Infocomm & Electronics

A Method of QoS Constrained Semi-Persistent Scheduling of Machine Type Communications in Cellular Networks

Abstract

One of the major challenges posed within machine-to-machine (M2M) communication paradigm is the capability to scale to a larger number of connected devices and to provide ultra-low delay communications in order to meet coveted requirements for Internet of Things (IoT). Almost all existing M2M applications are based on GPRS, however, limited capacity of GPRS cannot support large number of M2M devices expected to be deployed in the near future. Moreover, dedicated M2M cellular architectures can only support very low throughput. Thus, exploiting existing LTE infrastructure and providing a native support in 5G or ast growing M2M services are of paramount importance.

The invention concerns scheduling of machine type communications (MTC), specifically machine-to-machine (M2M) communications in a cellular network setting, in the context of quality of service (QoS) regarding devices with limited radio resources for efficient alloca-tion. The invention also falls within the technical realm of LTE and post-LTE (5G) networks, effective management of said network resources having been based on the principle of serving as many devices as possible with the frequency resources available.

Problem solved with the technology

To present a method of semi persistent scheduling (SPS) scheme to make efficient use of the available resources.

To present a method of semi persistent scheduling (SPS) scheme to make efficient use of available resources with the aim of achieving fair allocation.

To present a method of semi-persistent scheduling (SPS) scheme conforming to the given QoS standards.

To present a semi-persistent scheduling (SPS) method and system for M2M transmissions based on the exploitation of their periodicity, reducing the overhead of the signaling required for connection initiation and scheduling.

To present a method and a system wherein effective management the admission of new devices to the network with a call admission mechanism, wherein serving as many devices as possible is prioritized.

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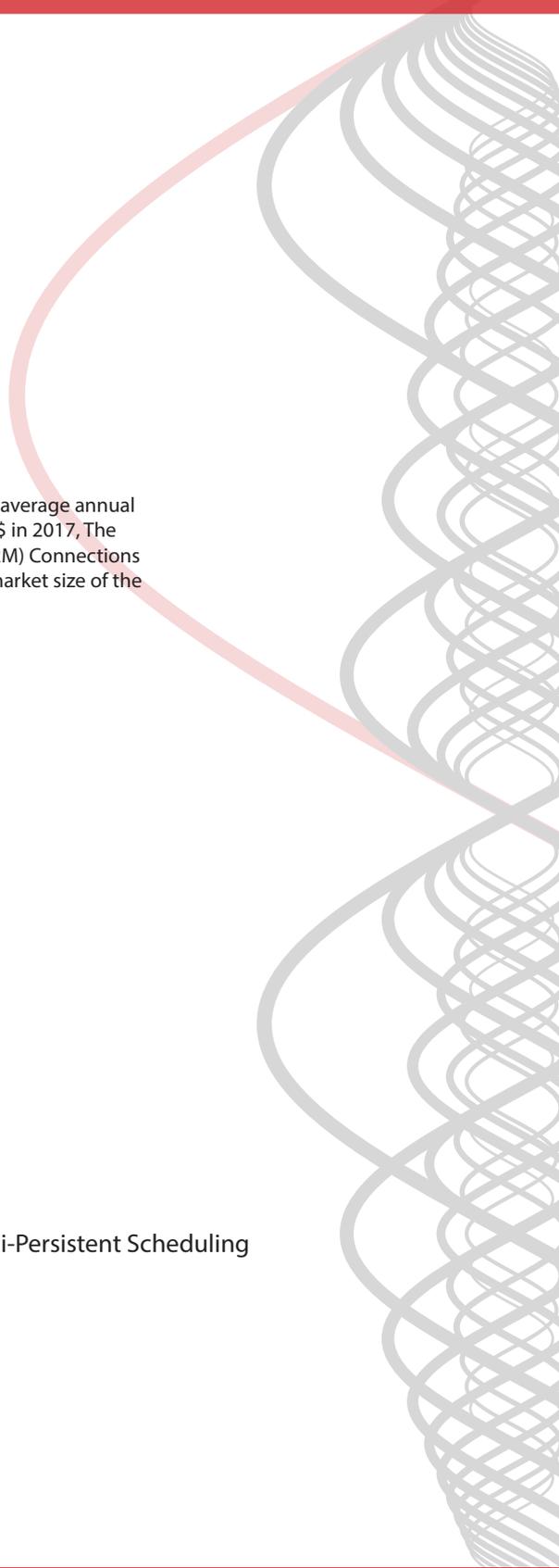
Potential Application

* Data conveyance among machines within cellular networks
  and traffic existent whereby, namely machine-to-machine
  (M2M) communication(s)

* Networked homes, healthcare and transportation

Customer Benefits

Fair and efficient allocation of time and frequency resource;
admission of new devices into the network to serve the
maximum amount of devices/machines as possible.

Market Trends

Machine-to-Machine (M2M) Connections market size maintains the average annual
growth rate of 4.69% from 18300 million $ in 2014 to 21000 million $ in 2017, The
analysts believe that in the next few years, Machine-to-Machine (M2M) Connections
market size will be further expanded. We expect that by 2022, The market size of the
Machine-to-Machine (M2M) Connections will reach 26405 million $.
(www.marketwatch.com)

Additional Technical Information
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