

Evolving Automotive EEA: Key Trends in Compute, Networking, and Control

汽车电子电气架构的演进: 计算、网络与控制的关键趋势

Zhang Hui 张辉

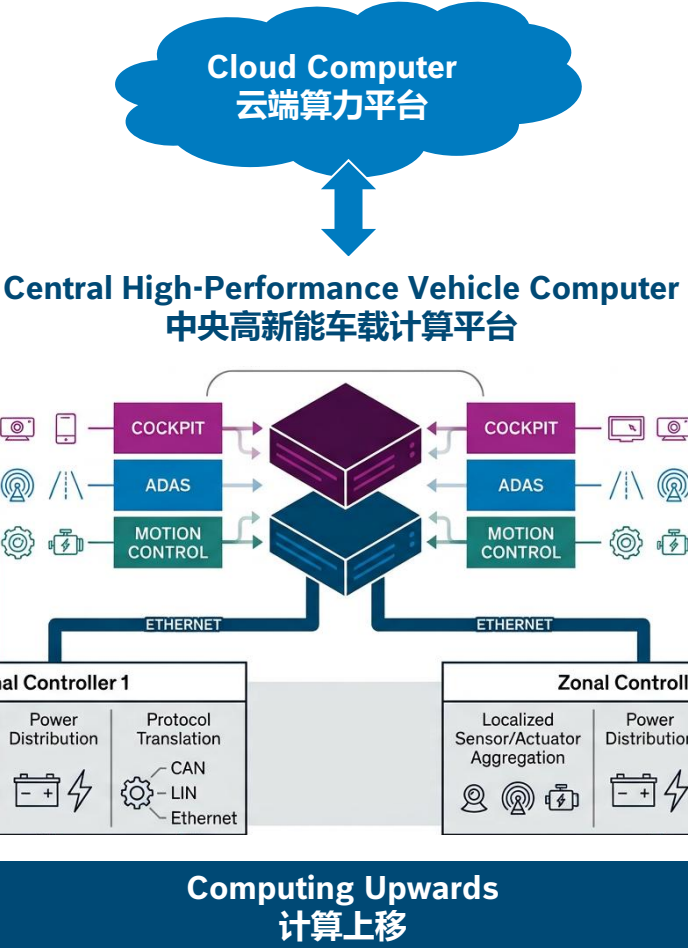
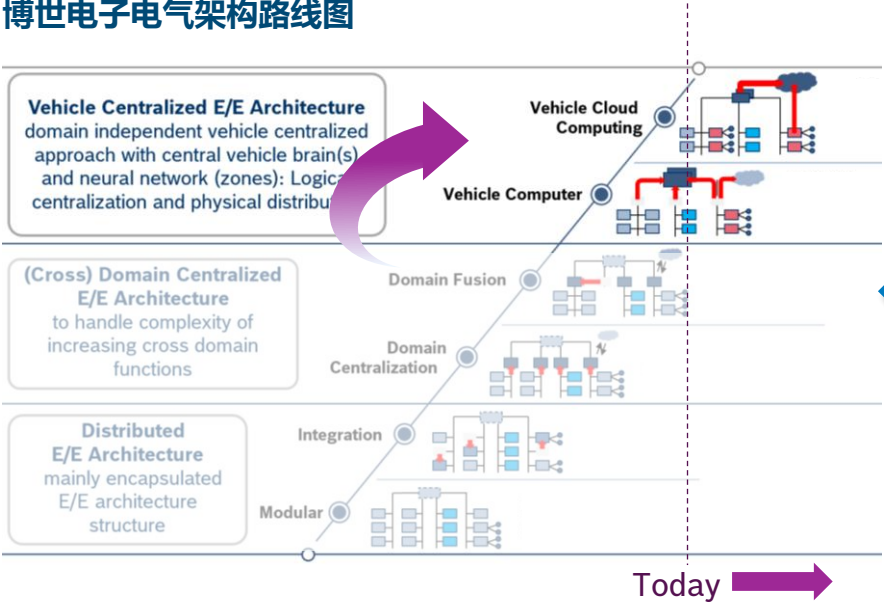
Technology & Engineering China

