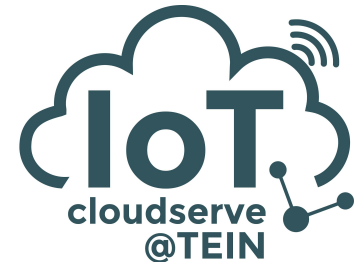


Introducing IoT local hub for CEIT

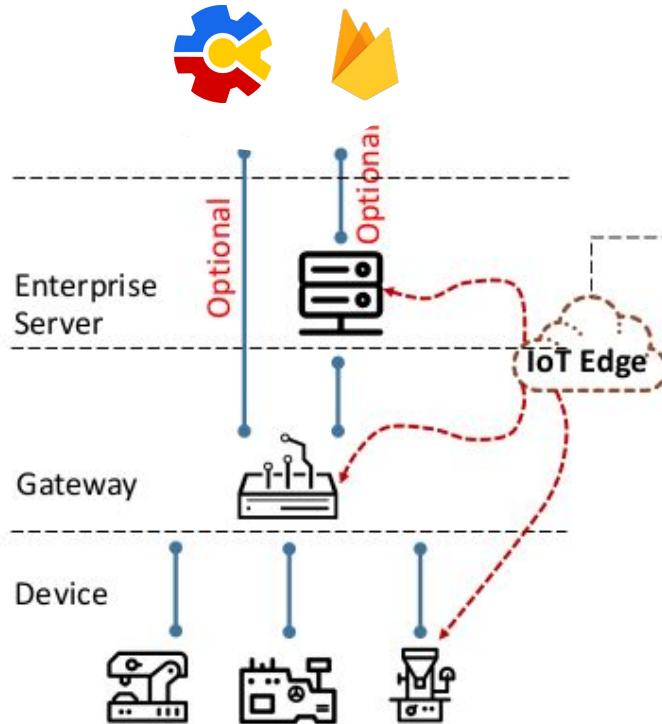
Mr Tee Chuangtheyv

**Senior Computer Engineering Student at CEIT, NUOL
Laos**

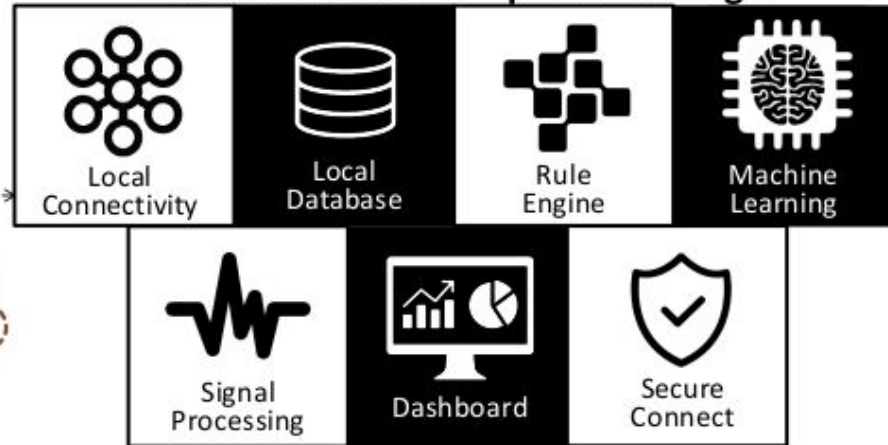




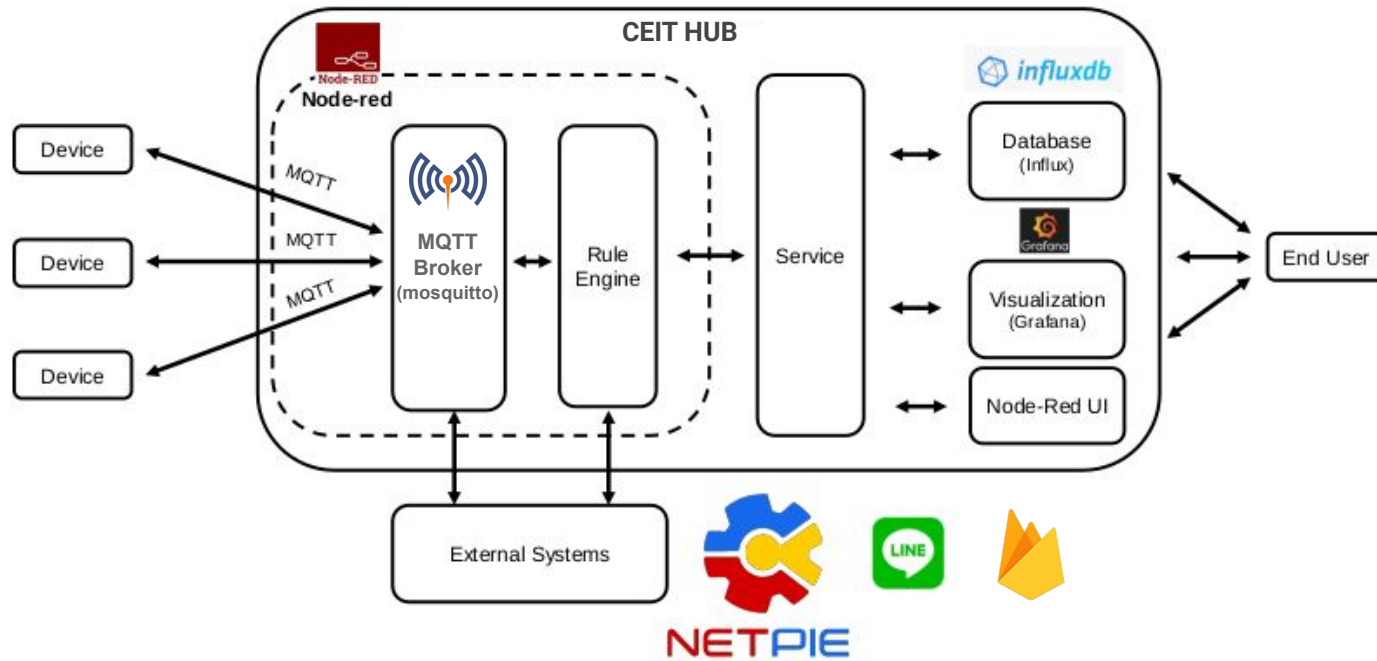
User-Customizable IoT Edge



Functionalities of Proposed IoT Edge



CEIT Hub Architecture



User Interface



Node-Red (Port:1880)

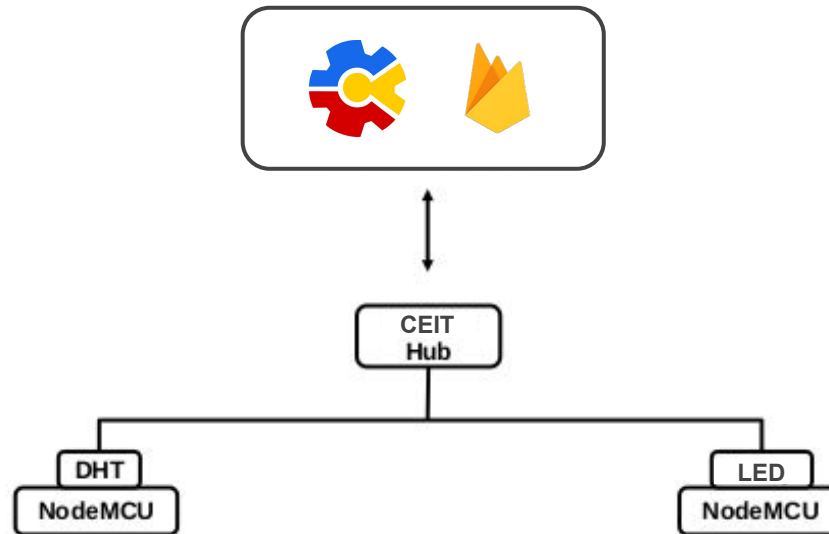


Chronograf (Port : 8888)

