OpenFlow is *not* dead

SDN Demo using Faucet controller

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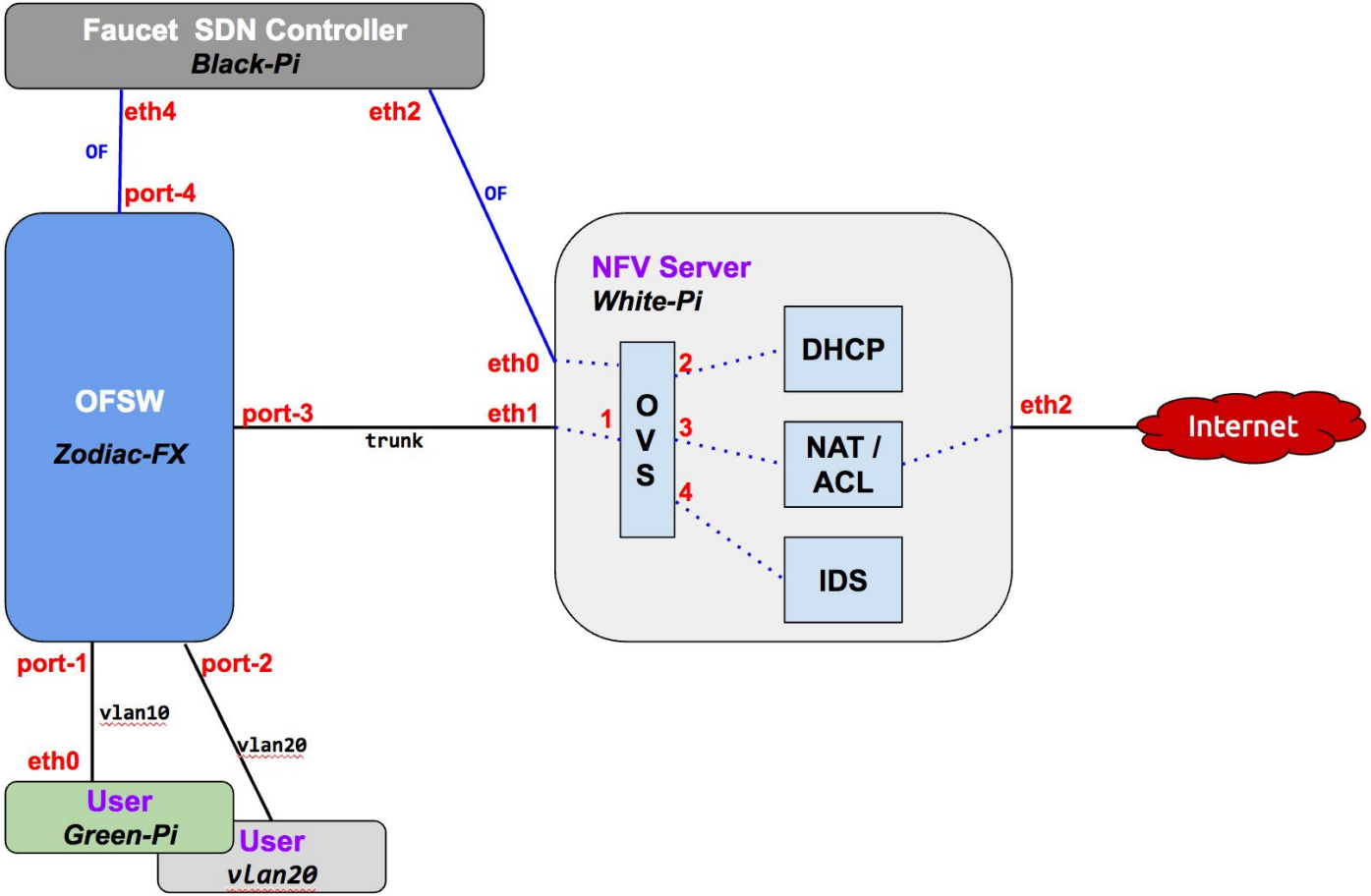
Faucet Introduction

- Open Source OpenFlow v1.3 Switch
  - Based on RYU framework
- Networking features
  - *Switching*: VLANs, MAC learning, ACLs, configurable flooding modes
  - *Routing*: BGP, static routing, ACLs,
  - *Other*: port mirroring, PBR, monitoring & statistics (with gauge)
- Software engineering principles
  - Written in Python (PEP8 style)
  - Comprehensive test suite (run code against virtual network topologies)
- Switches support
  - Hardware switches: Allied Telesis, NoviFlow, HP Enterprise/Aruba, Zodiac FX
  - Software switches: Open vSwitch, Lagopus

What is the target of this Demo ?

