

Raspberry Pi Taiwan x Diode Network Taipei Meetup

Diode Network and Video Streaming Using Raspberry Pi Zero W

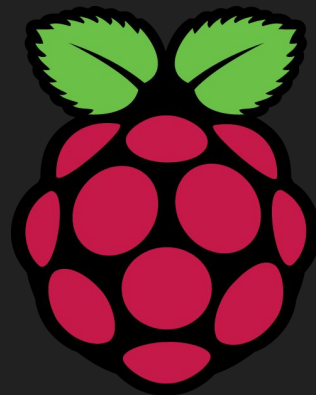
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Monday April 27, 2020

Taipei City, Taiwan

About Me

- Blockchain Engineer at Diode
- Editor of Taipei Ethereum Meetup
- Open source contributor
- Love to learn new technology
- Programming languages: JS, GO, PHP, C, PYTHON
- Twitter: @alk03073135 | Github: @sc0vu



Outline

- How to stream video using Pi
- Decode video stream on browser
- Introduction of Diode Network
- Demo
 - ssh into pi
 - streaming video

How to stream video using Pi

- USB camera
 - mjpg-streamer
 - fswebcam
- Pi camera module
 - enable camera raspi-config
 - raspvid
 - h264 video stream



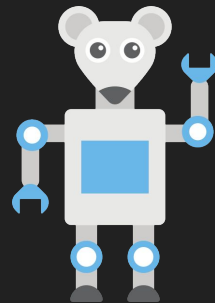
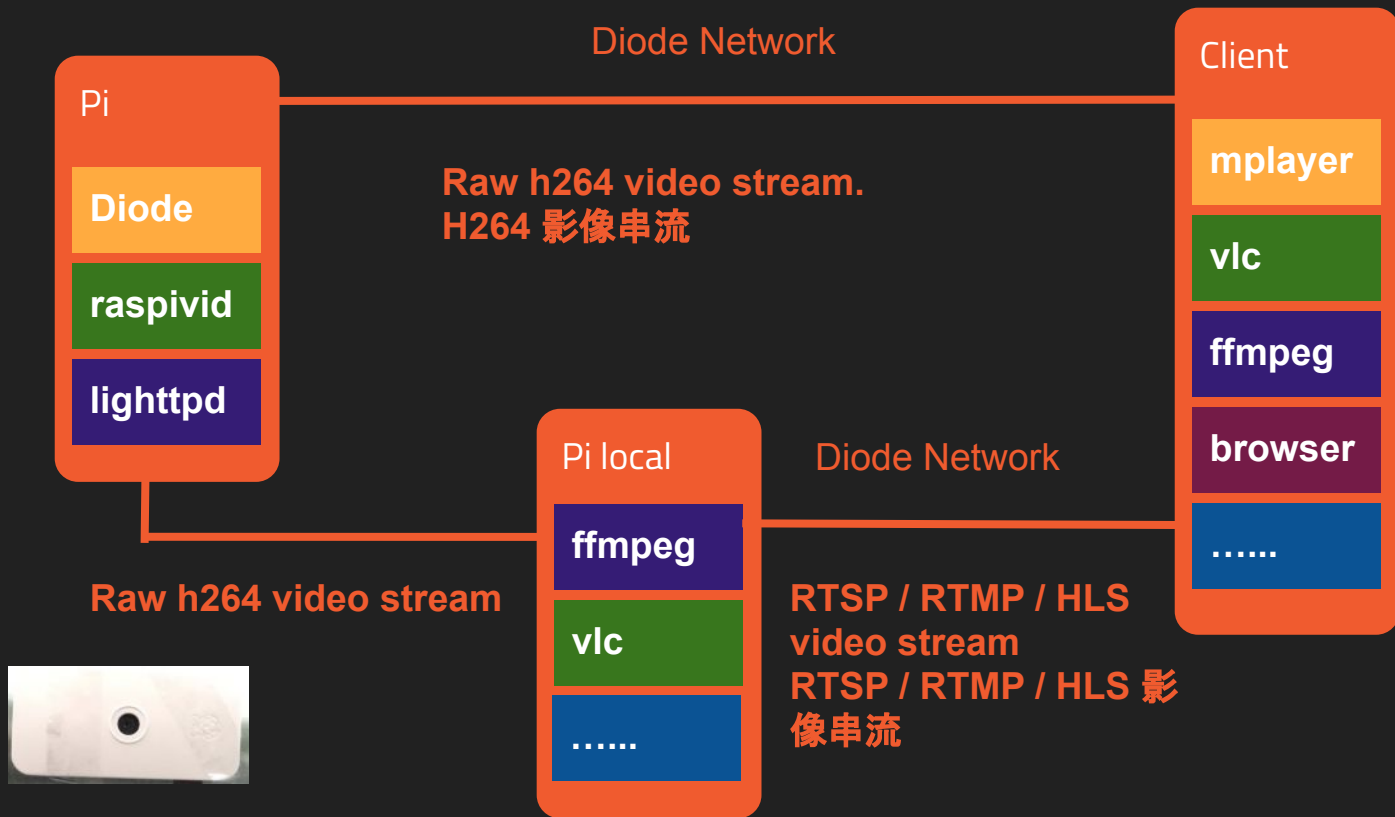
How to stream video using Pi