2026-09-16



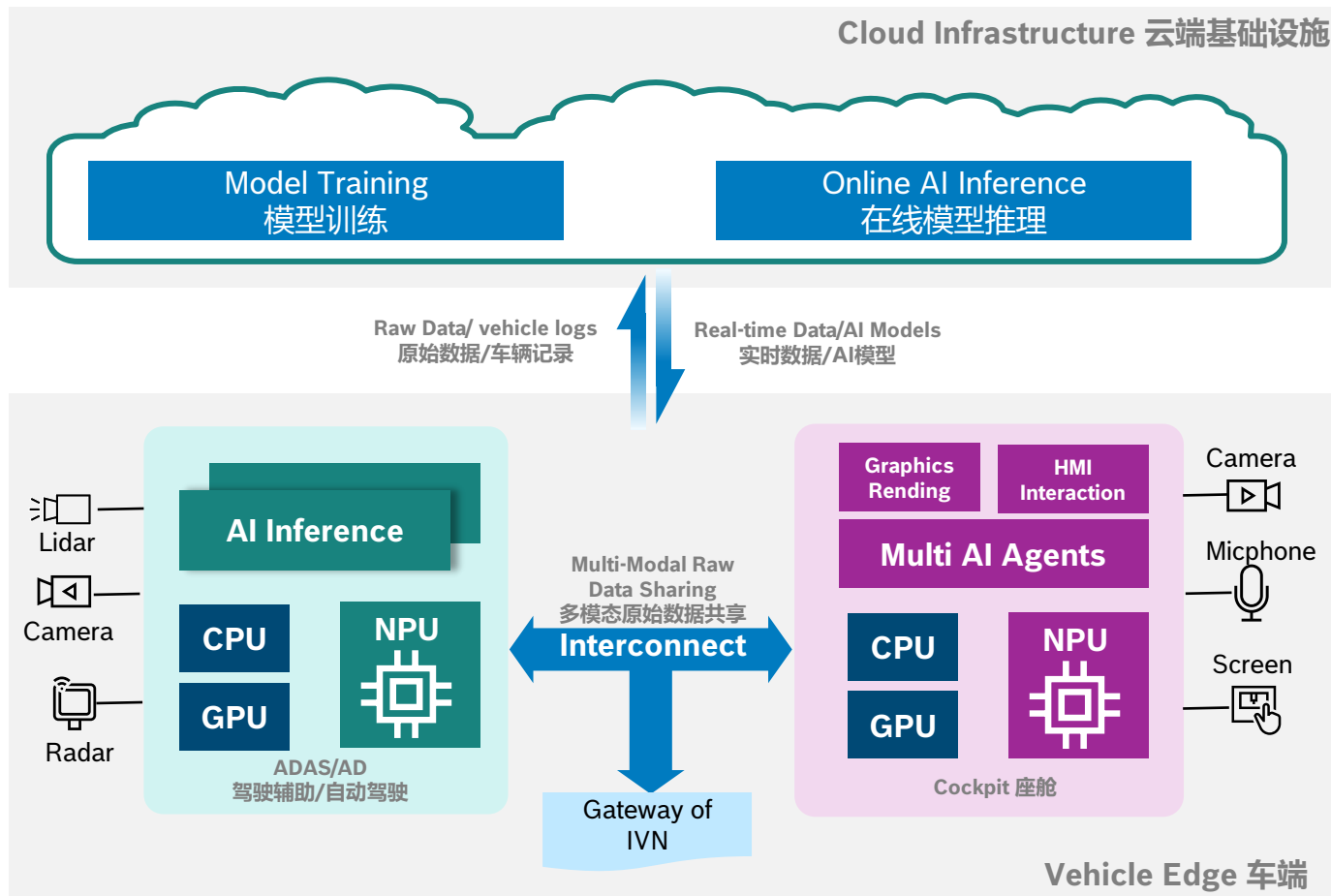
Centralized EEA Upwards 持续上移的中央架构

BOSCH EEA Roadmap 博世电子电气架构路线图



Backbone ComNet Evolution Shaped by AI

AI影响下的主干网络



Upgrade of Backbone ComNet 主干网络的升级

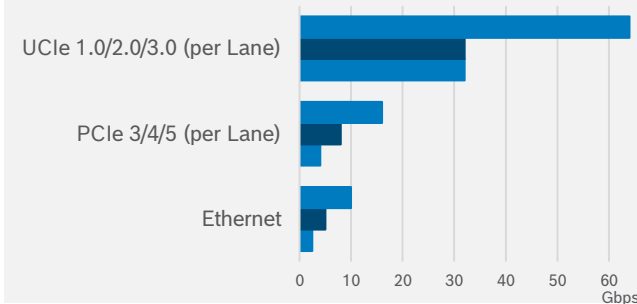
Wireless Connectivity 车载无线连接

“
Tesla unveils first Cybercab with Starlink antenna integrated

