



SNS COLLEGE OF ENGINEERING

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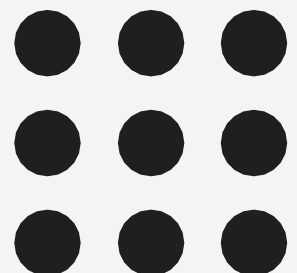
Department of AI & DS

Course Name –Internet of Things & AI

V Semester

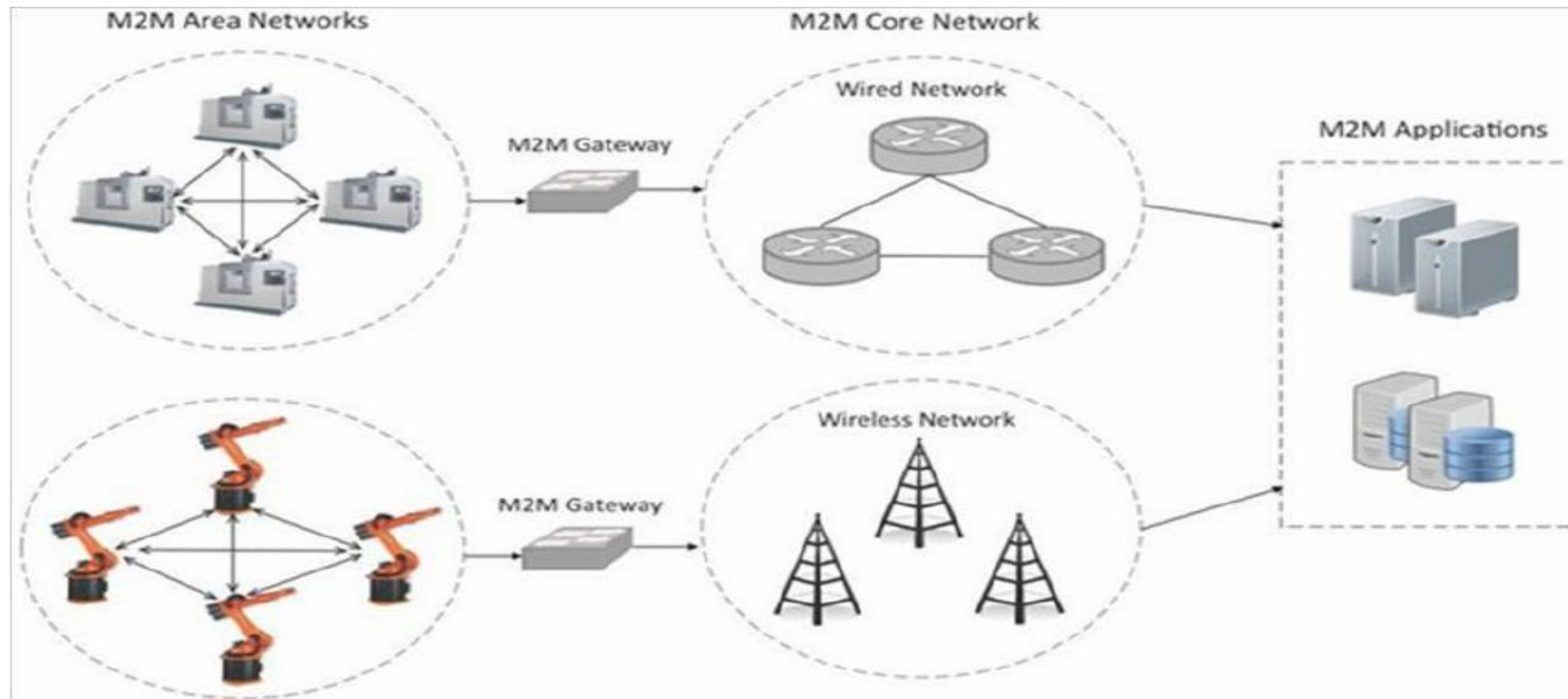
Unit 1 – IoT INTRODUCTION AND APPLICATIONS

Topic 9- IoT and M2M



M2M

- Machine-to-Machine (M2M) refers to networking of machines (or devices)
- The purpose of remote monitoring and control and data exchange.
- Network: wired /wireless



M2M

1) M2M area network

- will be a local area network it send data to M2Mcore area network(remote network) via M2M gate way
- An M2M area network – has machines (or M2M nodes) which have embedded hardware modules for sensing, actuation and communication.
- Various communication protocols can be used for M2M local area networks such as ZigBee, Bluetooth, ModBus, M-Bus, Wireless M-Bus, Power Line Communication (PLC), 6LoWPAN, IEEE 802.15.4, etc.