How to stream video using Pi

- USB camera
- mjpg-streamer
 - eg, `mjpg_streamer -i "./input_uvc.so -d /dev/video0 -y -n" -o "output_http.so -w ./home/pi/www -p 8080"`
 - Watch snapshot picture: `[host]:8080/?action=snapshot`
 - View stream: `[host]:8080/?action=stream`
- Use proxy or Diode to make stream public. 用 proxy 或 Diode 公開影音串流

How to stream video using Pi



How to stream video using Pi

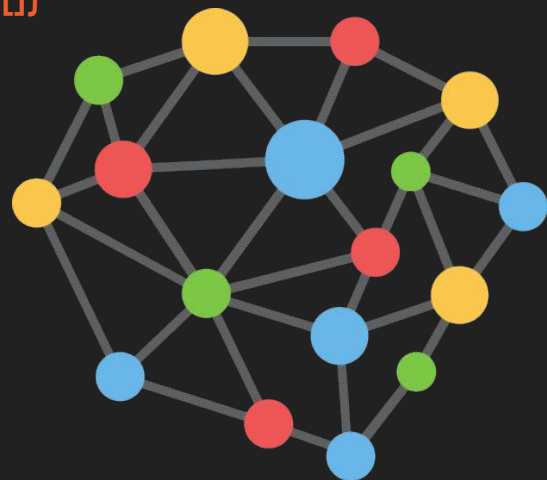
- Pi camera module
- raspivid
 - eg, raspivid -t 0 -fps 12 -n -l -o tcp://127.0.0.1:3030 -pf baseline -rot 90
 - raspivid -t 0 -w 320 -h 180 -fps 12 -a 12 -ifx saturation -ex auto -n -l -o tcp://127.0.0.1:3030 -pf baseline 2>&1
- vlc
 - raspivid -t 0 -w 320 -h 180 -fps 12 -a 12 -ifx saturation -ex auto -n -l -o - | cvlc -vvv stream:///dev/stdin --sout '#rtp{sdp=rtsp://localhost:3030/}' :demux=h264
- Use proxy or diode to make stream public. 用 proxy 或 diode 公開影音串流

Decode video stream on browser (h264)

- h264-live-player
 - <https://github.com/diodechain/h264-live-player>
 - Depends: Broadway WASM
- mux.js
 - <https://github.com/videojs/mux.js/pulls/200>
 - Depends: none (raw javascript implementation)

Introduction of Diode Network

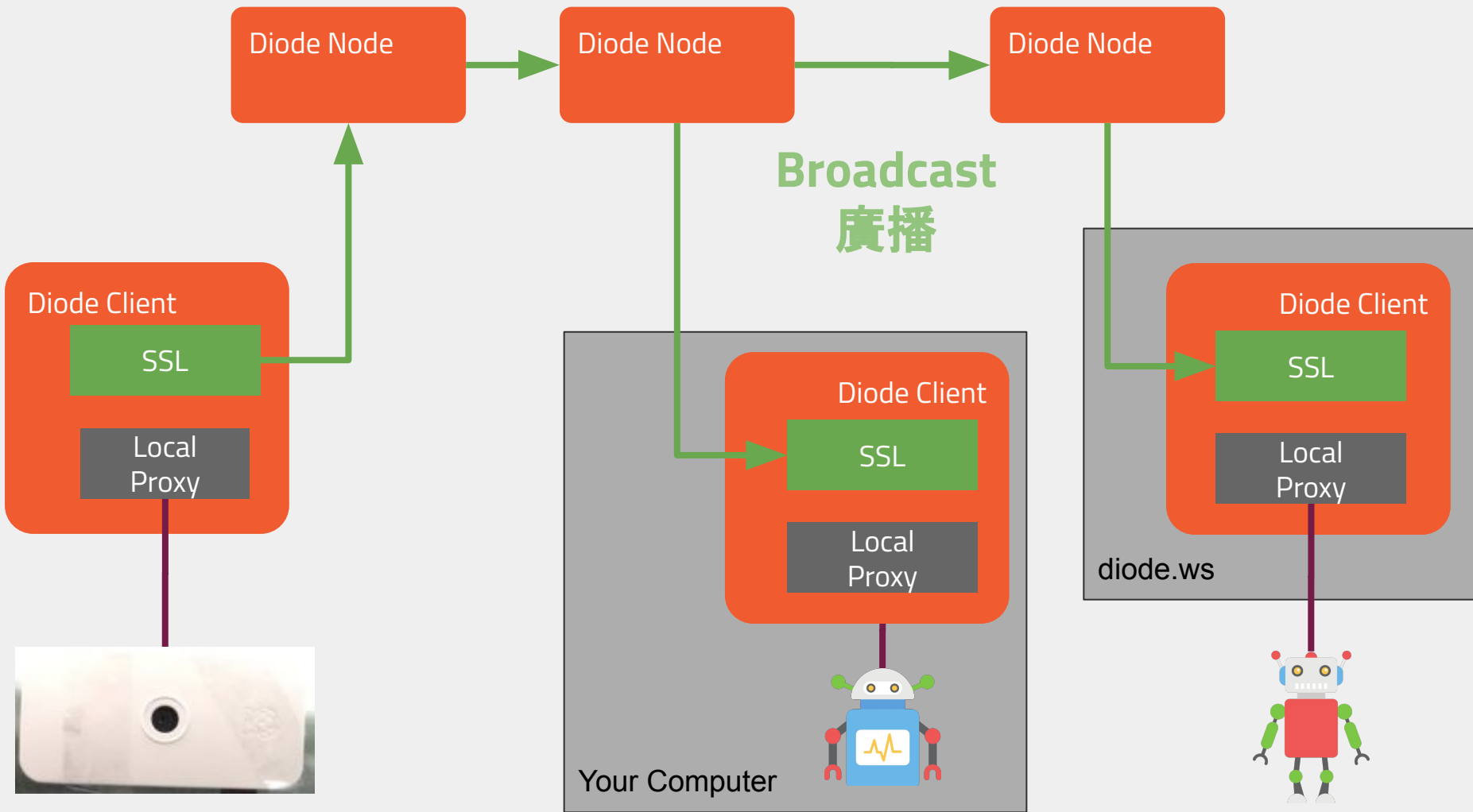
- Peer-to-Peer Kademlia Networks 點對點網路
- Incentives for nodes who transfer 運行節點的獎勵機制
- Lower cost and more secure 降低成本且更加安全
- Remote procedure calls
 - JSON RPC, eg {id: 1, method: "ping", params: []}
 - Edge v1 RPC, eg __["ping"]
 - Edge v2 RPC, eg __RLP_ENCODE(["ping"])
 -