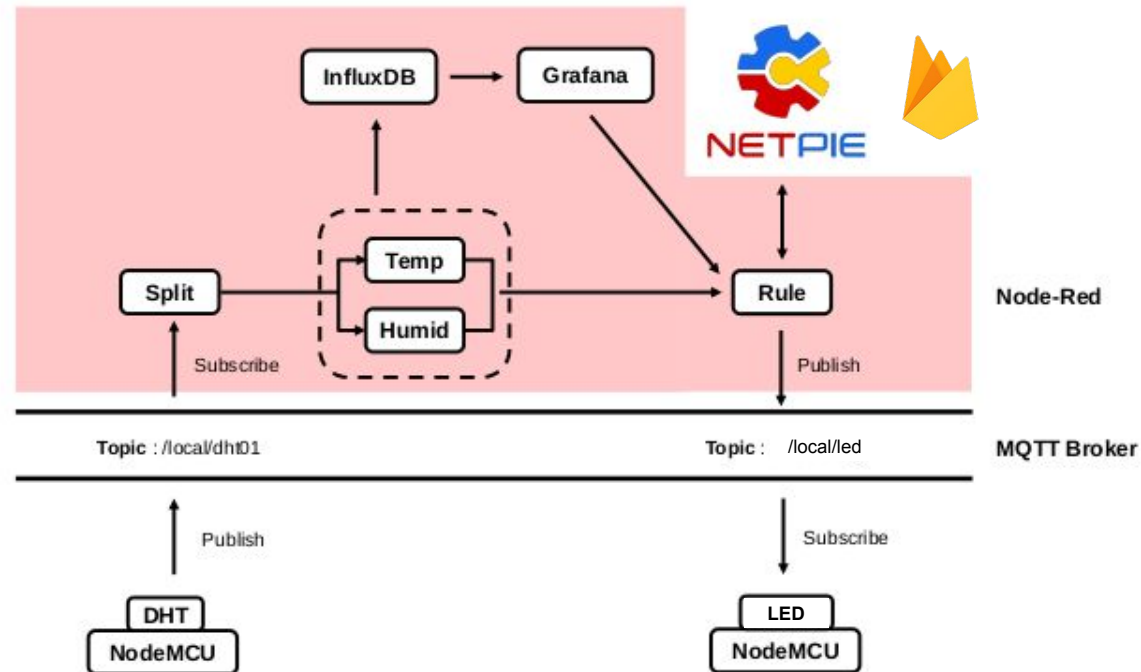


Grafana (Port : 3000)

