

IoT ARCHITECTURE

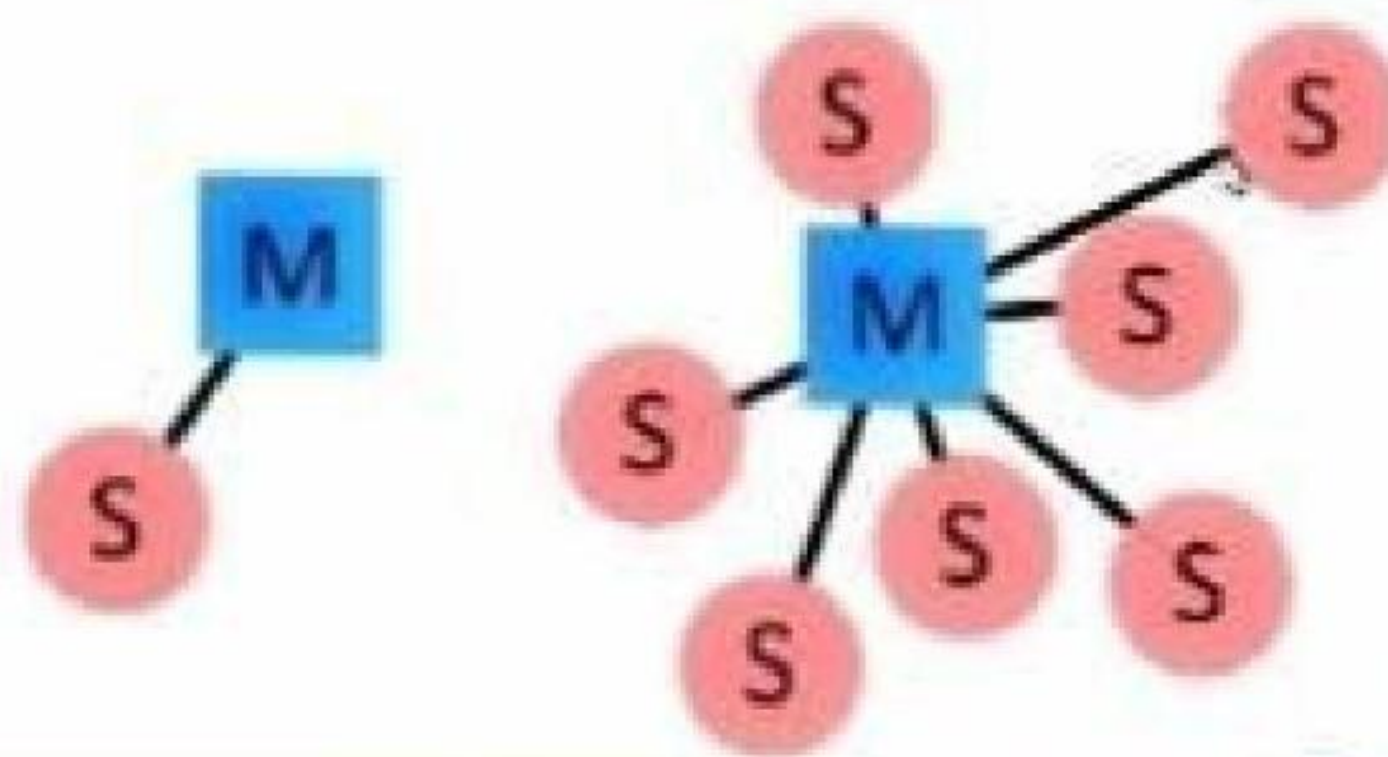


Bluetooth

	Bluetooth IEEE 802.15.1
Application	Cable replacement
Frequency bands	2.4GHz
Bandwidth	1Mbps
Range (meters)	1–10

