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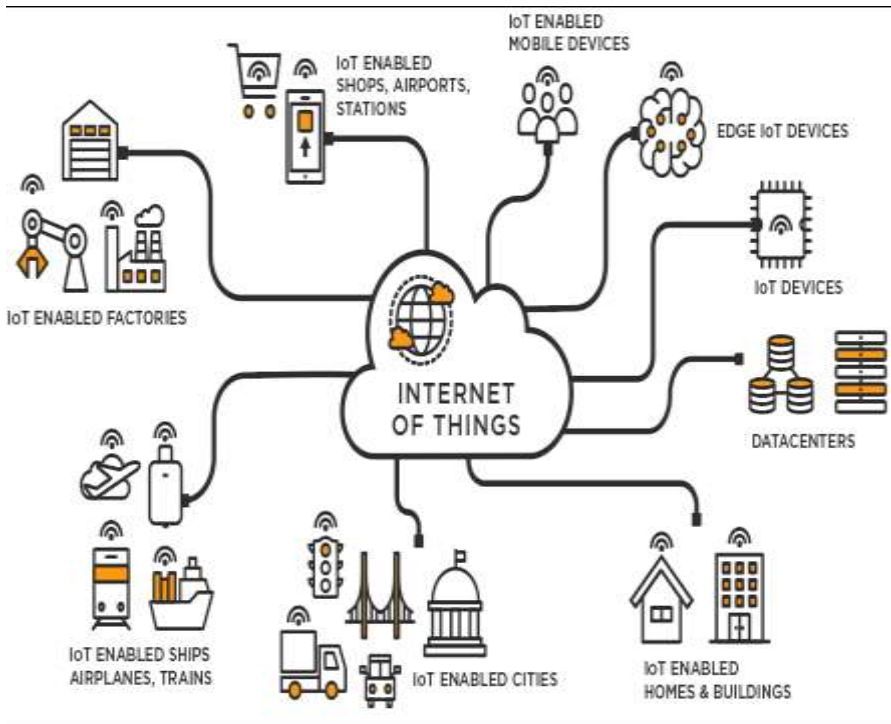
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



