

Towards a Robust, Self-Organizing IoT Platform for Secure and Dependable Service Execution

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In the IoT, resilience capabilities increasingly gain traction for applications, as IoT systems tend to play a bigger role for both the proper functioning of our society and the survivability of companies. However, hardening IoT service execution against a variety of possible faults and attacks becomes increasingly difficult as the complexity, size and heterogeneity of IoT infrastructures tend to grow further and further. Moreover, many existing solutions only regard either specific faults or security issues instead of following a unifying approach. In this position paper, we present our research project called SORRIR, which essentially is an approach to develop a self-organizing IoT platform for dependable and secure service execution. One of our main ambitions is to support developers by separating application development (app logic) from resilience properties, so that developers can configure a desired resilience degree without proper knowledge of underlying technical, implementation-level details of employed resilience mechanisms. Further, we consider security requirements and properties as an integral component of our platform.