Keynote Speech

IoT-Testware – an Eclipse Project

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Abstract
The open source community has produced a lot of excellent technology, frameworks and products that help with implementing IoT applications. A developer usually selects an appropriate set of technology and components and incorporates them into an application. The chosen components need to support the implementation of all relevant aspects of an IoT solution including device connectivity, management, monitoring, and business logic and last but not least security enforcement at all levels. Implementing test suites and test cases covering the many aspects, levels, interfaces and protocols ensuring scalability, interoperability and security is a tedious task. There is currently a lot of redundant pre-competitive activities ongoing with limited access and impact to the IoT community. It is the aim of IoT-Testware to supply a rich set of TTCN-3 test suites and test cases for IoT technologies to enable developers in setting up a comprehensive test environment of their own, if needed from the beginning of a project. Initially, IoT-Testware will focus on protocols like CoAP and MQTT. To ensure test and implementation technology independence, the test suites will be realized in TTCN-3 and implemented with Titan. TTCN-3 has been defined and standardized by the European Telecommunication Standards Institute in ETSI ES 201873 and related extension packages. It is implemented and supported in Eclipse IoT by the Titan project. The test suites will contain tests for conformance, interoperability, robustness, and security aspects.

About the speaker
Ina Schieferdecker is Director of Fraunhofer FOKUS, Berlin and is Professor for Quality Engineering of Open Distributed Systems at the Technical University Berlin. Her research interests include critical infrastructures, communication networks, conformance, interoperability, security, and testing and certification. Schieferdecker received her PhD in electrical engineering from Technical University Berlin. She is President of the Association for Software Quality and Education (ASQF) and member of the German Academy of Science and Engineering (acatech), and of the German Testing Board (GTB). She is also the spokesperson for the Smart City Network Berlin. She is member of the WBGU - German Advisory Council on Global Change and of the German Science Platform Sustainability 2030. In 2017, she became founding member of the German Internet-Institute.