

Connected Vehicles

Service Providers at a Crossroads

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April 2011



Cisco Internet Business Solutions Group (IBSG)

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Service Providers at a Crossroads

The idea of connecting vehicles is gaining momentum. Many stakeholders intuitively see the benefits of connecting vehicles and have started to develop business cases for their respective domains, including the automotive and insurance industries, government, and service providers. This paper is part of a series of Points of View from Cisco's Internet Business Solutions Group (IBSG) analyzing the business case for connected vehicles from all of these perspectives.¹ The series explores the broad societal and business costs of current models of personal transportation, and how connected vehicles can create new value while transforming outdated approaches. It also discusses how automotive manufacturers can reduce the cost of serving their customers and tap new revenue pools by connecting vehicles on a unified communications platform. In this paper, we focus on the implications of connected vehicles for the service provider industry. We look at the opportunities to unlock billions of dollars in value by providing ubiquitous connections to other vehicles and a smart traffic infrastructure.

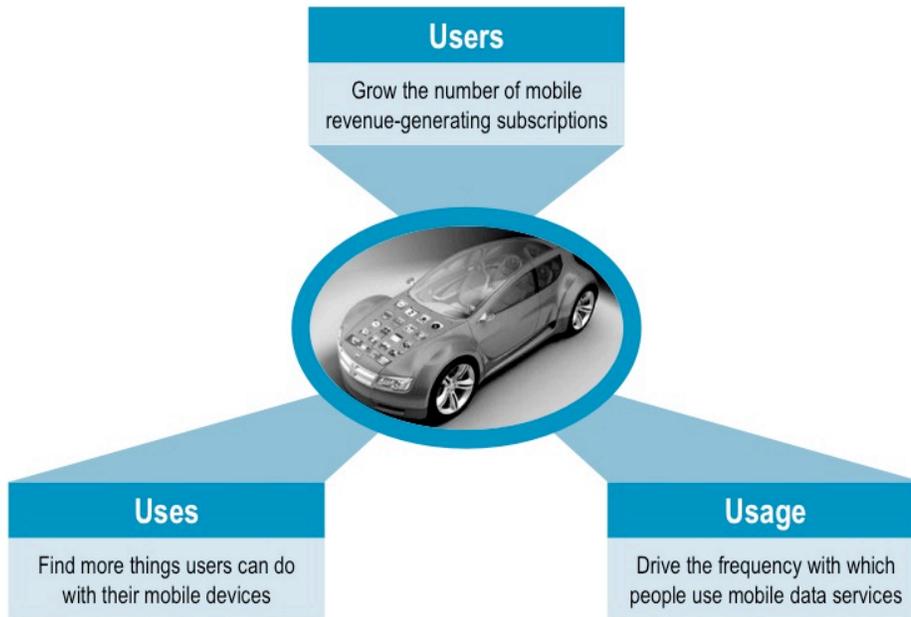
Service providers continue to rely heavily on mobile voice and data, which account for more than 80 percent of their revenue. With a maturing mobile voice market, service providers are looking for growth in the mobile data market, which is expected to grow 24 percent annually through 2013. However, according to a recent study, more than half of mobile data subscribers regard mobile data as highly discretionary, and would cancel it first among all communication subscriptions.²

The chosen battlefields for retaining and winning customers are technology and service quality, both of which are highly capital-intensive and could exhaust service provider profits as early as 2015.³

To avoid commoditization, service providers are striving to upgrade their offerings with value-added services in a business-to-business-to-consumer model that encompasses content owners, aggregators, broadcasters, advertisers, e-tailers, and application providers. This strategy is often undermined by the 78 percent of customers who believe that once content is purchased, it should be theirs to copy or share.⁴

Connecting vehicles is a strategic growth platform for service providers (see Figure 1).

