

IoT Architectures and Protocols

Index

Chapter 1: IoT Introduction

- 1.1 Introduction and Evolution of IoT
- 1.2 IoT Growth
- 1.3 Application Areas of the Internet of Things (IoT)
- 1.4 Characteristics of the Internet of Things (IoT)
- 1.5 IoT Technology Stack: A Layered Approach to Connectivity
- 1.6 Internet of Things (IoT) Enabling Technologies
- 1.7 IoT Level
- 1.8 IoT Sensing (Sensor)
- 1.9 IoT Actuation and Types of Actuators

Chapter 2: IoT and M2M and IoT Architectures

- 2.1 Introduction and Basic Perspective: M2M to IoT
- 2.2 Differences and Similarities between M2M and IoT
- 2.3 SDN for IoT
- 2.4 Network Functions Virtualization (NFV) for IoT
- 2.5 M2M Value Chain
- 2.6 IoT Value Chain
- 2.7 Emerging Industrial Structure for IoT (Internet of Things)
- 2.8 Internationally Driven Global Value Chains and Global Information Monopolies
- 2.9 IoT Architectures

Chapter 3: IoT Data Link Layer and Network Layer Protocols

- 3.1 PHY / MAC Layer
- 3.2 WirelessHART
- 3.3 Z-Wave
- 3.4 DASH7
- 3.5 Zigbee Smart Energy
- 3.6 Bluetooth Low Energy (BLE)
- 3.7 Network Layer Protocols

Chapter 4: Transport and Session Layer Protocols

4.1 TCP and UDP

4.2 Multipath TCP (MPTCP)

4.3 Datagram Congestion Control Protocol (DCCP)

4.4 Stream Control Transmission Protocol (SCTP)

4.5 Transport Layer Security (TLS)

4.6 Datagram Transport Layer Security (DTLS)

4.7 HTTP (HyperText Transfer Protocol)

4.8 MQTT (Message Queuing Telemetry Transport)

4.9 AMQP

4.10 CoAP (Constrained Application Protocol)

4.11 XMPP

Chapter 5: Service Layer Protocols and Security

5.1 oneM2M

5.2 ETSI M2M

5.3 OMA

5.4 BBF

5.5 MAC 802.15.4

5.6 6LoWPAN

5.7 RPL

5.8 Application Layer Protocols