- Use an SDN Controller to manage both a physical and a virtual switch
- Use OpenFlow as the southbound protocol - OF 1.3 Multi-table Support
- Leverage Linux to offload different functions to virtual linux containers (NFV)
- Demonstrate some of Faucet’s features such as PBR, Port Mirroring, ACL ...
- Pre-production end-to-end testing on virtual topologies

Faucet SDN - Demo



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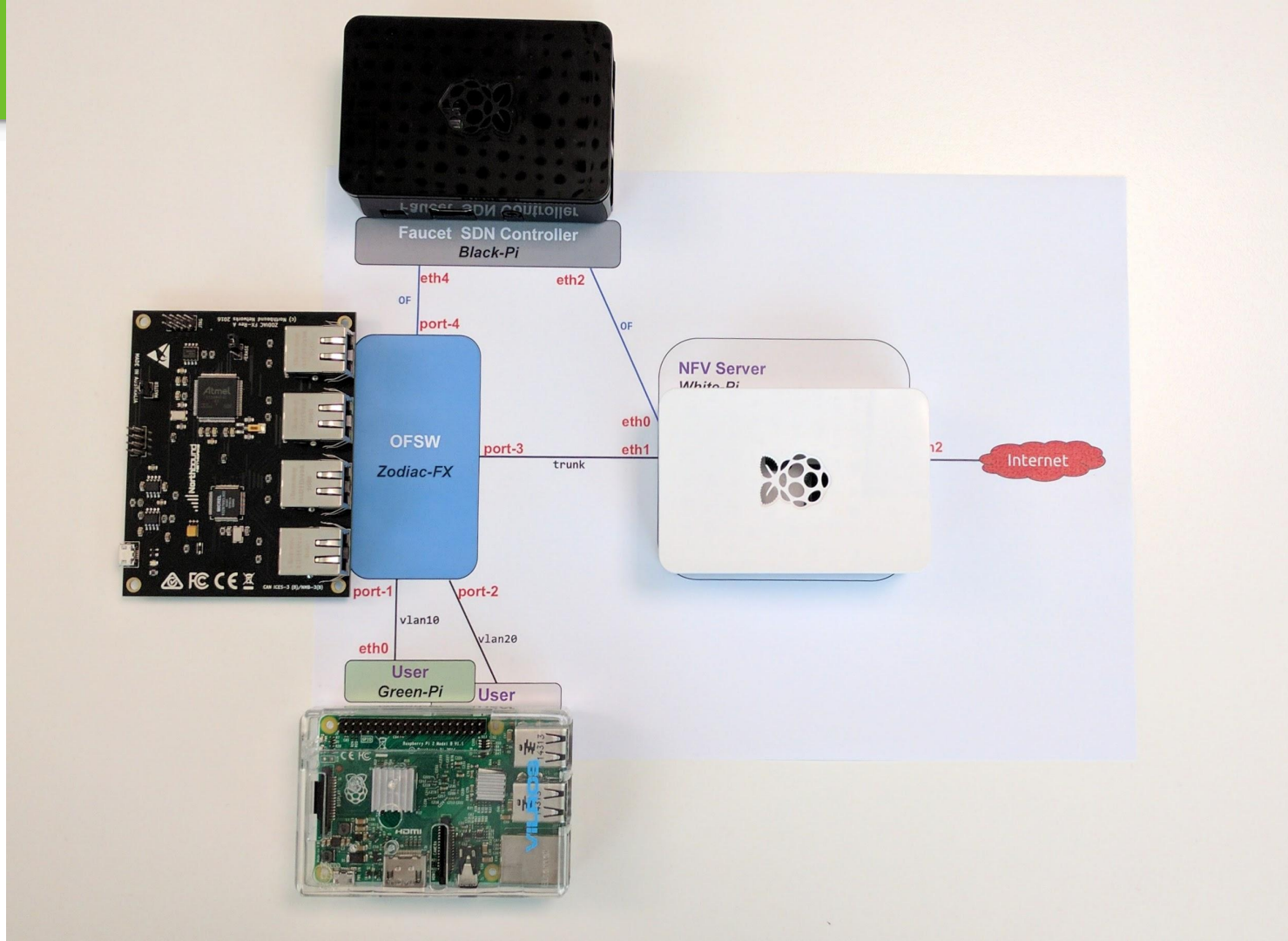
NETWORK ENGINEERING

Faucet SDN

Devices used

for the Demo:

