Subscriptionless Devices and Services

Alliance for Telecommunications Industry Solutions
October 2017

ATIS-I-0000061

Foreword

As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-Internet Protocol (IP) transition, 5G, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of and major U.S. contributor to the International Telecommunication Union (ITU), as well as a member of the Inter-American Telecommunication Commission (CITEL). For more information, visit www.atis.org.

Notice of Disclaimer and Limitation of Liability

The information provided in this document is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations. No recommendation as to products or vendors is made or should be implied.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND FURTHER, NO REPRESENTATION OR WARRANTY IS MADE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. ATIS SHALL NOT BE LIABLE, BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY ATIS FOR THIS DOCUMENT, AND IN NO EVENT SHALL ATIS BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ATIS EXPRESSLY ADVISES THAT ANY AND ALL USE OF OR RELIANCE UPON THE INFORMATION PROVIDED IN THIS DOCUMENT IS AT THE RISK OF THE USER.

NOTE : The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to whether use of an invention covered by patent rights will be required, and if any such use is required no position is taken regarding the validity of this claim or any patent rights in connection therewith. Please refer to [http://www.atis.org/legal/patentinfo.asp] to determine if any statement has been filed by a patent holder indicating a willingness to grant a license either without compensation or on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain a license.

Copyright Information

Alliance for Telecommunications Industry Solutions
1200 G Street, NW, Suite 500
Washington, DC 20005

Contents

1. Executive Summary

The emergence of Internet of Things (IoT)-based services is expected to create explosive demand for new devices and applications. Although a large percentage of IoT devices will ride Over The Top (OTT) of existing network subscriptions, many devices must still acquire network access from public (typically paid) Wide Area Networks (WANs) and, traditionally, must have a subscription with the network operator to do this.

This paper explores a variety of subscriptionless device models that benefit both the user and the network operator. For many IoT users, the direct IoT device connectivity subscription cost structure is often higher than the willingness to pay, given the utility of the device in question. Additionally, many end users have a desire to connect to their network of choice for "occasional" data without having to maintain an ongoing subscription. The subscriptionless device model can potentially reduce the cost and complexity for network operators as the network operator may not need to bear the full cost of maintaining "billions" of subscriptions for devices that may attach only occasionally to their network. Rather, operating models are described where the network operator's primary relationship is with a 3rd party authentication or application service provider instead of the device itself.

Some of the subscriptionless models are more naturally resistant to botnet security-related attacks and can provide an extra measure of security within the IoT context.

Although this paper considers the case for subscriptionless devices, this does not preclude the existence of a subscription with other 3rd party entities to facilitate proper charging and security for network services.

2. Introduction

2.1 Vision of IoT-enabled Market

IoT is the inter-networking of objects (both physical and virtual) with applications that enable application level control and/or monitoring of these objects. IoT objects can range from simple temperature or presence detectors to large vehicles or machinery. The ability to collect massive amounts of data from these objects while enabling control and management of remote objects opens the door to a wide range of new data-driven automation and efficiency-saving applications.