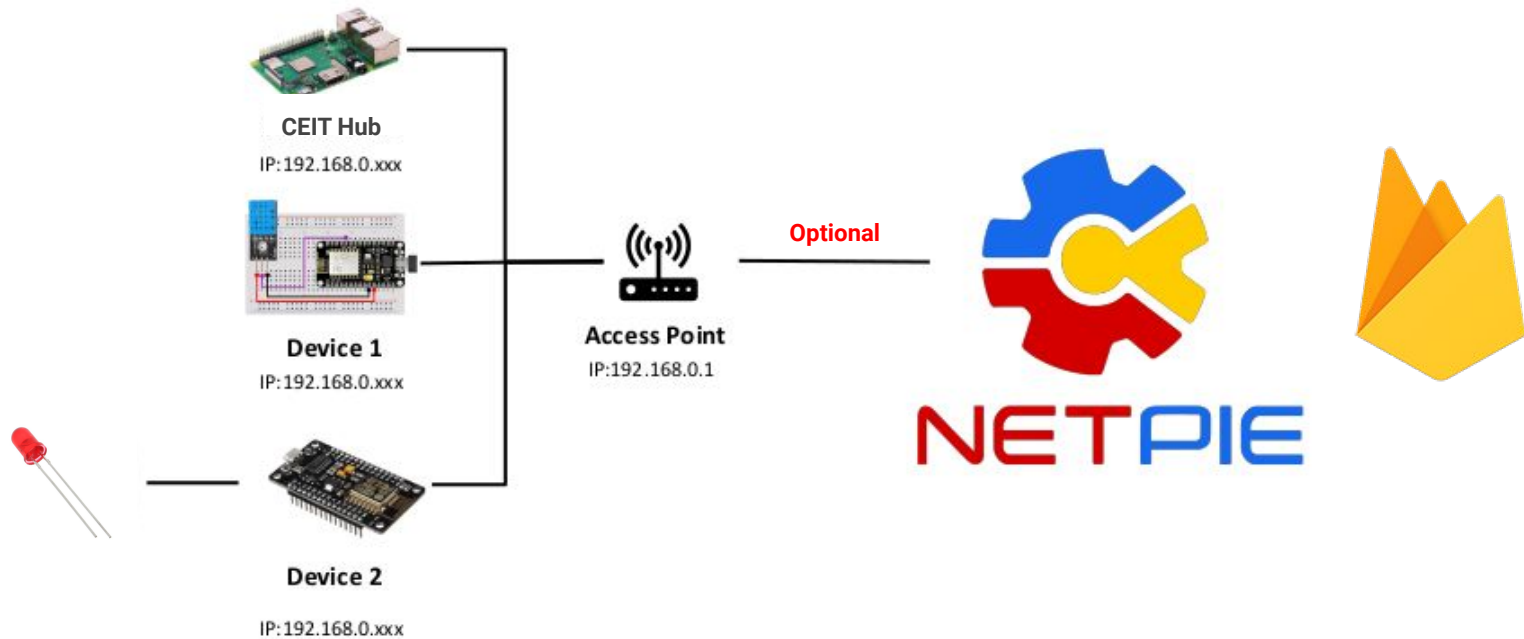
Data Flow



Data Flow



Lab Setting



Node Installing

InfluxDB Node



Microgear Node



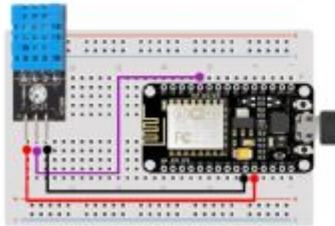
MQTT Node



Dashboard Node



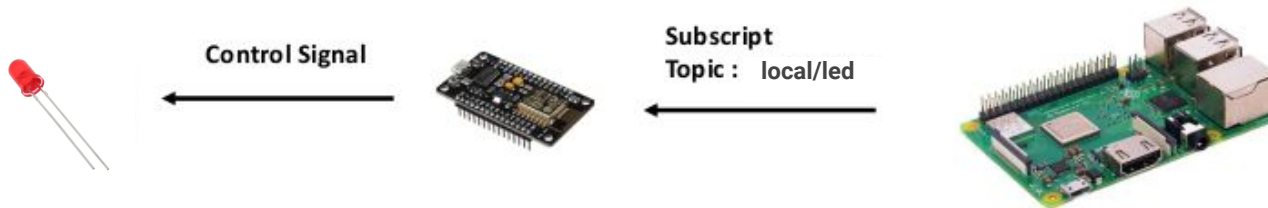
Publish to CEIT Hub

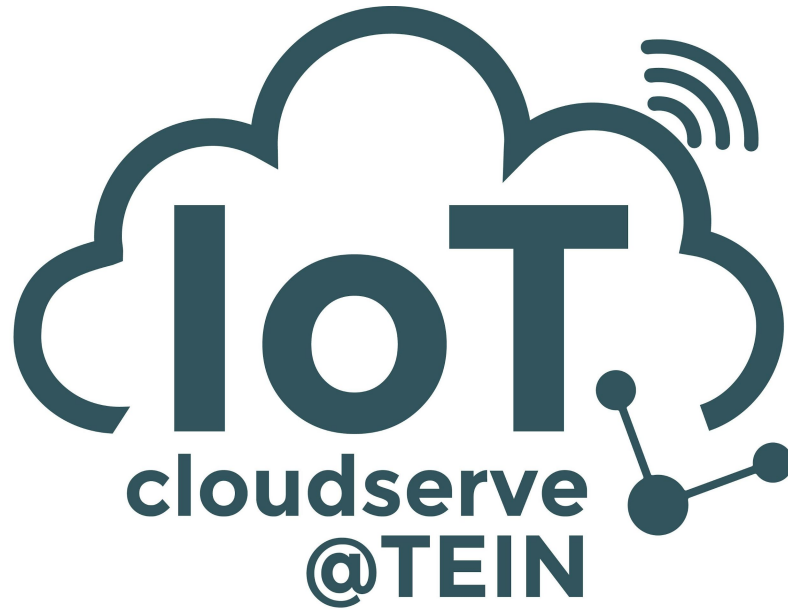


Publish
Topic : local/dht01
Data : temp,humid



Subscript to CEIT Hub





THANK YOU



Mosquitto Installation and Test

Terminal

```
pi@raspberrypi:~$ sudo apt update
```

```
pi@raspberrypi:~$ sudo apt install -y mosquitto  
mosquitto-clients
```

```
pi@raspberrypi:~$ sudo systemctl enable mosquitto.service
```

```
pi@raspberrypi:~$ mosquitto_sub -d -t testTopic
```

```
pi@raspberrypi:~$ mosquitto_pub -d -t testTopic -m "Hello  
world!"
```

Node –Red Installing

Terminal

```
pi@raspberrypi:~$ sudo apt-get install build-essential
```

```
pi@raspberrypi:~$ bash <(curl -sL  
https://raw.githubusercontent.com/node-red/linux-  
installers/master/deb/update-nodejs-and-nodered)
```

```
pi@raspberrypi:~$ node-red-start