19EC621 – IoT and Wireless Sensor Networks

Unit -1 Overview of Internet of Things



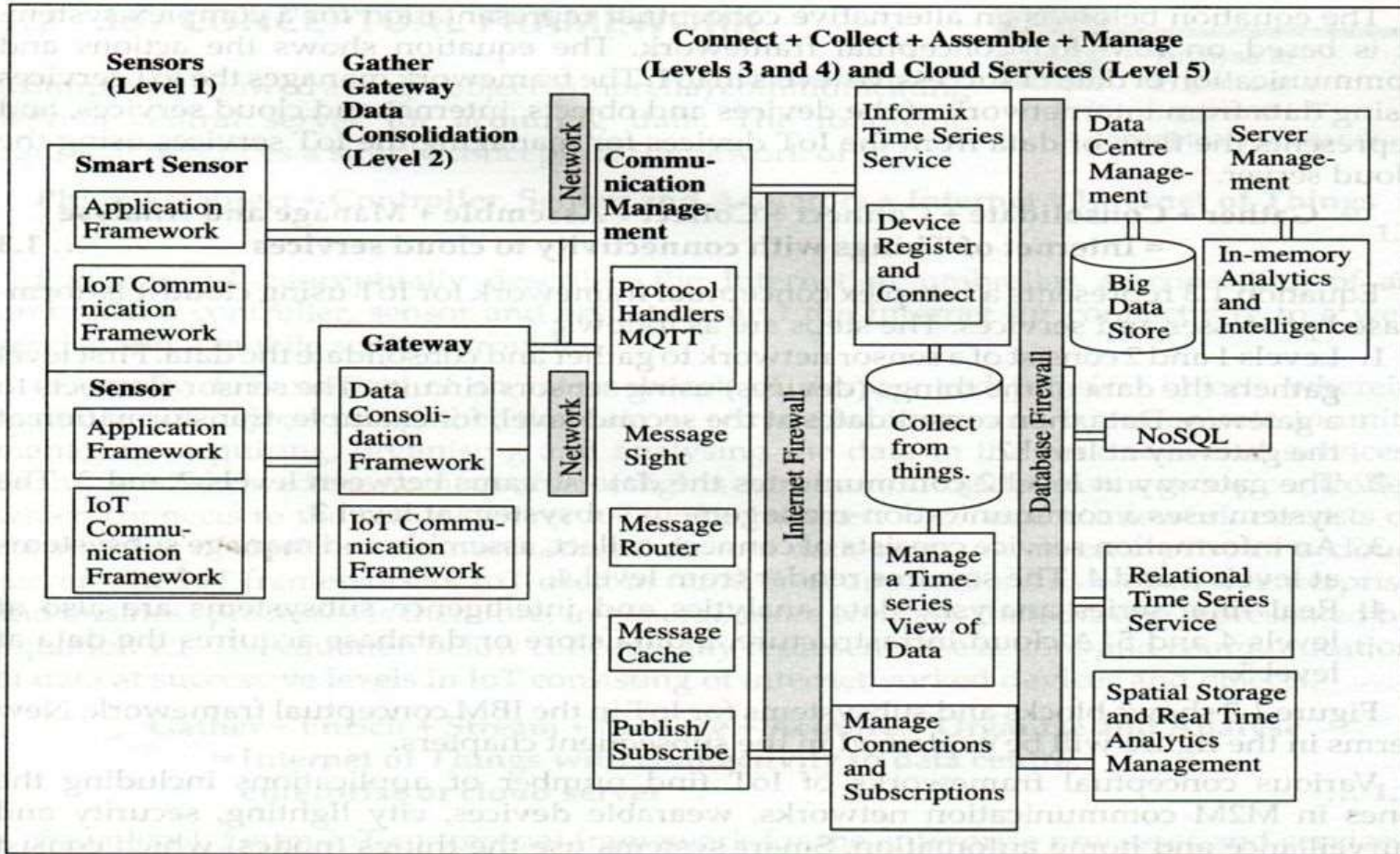


An IoT Conceptual Framework

- Physical Object + Controller, Sensor and Actuators + Internet = Internet of Things
- Gather + Enrich + Stream + Manage + Acquire + organize and Analyse = Internet of Things Enterprise & Business Applications, Integration and SoA
- Gather + Consolidate + Connect + Collect + Assemble + Manage and Analyse = Internet of Things connected to Cloud Services ...



IoT: Conceptual Framework



IBM IoT Conceptual Framework

(Courtesy: TMH; IoT Architecture and Design Principles by Raj Kamal)





An IOT reference model CISCO conceptual framework

Level 7- Collaboration and processes (involving peoples and business processes)

Level 6- Application (Reporting, Analysis, control)

Level 5- Data Abstraction (Aggregation and Access)

