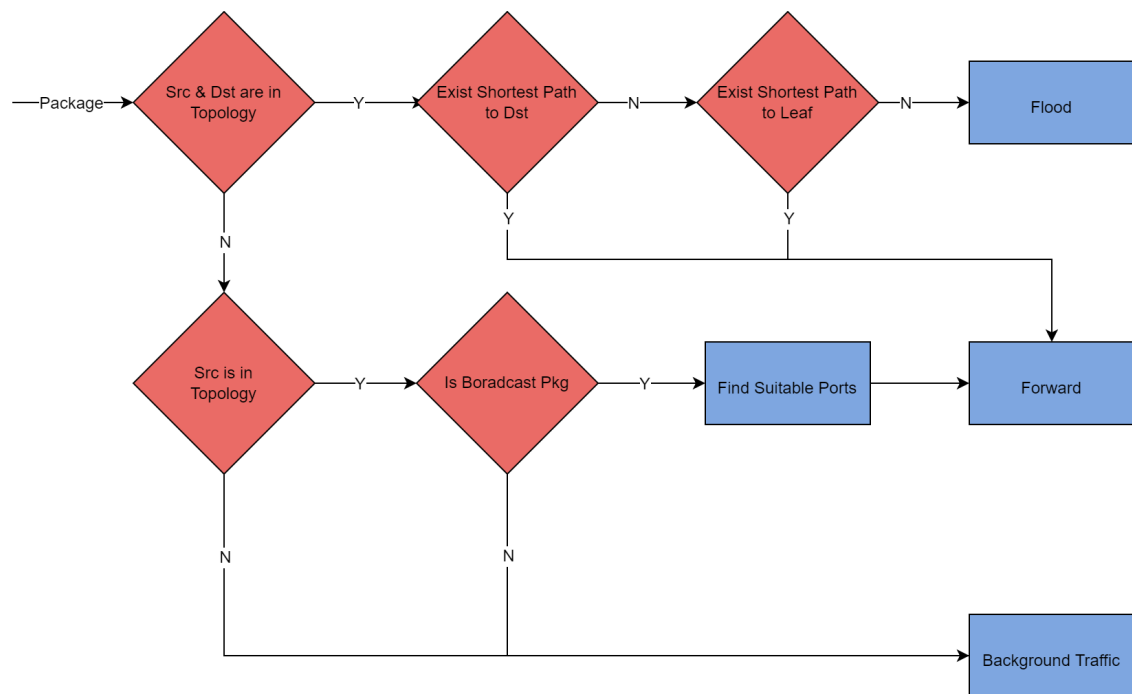


Project 4 Report

- Explanation of Design Implementation

- Explanation with Flowchart



- Screenshot of Design Working

- Build the Topology

```

ericl@ericl-VirtualBox:~/Dev/mininet$ sudo mn --controller=remote,ip=127.0.0.1 -
--topo tree,depth=4 --switch default,protocols=OpenFlow13 --mac --arp
*** Creating network
*** Adding controller
Unable to contact the remote controller at 127.0.0.1:6653
Unable to contact the remote controller at 127.0.0.1:6633
Setting remote controller to 127.0.0.1:6653
*** Adding hosts:
h1 h2 h3 h4 h5 h6 h7 h8 h9 h10 h11 h12 h13 h14 h15 h16
*** Adding switches:
s1 s2 s3 s4 s5 s6 s7 s8 s9 s10 s11 s12 s13 s14 s15
*** Adding links:
(s1, s2) (s1, s9) (s2, s3) (s2, s6) (s3, s4) (s3, s5) (s4, h1) (s4, h2) (s5, h3)
(s5, h4) (s6, s7) (s6, s8) (s7, h5) (s7, h6) (s8, h7) (s8, h8) (s9, s10) (s9, s
13) (s10, s11) (s10, s12) (s11, h9) (s11, h10) (s12, h11) (s12, h12) (s13, s14)
(s13, s15) (s14, h13) (s14, h14) (s15, h15) (s15, h16)
*** Configuring hosts
h1 h2 h3 h4 h5 h6 h7 h8 h9 h10 h11 h12 h13 h14 h15 h16
*** Starting controller
c0
*** Starting 15 switches
s1 s2 s3 s4 s5 s6 s7 s8 s9 s10 s11 s12 s13 s14 s15 ...
*** Starting CLI:

