Towards Programmable and Scalable IoT Infrastructures for Smart Cities

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Abstract

Smart Cities applications and infrastructures are actively being developed and rolled out. However, maintenance complexity is significant, often limiting deployments to small regions or small cities. To support gradual or spontaneous infrastructure scaling at region or national levels, infrastructure management that monitors end device connectivity and ensures overall IoT communication reliability becomes key. This article describes a method using intercontinental research facilities that programmatically manages smart devices and their communication with the ultimate aim to elastically deploy IoT servers in the cloud. Implementation details and experimental results of real devices are included.