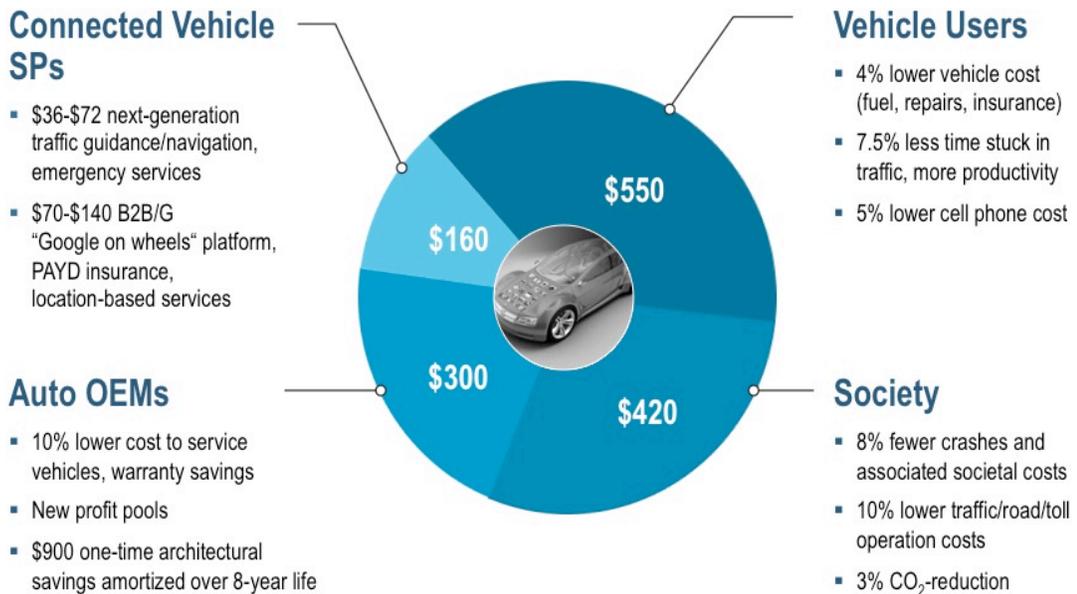
Figure 1. Connected Vehicles Drive All Growth Levers for Service Providers.



Source: Cisco IBSG, 2011

According to Cisco IBSG analysis, connecting vehicles could create an annual benefit pool of \$1,400 per connected passenger vehicle for a number of stakeholders (see Figure 2).

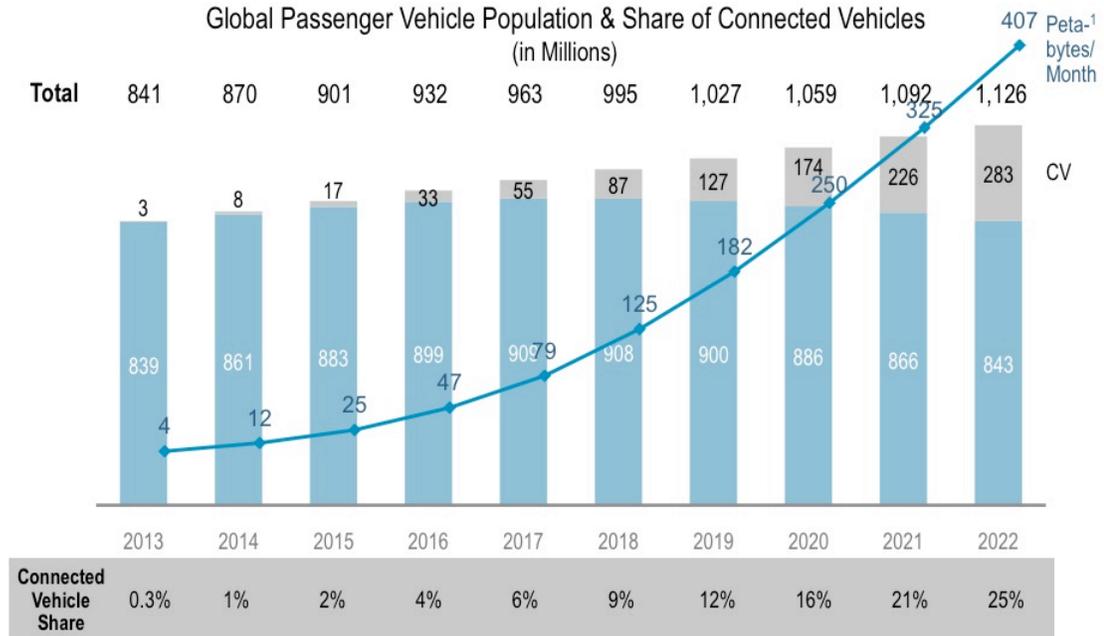
Figure 2. Vehicle Connectivity Could Create \$1,400 Benefit Pool per Vehicle per Year.



