SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.

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DEPARTMENT OF AUTOMOBILE ENGINEERING

COURSE NAME : 19AUT205 – INTERNET OF THINGS IN AUTOMOTIVE SAFETY

II YEAR /IV SEMESTER

Unit 2- IoT Communication and Levels

Topic 2 : IoT Communication API

CONTENT

- IoT Communication API
  - REST based Communication API
  - Web Socket based Communication API

1. What is Push-pull communication model?

2. Mention the application of publish-subscribe communication model

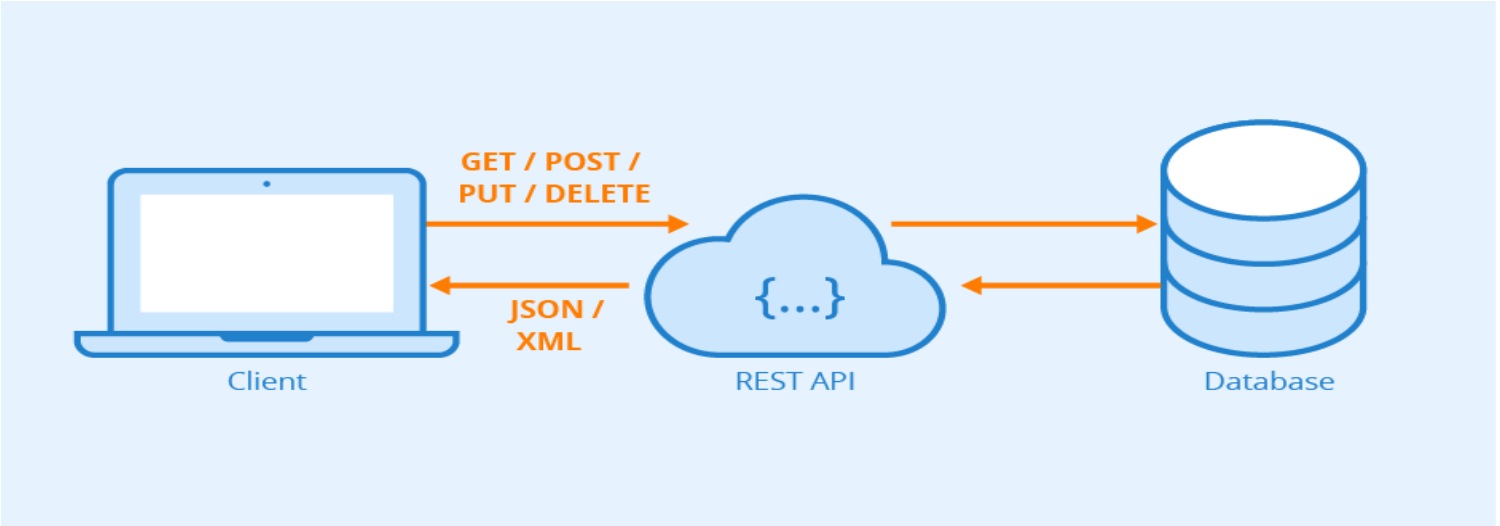
3. Mention the various communication models

INTRODUCTION

- IoT Communication APIs are used to communicate between the server and system in IoT.
- There are two different types of IoT Communication API, they are
  - REST based Communication API
  - Web Socket based Communication API

REST BASED COMMUNICATION API

- Representational state Transfer (REST) API uses a set of architectural principles that used to design web services.
- These APIs focus on the systems' resources that how resource states are transferred using the request-response communication model.
- This API uses some architectural constraints.
  - Client- Server
  - Stateless
  - Cacheable



CLIENT - SERVER

- Here the client is not aware of the storage of data because it is concerned about the server
- Similarly the server should not be concerned about the user interface because it is a concern of the client.
- This separation is needed for independent development and updating of server and client.
- No matter how the client is using the response of the server and no matter how the server is using the request of the client.

STATELESS

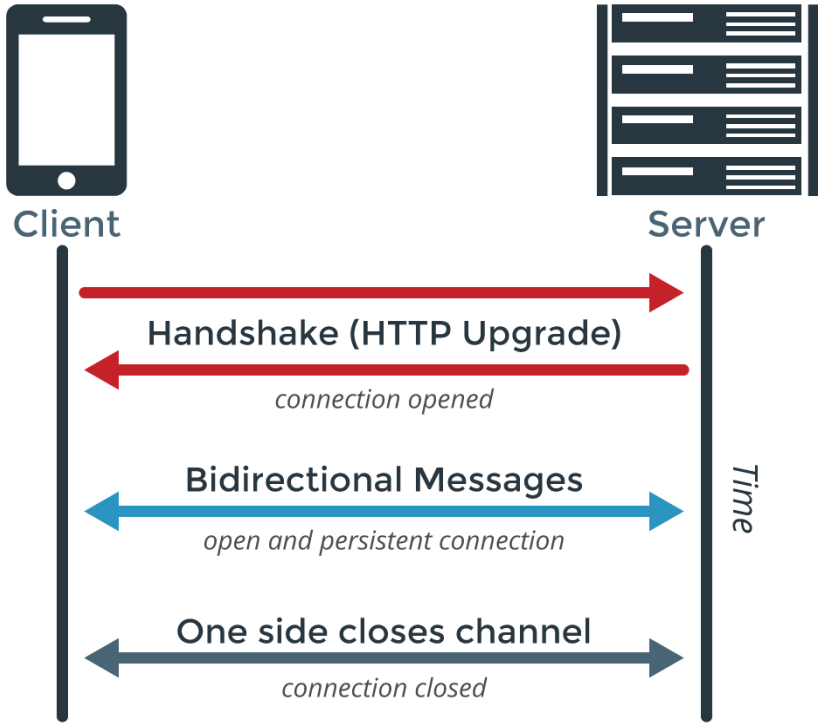
- It means each request from the client to the server must contain all the necessary information to understand by the server.
- Because if the server can't understand the request of the client then it can't fetch the request data in a proper manner.

CACHEABLE

- In response, if the cache constraints are given then a client can reuse that response in a later request.
- It improves the efficiency and scalability of the system without loading the extra data.
- A RESTful web APIs is implemented using HTTP and REST principles.

WEB SOCKET BASED COMMUNICATION API

- This type of API allows bi-directional full-duplex communication between server and client using the exclusive pair communication model.
- This API uses full-duplex communication so it does not require a new connection setup every time when it requests new data.



WEB SOCKET BASED COMMUNICATION API

- Web Socket API begins with a connection setup between the server and client
- If the Web Socket is supported by the server then it responds back to the client with the successful response and after setup of a connection server and client can send data to each other in full-duplex mode.
- This type of API reduces the traffic and latency of data and makes sure that each time when we request new data it cannot terminate the request.

Task

1. What is the communication model used in Websocket API?

2. Mention the types of Communication Model API

3. Mention the communication models used for REST API

REFERENCE

- https://www.programmingoneonone.com/2021/04/logical-design-of-iot.html#:~:text=IoT%20Communication%20APIs-,IoT%20Functional%20blocks,identification%2C%20communication%2C%20and%20management
- https://www.youtube.com/watch?v=hyG2nGVz4ok

THANK YOU !!!