



by **Marty Thall**, General Manager, Microsoft Automotive Business Unit

# A gateway to the connected car

**T**echnology innovation has always been a key brand differentiator among carmakers in the automotive industry. Each generation of cars has not only brought drivers sleeker designs and more powerful engines, but also more advanced electronics in the form of features such as satellite radio and navigation. Today, software's role is expanding beyond just vehicle design and manufacturing to serve as an important gateway for enabling the integration of consumer electronics into the car. However, the growing complexity of software challenges the industry to determine how to harness powerful technology most efficiently and cost-effectively in the future.

For this reason, **Microsoft** formed a dedicated Automotive Business Unit to help the automotive industry design and develop these systems. Our mission is to improve the lives of drivers and passengers by developing valuable and safer communication, location, and entertainment experiences based on an industry-standard platform. At the heart of our approach, we envision a future in which every person drives a "connected car." This vision provides:

- Automakers with the ability to reduce cost and complexity through the adoption of a standard software platform. With the support of a telematics platform ecosystem, OEMs can deliver powerful new in-car experiences, reduce warranty and recall costs, as well as create better customer connections for their dealers.

- Suppliers with the ability to differentiate telematics solutions through applications built on the most reliable, cost-effective, and flexible industry-grade operating system available—Windows Automotive.

- Drivers with safer communication via speech technology connected to the

car audio system, as well as access to location-based information and entertainment from the road, using their mobile device(s) and/or an embedded system.

- Passengers with more enjoyable entertainment experiences, including digital music, movies, and gaming.

Experience with PCs, mobile phones, portable media players, and other forms of "smart" consumer electronics has forever changed how consumers expect to interact with technological products. Besides providing rapid access to information, communications, entertainment, and friendly user interfaces, these devices provide gateways to services that go beyond the functionality in the device itself. The devices also benefit from a virtuous cycle that keeps them fresh and valuable to consumers, spurring increased adoption and attracting more technology suppliers to the platform. This cycle is enabled by a fundamental openness that allows third parties to find ways to add value to the basic system. Soon, more dynamic in-car systems will turn automobiles into similarly "smart" devices.

Automakers are beginning to understand their efforts will not take off without enabling the cycle that has been so successful in the PC and consumer electronics industries. By adopting a software platform attractive to developers, automakers can more easily drive development of new applications, gain new customers, which attracts more developers, and so on. The result is a popular technology that consumers want and can afford.

Because of the increasing complexity of telematics applications and services, successful OEMs will be the ones who provide a platform that allows third parties to innovate. Automakers now know their challenge no longer is about providing a good



platform with a well-defined set of features, but the risk of not embracing a platform that has the flexibility to adapt to unanticipated scenarios desired by consumers when the car hits the showroom. Because telematics is poised for rapid growth over the next decade because of the convergence of the relevant enabling technologies, it is also poised for rapid obsolescence cycles if these systems remain closed and static. Customers want the ability to keep up with the times without major reinvestment, much as they can with the other familiar technologies in their lives today.

Adopting an open and easy-to-engineer gateway, such as Microsoft's telematics platform, helps the industry take an important first step toward creating systems that age gracefully. The platform provides a familiar programming model, support for well-known standards, and "over-the-air upgradeability." It gives automakers the ability to maintain brand image and usability standards through the user interface, including control over what software is downloadable to the car.

Starting with a standard platform framework, automakers will approach future development much differently. For example:

- In direct contrast to how vehicle modules (e.g., control systems) have been developed historically, telematics systems will no longer be fixed-function devices, but devices whose software and functionality can change over time.
- Systems development will focus on creating gateways that accommodate the rapid changes in PC and consumer electronics technology in the three to five years it takes to bring a new vehicle to market.
- Choices regarding platform performance (e.g., CPU speed and available

memory) will be made based on its ability to support new functionality in the future and best mitigate the high cost of upgrading hardware.

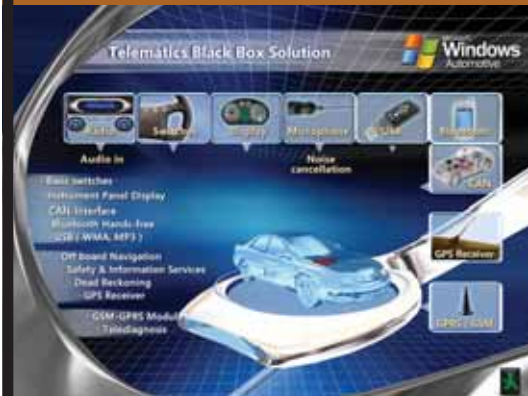
- Automakers will be less restrictive of how their partners innovate. To ensure continued innovation, OEMs will take a more open approach to business relationships.

Ultimately, automakers' approach to these systems will evolve out of their continued efforts to meet the needs of their customers in ways that create competitive advantage. Through simpler, more cost-effective, and reliable solutions, automakers will create an additional differentiating factor apart from design, engine power, and safety features. Industry players will begin looking beyond functionality and begin ensuring implementation of a flexible platform that can serve as a gateway for organic growth of capabilities within certain controls. As a result, Microsoft has aligned its telematics platform architecture with this vision.

The industry is on the cusp of a period of rapid growth and innovation in telematics. Consumers will more fully embrace telematics features as systems evolve to match expectations developed through experience with other consumer technologies. Microsoft's vision for the connected car helps the industry succeed by transforming the vehicle from an island unconnected from its surroundings to become a mobile extension of real life. In the future, drivers and passengers will experience the freedom of safer communication, access to more timely and relevant information, and enjoy digital entertainment at their convenience in the car. After all, isn't freedom the essence of what driving is all about? **aei**



Microsoft's three-button telematics interface



Microsoft telematics platform