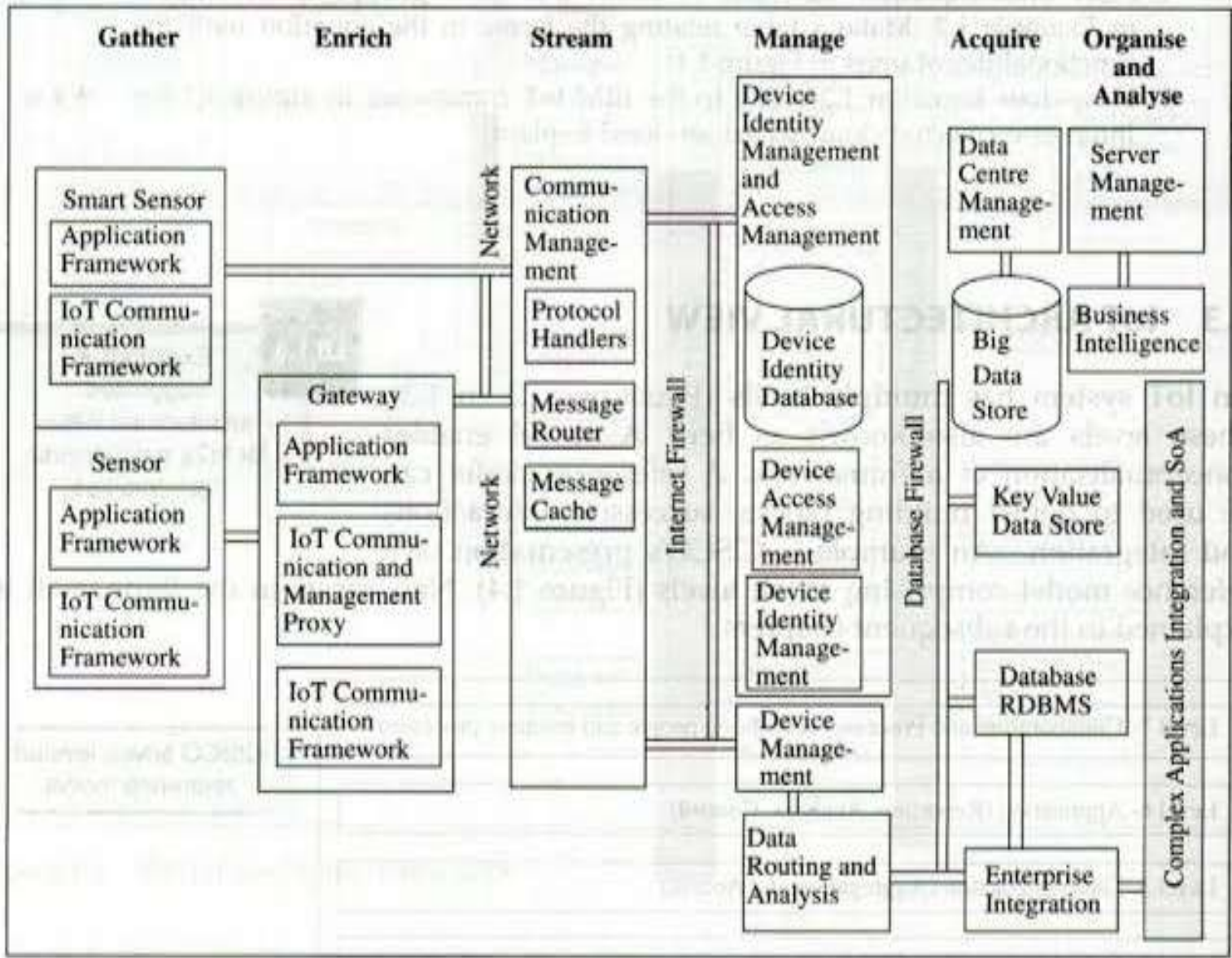
Level 4- Data Accumulation (storage)

Level 3- Edge Computing (data element analysis and transformation)

Level 2- Connectivity (Communication and Processing Units)

Level 1- Physical devices and Controllers (the things in IoT) [Sensors, machines, devices, Intelligent Edge nodes of Different Types]





IoT World Forum Reference Model

Levels

- 7 **Collaboration & Processes**
(Involving People & Business Processes)
- 6 **Application**
(Reporting, Analytics, Control)
- 5 **Data Abstraction**
(Aggregation & Access)
- 4 **Data Accumulation**
(Storage)
- 3 **Edge Computing**
(Data Element Analysis & Transformation)
- 2 **Connectivity**
(Communication & Processing Units)
- 1 **Physical Devices & Controllers**
(The "Things" in IoT)



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IEEE suggested P2413 standard

- A reference architecture of IoT
- Built upon the reference model(s)
- Covers the definition of basic architectural building blocks and their integration capability into multi-tiered systems.





P2413 architectural framework

- A reference model defining relationships among various IoT verticals, for example, transportation and healthcare
- Follows top-down approach (means consider top layer design first and then move to the lowest)

P2413

- Defines no new architecture and no reinvent but existing architectures congruent with it
 - Gives a blueprint for data abstraction
 - Specifies abstract IoT domain for various IoT domains
- Recommends quality ‘quadruple’ trust
- “Protection, Security, Privacy, and Safety”
 - Strives for mitigating architecture divergence (s)
 - Addresses how to document





Thank
you

