




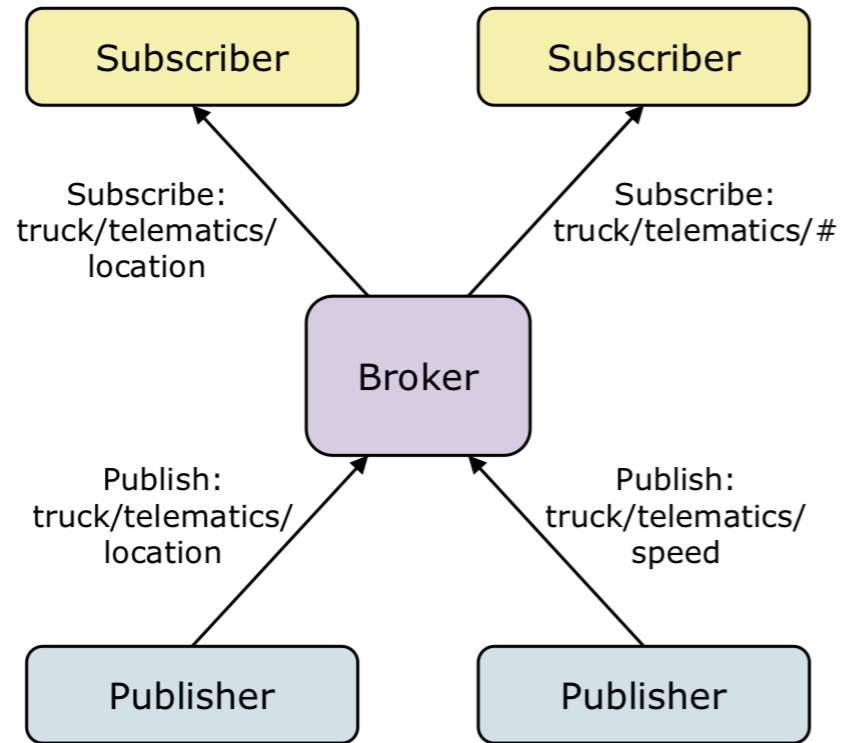
MQTT

朱克剛

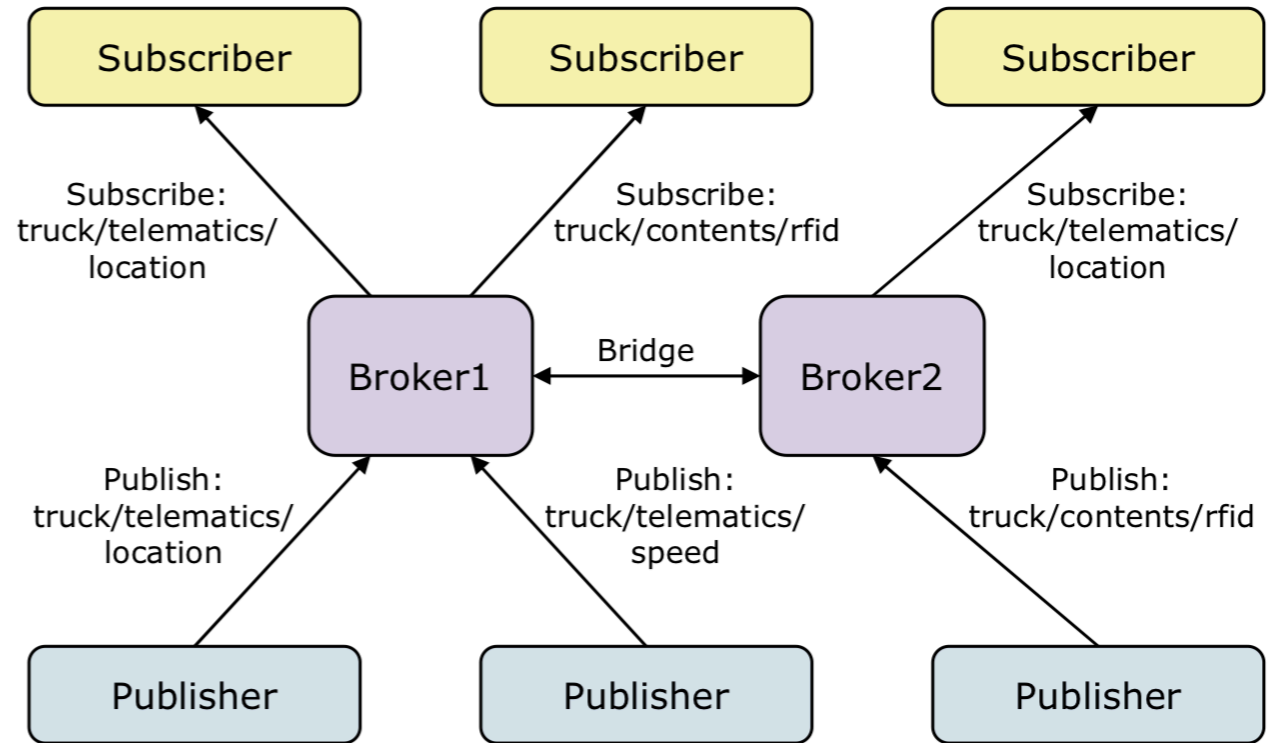


# 何謂MQTT

- MQTT is a machine-to-machine (M2M)/"Internet of Things" connectivity protocol.



Simple



Extended

第一件要做的事情

連上網路

# 簡易安裝MQTT

- 安裝 Mosquitto
  - *\$ sudo apt-get install mosquitto mosquitto-clients*
- 安裝完看看是否執行
  - *\$ service mosquitto status*
- 測試
  - *Subscriber*
    - *\$ mosquitto\_sub -t home/test*
  - *Publisher*
    - *\$ mosquitto\_pub -t home/test -m "Hello, world!"*

# 自行編譯原始碼並開啟websocket

- 到 <https://mosquitto.org/> 下載原始碼 (github)
- 解開 zip 檔後編輯 config.mk，將下方參數改為 yes
  - WITH\_WEBSOCKETS:=yes
- 安裝相關 library
  - \$ sudo apt-get install libc-ares-dev libwebsockets-dev libssl-dev xsltproc docbook-xsl
- 編譯
  - \$ make -j4
- 安裝
  - \$ sudo make install

# 設定

- \$ sudo vi /etc/mosquitto/mosquitto.conf

port 1883

listener 9001

protocol websockets

- \$ sudo adduser --shell /usr/sbin/nologin --no-create-home mosquitto

# 變成服務

- 到 <https://github.com/kirkchu/mosquitto.service>
- 將檔案 `mosquitto.service` 放到 `/etc/systemd/system`
- 執行

```
$ sudo systemctl enable /etc/systemd/system/mosquitto.service
```
- 重開機



# 安裝 eclipse paho

- 這是 mqtt for python library
- `$ sudo pip install paho-mqtt`
- <https://github.com/eclipse/paho.mqtt.python>

# 訂閱者

```
import paho.mqtt.subscribe as subscribe