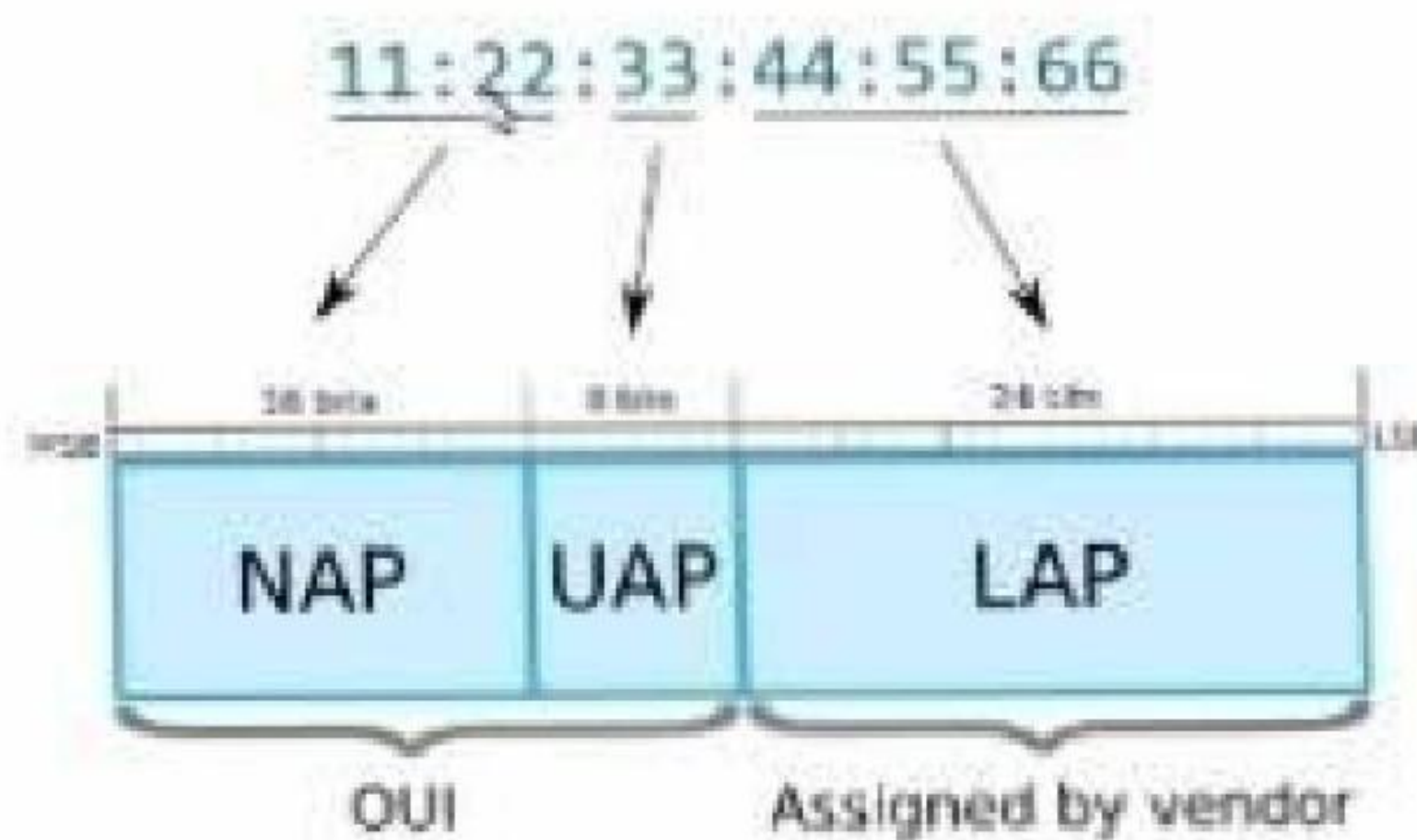
Bluetooth

- Bluetooth networks referred to as **piconets** use a master/slave model to control.
- A single master device can be connected to up to seven different slave devices.



Bluetooth Addresses

Bluetooth Address (BD_ADDR)



NAP-Non-significant Address Part -- used in Frequency Hopping Synchronization

IoT Communication Technologies



Step 4: Program

```
// Stream4 input;

DynamicJsonDocument doc(2048);

DeserializationError error = deserializeJson(doc, input);

if (error) {
  Serial.print(F("deserializeJson() failed: "));
  Serial.println(error.f_str());
  return;
}

const char* cod = doc["cod"]; // "100"
int message = doc["message"]; // 0
int cnt = doc["cnt"]; // 2

for (JsonObject list_item : doc["list"].as<JsonArray>()) {

  long list_item_dt = list_item["dt"]; // 1629266400, 1629277200

  JsonObject list_item_main = list_item["main"];
  float list_item_main_temp = list_item_main["temp"]; // 32.62, 34.21
  float list_item_main_feels_like = list_item_main["feels_like"]; // 33.82, 35.2
  float list_item_main_temp_min = list_item_main["temp_min"]; // 32.62, 34.21
  float list_item_main_temp_max = list_item_main["temp_max"]; // 35.34, 37.69
  int list_item_main_pressure = list_item_main["pressure"]; // 1006, 1004
  int list_item_main_sea_level = list_item_main["sea_level"]; // 1006, 1004
  int list_item_main_grnd_level = list_item_main["grnd_level"]; // 954, 953
  int list_item_main_humidity = list_item_main["humidity"]; // 49, 57
  float list_item_main_temp_kf = list_item_main["temp_kf"]; // -3.72, -3.18
```

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Step 2: JSON

Examples: OpenWeatherMap, Reddit

Input

```
[{"cod": "200", "message": 0, "cnt": 2, "list": [{"dt": 1629266400, "main": {"temp": 32.62, "feels_like": 33.82, "temp_min": 32.62, "temp_max": 35.34, "pressure": 1006, "sea_level": 1006, "grnd_level": 956, "humidity": 43, "temp_kf": -2.72}, "weather": [{"id": 801, "main": "Clouds", "description": "few clouds", "icon": "02d"}], "clouds": {"all": 20}, "wind": {"speed": 3.11, "deg": 296, "gust": 3.37}, "visibility": 10000, "pop": 0, "sys": {"pod": "d"}, "dt_txt": "2021-08-18 06:00:00"}, {"dt": 1629277200, "main": {"temp": 34.31, "feels_like": 35.2, "temp_min": 34.31, "temp_max": 37.69, "pressure": 1004, "sea_level": 1004, "grnd_level": 953, "humidity": 37, "temp_kf": -3.38}, "weather": [{"id": 801, "main": "Clouds", "description": "few clouds", "icon": "02d"}], "clouds": {"all": 15}, "wind": {"speed": 3.77, "deg": 5, "gust": 4.24}, "visibility": 10000, "pop": 0, "sys": {"pod": "d"}, "dt_txt": "2021-08-18 09:00:00"}], "city": {"id": 1269515, "name": "Jaipur", "coord": {"lat": 26.9167, "lon": 75.8167}, "country": "IN", "population": 2711758, "timezone": 19800, "sunrise": 1629246586, "sunset": 1629293506}}
```

input length: 993

Prettify