TOPSIS-Based Service Arbitration for Autonomic Internet of Things

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IEEE ACCESS
Volume: 4 **Pages:** 1313-1320
DOI: 10.1109/ACCESS.2016.2545741
Published: 2016
View Journal Information

Abstract

Recent research on Internet of Things (IoT) has focused on the adaptation of the autonomic computing paradigm to make IoT self-sufficient. Service arbitration is one aspect which can greatly benefit from the adoption of the autonomic theory. Instead of allowing all deployed devices to be active, only a selected set of devices can be utilized to provide a particular service. This paper proposes a dynamic service arbitration scheme for this purpose. The approach for the service arbitration scheme is based on the technique for order preference by similarity to ideal solution (TOPSIS) algorithm. This method supplements existing autonomic frameworks with the aim to minimize user intervention as well as imparting self-configuration in the system. The analysis through TOPSIS can be extended to any number of permutations and combinations of alternatives and system policies.

Keywords

Author Keywords: Internet of things; scalability; wireless sensor networks; autonomy; self-configuration; TOPSIS
KeyWords Plus: WIRELESS SENSOR NETWORKS; SELECTION

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Publisher

IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC, 445 HOES LANE, PISCATAWAY, NJ 08855-4141 USA

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