M2M Core network

- remote network it can be wired or wireless .from M2M core network data will be send to M2M application
- The core area network can use either wired or wireless networks (IPbased).
- While the M2M area networks use either proprietary or non-IP based communication protocols, the communication network uses IP-based networks.

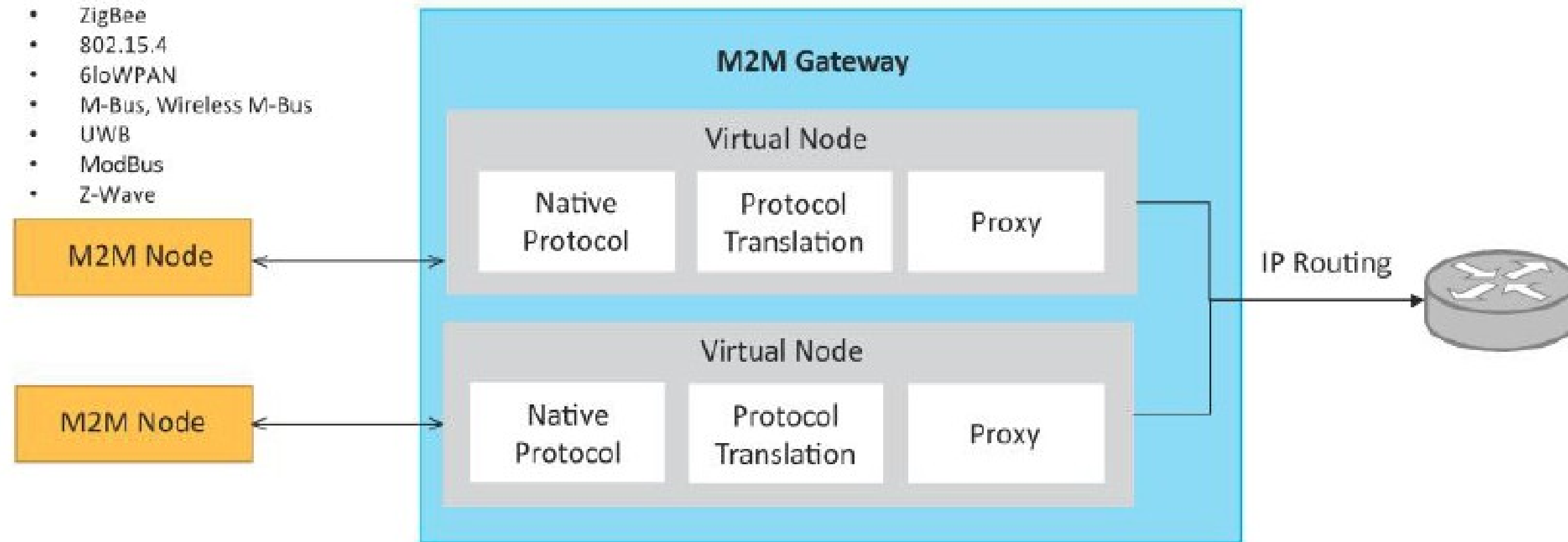
M2M

M2M gate way – it helps to communicate two networks which uses two different protocol .it data converts from one form to another

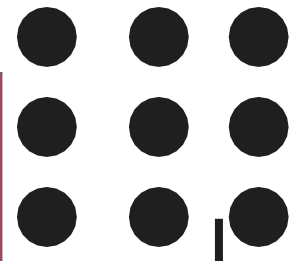
- Since non-IP based protocols are used within M2M area networks, the M2M nodes within one network cannot communicate with nodes in an external network.
- To enable the communication between remote M2M area networks. M2M gateways are used.

M2M Area Networks:

- Bluetooth
- ZigBee
- 802.15.4
- 6LoWPAN
- M-Bus, Wireless M-Bus
- UWB
- ModBus
- Z-Wave



Difference between IoT and M2M



topic	M2M	IOT
Communication protocol	Proprietary or non IP based	IP based
Machines	Homogeneous machine All machines are same type	Physical object that has unique id (not same type of object)
Hardware vs software	More on hardware	More on software
Data collection & analysis	Collected in point- solution (data collected in one point all time)and stored in same storage (local)	Collected in the cloud (can be public ,private or hybrid cloud)
Application	Diagnosis application,service management application, Enterprise application	Analytics application Remote diagnosis



Difference between IoT and M2M



Differences

- Communication Protocol
- Machines in M2M vs Things in IoT
- Hardware vs Software Emphasis
- Data Collection & Analysis
- Applications

Communication Protocols

- M2M and IoT can differ in how the communication between the machines or devices happens.
- M2M uses either proprietary or non-IP based communication protocols for communication within the M2M area networks.

