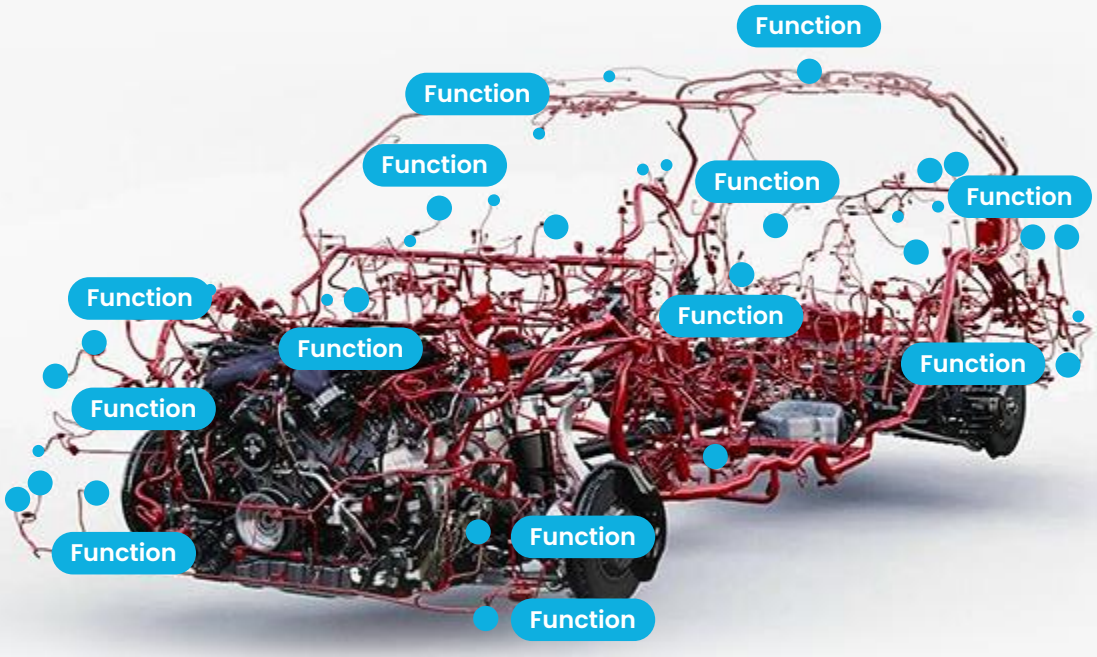
- Portable healthcare and biotechnology
- Game streaming
- Augmented virtual reality
- AI and machine learning accelerators

Software-defined vehicles



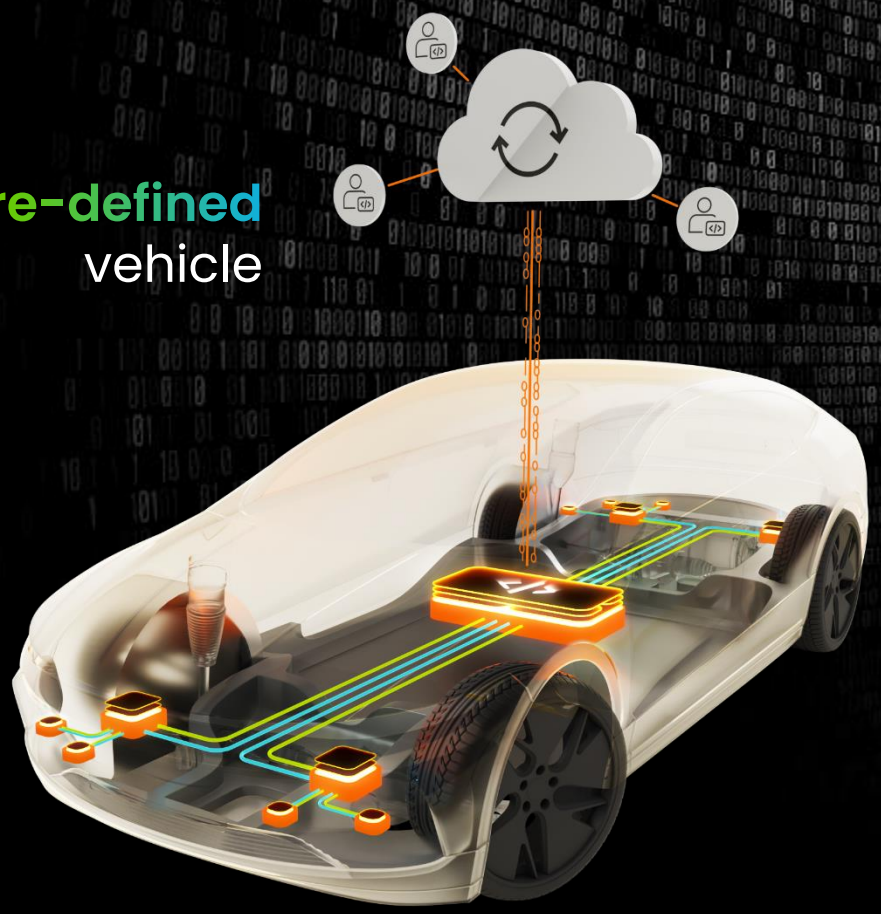
Vehicle transformation underway

From **hardware-oriented** vehicle



- Functions **tied to ECUs**
- **Static** architecture
- Exponential increase in **complexity**

To **software-defined** vehicle



- Functions can be **anywhere in the vehicle**
- **Flexible** architecture
- **Simplification** of implementation

