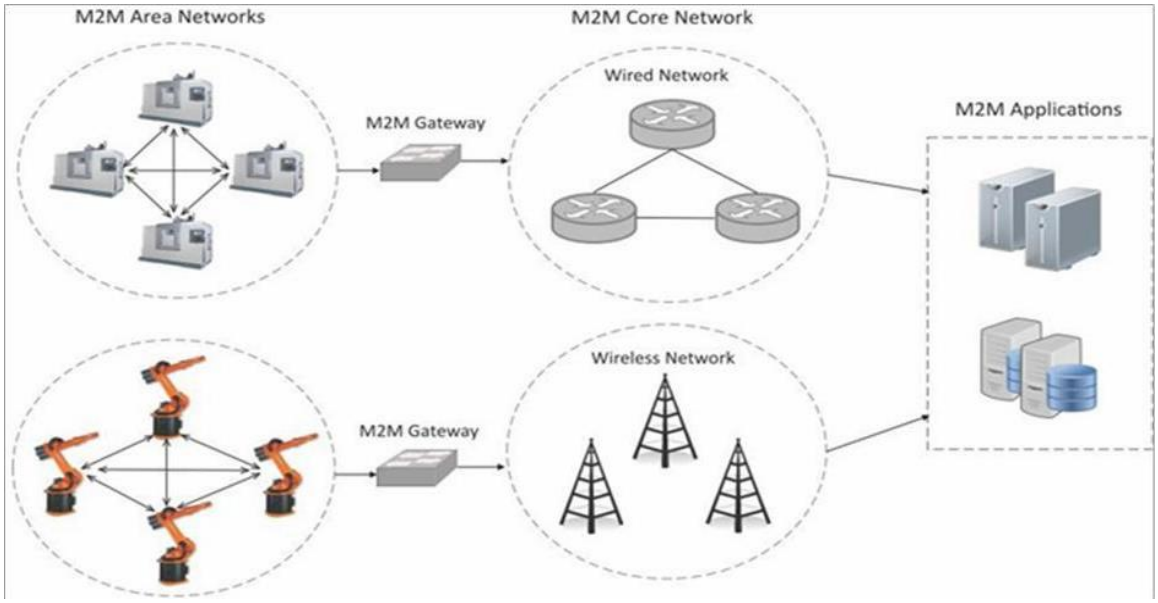
IoT and M2M

M2M:

Machine-to-Machine (M2M) refers to networking of machines(or devices) for the purpose of remote monitoring and control and dataexchange.

- Term which is often synonymous with IoT is Machine-to-Machine (M2M).
- IoT and M2M are often usedinterchangeably.

Fig. Shows the end-to-end architecture of M2M systems comprises of M2M area networks, communication networks and application fomain.



- An M2M area network comprises of machines(or M2M nodes) whiach have embedded network modules for sensing, actuation and communicating various communiction protocols can be used for M2M LAN such as ZigBee, Bluetooth, M-bus, Wireless M-Bus etc., These protocols provide connectivity between M2M nodes within an M2M area network.
- The communication network provides connectivity to remote M2M area networks. The communication network provides connectivity to remote M2M area network. The communication networkcan use either wired or wireless network(IP based). While the M2M are networks use either properietorary or non-IP baed communication protocols, the communication network uses IP-based network. Since non-IP based protocols are used within M2M area network, the M2M nodes within one network cannot communicate with nodes in an externalnetwork.
- To enable the communication between remote M2M are network, M2M gateways are used.

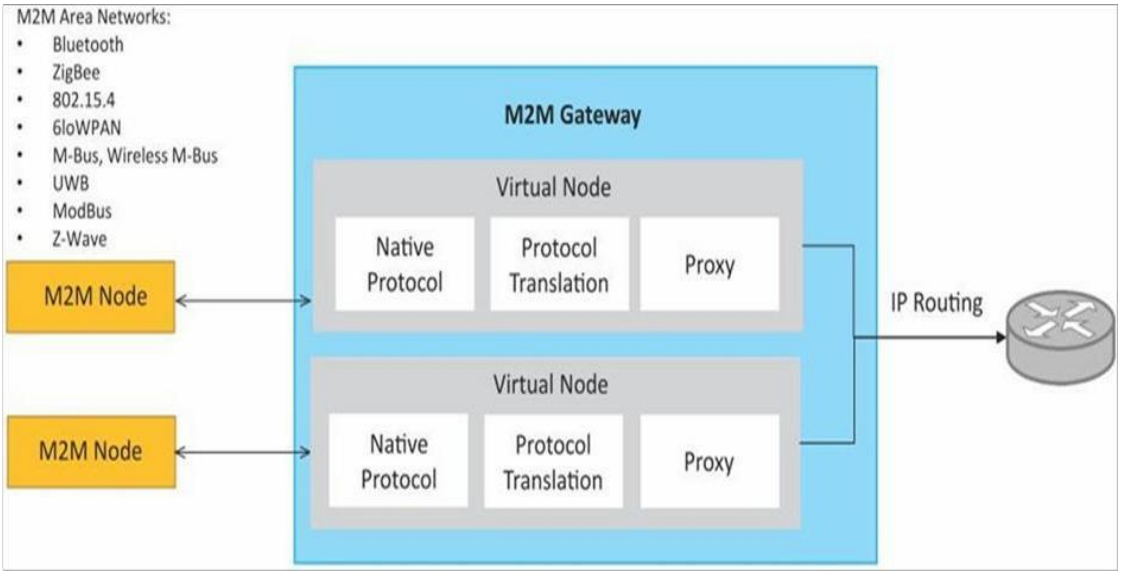


Fig. Shows a block diagram of an M2M gateway. The communication between M2M nodes and the M2M gateway is based on the communication protocols which are naive to the M2M are network. M2M gateway performs protocol translations to enable Ip-connectivity for M2M are networks. M2M gateway acts as a proxy performing translations from/to native protocols to/from Internet Protocol(IP). With an M2M gateway, each mode in an M2M area network appears as a virtualized node for external M2M area networks.

Differences between IoT and M2M

1) **Communication Protocols:**
   - Commonly uses M2M protocols include ZigBee, Bluetooth, ModBus, M-Bus, WirelessM-Bustec.,
   - In IoT uses HTTP, CoAP, WebSocket, MQTT,XMPP,DDS,AMQPetc.,
2) **Machines in M2M Vs Things inIoT:**
   - Machines in M2M will be homogenous whereas Things in IoT will be heterogeneous.
3) **Hardware Vs SoftwareEmphasis:**
   - the emphasis of M2M is more on hardware with embedded modules, the emphasis of IoT is more onsoftware.
4) **Data Collection &Analysis**
   - M2M data is collected in point solutions and often in on-premises storage infrastructure.
   - The data in IoT is collected in the cloud (can be public, private or hybrid cloud).

5) Applications

- M2M data is collected in point solutions and can be accessed by on-premises applications such as diagnosis applications, service management applications, and on- premisis enterpriseapplications.
- 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.