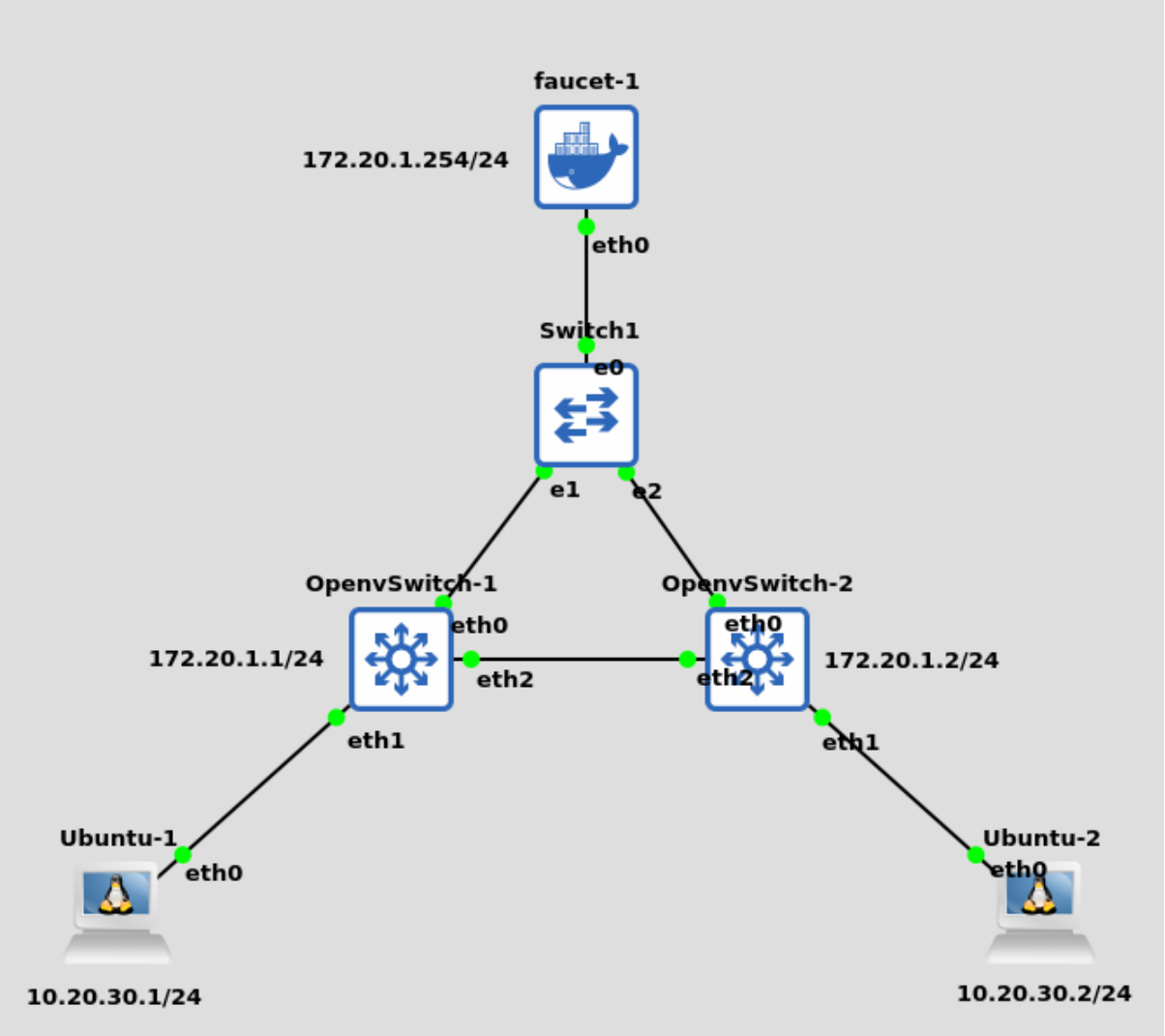
TP1 SDN Guillaume Sanchez

Mise en place des machines sur gns3 :