Software creates new business paradigms for automotive

Engineering efficiencies

E/E and system BoM

Software R&D

System-wide power and energy use

Easily updated software

Speed time-to-market

Freedom to innovate

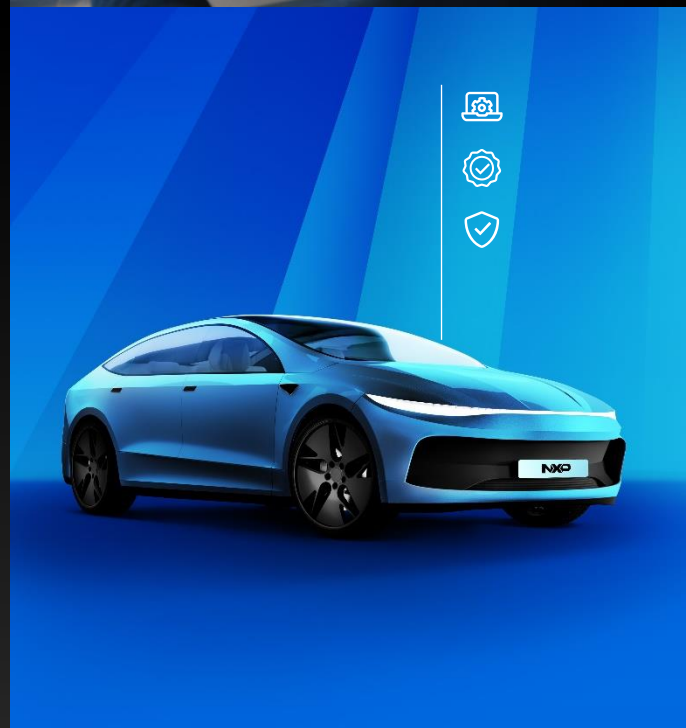
New value creation

Data-driven revenue streams

New features after vehicle is sold

Predictive maintenance

Customization and personalization

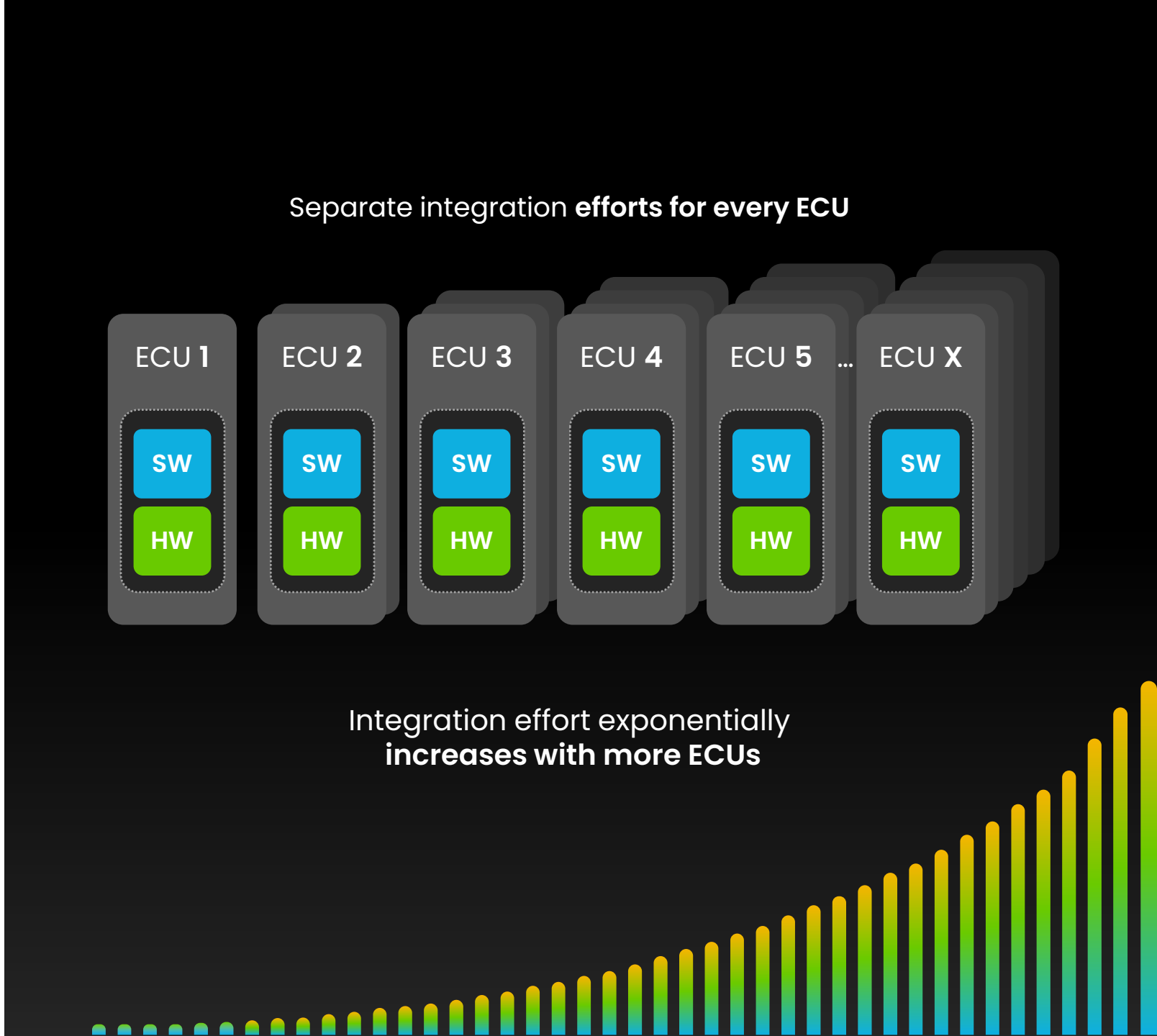


Automakers must navigate mounting integration complexity