1 Fred Lambert | Aug 10 2026 - 11:38 am PT | 65 Comments



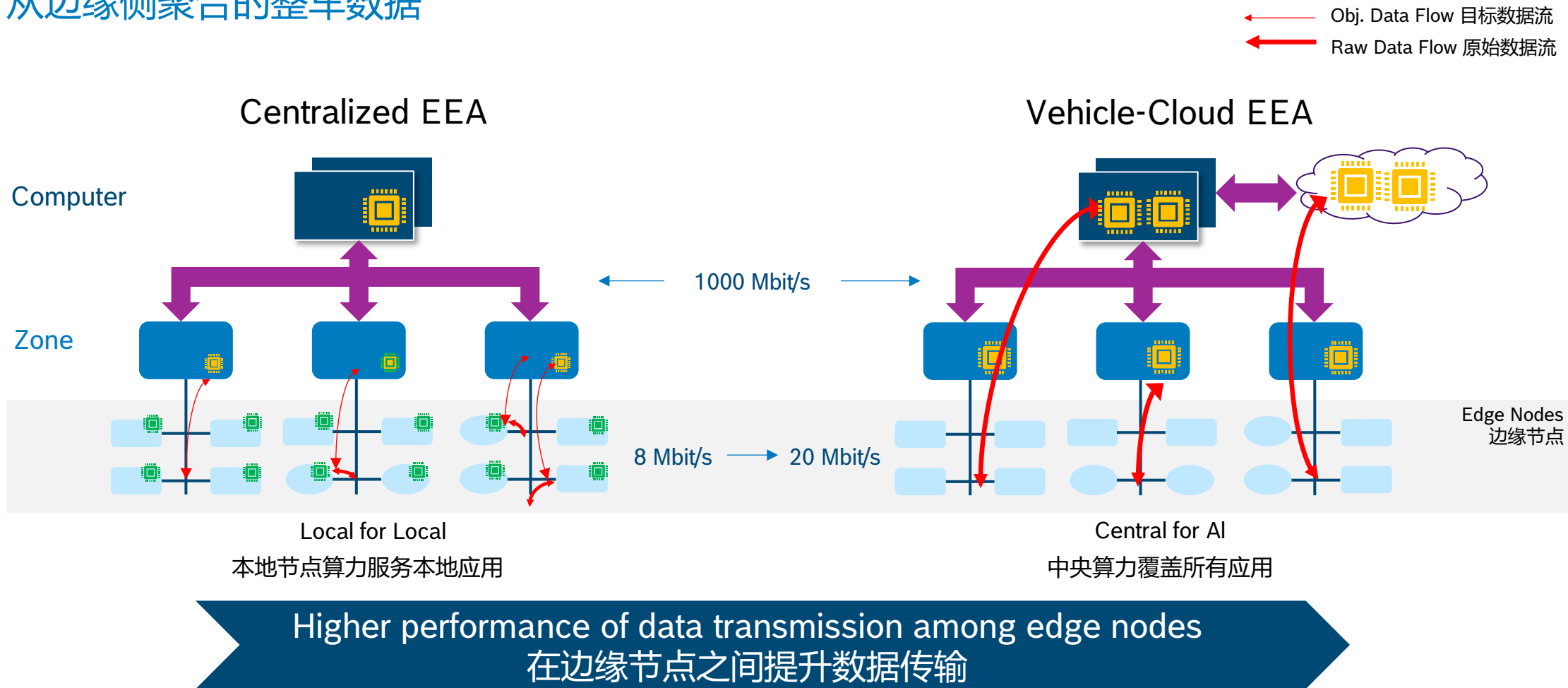
Interconnect 车载内联技术



Evolving Automotive EEA: Key Trends in Compute, Networking, and Control

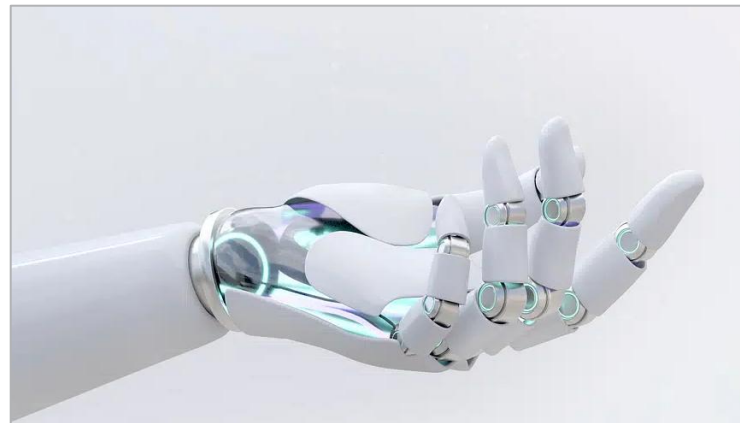
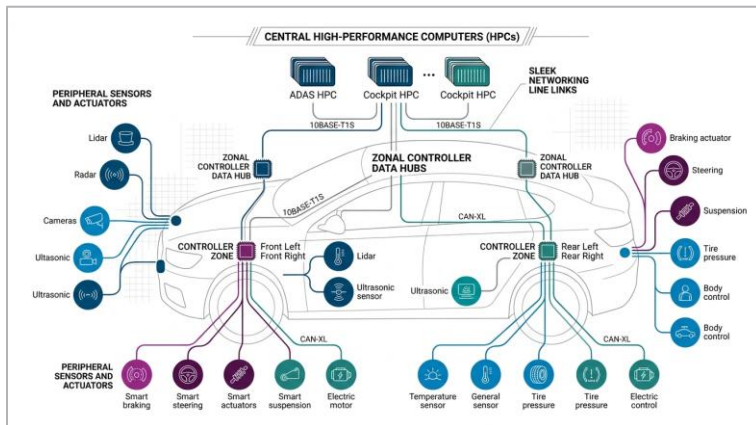
Aggregation of Vehicle Data from Edge Nodes

