

Accelerate Connected Vehicle Opportunities with Cisco IoT Control Center



“More than 90 percent of vehicles sold in 2030 will be connected, up from 50 percent in 2024.”

– McKinsey & Company¹

Connected vehicles have clearly come of age, and their popularity is soaring. According to the Cisco® Visual Networking Index, connected vehicles will soon be the fastest-growing industry segment in terms of machine-to-machine connections.²

What’s behind this accelerated growth? New capabilities and revenue opportunities are emerging, coupled with increasing customer expectations. Innovation in the automotive industry is being propelled forward by trends such as these:

- Autonomous, Connectivity, Electrification, and Shared Mobility (ACES)
- Connectivity reliability, based on a “car always-connected” model
- Increased data, processing, compute, transfer, and latency requirements
- Original Equipment Manufacturers (OEMs) need to monetize services through new partnerships and business models
- Evolving infotainment options to meet changing driver expectations
- Rising security risks in a changing threat landscape

1. [“Car connectivity: What consumers want and are willing to pay”](#), McKinsey, 2024

2. [Service Provider Solutions](#), Cisco



Connectivity management is crucial to unlocking new opportunities

Together, these trends are opening up new opportunities for automobile manufacturers to improve safety, enhance the customer experience, and add revenue streams.

Manufacturers are exploring telematics services for internal use, including over-the-air software updates, diagnostic capabilities, and metrics and data collection. Telematics services can also enable passenger safety capabilities such as crash notification, SOS calling, and e-call compliance. They support security and convenience features such as door locking, vehicle recovery and kill engine functions, and mobile applications.

Autonomous driving applications are also rapidly developing. Automotive manufacturers are exploring connectivity-based, full self-driving at scale, for robot taxis and other groundbreaking applications. These use cases require hyper distributed edge computing with predictive intelligence to help prioritize traffic and allocate data and bandwidth in real time, to help ensure that self-driving capabilities are prioritized.

Enterprises, especially connected vehicle OEMs, are looking to leverage connectivity to regain control of the end-customer experience and monetize advanced onboard features. They are investing heavily in conceptualizing a brand new immersive in-car user experience with infotainment applications, Advanced Driver Assistance Systems (ADAS), and other marketplace solutions such as in-car purchasing.

These applications will be offered as subscription services, pivotal to their revenue diversification strategy. Major automotive OEMs like GM and VW have signaled their intent to phase out smartphone mirroring in newer models, aiming to take back control. To succeed in this strategy and deliver a delightful end-customer experience, OEMs need full visibility and control over the network services that provide the underlying connectivity.

With 5G, software-defined networks, and network slicing, there's a need for network automation and orchestration, a fully cloud-native packet core, and a unified user experience to support self-serve service creation (network slicing and dedicated data networks) tailored to enterprise needs. This empowers mobile network operators to enable the revenue diversification strategies of connected vehicle OEMs through immersive in-car experiences and subscription services.

A connectivity management platform that supports these services is crucial to enabling auto manufacturers to achieve their full potential—and deliver the best possible experience to consumers. Connected car innovation is happening fast, so connectivity management must be able to support not only manufacturers' current needs, but scale and evolve easily to support new services and applications well into the future.



New services require advanced connectivity

What are some of the essential features that are demanded by automobile manufacturers to support their current and future needs?

Automated lifecycle management and provisioning:

Connected vehicles require multiple service provisioning stages that must be completed and managed automatically. Automated service provisioning must span a variety of component lifecycles, billing states, and roaming restrictions as the vehicle and its subscriber identity modules (SIMs) move through different stages and locations. For example, it might extend from building the device to testing it in another country, shipping it to a manufacturing facility, and supporting the component after the vehicle is sold.

5G services capabilities: The automotive industry understands that 5G technology is maturing fast and is critical to enabling new services and monetization models not only today, but for years to come. Auto makers are looking for the ability to launch subscription services on demand with full visibility and control to help diversify revenue streams and take back control of end customers.

Connectivity management must support not only telematics, retail Wi-Fi and infotainment applications but also new third party applications or OEM-specific applications to drive new consumer experiences.

Mobile service enablement using an SMS API:

Consumers spend much of their time on mobile devices, and car makers are seeking to enable innovative mobile services at a very large scale. For example, they might want to offer a mobile application capable of preheating the cabin of a vehicle using an SMS wakeup signal.

Rate-plan billing agility: Multiparty and split billing will be increasingly common as connected cars mature. Connectivity management will need the ability to support and manage multiple rate plans for multiple services, billed to different third-party partners, while offering flexibility to change those plans during the billing cycle.

Precise diagnostics: Diagnostics are extremely valuable to automobile OEMs and are the most-used application by their operations teams. They are especially critical in situations in which an automobile is unable to connect. Consumers usually blame the car manufacturer for these issues, which can affect perceptions of their quality and brand. Operations professionals need to be able to quickly identify the cause of the problem by acquiring granular details about connections and issues.

