vConnect
The Vector Automotive OTA Solution

What is vConnect?
With the Automotive Over-The-Air (OTA) solution, vConnect, vehicle manufacturers and fleet operators can quickly and securely bring the two most important use cases of Automotive OTA (software updates and live diagnostics) into the field. The modular concept of the solution combines new components and established Vector technologies through the vConnect framework. In particular, the framework includes communication and security components that provide a solid foundation for the development of new OTA applications.

Overview of Advantages
> vConnect is an end-to-end OTA framework, from backend to vehicle, including ECU software components
> vConnect is designed to maximise security from the ground up (embodiey the "Secure by Design" principles)
> vConnect uses powerful APIs that simplify application development and integration of new OTA applications with existing business systems
> vConnect supports two ready-to-use applications for software update and live diagnostics
> vConnect is available for various backend platforms
> vConnect can be used on various microprocessors equipped with a POSIX operating system

One Framework for all OTA Applications
The vConnect framework permits complex communication patterns and provides advanced security mechanisms to OTA applications based on it. These are delivered via fully documented APIs for easy and convenient use, e.g. for
> establishing of encrypted sessions and
> request-response communication
This is supplemented by integrated security mechanisms. Based on this framework, OTA applications may be developed by the customer, or a nominated supplier with the following features:
> secure storage of certificates and keys
> validation of signatures on backend and vehicle side
> recognition and subsequent discarding of recorded and retransmitted messages at the receiving side

"Secure by Design" principles
Embodying the "Secure by Design" principles, the vConnect framework aims to deny attacks on the application by third parties, and aims to detect unauthorised manipulation of data or the system before such actions can have an adverse effect. For this purpose, the following techniques are used:
> end-to-end (E2E) security
> application-level encryption
> independent security and transport layers
> forward secrecy for encrypted sessions
> state-of-the-art technologies for handling certificates and keys
> flexible rights management using cryptographic techniques

Users can additionally benefit from integrated defense strategies that reduce the impact of many advanced attack scenarios.

The vConnect framework is characterized by optimized communication and security APIs. Developers can deploy advanced security mechanisms and communication patterns in their own OTA application.
Use Cases

Software Update

vConnect makes use of the technology of the well-known and proven tool vFlash. This makes vehicle flashing and the reprogramming of individual ECUs easy and convenient, even over-the-air.

The Software Update backend allows assignment of pre-validated flash packages, so-called vFlashPacks, to individual vehicles, self-defined vehicle groups or entire vehicle fleets. Progress, success and errors are efficiently monitored.

Live Diagnostics

In the Live Diagnostics backend, vehicles can be easily diagnosed remotely. The response times of vConnect Live Diagnostics are comparable to those of a local diagnostic tester, since entire diagnostic scripts are transmitted to the vehicle and the results are returned after completion.

The user transfers local diagnostic scenarios and sequences directly to the over-the-air use case. This is performed particularly efficiently due to:
- low memory requirements in the vehicle
- short loading times
- the use of a fast and efficient diagnostic library, which is also the basis of the diagnostic tester Indigo

New Business Models

The vConnect framework provides a secure and powerful foundation for your new ideas and business models.

We would be happy to advise you on how you can implement your new ideas with vConnect.

Would you like to test the vConnect solution?
Request the vConnect Evaluation Bundle online.

More information: www.vector.com/vConnect

Reuseable software components ensure easy integration, fast deployment and consistent behavior. vConnect shares components with the established PC tools vFlash and Indigo for live diagnostics and software updates.