University of South Australia

Internet of Things (IoT)

Internet of Things (IoT)

- Term coined by British technologist Kevin Ashton in 1999.

- A vast network of smart objects which work together in collecting, analysing data and autonomously performing actions.

University of South Australia

https://www.tiempodev.com/blog/the-state-of-industrial-internet-of-things/   2

Some predictions for IoT

- By 2025, the total installed base of IoT connected devices worldwide will be 30.9 billion, up from 13.8 billion units in 2021.
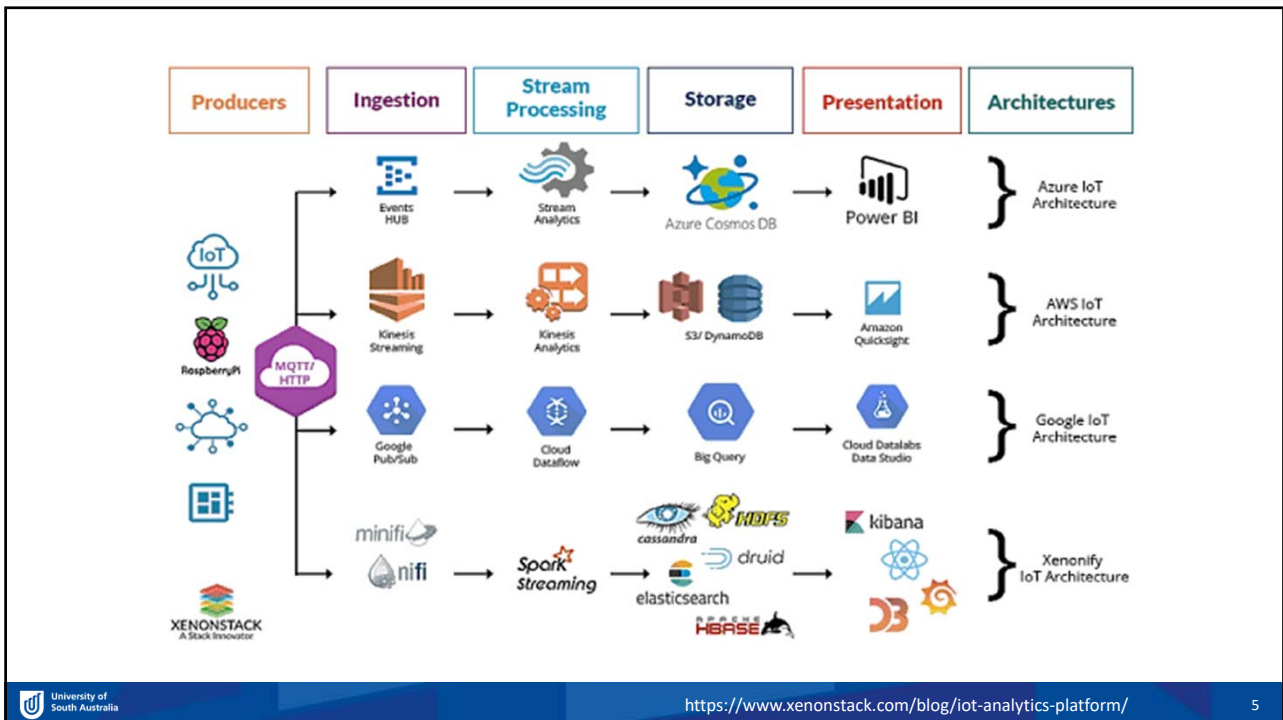
  Source: http://www.statista.com

- By 2025, 50% of industrial enterprises will use industrial Internet of Things (IIoT) platforms to improve factory operations, up from 10% in 2020.