ECUs contain 10s to 100s of components from both hardware and software vendors

Discrete ECUs require separate integration efforts of hardware and software

Features and variants drive complexity

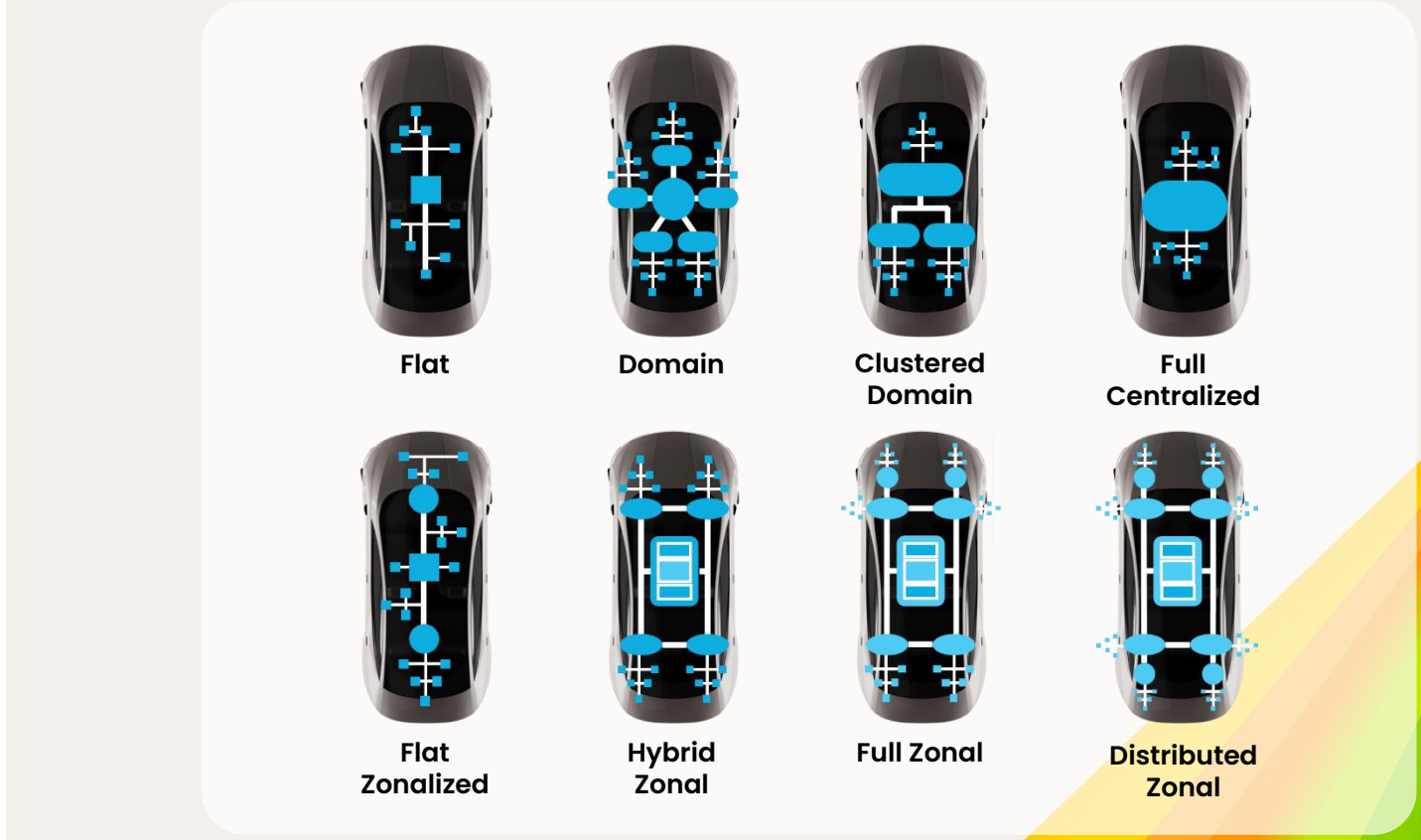


Multiple vehicle classes and architectures require scalability

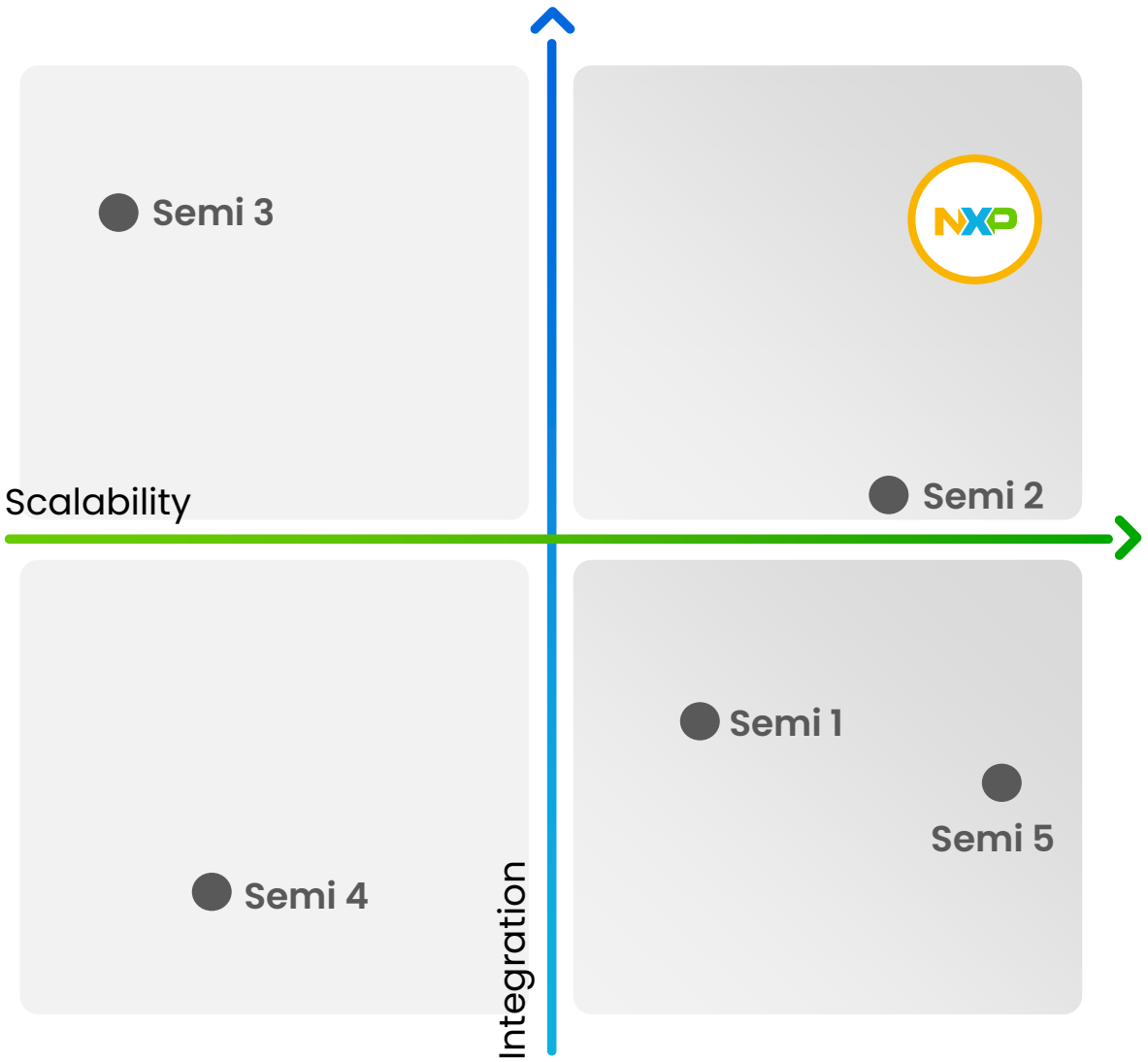
Multiple E/E architecture types evolving with different configurations, performance, and memory requirements

