The Customer
Ford Motor Company, a global automotive industry leader based in Dearborn, Mich., manufactures and distributes automobiles across six continents. With approximately 176,000 employees and 80 plants worldwide, the company’s brands include Ford, Lincoln, Mercury and Volvo.

The Challenge
Rapidly develop a next-generation factory-installed, in-car communications and entertainment system by leveraging consumer electronics suppliers who were mostly unfamiliar with automotive networks.

Infotainment systems, including mobile phones and digital media players are rapidly evolving to modern passenger cars. Therefore Ford developed a platform for consumer applications with a central driver interface. Many of the application developers are traditionally in the consumer electronics market and have minimal experience with the vehicle network interface and diagnostics standards required by an OEM like Ford.

The Solution
Develop a secure and robust vehicle network interface using a combination of standard and custom embedded software components, and support the rapid development and frequent releases by automating regression testing with CANoe.

The vehicle interface subsystem was developed using Vector CANbedded basic software for the Ford Network Operating System (FNOS), as well as AUTOSAR compliant modules for diagnostics, I/O and memory management, all hosted on an OSEK operating system (osCAN). To support the rapid development, an automated test system was developed using CANoe with the Test Feature Set.

The Advantages
The solution allows Ford suppliers to concentrate on their areas of expertise – developing consumer feature content. The ECU software approach provides:

► Isolation between the third-party applications and the vehicle interface.
► Rapid development by leveraging standard software components for many of the subsystem modules.
► The development team an opportunity to concentrate their effort on the module specific requirements for diagnostics and power management.

The advantages of using CANoe for automated testing:

► The testing cycle is decreased from weeks to days.
► The test coverage for incremental releases to Ford is significantly increased.
► The solution provides the capability to perform highly repeatable regression test scenarios.
► The development team is able to eliminate dependencies to other software subsystems by providing simulations to support advanced test cases.

Case Study
A secure and robust vehicle interface for a next-generation infotainment system