

A Cloud of Things Framework for Smart Home Services based on Information Centric Networking

ABSTRACT

Today, the novel Cloud of Things (CoT) paradigm, where Cloud and Internet of Things (IoT) technologies are merged together, is foreseen as a promising enabler of many real life application scenarios, like the smart home. However, several issues are still debated in the design of CoT systems, including how to effectively manage the heterogeneity of IoT devices and how to support robust and low-latency communications between the cloud and the physical world. In this paper, we present a domain by leveraging two groundbreaking concepts: *Information Centric Networking (ICN)* and *Fog Computing*. The proposal, called ICN-iSapiens, is a three-layered architecture where an intermediate (Fog) layer, consisting of smart home servers (HSs), is introduced between the physical world and the remote cloud, to support real-time services and hide the heterogeneity of IoT devices. Communication at the physical layer consists of name based ICN primitives, which facilitate the network configuration and enable simple and effective interactions between HSs and IoT devices. As proof of concept, an experimental test bed is presented and some application examples are described to showcase the advanced capabilities of ICN-iSapiens.

EXISTING SYSTEM

Internet of Things (IoT) conceptualizes the idea of remotely connecting and monitoring real world objects (things) through the Internet. When it comes to our house, this concept can be aptly incorporated to make it smarter, safer and automated. This IoT project focuses on building a smart wireless home security system which sends alerts to the owner by using Internet in case of any trespass and raises an alarm optionally. Besides, the same can also be utilized for home automation by making use of the same set of sensors. The leverage obtained by preferring this system over the similar kinds of existing systems is that the alerts and the status sent by the wifi connected microcontroller managed system can be received by the user on his phone from any distance irrespective of whether his mobile phone is connected to the internet. However, the

complexity and variety of IoT applications and the large number of heterogeneous elements involved makes IoT data analysis and operation planning a very difficult task.

DRAWBACKS

- IoT data analysis and operation planning is a difficult task.
- Security and privacy are some what less.
- Cost is high.

PROPOSED SYSTEM

In this paper, we present a novel CoT platform that solves such challenges in the smart home domain by leveraging two groundbreaking concepts: *Information Centric Networking (ICN)* and *Fog Computing*. The proposal, called ICN-iSapiens, is a three-layered architecture where an intermediate (Fog) layer, consisting of smart home servers (HSs), is introduced between the physical world and the remote cloud, to support real-time services and hide the heterogeneity of IoT devices. Communication at the physical layer consists of name based ICN primitives, which facilitate the network configuration and enable simple and effective interactions between HSs and IoT devices. As proof of concept, an experimental test bed is presented and some application examples are described to showcase the advanced capabilities of ICN-iSapiens.

ADVANTAGES

- Improves data security.
- Reduces network congestion and latency.

SYSTEM EQUIREMENTS

H/W System Configuration:-

- Processor - Pentium –IV
- RAM - 4 GB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse

- Monitor - SVGA

S/W System Configuration:-

- Operating System : Windows 7 or 8 32 bit
- Application Server : Tomcat5.0/6.X
- Programming Language : Java
- Java Version : JDK 1.6 and above