```

Influx and Chronograf Installing

Terminal

```
pi@raspberrypi:~$ wget -qO- https://repos.influxdata.com/influxdb.key | sudo apt-key add -
```

```
pi@raspberrypi:~$ echo "deb https://repos.influxdata.com/debian buster stable" | sudo tee /etc/apt/sources.list.d/influxdb.list
```

```
pi@raspberrypi:~$ sudo apt update
```

```
pi@raspberrypi:~$ sudo apt install influxdb chronograf
```

```
pi@raspberrypi:~$ sudo systemctl unmask influxdb
```

```
pi@raspberrypi:~$ sudo systemctl enable influxdb
```

```
pi@raspberrypi:~$ sudo systemctl enable chronograf
```

```
pi@raspberrypi:~$ sudo systemctl start influxdb
```

Grafana Installing

Terminal

```
pi@raspberrypi:~$ wget https://dl.grafana.com/oss/release/grafana-rpi_6.5.1_armhf.deb
```

```
pi@raspberrypi:~$ sudo dpkg -i grafana-rpi_6.5.1_armhf.deb/etc/apt/sources.list.d/influxdb.list
```

```
pi@raspberrypi:~$ sudo apt update
```

```
pi@raspberrypi:~$ sudo systemctl enable grafana-server.service
```

```
pi@raspberrypi:~$ sudo systemctl start grafana-server
```