从边缘侧聚合的整车数据



KPIs of the Network “Last Mile” 网络中“最后一公里”的关键指标

Transition of Physical AI 物理AI的演进



Deterministic/Real-Time 确定性/实时性



Critical control loops demand strict latency bounds without jitter.

Cost & Space Efficiency 成本与空间的效率



Connecting dozens of commodity edge devices requires ultra-low transceiver silicon cost and small chip footprint.

Unified Data Backbone 统一化的数据主干报文



Protocol encapsulation to bridge localized control traffic directly into upper-layer IP/Ethernet backbones without protocol translation loss.

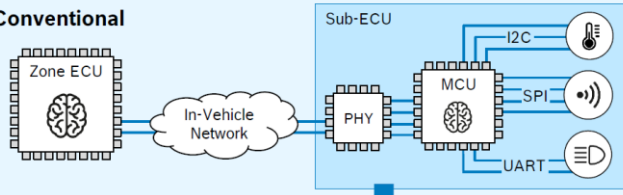
Evolving Automotive EEA: Key Trends in Compute, Networking, and Control

Path to RCP Adoption: Addressing Constraints

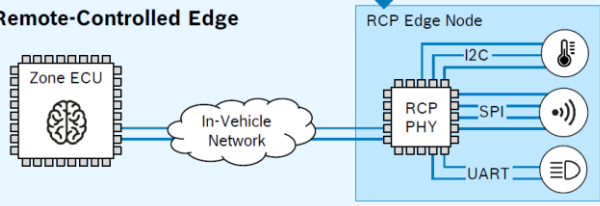
RCP 落地路径：应对各项约束条件

RCP(Remote Control Protocol)

Conventional

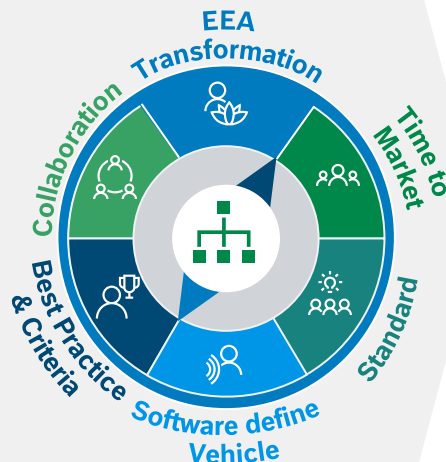
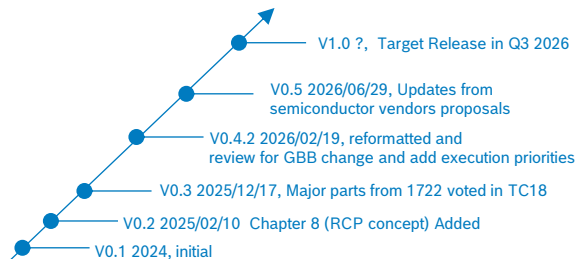


Remote-Controlled Edge



source: BOSCH

OPEN ALLIANCE Standardization of TC18 Remote Control Specification



Constraints of Scaling 规模化的约束条件

1 Maturity & Safety 成熟度与安全

Specification draft status (v0.5) and open questions surrounding End-to-End (E2E) protection and ASIL-D safety management.

2 Silicon Availability 芯片供应链

Early RCP ASIC availability limited to initial lead OEMs collaborations

3 Challenge of SdV 软件定义汽车的挑战

Developing client-side drivers and applications within complex cross-domain software architecture and E/E architecture platforms creates software overhead.



Thanks for your attention 感谢聆听

联系人

Zhang Hui 张辉 (M/TEL-CN)

hui.zhang3@cn.bosch.com

