Towards a standardized reference architecture for vehicle-to-backend platforms: Motivation and benefits

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1 Introduction

The European Commission has regulated that an automatic emergency call (eCall) facility must be provided in every new vehicle that is manufactured with effect from the end of March 2018 [1]. In the event of an accident, eCall will autonomously call an emergency call center and transmit the current position of the car, and at the same time establish a voice connection to speed up and improve rescue.

Future vehicles will be equipped with wireless cellular network technologies, but not just because of the required eCall system. As these technologies will connect the vehicle to the Internet permanently, the vehicle will be a so called connected vehicle. This article discusses the connected vehicle from two perspectives. Based on these, the development of a standardized reference architecture for vehicle-to-backend (V2B) platforms is motivated. Afterwards, a case study of the oneM2M Service Architecture as enabling technology for a V2B platform is presented. Finally, conclusions about the proposed approach of a standardized reference architecture are discussed considering also related work in the automotive domain.

2 Connected vehicle perspectives

Fig. 1: Connected vehicle architecture and perspectives