def received(client, userdata, message):
    print(message.topic, message.payload)

subscribe.callback(received, "home/test", hostname="server_ip_address")
```

# 發送者

```
import paho.mqtt.publish as publish  
publish.single("home/test", "hello!!", hostname="server_ip_address")
```

# Paho 文件

- <https://www.eclipse.org/paho/clients/python/docs/>

# 錯誤處理

# 找不到 lib

- 若看到此錯誤訊息
  - error while loading shared libraries: libmosquitto.so.1: cannot open shared object file: No such file or directory
- 設定函數庫
  - `$ cd /usr/lib/arm-linux-gnueabi`
  - `$ sudo ln -fs /usr/local/lib/libmosquitto.so.1 libmosquitto.so.1`

HTML



來此網站複製範例

<https://www.cloudmqtt.com>





連線帳密設定

# 設定 broker 帳號密碼

- `$ mosquitto_passwd -c /etc/mosquitto/passwd 帳號`
  - 帳號只能有一組，再執行一次後會把之前的帳號蓋掉
- 編輯 `/etc/mosquitto/mosquitto.conf`，加上
  - `# 載入帳密檔`
  - `password_file /etc/mosquitto/passwd`
  - `# 禁止匿名登入`
  - `allow_anonymous false`
- 重新啟動 MQTT
  - `$ service mosquitto restart`

# 連線時設定帳密參數

- 訂閱者

- `$ mosquitto_sub -t home/test -u 帳號 -P 密碼`

- 發送者

- `$ mosquitto_pub -t home/test -u 帳號 -P 密碼 -m "Hello, world!"`

# 程式呼叫

- 加上

- `auth={'username': '帳號', 'password': '密碼'}`

- 例如

- `publish.single(  
 "home/test",  
 "hello!!",  
 hostname="server_ip_address",  
 auth={"username": "帳號", "password": "密碼"}  
)`