Configuration des machines OpenvSwitch1 et 2 :

```
OpenvSwitch-1:/# ip addr show eth0
101: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 65521 qdisc fq_codel state UNKNOWN qlen 1000
    link/ether 02:42:6a:14:59:00 brd ff:ff:ff:ff:ff:ff
    inet 172.20.1.1/24 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:6aff:fe14:5900/64 scope link
       valid_lft forever preferred_lft forever
OpenvSwitch-1:/# ip addr show br0
4: br0: <BROADCAST,MULTICAST,UP,LOWER_UP100> mtu 1500 qdisc fq_codel state UNKNOWN qlen 1000
    link/ether fa:77:90:a0:da:4a brd ff:ff:ff:ff:ff:ff
    inet6 fe80::f877:90ff:fea0:da4a/64 scope link
       valid_lft forever preferred_lft forever
```

```
OpenvSwitch-2:/# ip addr show eth0
117: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 65521 qdisc fq_codel state UNKNOWN qlen 1000
    link/ether 02:42:51:02:73:00 brd ff:ff:ff:ff:ff:ff
    inet 172.20.1.2/24 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:51ff:fe02:7300/64 scope link
       valid_lft forever preferred_lft forever
OpenvSwitch-2:/# ip addr show br0
5: br0: <BROADCAST,MULTICAST,UP,LOWER_UP100> mtu 1500 qdisc fq_codel state UNKNOWN qlen 1000
    link/ether a6:7e:88:d5:27:40 brd ff:ff:ff:ff:ff:ff
    inet6 fe80::a47e:88ff:fed5:2740/64 scope link
       valid_lft forever preferred_lft forever
```

Mise en place du Controleur-SDN et test de ping vers OpenvSwitch1 et 2 :

```
faucet-1:~# ip addr show eth0
99: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 65521 qdisc fq_codel state UNKNO
WN qlen 1000
    link/ether 02:42:c4:c0:9f:00 brd ff:ff:ff:ff:ff:ff
    inet 172.20.1.254/24 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:c4ff:fec0:9f00/64 scope link
       valid_lft forever preferred_lft forever
faucet-1:~# ping 172.20.1.1
PING 172.20.1.1 (172.20.1.1): 56 data bytes
64 bytes from 172.20.1.1: seq=0 ttl=64 time=0.392 ms
64 bytes from 172.20.1.1: seq=1 ttl=64 time=1.175 ms
^C
--- 172.20.1.1 ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 0.392/0.783/1.175 ms
faucet-1:~# ping 172.20.1.2
PING 172.20.1.2 (172.20.1.2): 56 data bytes
64 bytes from 172.20.1.2: seq=0 ttl=64 time=1.379 ms
64 bytes from 172.20.1.2: seq=1 ttl=64 time=0.769 ms
^C
--- 172.20.1.2 ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 0.769/1.074/1.379 ms
```

Configuration des pont OVS du Controlleur-SDN :

OpenvSwitch1 :

```
OpenvSwitch-1:/# ovs-vsctl set bridge br0 other-config:datapath-id=0000000000000
001 fail_mode=secure -- set-controller br0 tcp:172.20.1.254:6653 -- set controll
er br0 connection-mode=out-of-band -- --if-exists del-port eth0
```

```
OpenvSwitch-1:/# ovs-vsctl get-controller br0
tcp:172.20.1.254:6653
```

OpenvSwitch2:

```
OpenvSwitch-2:/# ovs-vsctl set bridge br0 other-config:datapath-id=0000000000000
002 fail_mode=secure -- set-controller br0 tcp:172.20.1.254:6653 -- set controll
er br0 connection-mode=out-of-band -- --if-exists del-port eth0
```

```
OpenvSwitch-2:/# ovs-vsctl get-controller br0
tcp:172.20.1.254:6653
```

Mise en place de la configuration des switchs OVS sur le Controlleur-SDN :

Copie du fichier du fichier de configuration pour le restaurer au cas où :

```
faucet-1:~# cp /etc/faucet/faucet.yaml /etc/faucet/faucet.yaml.orig
```

