

# reporter

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## reporter

- 建立拓扑
- 建立防火墙
  - 防火墙规则
  - switch规则
- rules and pingall screenshots
- self.policy

## 建立拓扑

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```
sudo mn --topo single,6 --mac --switch ovsk --controller remote
```

## 建立防火墙

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### 防火墙规则

```
for (id, macA, macB) in rules:
    if id == 'id':
        continue
    not_allowed = not_allowed | match(srcmac=MAC(macA), dstmac=MAC(macB)) |
match(srcmac=MAC(macB), dstmac=MAC(macA))
```

csv中的每一表项取**并集**，只要匹配**srcmac**和**dstmat(双向)**，就会**丢弃**。不匹配的数据包会进行act\_like\_switch()匹配。

### switch规则

```
def learn_from_a_packet(pkt):
    # Set the forwarding policy
    self.forward = if_(match(dstmac=pkt['srcmac'],
                             switch=pkt['switch']), fwd(pkt['inport']),
                       self.policy) # hint use 'match', '&', 'if_', and
    'fwd'
    # Update the policy
    self.policy = self.forward + self.query # hint you've already written
    this
    print self.policy
```

默认**flood**，会记录不在policy中的数据包**srcmac**和**inport**，优先匹配mac地址。

## rules and pingall screenshots

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- firewall rules

```

    allowed:
negate:
    parallel:
        none
        match:
            ('dstmac', 00:00:00:00:00:04)
            ('srcmac', 00:00:00:00:00:01)
        match:
            ('dstmac', 00:00:00:00:00:01)
            ('srcmac', 00:00:00:00:00:04)
        match:
            ('dstmac', 00:00:00:00:00:05)
            ('srcmac', 00:00:00:00:00:02)
        match:
            ('dstmac', 00:00:00:00:00:02)
            ('srcmac', 00:00:00:00:00:05)
        match:
            ('dstmac', 00:00:00:00:00:06)
            ('srcmac', 00:00:00:00:00:03)
        match:
            ('dstmac', 00:00:00:00:00:03)
            ('srcmac', 00:00:00:00:00:06)
OpenFlow switch 1 connected

```

- pingall

```

mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 X h5 h6
h2 -> h1 h3 h4 X h6
h3 -> h1 h2 h4 h5 X
h4 -> X h2 h3 h5 h6
h5 -> h1 X h3 h4 h6
h6 -> h1 h2 X h4 h5
*** Results: 20% dropped (6/30 lost)
mininet>

```

## self.policy

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pingall以后的policy

```

parallel:
  if
    match:
      ('switch', 1)
      ('dstmac', 00:00:00:00:00:04)
    then
      fwd 4
    else
      parallel:
        if
          match:
            ('switch', 1)
            ('dstmac', 00:00:00:00:00:06)
          then
            fwd 6
          else
            parallel:
              if
                match:
                  ('switch', 1)
                  ('dstmac', 00:00:00:00:00:05)
                then
                  fwd 5
                else
                  parallel:
                    if
                      match:
                        ('switch', 1)
                        ('dstmac', 00:00:00:00:00:03)
                      then
                        fwd 3
                      else
                        parallel:
                          if
                            match:
                              ('switch', 1)
                              ('dstmac', 00:00:00:00:00:02)
                            then
                              fwd 2
                            else
                              parallel:
                                if
                                  match:
                                    ('switch', 1)
                                    ('dstmac', 00:00:00:00:00:01)
                                  then
                                    fwd 1
                                else
                                  parallel:
                                    flood on:
                                      -----
                                      switch | switch edges | egress ports |
                                      -----
                                      1      |          | 1[2]---, 1[3]---, 1[4]---, 1[5]---, 1[6]---, 1[1]--- |
                                      -----
                                    packets
                                    sequential:
                                      negate:
                                        match:
                                          ('switch', 1)

```

按照**目的mac**依次匹配4, 6, 5, 3, 2, 1, 匹配成功则从与mac地址**相同的端口**转发, 否则flood。