

Internet of Things (IOT) Overview

Outline

While Industry projections indicate upwards of 25 Billion connected devices by 2020, the Internet of Things (IOT) is here now, with more interconnected devices on the planet than people.

This 3 hour workshop defines the IOT, outlines keys applications, technical issues and standards activities, and interactions with big data.

The course first defines the IOT, highlights the key industry players, and outlines key IOT applications. IOT architecture developments are then outlined, follow by a low power interface overview, focusing on RFID operation, Zigbee, and low power WiFi

The IOT standardisation groups and their respective activities are then reviewed, followed by an IOT security overview, focusing on both secure interfaces and IOT big data security implications. The course ends with an examination of IOT big data scope, existing paradigms such as Hadoop and MapReduce, and how they are adapting to IOT applications.

Course Objectives

Those completing this course should be able to:

- Define IOT and outline the key industry players
- Describe major IOT applications
- Outline key IOT architecture components
- Describe IOT interface requirements and RFID operation
- Outline Zigbee and low power WiFi (802.11ah) capabilities
- List the IOT standards groups and highlight their activities
- Describe key IOT security issues, and how they may be addressed
- Outline how IOT incorporates Big Data, and how existing Big Data paradigm will adapt to IOT applications

About the Instructor

Dr Eyers, a graduate of Yale University and the University of Wollongong, has a commercial background stretching over two decades in the telecommunications industry. Training clients include Telstra, Broadcast Australia, NSW, SA and WA Govts, as well as Australian Government agencies, including the ACMA, Australian Crime Commission and the AFP.

Course Outline

IOT Applications and Structure

Definition and Industry Projections	IOT definition: more connected devices than people. M2M. 2020 projections. Major industry players: Google, Cisco, Intel, Samsung
IOT Applications	Healthcare, Smart metering, Vehicles, Energy Efficiency, Connected Home
IOT Architecture	IEEE P2413 Working Group. OneM2M functional architecture. Information Centric Networking. IOT and Ipv6
Low Power devices and Interfaces	Low power interface requirements. RFID overview. Low power WiFi – 802.11ah. Zigbee.

Break

IOT Standards, Security and Big Data Applications

IOT Standardisation	IEEE. GSMA, 3GPP M2M standards group. AllSeen Alliance, Open MTC cloud based platform.
Security Issues	IOT attacks. RFID authentication. Secure IOT MAC layers. Mauritius Resolution on Big Data.
IOT and Big Data	IOT big data scope. Existing paradigms: Hadoop, MapReduce. Adapting to IOT.