Diode Blockchain Name Service

- Human readable name for device identifiers (public key) 可讀性的名稱對應設備的公鑰
- Address resources in a secure and decentralized way

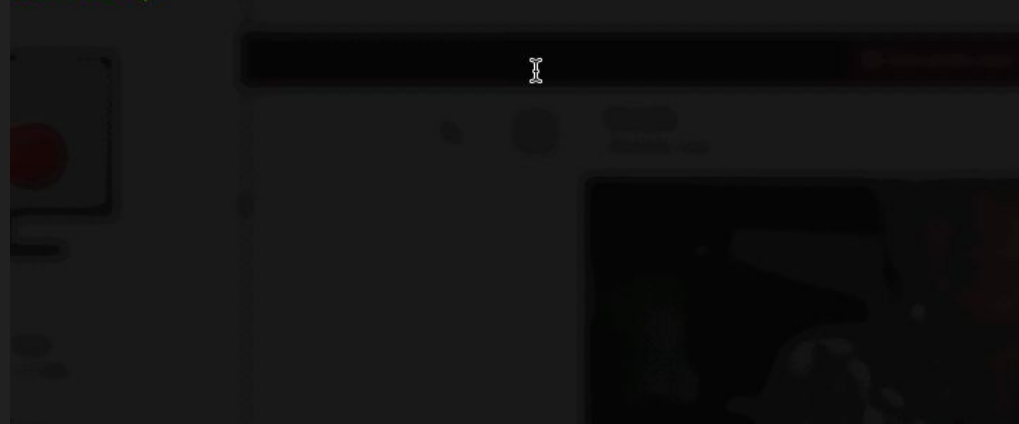
pi-taipei	0x780980bfc0aa56ceb1417e87912e54b759463090
pi-peter	0x13ac4c74416ed3f59bd9d7dfca79326819631093
berlin-zehlendorf	0x156956eb94a26012e6954cdf499c2ecaa4315f33
betahaus-berlin	0xc206e1255cbace8ba904daa259d7a5b7f90e2d50



Demo

- SSH into pi
- View video stream

```
[Peters-MacBook-Pro:diode_go_client peterlai$ ssh pi@pi-taipei.diode -o 'ProxyCommand=nc -X 5 -x localhost:1080 %h %p']
```



Download and try it out

- Download the latest binary to your os
(<https://diode.io/download>) 到 <https://diode.io/download> 下載
最新版本的應用程式
- Deploy fleet and whitelist your device
(<https://diode.io/testnet/#/fleets>) 到
<https://diode.io/testnet/#/fleets> 部署 fleet contract 並且將設備
加至白名單
- Browse/Publish device resource through Diode Network 透過
Diode Network 瀏覽或是發佈設備的資源

Reference

- Diode
 - [Blockquick](#)
 - [Diode wiki](#)
 - [Diode Github](#)
- Raspberry Pi
 - [Raspberry Pi Org](#)
- Video stream
 - [H264 wiki](#)
 - [MJPEG Stream](#)
 - [PI RTMP HLS Stream](#)
 - [Raspvid doc](#)



Join the Movement!



<https://diode.io>



https://t.me/diode_chain



https://twitter.com/diode_chain



<https://www.linkedin.com/company/diode-chain>