- ***3 Raspberry Pi's***
- ***1 Zodiac FX sw***

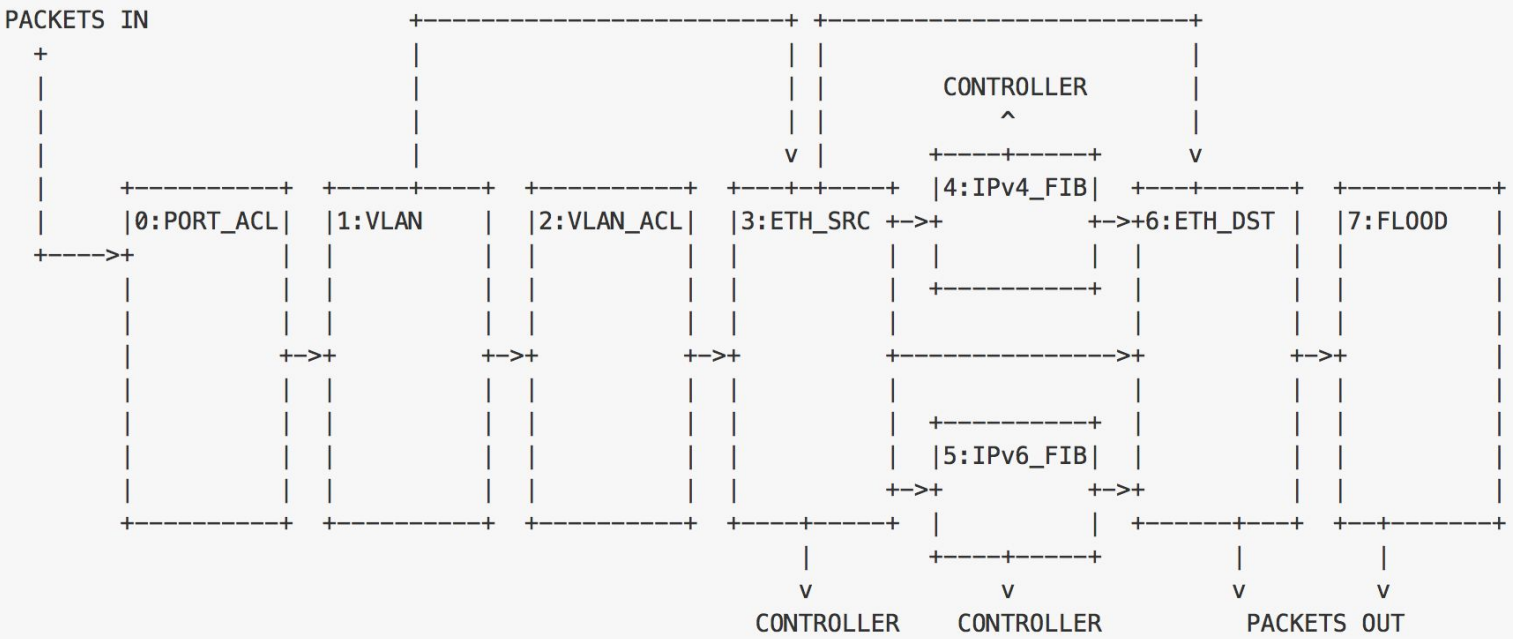


Faucet SDN - Demo

faucet.yaml

```
version: 2
vlans:
    10:
        name: "lab-10"
        unicast_flood: True
        max_hosts: 3
    20:
        name: "lab-20"
        unicast_flood: False
    999:
        name: "IDS"
        unicast_flood: False
acls:
    99:
        - rule:
            dl_type: 0x800
            nw_proto: 17
            tp_src: 68
            tp_dst: 67
            actions:
                allow: 1
                output:
                    port: 2
        - rule:
            actions:
                allow: 1
                mirror: 4
    98:
        - rule:
            actions:
                allow: 1
                mirror: 4
dps:
    zodiac-sw:
        dp_id: 0x011111
        hardware: "ZodiacFX"
        interfaces:
            1:
                native_vlan: 10
            2:
                native_vlan: 10
            3:
                native_vlan: 10
    ovs-sw:
        dp_id: 0x01
        hardware: "Open vSwitch"
        interfaces:
            1:
                native_vlan: 10
                acl_in: 99
            2:
                native_vlan: 10
            3:
                native_vlan: 10
                acl_in: 98
            4:
                native_vlan: 999
```

Faucet's Pipeline



More Info

- Today's DEMO step-by-step:

  http://costiser.ro/2017/03/07/sdn-lesson-2-introducing-faucet-as-an-openflow-controller/

- REANNZ Github - https://github.com/reannz/faucet
- Faucet Blog - https://faucet-sdn.blogspot.co.nz