# Exploring IOT

with Raspberry Pi, Bluemix

Pavan Kumar

# What it does.

A Tweet is sent out Whenever Input is Pressed

This project explores and demos the concept of IOT and capability to wire together Hardware and software components

IBM Bluemix provides Instance to Run Apps

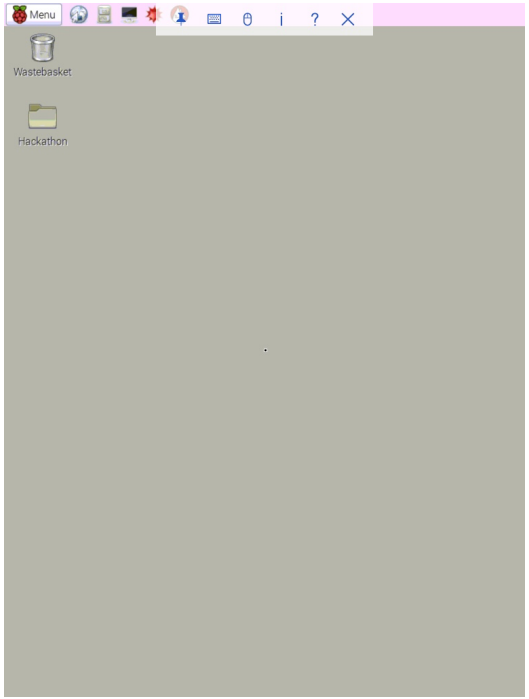
RaspberryPi sends data to Bluemix App via MQTT Messaging

Raspberry Pi is running Raspbian OS (a Linux Distro), is connected to Internet

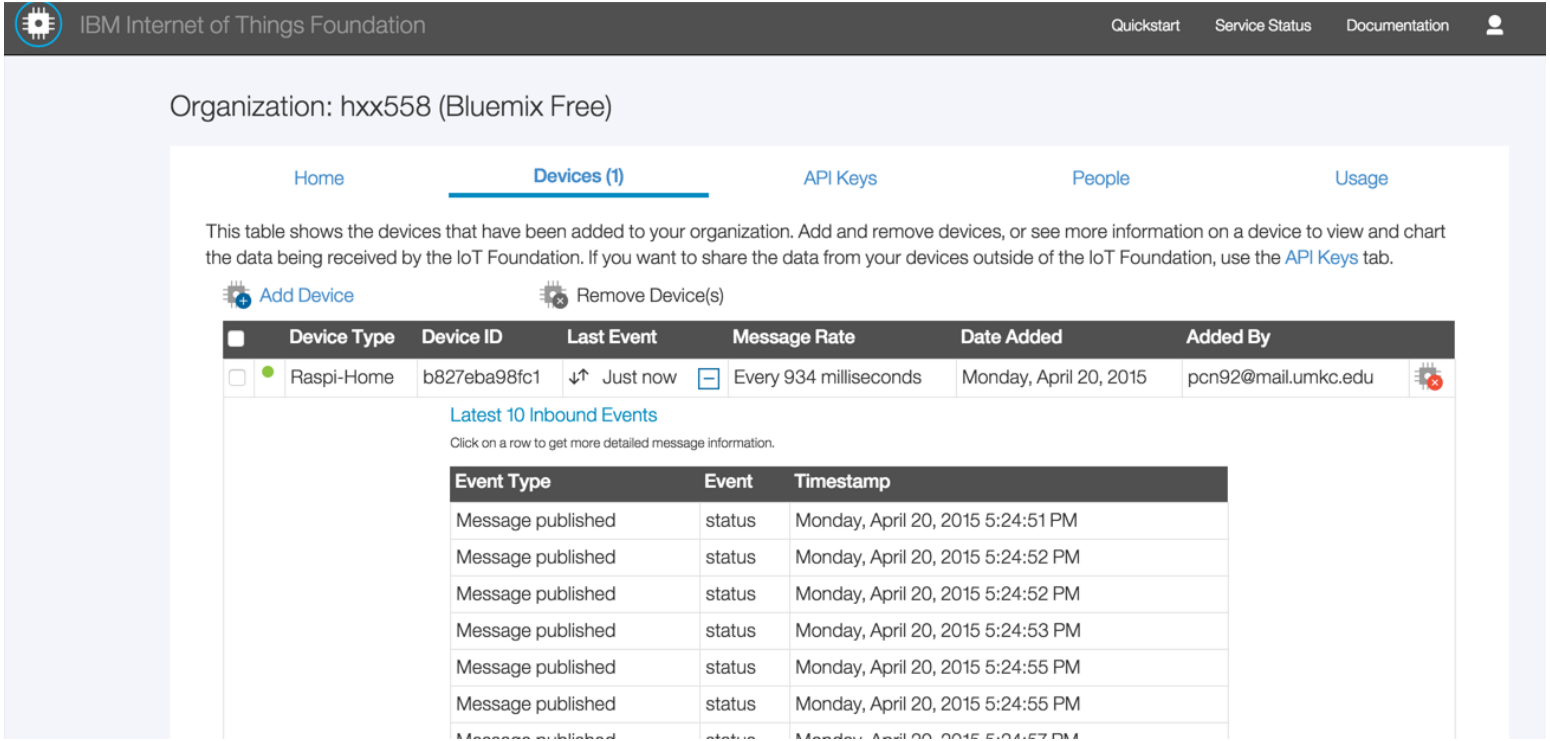
# SSH in to Machine

```
pavan-(@)-Tesseract ~
>  ssh pi@192.168.1.104                                    17:17
pi@192.168.1.104's password:
Linux raspberrypi 3.18.7+ #755 PREEMPT Thu Feb 12 17:14:31 GMT 2015 armv6l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Mon Apr 20 15:44:44 2015 from tesseract

NOTICE: the software on this Raspberry Pi has not been fully configured. Please
run 'sudo raspi-config'

pi@raspberrypi ~ $
```

