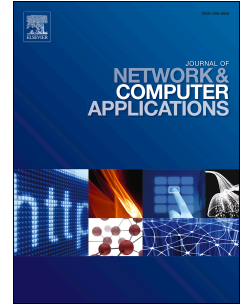


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Service Composition approaches in IoT: A Systematic Review

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Abstract.

The Internet of Things (IoT) signifies to an overall system of interconnected physical Things utilizing existing correspondence conventions. One critical inquiry remains in what manner can make and communicate the management of provided services for smart devices by an assortment of protest things that substituted and joined capably. Service composition process permits the interaction between user requirements and smart objects of IoT environment. Leveraging on the service discovery procedure can be influenced on finding the desired services. Consequently, choosing suitable services is the main challenge that covers functionality and required quality to combine several services as the integrated composite service in the IoT. The service composition process has been broadly considered with regards to web suppliers and business processes in the IoT. Currently, the IoT environment identifies the dynamic relationship topics on physical processes that are combined as the enhanced web services heterogeneously. This paper focuses on several service composition approaches that are applied in the IoT environment based on the Systematic Literature Review (SLR) method. The aim of this study is to analytically and statistically categorize and analyze the current research techniques on the service composition in the IoT (published between 2012 and 2017). A technical taxonomy is presented for the service composition approaches according to content of the existing studies that are selected with SLR method in this review with respect to functional and non-functional aspects in service composition approaches. The functional aspect emphasizes on verifying the behavior of service composition approach and the non-functional aspect considers the Quality of Service (QoS) in IoT environment. The approaches are compared with each other according to some technical aspects such as system correctness factors in functional properties approaches, and (QoS) factors, presented algorithms, and existing platforms in non-functional approaches. The advantages and disadvantages of each selected approach discussed as well as providing some hints for solving their weaknesses. A brief contribution to this literature is as follows: (1) Presenting a SLR method for the service composition approaches in IoT, (2) Addressing a discussion of the main challenges, (3) Providing the future research directions and open perspectives.

Keywords: Service composition; Internet of Things; Systematic literature review; Smart Objects; QoS.

1. Introduction

The Internet of Things (IoT) perspective has carried out numerous new changing items to the marketing, healthcare and e-life systems [1-4]. Sensors and correspondence abilities have been included into numerous customary gadgets, controllers, and foundations that can make smart and logical choices [5, 6].

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