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Towards Programmable and Scalable IoT Infrastructures for Smart Cities

Ancuta Corici, Ronald Steinke, Thomas Magedanz
Next Generation Network Infrastructures
Fraunhofer FOKUS
Berlin, Germany
{andreea.ancuta.corici, ronald.steinke,
tm}@fokus.fraunhofer.de
Louis Coetzee, Dawid Oosthuizen, Buhle Mkhize
CSIR Meraka Institute, CSIR
Pretoria, South Africa
{louis.coetzee, doosthuizen, bmkhize}@csir.co.za
Marisa Catalan, Jacint Castells Fontelles, Josep Paradells
I2CAT
Barcelona, Spain
{marisa.catalan, josep.paradells}@i2cat.net, jacint@ebre.cat
Ranjan Shrestha, Daniel Nehls, Bjoern Riemer
AV Department
Technical University
Berlin, Germany
{ranjan.shrestha, daniel.nehls, bjoern.riemer}@tu-berlin.de

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.