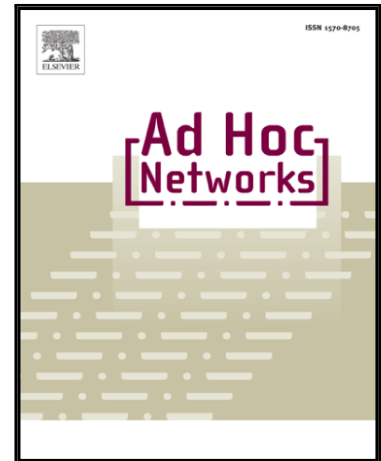


Accepted Manuscript

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PII: S1570-8705(18)30508-0
DOI: <https://doi.org/10.1016/j.adhoc.2018.07.016>
Reference: ADHOC 1717



To appear in: *Ad Hoc Networks*

Received date: 3 March 2018
Revised date: 4 June 2018
Accepted date: 18 July 2018

Please cite this article as: Jéferson Nobre, Allan M. de Souza, Denis Rosário, Cristiano Both, Leandro A. Villas, Eduardo Cerqueira, Torsten Braun, Mario Gerla, Vehicular Software-Defined Networking and Fog Computing: Integration and Design Principles, *Ad Hoc Networks* (2018), doi: <https://doi.org/10.1016/j.adhoc.2018.07.016>

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Vehicular Software-Defined Networking and Fog Computing: Integration and Design Principles

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Abstract

Vehicular Networks (VN) enable the collaboration among vehicles and infrastructure to deliver network services, where usually value-added services are provided by cloud computing. In this context, fog computing can be deployed closer to the users to meet their needs with minimum help from the Internet infrastructure. Software Defined Networking (SDN) might support the use of large-scale fog-enabled VN services. However, the current management of each wireless network that composes the VN has restricted the exploration of fog-enabled VN services. Therefore, the design principles for a VN architecture is still an open issue, mainly because it is necessary to address the diversity of VN fog applications. In this article, we investigate the design principles for fog-enabled Vehicular Software Defined Networking (VSDN) focusing on the perspectives of the systems, networking, and services. We evaluated these design principles in a use case of a traffic management system for a fast traffic accident rescue, using real traffic accident data. Finally, potential research challenges and opportunities for integrated use fog-enabled VSDN are discussed.

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