Affichage de la configuration après modification :

```
faucet-1:~# cat /etc/faucet/faucet.yaml
vlans:
  interne:
    vid: 100
    description: "VLAN interne"
  externe:
    vid: 200
    description: "VLAN accès internet"
dps:
  openvswitch-1:
    dp_id: 0x1
    hardware: "Open vSwitch"
    stack:
      priority: 1
    interfaces:
      2:
        name: "eth1"
        native_vlan: interne
      3:
        name: "eth2"
        description: "Link openvswitch-1 openvswitch-2"
        stack:
          dp: openvswitch-2
          port: 3
      4:
        name: "eth3"
        native_vlan: externe
  openvswitch-2:
    dp_id: 0x2
    hardware: "Open vSwitch"
    interfaces:
      2:
        name: "eth1"
        native_vlan: interne
      3:
        name: "eth2"
        description: "Link openvswitch-1 openvswitch-2"
        stack:
          dp: openvswitch-1
          port: 3
      4:
        name: "eth3"
        native_vlan: externe
```

Test de la configuration :

```
faucet-1:~# check_faucet_config /etc/faucet/faucet.yaml
['{\n'
 '    "advertise_interval": 30,\n'
 '    "arp_neighbor_timeout": 30,\n'
 '    "cache_update_guard_time": 150,\n'
 '    "combinatorial_port_flood": false,\n'
 '    "cookie": 1524372928,\n'
 '    "description": "openvswitch-1",\n'
 '    "dot1x": {},\n'
 '    "dp_id": 1,\n'
 '    "drop_broadcast_source_address": true,\n'
 '    "drop_spoofed_faucet_mac": true,\n'
 '    "egress_pipeline": false,\n'
 '    "fast_advertise_interval": 5,\n'
 '    "faucet_dp_mac": "0e:00:00:00:00:01",\n'
 '    "global_vlan": 0,\n'
 '    "group_table": false,\n'
 '    "hardware": "Open vSwitch",\n'
 '    "high_priority": 9001,\n'
 '    "highest_priority": 9099,\n'
 '    "idle_dst": true,\n'
 '    "ignore_learn_ins": 10,\n'
 '    "interface_ranges": {},\n'
 '    "interfaces": {\n'
 '        "2": {\n'
 '            "name": "eth1",\n'
 '            "native_vlan": "interne"\n'
 '        },\n'
 '        "3": {\n'
 '            "description": "Link openvswitch-1 openvswitch-2",\n'
 '            "name": "eth2",\n'
 '            "stack": {\n'
 '                "dp": "openvswitch-2",\n'
 '                "port": "eth2"\n'
 '            }\n'
 '        },\n'
 '        "4": {\n'
 '            "name": "eth3",\n'
 '            "native_vlan": "externe"\n'
 '        }\n'
```

Passage de la commande pour appliquer la nouvelle configuration :

```
faucet-1:~# pkill -HUP ryu-manager
```

Mise en place du routage entre les deux vlans

Modification de la configuration du Controlleur-SDN :

