DevOps and WSN App: a Bio-Inspired Paradigm

[Keynote Talk]

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Abstract

Wireless Sensor Networks (WSN) are nowadays applied to a wide set of domains (e.g., security, health). WSN are networks of spatially distributed, radio-communicating, battery-powered, autonomous sensor nodes. WSN are characterized by scarcity of resources, hence an application running on them should carefully manage its resources. Applications running on WSN (namely, WSN App) and using sensors, must be adaptable to modify their behavior at run-time to respond to changes in the environment they run, to changes of the users' requirements or to changes occurring in the system itself.

This talk will present a bio-inspired paradigm [6] that mimics the cell lifecycle and uses the concept of membrane to define the border of a system adaptation. The adaptation is specifies by PROTEUS [7] a language for reconfiguration plans. The talk will show the application of such a paradigm to WSN domain through the MAIA framework (FraMework for Adaptaptive wIreless sensor network Applications)[9]. MAIA provides components *i)* to model and analysis quality attributes (timing [2], performance [1] and energy consumption [3]) of AGILLA agents [5] running on sensor nodes, *ii)* to generate AGILLA code from the provided models [8] and to dynamically delivery the generated code on WSN [9, 4]. MAIA supports DevOps process for WSN App.

Biography

Dr. Antinisca Di Marco is Assistant Professor in Computer Science at the Department of Applied Clinical Science and Biotechnologies of University of L'Aquila. In January 2015, she obtained the Associate Professor Habilitation, ASN, MIUR. She is part of the Board of ICT Ph.D. Program of DISIM Department and since July 2015 she is the Director of the UDA Node of the INFOLIFE CINI Laboratory. She is one of the founder of SMARTLY s.r.l., a spin-off of University of L'Aquila, born in May 2014.

Her research interests are in the field of software engineering and include QoS analysis of autonomic services, context-aware mobile software systems and WSN systems, to support software adaptation, bio-inspired adaptation mechanisms. She is also interested in the development of Health and mobile health service and systems. She published a manuscript and 50 papers in international conferences and journals. She has been member of several national and European research projects. She has been part of many Program Committee of conferences and workshops. She is local chair of ICPE2017, and Program Chair of EPEW2017 and of the CINI INFOLIFE workshop 2017.

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