Different vehicle classes drive many combinations of features and ECUs

- ~25 ECUs in low end up to ~150 in high end classes



NXP positioned to provide a platform to address market requirements



Scalability

Performance

Memory

Networking breadth

System power management

Comprehensive E/E architecture coverage

Integration

Driver, OS and middleware offering

Optimized software for hardware accelerators

Pre-integrated software and hardware

Source: NXP research, web site data

Announcing on March 28, 2024

NXP Breaks Through Integration Barriers for Software-Defined Vehicle Development with Open S32 CoreRide Platform

Industry-first platform combines processing, vehicle networking and system power management with integrated software
Addressing the complexity, scalability, cost-efficiency and reduced development efforts required for next-generation vehicles

NXP collaborates with market-leading software and tier-1 suppliers
Providing an easy-to-use vehicle integration platform that maximizes system performance

NXP also introduces new S32N family of super-integration processors with best-in-class real-time performance
Enabling S32 CoreRide central compute solutions, empowering OEMs with efficient and flexible processing choices

Every vehicle is built on core functions

Essential to the operation of the vehicle

High levels of real-time performance

Stable and long-lasting

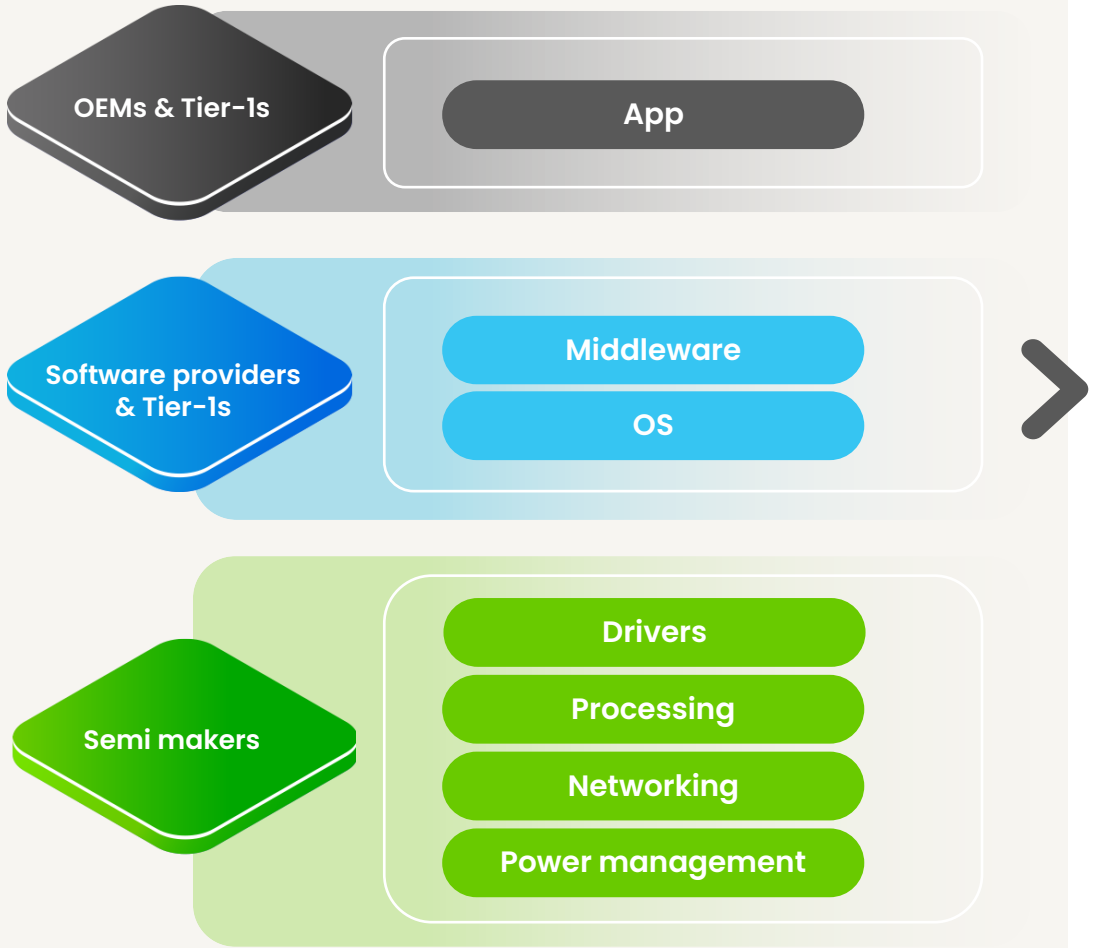
Highest levels of safety and security

- Motion and dynamics
- Body functions
- Energy management
- State control
- Resource manager
- IVI
- Networking
- Data intelligence
- Vehicle Security
- Vehicle Health
- ADAS fusion & safety
- ADAS perception

