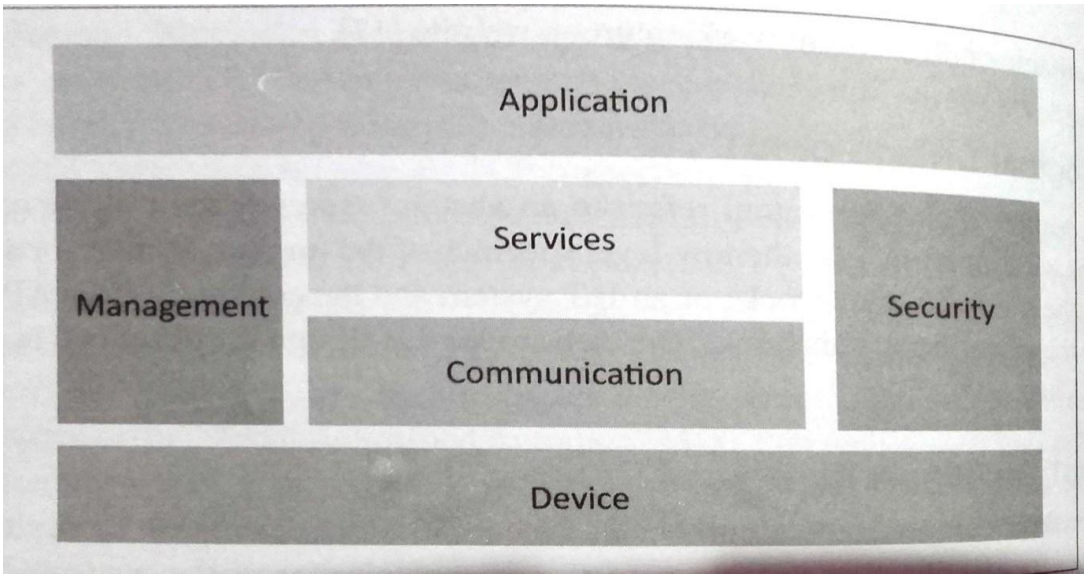
LOGICAL DESIGN of IoT

Refers to an abstract represent of entities and processes without going into the low level specifies of implementation.

1) IoT Functional Blocks 2) IoT Communication Models 3) IoT Comm. APIs

1) **IoT Functional Blocks:** Provide the system the capabilities for identification, sensing, actuation, communication andmanagement.

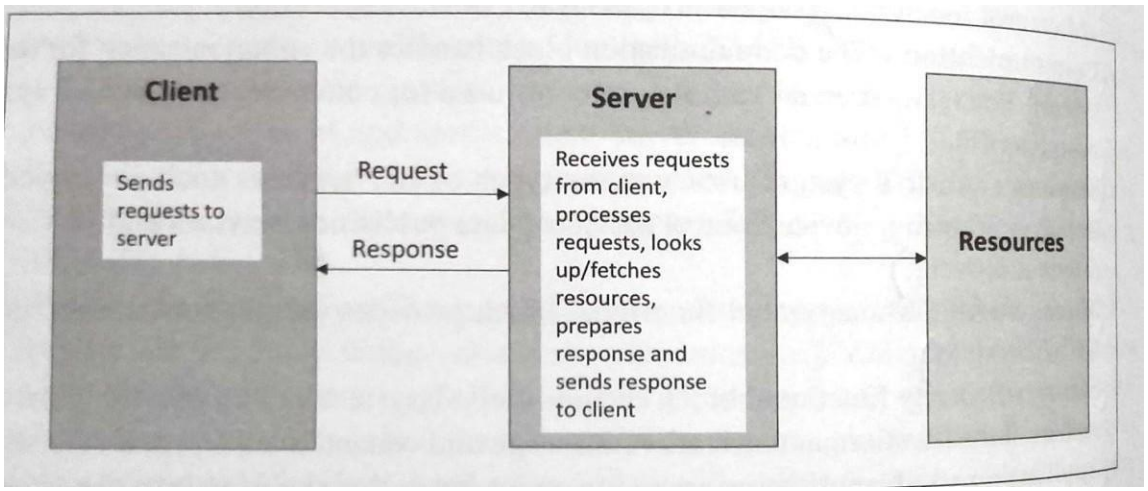


- **Device:** An IoT system comprises of devices that provide sensing, actuation, monitoring and controlfunctions.
- **Communication:** handles the communicationfor IoTsystem.
- **Services:** for device monitoring, device control services, data publishing services and services for devicediscovery.
- **Management:** Provides various functions to govern the IoTsystem.
- **Security:** Secures IoT system and priority functions such as authentication,authorization, message and context integrity and datasecurity.
- **Application:** IoT application provide an interface that the users can use to control and monitor various aspects of IoTsystem.

2) IoT CommunicationModels:

1) Request-Response 2) Publish-Subscibe 3)Push-Pull 4) ExclusivePair

1) Request-ResponseModel:



In which the client sends request to the server and the server replies to requests. Is a stateless communication model and each request-response pair is independent of others.

2) Publish-SubscibeModel:

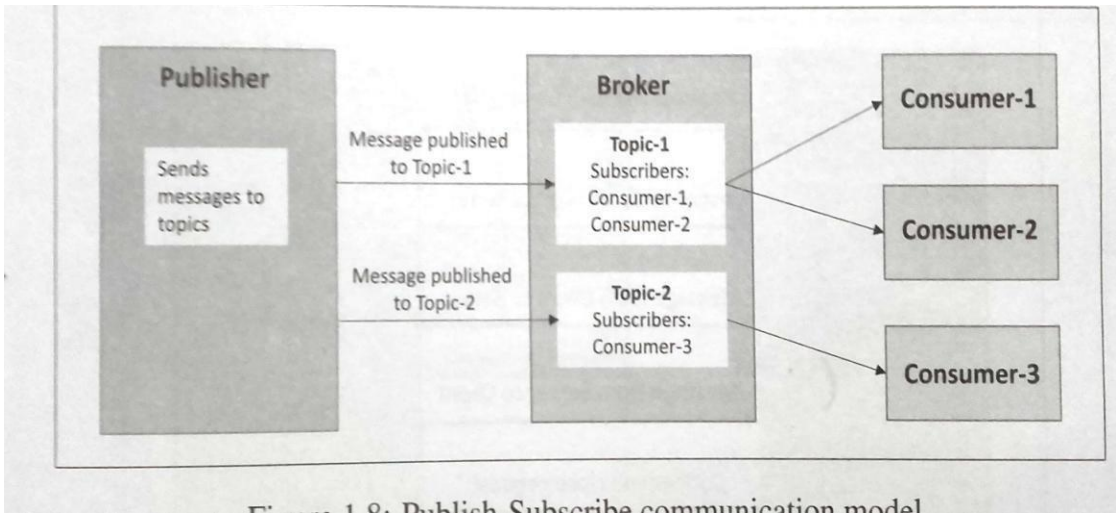


Figure 1.8: Publish-Subscribe communication model

Involves publishers, brokers and consumers. Publishers are source of data. Publishers send data to the topics which are managed by the broker. Publishers are not aware of the consumers. Consumers subscribe to the topics which are managed by the broker. When the broker receives data for a topic from the publisher, it sends the data to all the subscribedconsumers.

3) **Push-Pull Model:** in which data producers push data to queues and consumers pull data from the queues. Producers do not need to aware of the consumers. Queues help in decoupling the message between the producers andconsumers.