

IOT Architecture

Research Paper Summary

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Explainable AI

Abstract

The Internet of Things is a technical advancement that will shape how computers and communications work in the future. It is not only a straightforward expansion of the Internet or the Network for Telecommunications.

It has characteristics of both the Internet and the Telecommunications Network in addition to having a unique feature of its own. By examining the three-layer framework for the Internet of Things that is currently recognised, we argue that it is insufficient to capture all of its characteristics and meaning. Establishment a new five-layer design for the Internet of Things after reanalyzing the technological foundation of the Internet and the Logical Layered Architecture of the Telecommunication Management Network. We hope that this architecture will help you better understand the essence of the Internet of Things.

3-Layered Architecture

Different from its definition unclear, the architecture of IoT is generally accepted. The well-known 3-layer architecture consists of the Perception Layer, the Network Layer and the Application layer

1. **The Perception Layer** - The Perception Layer is like the facial skin and the five sense organs of IoT, which is mainly identifying objects, gathering information. The Perception Layer includes 2-D bar code labels and readers, RFID tags and reader-writers, camera, GPS, sensors, terminals, and sensor network. Its main task is to identify the object, gathering information.
2. **The Network Layer** - The network layer is like the neural network and brain of IoT, its main function is transmitting and processing information. The network layer includes a convergence network of communication and Internet network, network management center, information center and intelligent processing center, etc. The network layer will transmit and process the information obtained from perception layer.
3. **The application layer** -The Application Layer is a combination of IoT's social division and industry demand, to realize the extensive intellectualization. The Application Layer is the deep convergence of IoT and industry technology, combined with industry needs to realize the intellectualized industry, similar to person's social division of labor, eventually form human society

We can see various technologies development and application, but the Internet of Things still has not been large-scale applied into our work and life, and even many scholars think the Internet of Things is a it is lack of good management methods and business models. depends on the technology progress, more on various new applications and successful business models.

So we also look at two other models for better understanding -the Internet and communications network.

Internert and Telecommunications Architecture

TCP/IP Model Layer - Internet Architecture

The TCP/IP (Transmission Control Protocoll Internet Protocol) model uses four layers that logically span the equivalent of the top six layers of the OSI (Open System Interconnect) reference model.

Internet Layer

This layer corresponds to the network layer in the OSI Reference Model. It is responsible for typical layer three jobs, such as logical device addressing, data packaging, manipulation and delivery, and last but not least, routing

Transport Layer

This primary job of this layer is to facilitate end-to-end communication over an internetwork. It is in charge of allowing logical connections to be made between devices to allow data to be sent either unreliably or reliably. The key TCP/IP protocols at this layer are the Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). The TCP/IP transport layer corresponds to the layer of the same name in the OSI model (layer four) but includes certain elements that are arguably part of the OSI session layer.

Application Layer

This is the highest layer in the TCP/IP model. It is a rather broad layer, encompassing layers five through seven in the OSI model. Numerous protocols reside at the application layer. These include application protocols such as HTTP, FTP and SMTP for providing end-user services, as well as administrative protocols like SNMP, DHCP and DNS.

TMN Logical Layered Architecture - Telecommunications architecture

To deal with the complexity of telecommunications management, management functionality may be considered to be partitioned into logical layers. The Logical Layered Architecture (LLA) is a concept for the structuring of management functionality which organizes the functions into groupings called "logical layers" and describes the relationship between layers