Invoicing and level of detail: Car makers have dedicated teams focused on managing costs and expenses, and they rely heavily on the invoicing details provided by their connectivity management platforms. They need the capability to export this data out of the platform to gain deeper insights through analytics.

Main Cisco differentiators

Cisco IoT Control Center offers a unique set of differentiators that set it apart from competitive offerings. The platform's advantages include its global reach, exceptional level of detail in diagnostics and invoicing, and superior data analytics capabilities.

The solution delivers better uptime and performance than competitors and offers a wide range of APIs for managing the business.



Cisco IoT Control Center

The Cisco Internet of Things (IoT) Control Center team empowers automotive manufacturers to seize compelling opportunities for connected cars. The industry's leading cellular connectivity management platform, it delivers essential capabilities today, with a scalable, flexible architecture for tomorrow.



Full automation

Cisco IoT Control Center offers a rich set of automation capabilities extending across the lifecycles of vehicles and their components, including the following:

- Automated provisioning
- Lifecycle-aware configuration
- Business-process automation
- Robust APIs and feeds



Global scale

Designed for large organizations, Cisco IoT Control Center enables global IoT deployments with agility:

- More than 50 service providers in 120 countries
- Same integration for all service providers
- Localization tools



Flexible billing

Flexible billing capabilities provide the agility needed to support a variety of service partners and quickly update billing rate plans at any time:

- Variety of rate plans
- Split and multiparty billing
- Event-driven incentives and credits



Operations tools

Advanced operations tools, including Spotlight diagnostics, provide in-depth insights, while helping reduce risk. Cisco IoT Control Center delivers these benefits:

- Real-time diagnostics
- Machine Learning (ML) applications
- Real-time network visibility
- Security, with fraud prevention

A relentless focus on 5G innovation

Cisco is continually innovating and developing the platform, with a forward-looking roadmap and extensive investment in 5G technology—a crucial focus for the automotive industry.

As manufacturers embrace 5G for their cellular connectivity needs, Cisco is investing in new capabilities to help promote monetization and empower both service providers and OEMs to actually propel business outcomes with the platform (Figure 1).