Machines in M2M vs Things in IoT

- The "Things" in IoT refers to physical objects that have unique identifiers and can sense and communicate with their external environment (and user applications) or their internal physical states.
- M2M systems, in contrast to IoT, typically have homogeneous machine types within an M2M area network.



Difference between IoT and M2M



Hardware vs Software Emphasis

- While the emphasis of M2M is more on hardware with embedded modules, the emphasis of IoT is more on software.

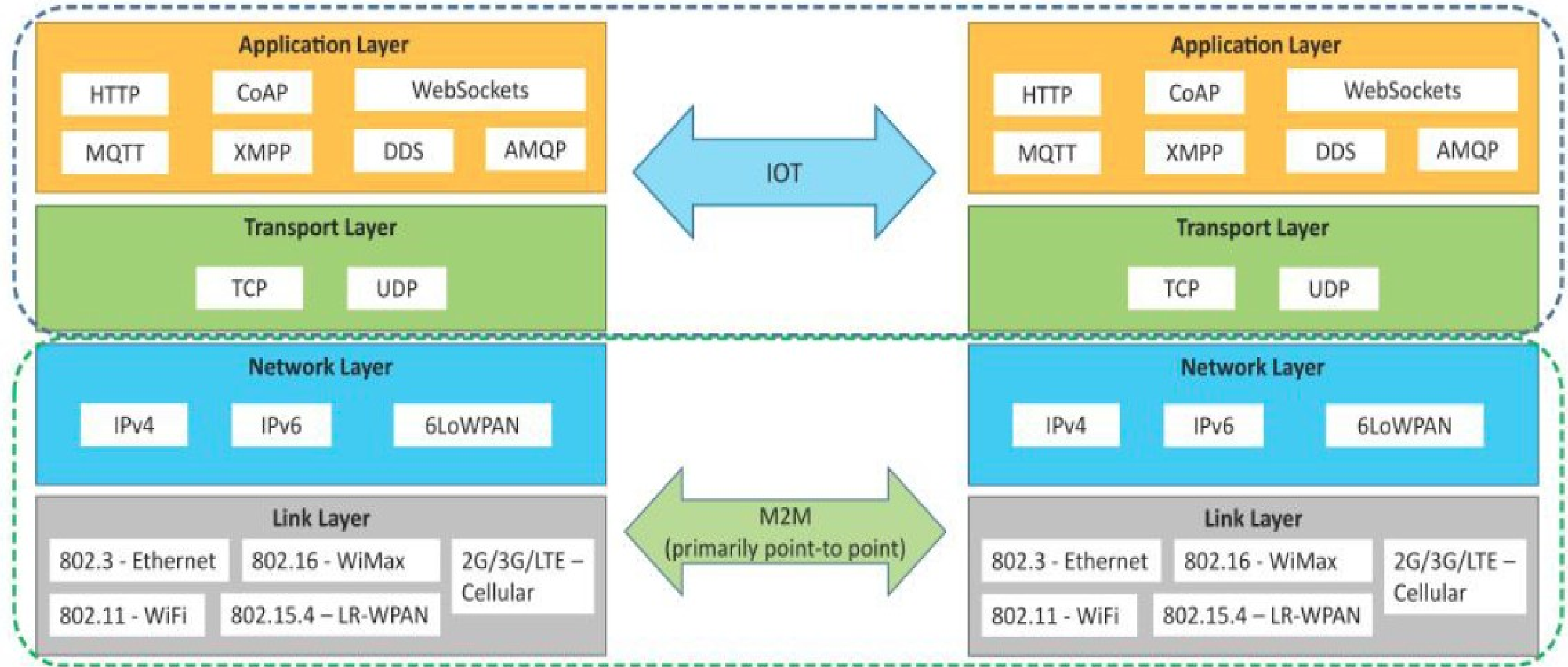
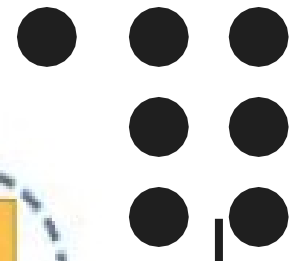
Data Collection & Analysis

- M2M data is collected in point solutions and often in on-premises storage infrastructure.
- In contrast to M2M, the data in IoT is collected in the cloud (can be public, private or hybrid cloud).

Applications

- M2M data is collected in point solutions and can be accessed by on-premises applications such as diagnosis applications, service management applications, and onpremissis enterprise applications.
- IoT data is collected in the cloud and can be accessed by cloud applications such as analytics applications, enterprise applications, remote diagnosis and management applications, etc.

Communication in IoT and M2M





THANK YOU