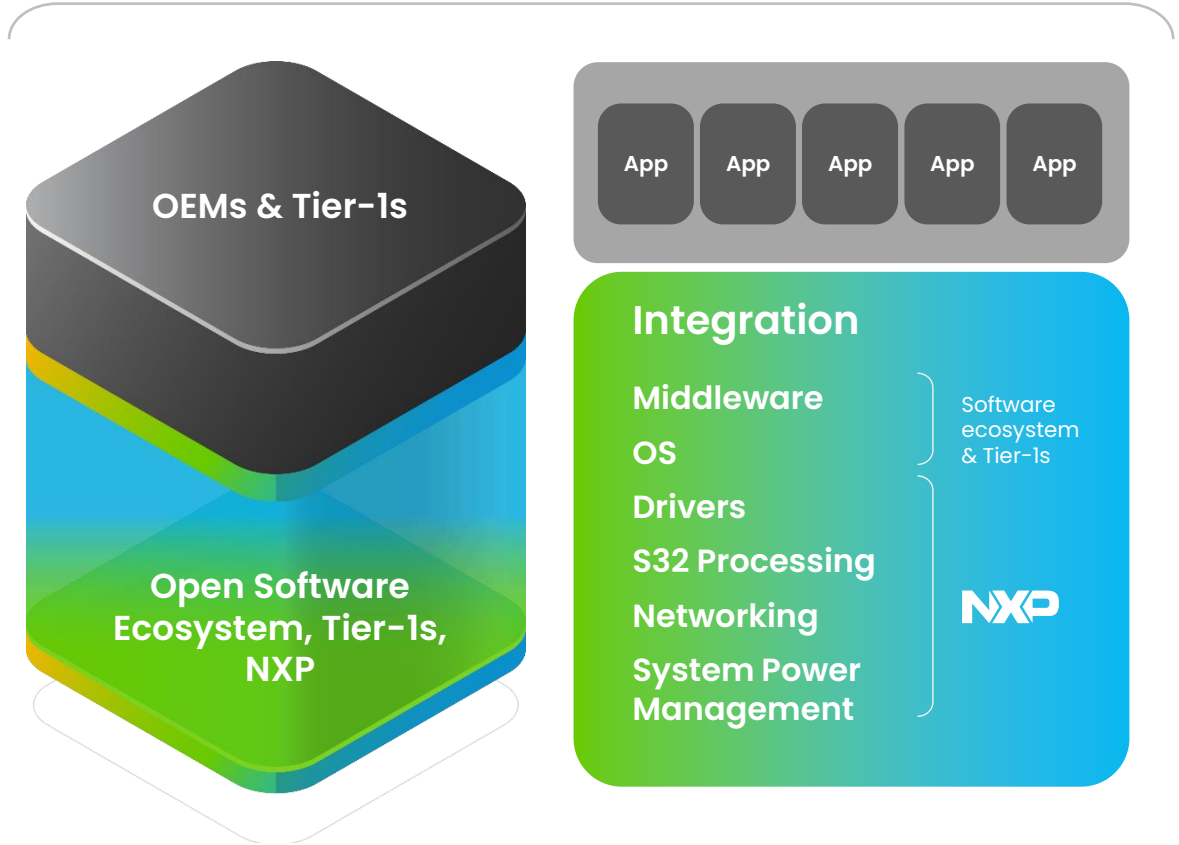
NXP S32 CoreRide open platform

Reduces development complexity and breaks through integration barriers

Traditional Development



S32 CoreRide Platform

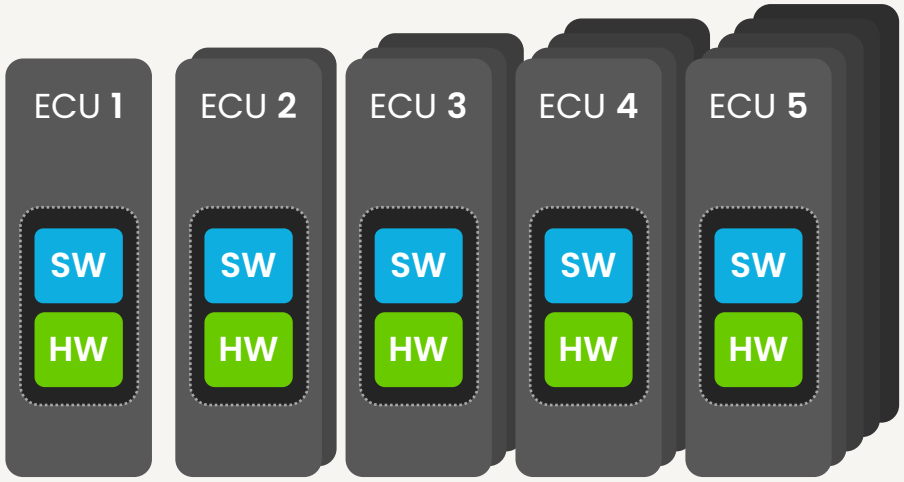


NXP S32 CoreRide Platform

Enables safe and secure ECU consolidation

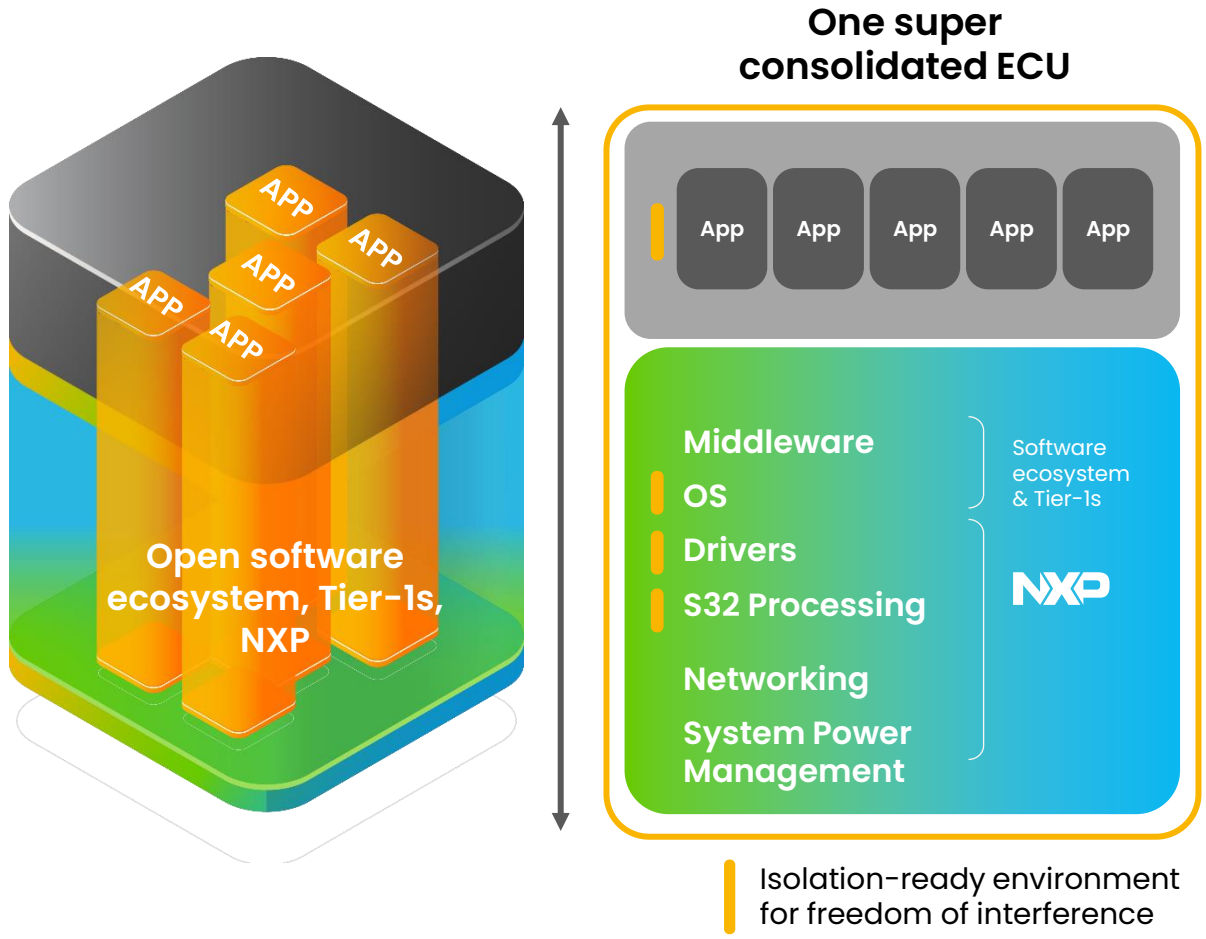
Traditional architecture