```

- Init the Controller

```

ericl@ericl-VirtualBox:~/Dev/project-4$ ryu-manager ./controller.py
loading app ./controller.py
loading app ryu.controller.ofp_handler
instantiating app ./controller.py of SimpleSwitch13
instantiating app ryu.controller.ofp_handler of OFPHandler

```

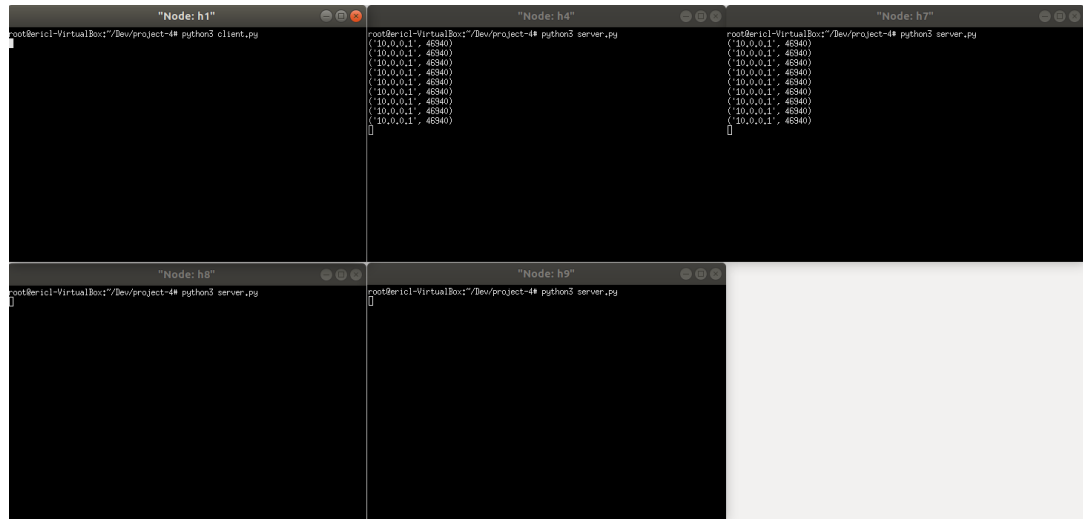
- Ping All

```

mininet> pingall
*** Ping: testing ping reachability
h1 -> X X h4 X X h7 X X h10 X X h13 X X h16
h2 -> X X X h5 X X h8 X X h11 X X h14 X X
h3 -> X X X X h6 X X h9 X X h12 X X h15 X
h4 -> h1 X X X X h7 X X h10 X X h13 X X h16
h5 -> X h2 X X X X h8 X X h11 X X h14 X X
h6 -> X X h3 X X X X h9 X X h12 X X h15 X
h7 -> h1 X X h4 X X X X h10 X X h13 X X h16
h8 -> X h2 X X h5 X X X X h11 X X h14 X X
h9 -> X X h3 X X h6 X X X X h12 X X h15 X
h10 -> h1 X X h4 X X h7 X X X X h13 X X h16
h11 -> X h2 X X h5 X X h8 X X X X h14 X X
h12 -> X X h3 X X h6 X X h9 X X X X h15 X
h13 -> h1 X X h4 X X h7 X X h10 X X X X h16
h14 -> X h2 X X h5 X X h8 X X h11 X X X X
h15 -> X X h3 X X h6 X X h9 X X h12 X X X
h16 -> h1 X X h4 X X h7 X X h10 X X h13 X X
*** Results: 70% dropped (70/240 received)

```

- Run Test Program



- The Difficulties

處理不同類型的流量是最困難的部分，除了我們產生用來測試VLAN的一般流量外，還有另外兩種流量分別是broadcast traffic和background traffic，在實作時需要思考區別這幾種流量的判斷邏輯，才能使網絡架構運作正常。

- Advantages and Disadvantages of My Design

1. Advantages

- Clear Logic

透過flowchart呈現，可清晰地了解處理流量的邏輯。

- Less Configuration

除了leaf switch和host之間的關係需要定義於設定中，其餘可由程式自行學習。

2. Disadvantages

- More Traffic

由於基於LLDP，這會造成更多額外流量，占用bandwidth。