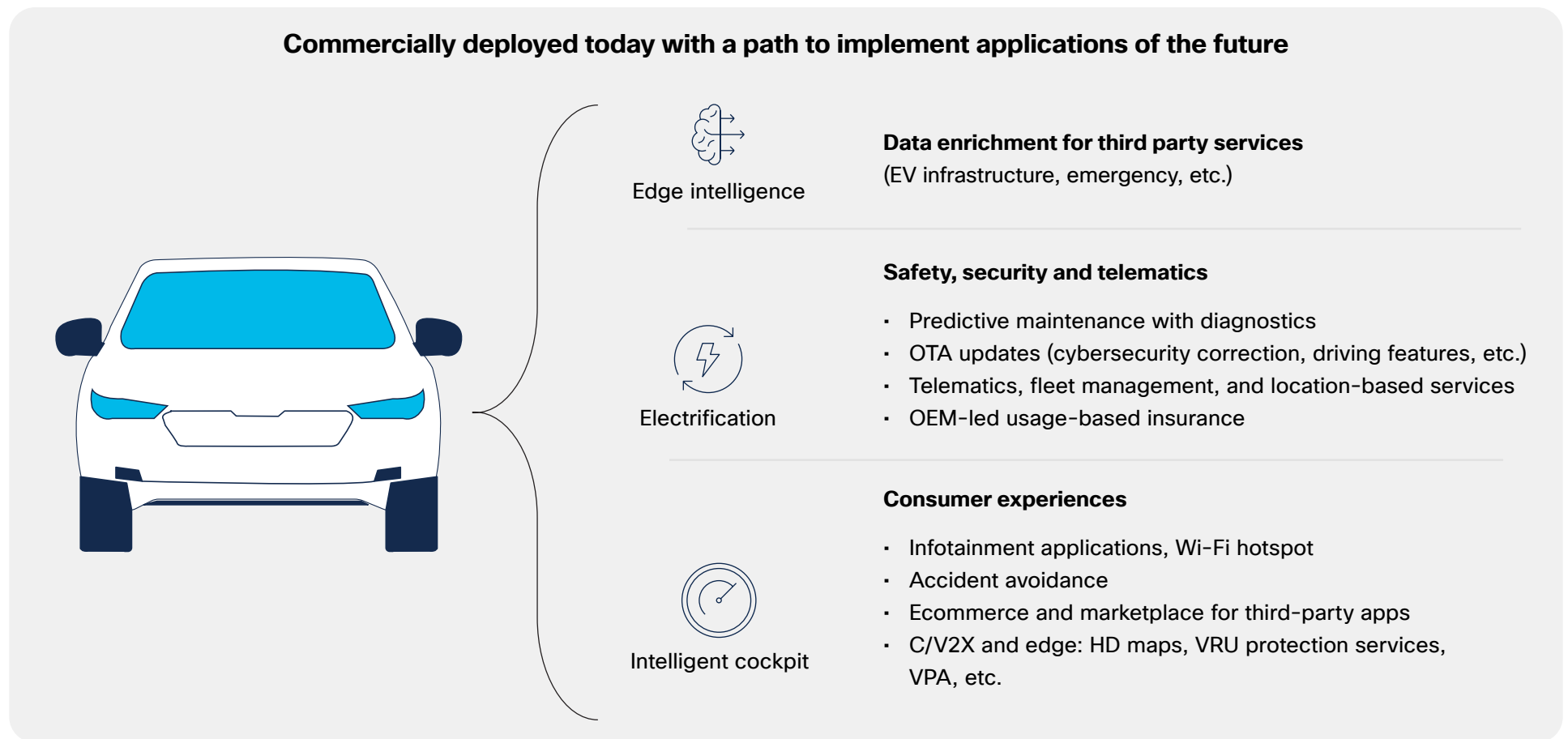


Figure 1. Powering 5G-enabled applications

Full-stack 5G service enables global deployments with agility Cisco IoT Control Center supports full-stack 5G IoT as a service with a global footprint and a distributed edge deployment. Its decentral-ized architecture lets functions be deployed closer to the edge of the network. This lets service providers give manufacturers full visibility and control with intelligence at the edge, to enable better consumer experiences.

Self-service capabilities for subscriptions on demand Enterprises (fleet management solution providers, connected vehicle OEMs, etc.) are looking to offer subscription services to their consumers (infotainment apps, Wi-Fi hotspots, Advanced Driver Assistance System [ADAS] applications, security dashcams, etc.) as part of their revenue diversification strategy. They are looking for a simple consumption model to enable their customers to subscribe to mobility-enabled subscription services on demand from a web portal, connected vehicle, fleet management device, or consumer electronics device, get threshold-based notifications, and renew or cancel services seamlessly. IoT Control Center with Dynamic Policy and Charging Service gives mobile network operators the automation, orchestration, and underlying network services they need to empower the OEMs to launch their own subscription services with a seamless end-customer user experience.

Diverse 5G applications with slicing and edge capabilities Dynamic network slicing is important for manufacturers seeking to launch new subscription services on demand. Available today, it provides visibility into a network slice, individual edge nodes, and other elements. This visibility helps OEMs see performance trends over time, get actionable insights, and drive corrective actions.

Assurance-based network programmability With Cisco's full-stack observability strategy, Cisco IoT Control Center will provide a comprehensive view across the full stack to help empower the enterprises to get end-to-end performance visibility to onboard application and underlying network services, to help detect connectivity anomalies, or even predict them, and proactively trigger a network-programmable outcome. For example, in some situations, such as bad coverage or radio access network (RAN) congestion, OEMs might want to prioritize vehicle data services over consumer services. With Cisco's Network APIs, OEMs will be in the driver's seat to drive service prioritization on demand, based on real-time service assurance insights.



Advanced AI-powered cybersecurity, threat detection and response

Using Artificial Intelligence and Machine Learning (AI/ML), Cisco IoT Control Center delivers advanced security that is capable of examining trends and anomalies in data.

AI/ML also plays an integral role in the solution's threat detection and response capabilities. Using AI/ML capabilities developed by Cisco, Cisco IoT Control Center can detect issues such as a malicious attack on an enterprise or mobile network operator's application server or vehicle break-ins that could result in catastrophic outcome including loss of sensitive and business critical information. For example, Cisco IoT Control Center can detect a malicious attack, automatically initiate corrective actions, and block the threat from penetrating deeper into enterprise systems. With our new 5G capabilities coupled with state of the art cybersecurity portfolio, Cisco can help detect threats and drive a hyper distributed response to prevent the threat actors from spreading into an Enterprise or mobile network operator's environment.

“Cisco has a significant lead over its competitors in terms of platform capability as well as execution capability.”

– Akshara Bassi, Senior Research Analyst, Counterpoint

Why Cisco

Cisco is uniquely qualified to enable auto manufacturers to unlock the full range of opportunities in connected cars.

Cisco leads as an industry “Pace-setter” in Counterpoint Research's Global 2023 IoT Connectivity Management Platform (CMP) Ranking. Cisco delivers global experience, reach, and a track record are second to none, and Cisco has connected more than 270 million devices including 100+ million connected cars, 20M fleet vehicles, for 50+ service providers in 120 countries and 30+ thousand enterprises.

Cisco's scale and reach provide deep insight into a wide range of industries, enabling the company to better understand your business—and develop solutions to meet your needs. Cisco solves tomorrow's connected car challenges today, giving automotive manufacturers a competitive edge by allowing them to focus on what matters most: growing their business.

Learn more

To learn more about how Cisco IoT Control Center can help you unlock new opportunities in the connected car space, visit www.cisco.com/go/iot-mobility.

To learn more about how Cisco Mobility Services Platform accelerates monetization of innovative 5G services, visit www.cisco.com/go/mobility-services-platform.