Multiple ECUs and integration efforts



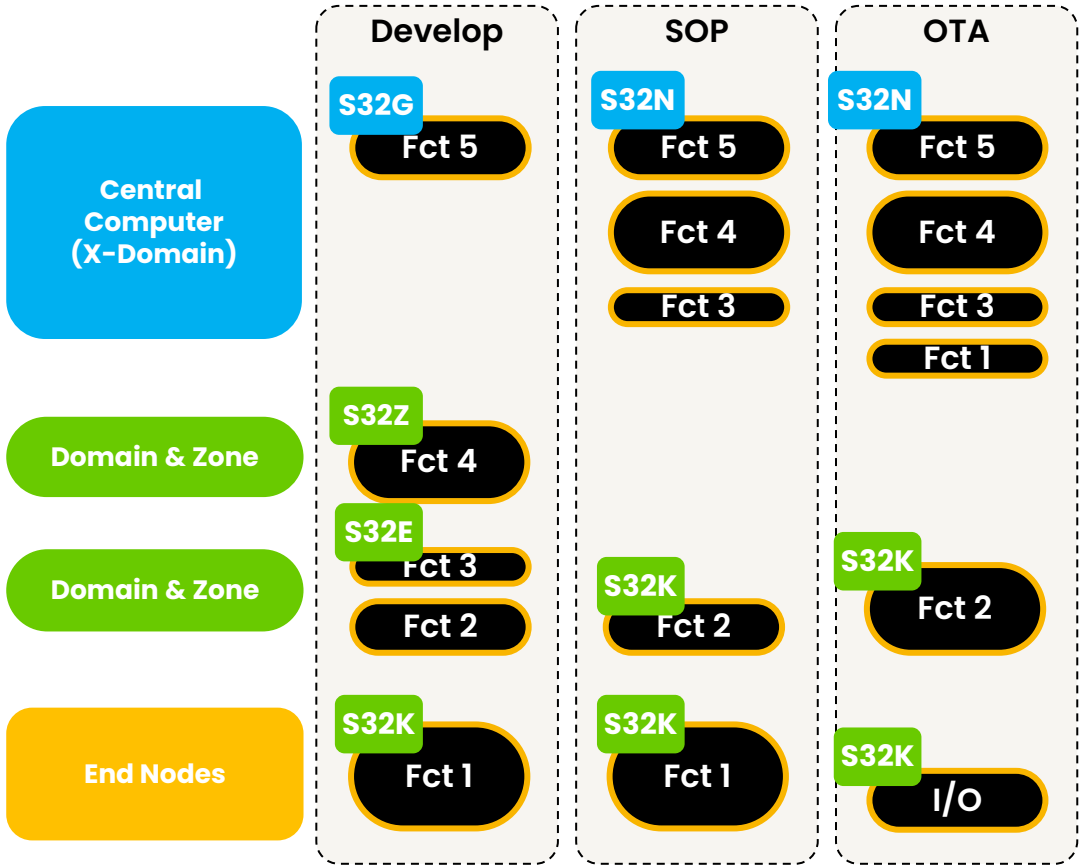
With S32 CoreRide Platform

Consolidate ECUs and reduce integration efforts



S32 CoreRide platform – freedom to adapt function distribution - before & after SOP

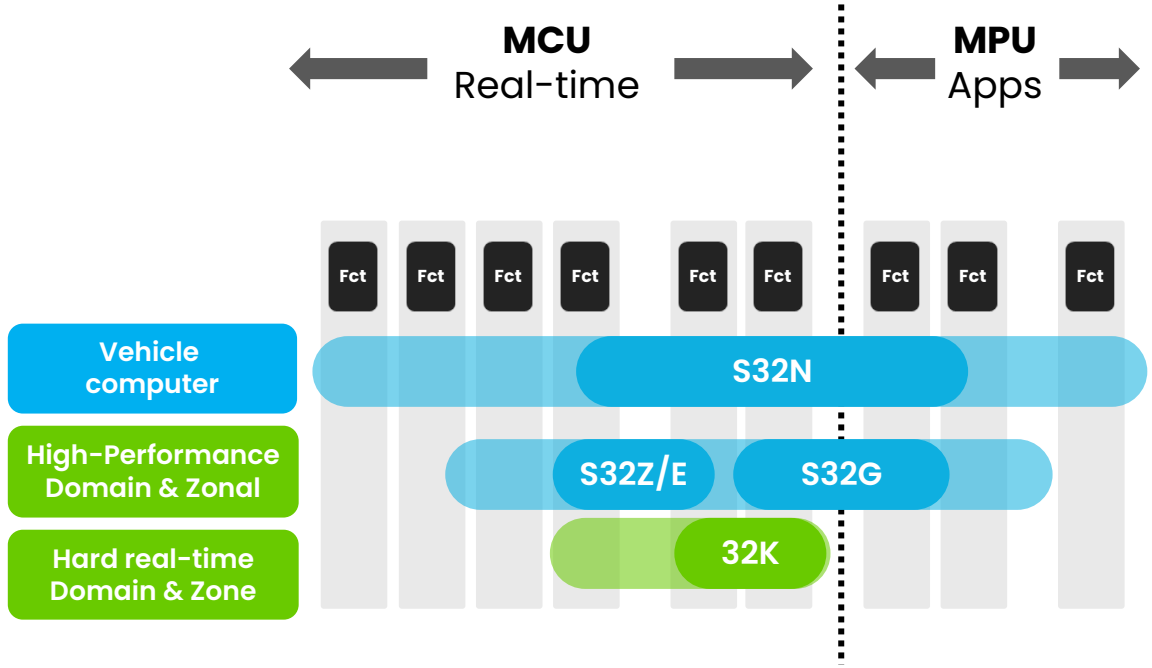
Software-defined, hardware-enforced isolation, resources & network management



