

# **Software-Defined Vehicular Networking Security: Threats and Security Opportunities for 5G**

Marc Lacoste, David Armand, Franck L'Hereec,  
Frédéric Prévost, Yvan Rafflée, and Sébastien Roché

Orange

[{firstname.lastname}@orange.com](mailto:{firstname.lastname}@orange.com)

## Abstract

The complexity of the 5G vehicular ecosystem, the multiplicity of automotive use cases, and the diversity of the security requirements calls for a simple and yet flexible paradigm to manage security. This is the promise of Software-Defined Vehicular Networking (SDVN) that applies the benefits of Software-Defined Networking (SDN) to vehicular systems and networks. This paper provides an overview of the SDVN approach and architectures, and assesses its security impact for 5G automotive systems, in terms of security benefits, threats, and opportunities for cyber-security services for telcos.

## Keywords:

vehicular network, security, software-defined vehicular networking, 5G, SDN, connected and autonomous vehicles