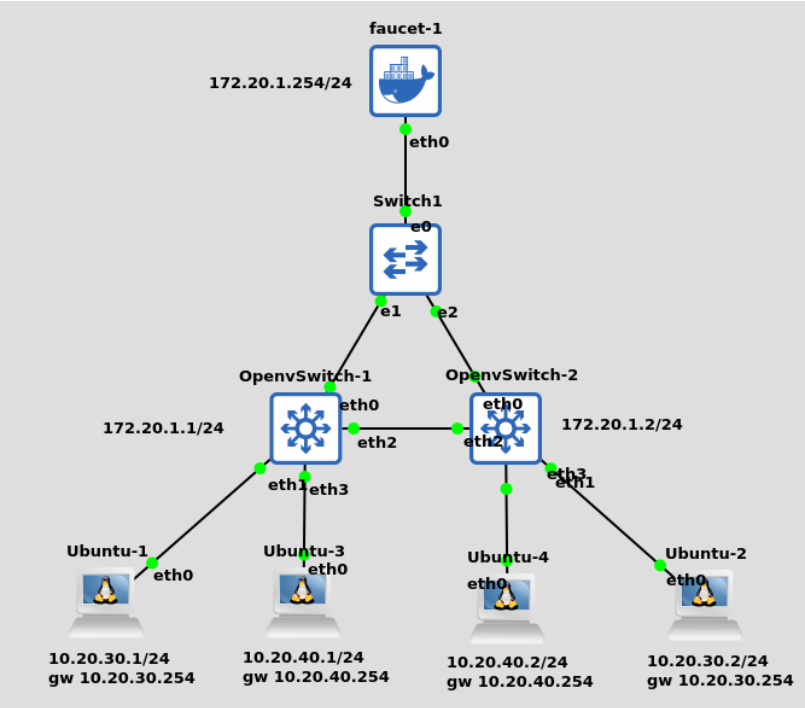
faucet-1

```
vlans:
  interne:
    vid: 100
    description: "VLAN interne"
    faucet_vips: ["10.20.30.254/24"]
  externe:
    vid: 200
    description: "VLAN acc..s internet"
    faucet_vips: ["10.20.40.254/24"]
routers:
  router-1:
    vlans:[interne, externe]
```

Test de la nouvelle configuration :

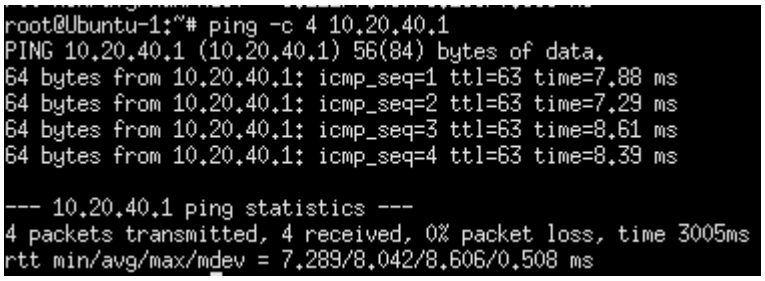
```
faucet-1:~# check_faucet_config /etc/faucet/faucet.yaml
['{\n'
 '    "advertise_interval": 30,\n'
 '    "arp_neighbor_timeout": 30,\n'
 '    "cache_update_guard_time": 150,\n'
 '    "combinatorial_port_flood": false,\n'
 '    "cookie": 1524372928,\n'
 '    "description": "openvswitch-1",\n'
 '    "dot1x": {},\n'
 '    "dp_id": 1,\n'
 '    "drop_broadcast_source_address": true,\n'
 '    "drop_spoofed_faucet_mac": true,\n'
 '    "egress_pipeline": false,\n'
 '    "fast_advertise_interval": 5,\n'
 '    "faucet_dp_mac": "0e:00:00:00:00:01",\n'
```

Mise en place des 2 nouvelles machines sur le réseau 172.20.40.0 :

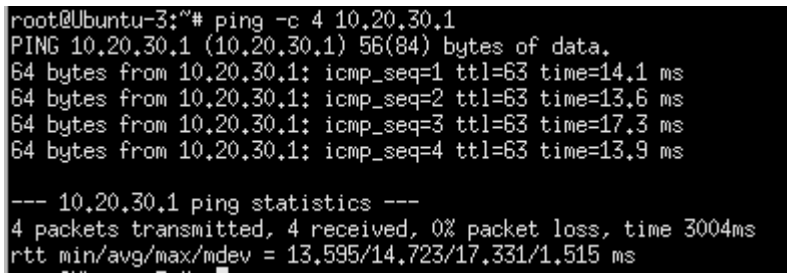


Test de la configuration réseau pour voir si les deux réseaux se voit correctement après la mise en place des configurations des 2 nouvelles machines et du Controlleur-SDN :

Ping du réseau 10.20.30.0 vers 10.20.40.0



Ping du réseau 10.20.40.0 vers 10.20.30.0



Les deux réseaux communiquentnt ensemble grâce à la nouvelle configuration du Controlleur-SDN.