Sources: Cisco IBSG Automotive and Research & Economics practices, 2011

Over the next decade, nearly 300 million passenger vehicles, or 25 percent of the global vehicle population, will be connected to the Internet and transport more than 400 million gigabytes of data through mobile networks each month (see Figure 3).

Figure 3. By 2022, Nearly 300 Million Cars Will Be Connected Globally.



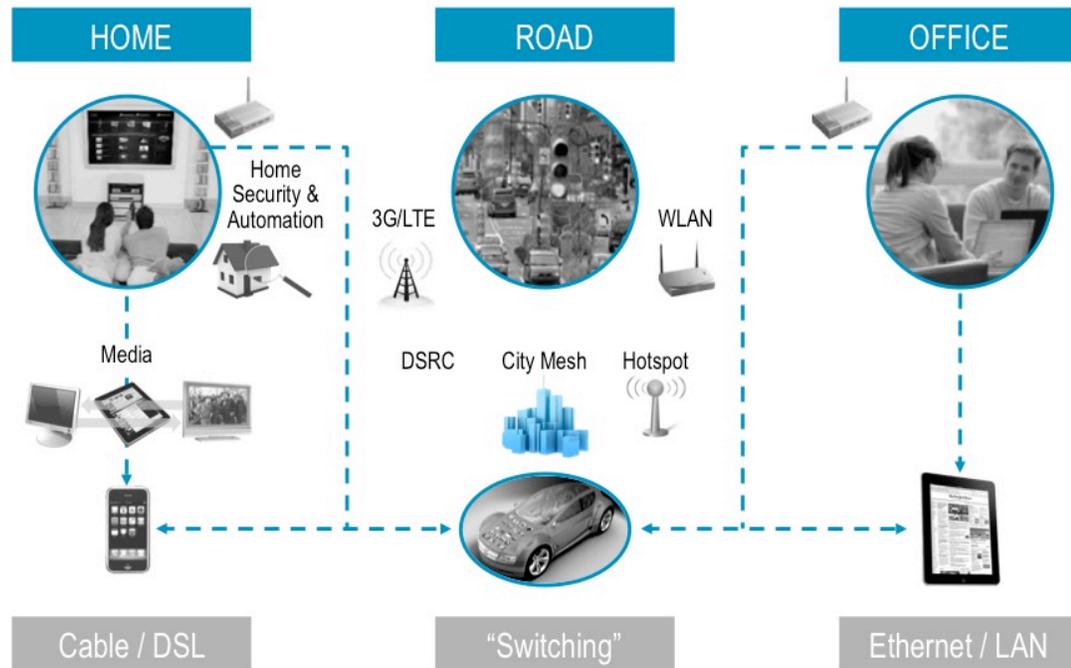
Sources: Cisco IBSG, 2011, based on data from U.S. Department of Transportation, iSupply, McKinsey & Company

By 2022, the transport of this data volume represents a market potential of more than \$50 billion, conservatively assuming a retail price of \$10 per gigabyte.

However, this opportunity comes with a number of risks that service providers need to carefully factor into their connected vehicle strategies:

- With consumer budgets for mobile devices and Internet services largely maxed out, consumers will likely prefer simply to add the vehicle as another device to an existing service plan. Hence, automotive manufacturers must support multi-carrier capability for connecting vehicles.
- Part of connected vehicle data volume will be a mere shift of the usage point from a home network, an office network, or a mobile device to the vehicle. If service providers do not manage the vehicle's connection and data plan, they risk losing this shifted business.
- A diverse set of evolving, complementary technologies will be needed to connect vehicles with the home, the office, and with other vehicles on the road. For home and office, users will want to connect their vehicles wirelessly to synchronize data-heavy applications. On the road, technologies like dedicated short range communications (DSRC) will need to support latency-critical applications of intelligent traffic systems (ITS), while 3G, LTE, WLAN, and, potentially, wireless mesh are alternative options for data-intense applications. The ability to optimize the quality of service and offload data-heavy traffic to the most cost-effective network will become mission-critical.

Figure 4. Offloading Data and Switching Is Essential To Improving Experience and Containing Cost.