# VNC (GUI mode)



# IBM Bluemix
## IOT Service

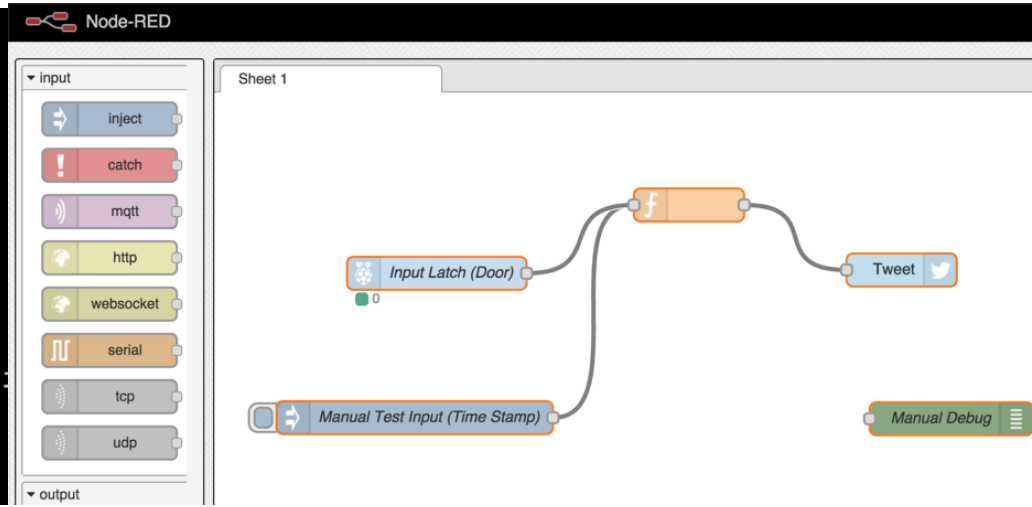


# Node-Red

A flow based editor to wire h/w and s/w together.

Raspi running node-red

```
pi@raspberrypi ~ $ node-red

Welcome to Node-RED
===================

20 Apr 15:44:59 - [info] Node-RED version: v0.10.6
20 Apr 15:44:59 - [info] Node.js  version: v0.10.36
20 Apr 15:44:59 - [info] Loading palette nodes
20 Apr 15:45:17 - [warn] ---------------------------------------
20 Apr 15:45:17 - [warn] Failed to register 3 node types
20 Apr 15:45:17 - [warn] Run with -v for details
20 Apr 15:45:17 - [warn] ---------------------------------------
20 Apr 15:45:17 - [info] User Directory : /home/pi/.node-red
20 Apr 15:45:17 - [info] Flows file     : /home/pi/.node-red/flows_raspberrypi.j
son
20 Apr 15:45:17 - [info] Server now running at http://127.0.0.1:1880/
20 Apr 15:45:17 - [info] Starting flows
20 Apr 15:45:17 - [info] Started flows
```



# Real life use case

The input source can be anything (Motion sensor, temp readings) and action can be pushing data for visualization and analysis and remotely control and monitor, as the Raspi in always connected to Internet (IOT)

Here, we’re sending Tweet about Input switch event

Can be upgraded to a Smart Home Automation System