NXP Scalable Ethernet, CAN, PMIC

Common safety & security concepts
Re-use existing SW stacks or
migrate to new SW technologies

Grow consolidated functions
Extend resources before & after SOP
Adapt networks dynamically

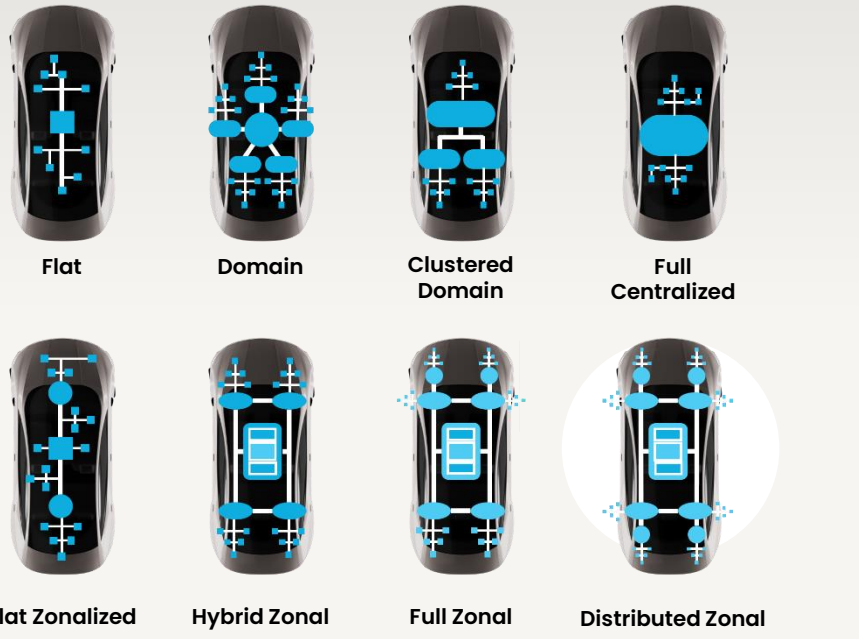


Portfolio enabling scalable levels of consolidation
Upgradable, step-wise path to full SDV

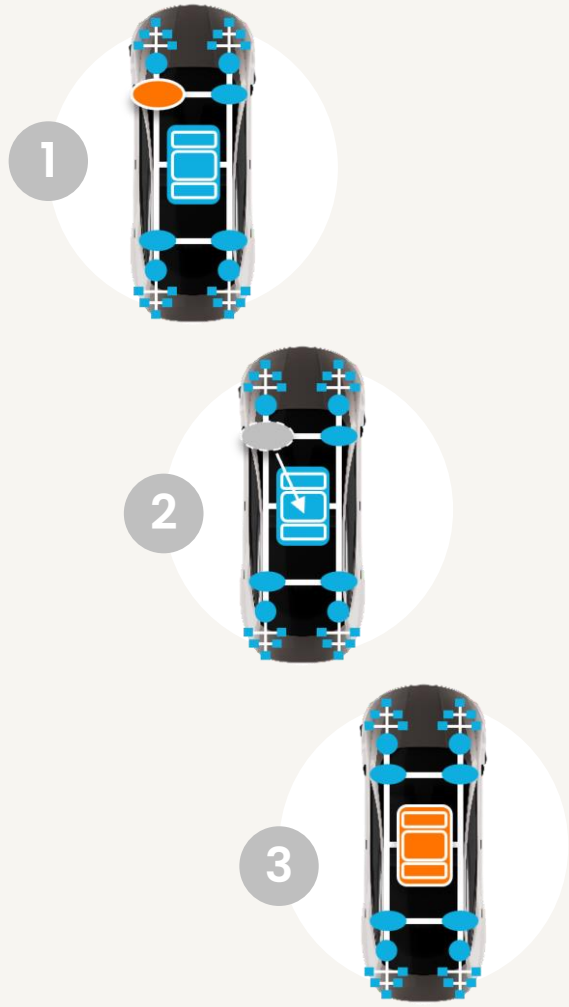
*IREE – isolation-ready execution environment for freedom of interference

NXP S32 CoreRide platform enables flexibility across architectures and design choices

Flexible design choices across architectures



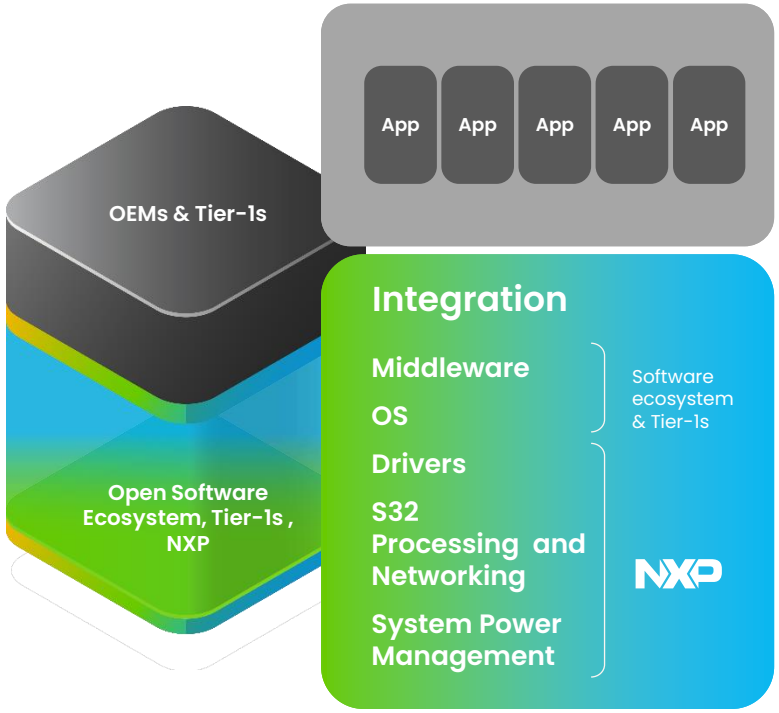
Flexible function movement within architectures