Source: Cisco IBSG, 2011

- Operators of DSRC roadside networks could add Wi-Fi to their roadside equipment (RSE) units and allow offloading of data-heavy applications from incumbent networks.
- Fast-moving vehicles will inevitably pass through areas where one service provider has better coverage than another. The convenience of ubiquitous vehicle connectivity while driving at speed and across multiple regions will require network-agnostic radio technology that automatically and securely switches among multiple networks and technologies. In addition to switching from a “weaker” to “stronger” signal, this capability would inevitably enable vehicles to switch from more-expensive to less-expensive networks.
- Given the significant benefits of driver safety, system security, and quality of service, the automotive industry will most likely converge toward a factory-installed onboard unit for providing vehicle connectivity. At a minimum, this unit will provision connectivity for basic telematics services, but will also offer options for premium services like off-board navigation, traffic information, location-based Internet services, video and gaming, and voice and data services.⁶

These trends and requirements are likely to make connecting vehicles a multi-carrier and multi-technology play, and will drive the emergence of carrier- and technology-agnostic automatic radio switching technology. Service providers will need to respond to these customer demands and develop new business models to fund onboard unit and connectivity cost, and to fend off commoditization and margin pressure.

It will be critical to find win-win business models that encourage automotive manufacturers and, most important, vehicle owners to connect vehicles:

- “Wireless model”: subsidize OBU via vehicle-owner-paid two-year “retail” plan

- “Kindle model” option: sell OBU + prepaid “wholesale” plan (e.g., \$500 + \$1,000) as \$1,500 option to owner
- “Kindle model” priced in: fund OBU as part of overall vehicle price, including prepaid “wholesale” plan for (basic) vehicle connectivity
- Sell add-on to existing cable/wireless plans, e.g., monthly fee to add a vehicle + usage fees
- Finder’s fee to automotive manufacturer for adding a connected vehicle customer
- Kickback of vehicle owner usage fees from carrier to automotive manufacturer
- Sell value-added services such as navigation, location-based services, “pay as you drive,” and “Netflix on wheels” to indirectly fund OBU and voice/ data plan

In addition, service providers are well-positioned to become connected vehicle service operators who manage the entire connectivity value chain—from OBU, to RSE, to network, to data center—for a number of service platforms, such as:

- Telematics and infotainment services for automotive manufacturers
- “Pay as you drive” services for insurance companies
- Clearinghouse for charging and billing of electric vehicles for utilities
- DSRC RSE network operations for ITS operators
- Wi-Fi RSE network operation to offload connected vehicle and other mobile data congestion in megacities

Service providers’ success in connecting vehicles will depend on three key factors:

1. Readiness to embrace emerging radio- and carrier-agnostic technologies that may challenge their traditional competitive models but are a prerequisite for ubiquitously and securely connecting vehicles
2. Ability to move the organization out of the traditional comfort zone into entirely new value-add and business models with automotive manufacturers, insurance companies, and government agencies
3. Technological and financial resources to build an end-to-end architecture that ubiquitously and securely connects vehicles by integrating onboard unit, roadside equipment, edge and core of the network, data center, and, eventually, cloud.

For more information about “The Business of Connecting Vehicles,” please contact:

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Acknowledgements

The author would like to acknowledge the valuable contributions of the following individuals who helped develop and refine the concepts presented in this paper: Joseph Bradley, Mark Ferrone, William Gerhardt, Chris Osika, Scott Puopolo, Christopher Reberger, and Nicola Villa.

Cheri Goodman and Bob Moriarty of the Cisco IBSG Communications Strategy Practice provided writing and editing assistance for this paper.

Endnotes

1. Other papers in the series include “The Business of Connecting Vehicles: Executive Summary,” Cisco IBSG, 2011; “Connected Vehicles and Government: A Catalyst To Unlock the Societal Benefits of Transportation,” Cisco IBSG, 2011; “Connected Vehicles: From Building Cars to Selling Travel Time Well-Spent,” Cisco IBSG, 2011; “Connected Vehicle Insurance: The Business of Preventing Crashes,” Cisco IBSG, 2011.
2. Cisco IBSG Connected Life Market Watch, 2009.
3. Tellabs, End of Profit Study, 2011.
4. “Changing Models: A Global Perspective on Paying for Content Online,” Nielsen, 2010.
5. For details, see “The Business of Connecting Vehicles: Executive Summary,” Cisco IBSG, 2011; “Connected Vehicles: From Building Cars to Selling Travel Time Well-Spent,” Cisco IBSG, 2011.
6. For details, see “Connected Vehicles: From Building Cars to Selling Travel Time Well-Spent,” Cisco IBSG, 2011.

More Information

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