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A Stack4Things-based platform for mobile crowdsensing services

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Abstract

© 2016 International Telecommunication Union. As mobiles grow pervasive in people's lives and expand their reach, Mobile CrowdSensing (MCS) and similar paradigms are going to play an ever more prominent role. There is a pressing need then to ease developers and service providers in embracing the opportunity, and that means offering a platform for such efforts. This in turn means providing a solid foundational architecture with abstractions and sound layering for MCS application designs to be mapped over it. This should base on a flexible infrastructure able to provide resources to MCS applications according to their requirements, hopefully on-demand. A service-oriented/Cloud model can perfectly fill this gap. This paper is a first step in this direction, proposing to adopt Stack4Things (S4T), an OpenStack-based platform for managing sensing and IoT nodes, for runtime customization of resources and their functions to support MCS services and applications. This implies developing and extending the S4T platform further to the specific requirements coming from off-the-shelf, e.g., Android-based, mobiles, as well as describing an example S4T-powered MCS application, Pothole Detection Mapping, to highlight the role of the platform.

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Keywords

Android, Cloud, IoT, Mobile crowdsensing, OpenStack

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