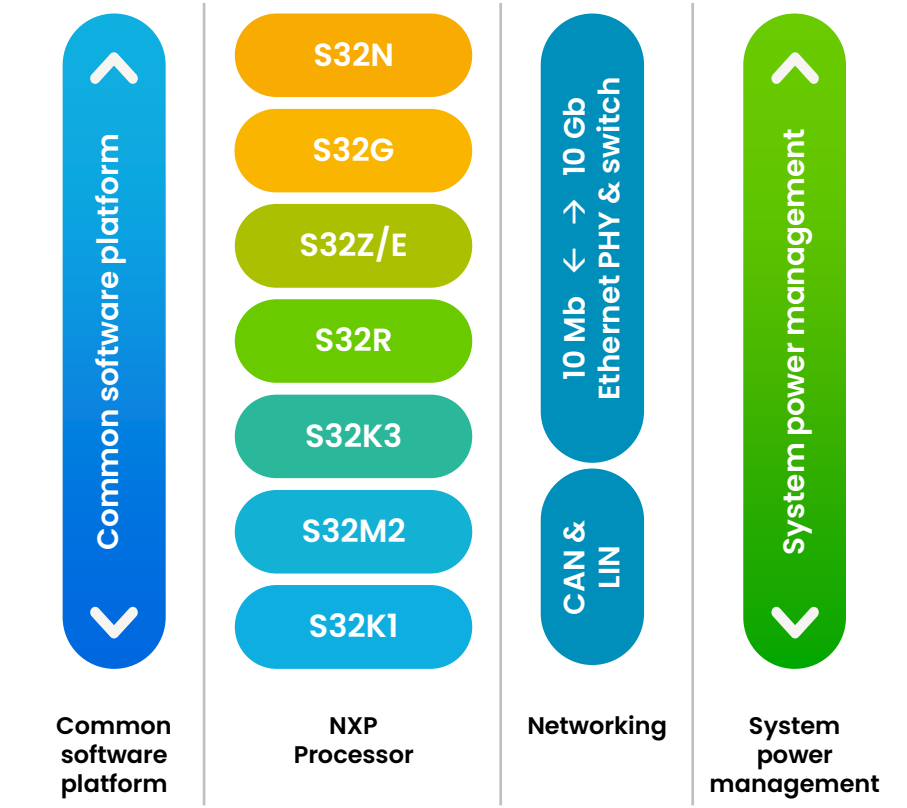
NXP S32 CoreRide Platform

Integrated and scalable open platform for every vehicle

Integration



Scalability



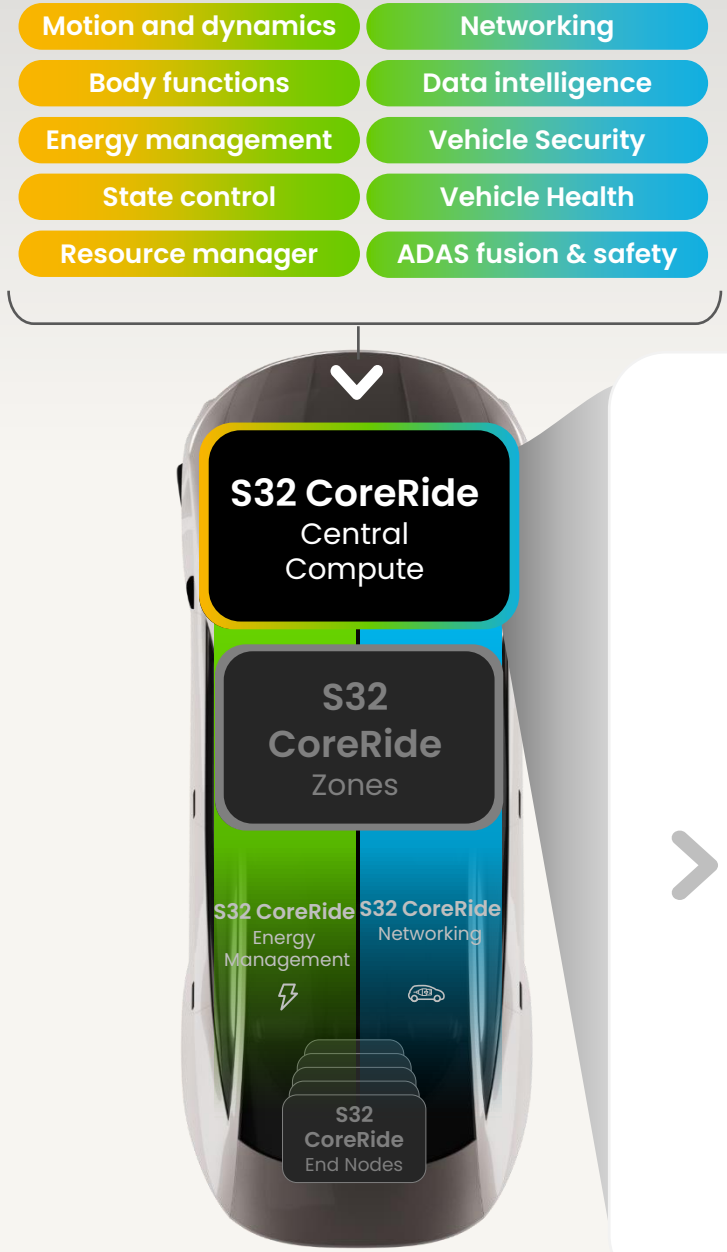
Industry first

NXP S32 CoreRide central compute solution

Industry-first solution for safe, super-integration of vehicle functions

Features hardware isolation and virtualization

Enables freedom from interference



S32 CoreRide Software Ecosystem

Security services
OTA management
Network configuration
Network management (SDN)
Vehicle State Management
Security services
Diagnostics

NXP S32N

Super-integration of functions
Best-in-class, real-time performance
Scalable across real-time and application processing cores

S32 CoreRide
co-developed with ecosystem leading partners

Integration

- Applications expertise
- Software integration
- Infrastructure middleware
- SOA middleware
- Hypervisor
- OS

Software ecosystem & Tier-1s

- Drivers
- S32 processing
- Software-defined networking
- System power management

NXP

Software Partners, Tier-1s

Middleware, OS and Hypervisor

accenture
诚迈科技 ARCHERMIND
BlackBerry
QNX
Elektrobit
ETAS
Green Hills SOFTWARE
SONATUS
SYNOPSYS
TTTechAuto
Valeo
VECTOR
WINDRIVER

NXP ready to drive the industry forward with open S32 CoreRide Platform

Hardware and software co-design
for optimal performance, safety and security

Pre-integrated open platform
to remove complexity, and offer time-to-market and cost benefits

Largest scalability
enabled by the broadest portfolio for E/E

Flexibility
tuned to customer architectures and design choices

First vehicle super-integration processors
in the market

Brighter
Together

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