- Through 2025, 25% of large global industrial enterprises will acquire or invest in an IIoT platform company; up from 5% in 2020.
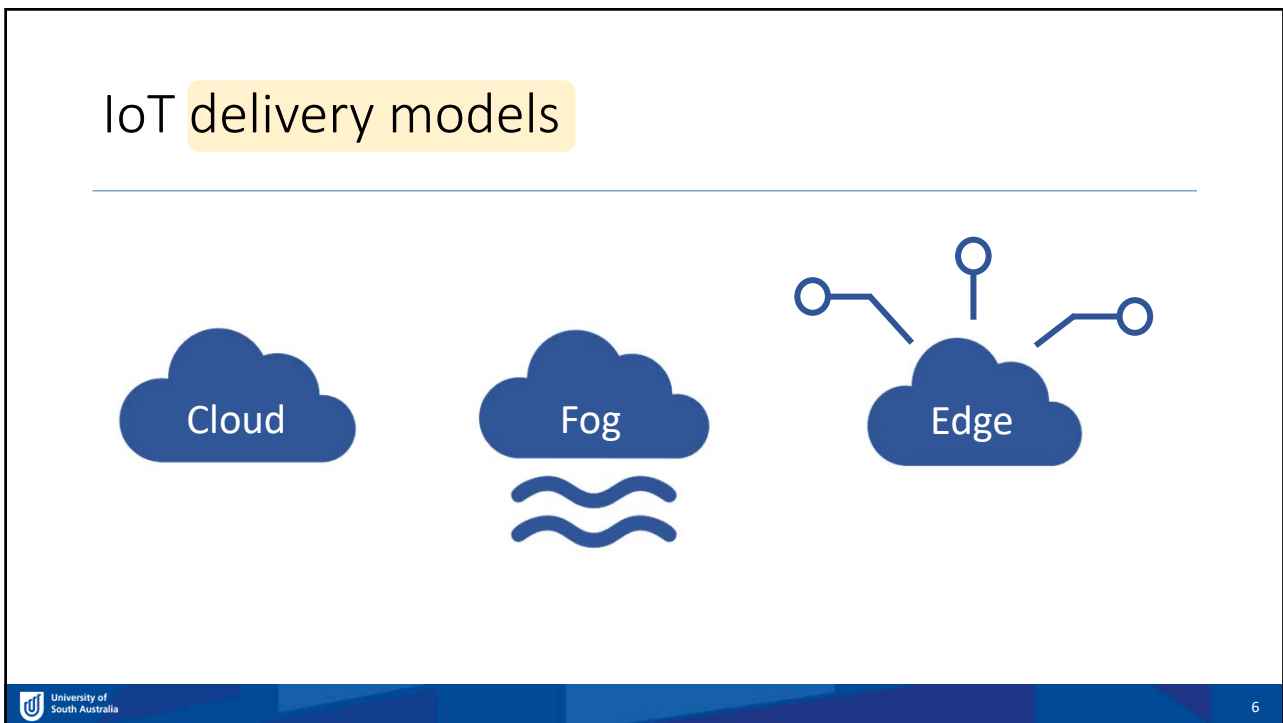
  Source: Gartner 2020, ID: G00436179

3

IoT architecture layers

Hardware/sensing	
Network/gateway	
Management	
Application	

4

IoT delivery models

Cloud

Fog

Edge

Fog computing

- A mix of a traditional centralised data storage system and cloud.
- Urgent requests are sent directly to the fog and processed locally in the network.
- Less sensitive data is transferred to the cloud for storage and analysis.
- Useful when the internet connection isn't always stable.

Edge computing

- Edge computing processes data away from centralised storage.
- Information is kept on edge devices (the local parts of the network).
- When data is sent to the edge device, it can be processed directly.
- Least vulnerable form of decentralised storage.

Why fog and edge computing?

Fog

Low latency

Better data control

Flexible storage system

Edge
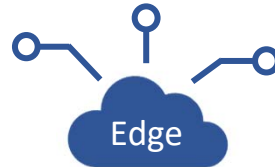
No delays in data processing

Real time data analysis

Low network traffic

9

9

10

10