

# Property-based network discovery of IoT nodes using bloom filters

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## Abstract

© Springer International Publishing AG 2018. As the number of IoT devices is exponentially growing, and IoT networks are expanding in their size and complexity, timely device discovery is becoming a pressing concern. The extreme (and constantly growing) number of network nodes, dynamically connecting to and disconnecting from a network, renders existing routing techniques, such as multicasting and broadcasting, unscalable, especially when using the IPv6 128-bit addresses. To address this limitation, this paper discusses the potential of implementing the IoT device discovery, based on device properties, such as type, functionality, location, etc., and presents an approach to enable property-based access to IoT nodes using Bloom filters. The proposed approach demonstrates space- and network-efficient characteristics, as well as provides an opportunity to perform device discovery at various granularity levels.

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## Keywords

Bloom filter, Device discovery, Edge computing, Internet of things

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