

# Efficient Inter-VLAN Routing in OpenFlow Networks\*

*\*More fun with flow tables*

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# Faucet Inter-VLAN routing

<https://buildmedia.readthedocs.org/media/pdf/faucet/latest/faucet.pdf> Section 1.2.4

vlan:

100:

faucet\_vips: ["10.0.0.254/24"]

faucet\_mac: "00:00:00:00:00:11"

200:

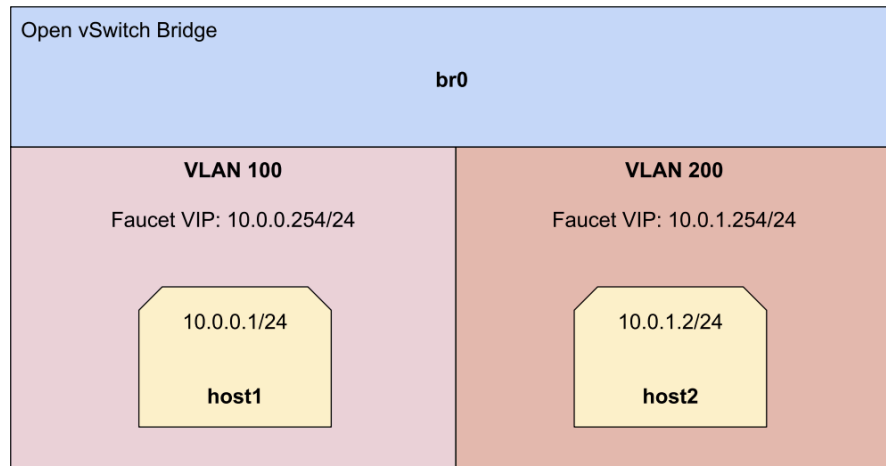
faucet\_vips: ["10.0.1.254/24"]

faucet\_mac: "00:00:00:00:00:2"

routers:

router-1:

vlan: [100, 200]



1. table=1, in\_port=1, vlan\_tci= 0x0000/0x1fff  
actions=push\_vlan:0x8100,set\_field:100->vlan\_vid, goto\_table:3
2. table=1, in\_port=2, vlan\_tci=0x0000/0x1fff  
actions=push\_vlan:0x8100,set\_field:200->vlan\_vid, goto\_table:3
3. table=3, ip, dl\_vlan=200, dl\_dst=0e:00:00:00:00:22 actions=goto\_table:4
4. table=3, ip, dl\_vlan=100, dl\_dst=0e:00:00:00:00:11 actions=goto\_table:4

# Faucet Inter-VLAN routing

5. table=4, ip, dl\_vlan=200,nw\_dst=10.0.0.1 actions=set\_field:100->vlan\_vid,  
set\_field:0e:00:00:00:00:11->eth\_src, set\_field:1e:a9:60:0b:b1:02->eth\_dst,  
dec\_ttl,goto\_table:7
6. table=4, ip, dl\_vlan=100,nw\_dst=10.0.0.1 actions=set\_field:100->vlan\_vid,  
set\_field:0e:00:00:00:00:11->eth\_src, set\_field:1e:a9:60:0b:b1:02->eth\_dst,  
dec\_ttl,goto\_table:7
7. table=4, ip, dl\_vlan=200,nw\_dst=10.0.1.2 actions=set\_field:200->vlan\_vid,  
set\_field:0e:00:00:00:00:22->eth\_src, set\_field:a2:0b:3d:25:21:12->eth\_dst,  
dec\_ttl,goto\_table:7
8. table=4, ip, dl\_vlan=100,nw\_dst=10.0.1.2 actions=set\_field:200->vlan\_vid,  
set\_field:0e:00:00:00:00:22->eth\_src, set\_field:a2:0b:3d:25:21:12->eth\_dst,  
dec\_ttl,goto\_table:7
9. table=7, dl\_vlan=200,dl\_dst=a2:0b:3d:25:21:12 actions=pop\_vlan,output:2
10. table=7, dl\_vlan=100,dl\_dst=1e:a9:60:0b:b1:02 actions=pop\_vlan,output:1

# Efficient Faucet Inter-VLAN routing

routers:

router-1:

vlan: [100, 200]

vrf: 1000

1. table=3, ip,d1\_vlan=200,d1\_dst=0e:00:00:00:00:22 actions=set\_field:1000->vlan\_vid, goto\_table:4
2. table=3, ip,d1\_vlan=100,d1\_dst=0e:00:00:00:00:11 actions=set\_field:1000->vlan\_vid, goto\_table:4
5. table=4, ip,d1\_vlan=1000,nw\_dst=10.0.0.1 actions=set\_field:100->vlan\_vid, set\_field:0e:00:00:00:00:11->eth\_src, set\_field:1e:a9:60:0b:b1:02->eth\_dst, dec\_ttl,goto\_table:7
6. table=4, ip,d1\_vlan=1000,nw\_dst=10.0.1.2 actions=set\_field:200->vlan\_vid, set\_field:0e:00:00:00:00:22->eth\_src,set\_field:a2:0b:3d:25:21:12->eth\_dst, dec\_ttl,goto\_table:7
7. table=7, d1\_vlan=200,d1\_dst=a2:0b:3d:25:21:12 actions=pop\_vlan,output:2
8. table=7, d1\_vlan=100,d1\_dst=1e:a9:60:0b:b1:02 actions=pop\_vlan,output:1

# FaucetUntaggedIPv4GlobalInterVLANRouteTest

1. table=4, ip, dl\_vlan=100, dl\_dst=0e:00:00:00:00:01 actions=set\_field:0e:00:00:00:00:64->eth\_dst, set\_field:4396->vlan\_vid, goto\_table:5
2. table=4, ip, dl\_vlan=200, dl\_dst=0e:00:00:00:00:02 actions=set\_field:0e:00:00:00:00:c8->eth\_dst, set\_field:4396->vlan\_vid, goto\_table:5
3. table=5, ip, dl\_vlan=300, nw\_dst=10.100.0.1 actions=set\_field:4196->vlan\_vid, set\_field:0e:00:00:00:00:01->eth\_src, set\_field:7e:ec:7b:92:78:b4->eth\_dst, dec\_ttl, goto\_table:9
4. table=5, ip, dl\_vlan=300, nw\_dst=10.200.0.1 actions=set\_field:4296->vlan\_vid, set\_field:0e:00:00:00:00:02->eth\_src, set\_field:ce:76:79:82:bb:7e->eth\_dst, dec\_ttl, goto\_table:9
5. table=5, ip, dl\_vlan=300, nw\_dst=10.99.99.0/24 actions=set\_field:4296->vlan\_vid, set\_field:0e:00:00:00:00:02->eth\_src, set\_field:ce:76:79:82:bb:7e->eth\_dst, dec\_ttl, goto\_table:9
6. table=9, dl\_vlan=200, dl\_dst=1a:7a:a8:a1:4f:01 actions=pop\_vlan, output:6
7. table=9, dl\_vlan=200, dl\_dst=52:ad:26:96:f0:93 actions=pop\_vlan, output:8
8. table=9, dl\_vlan=100, dl\_dst=7e:ec:7b:92:78:b4 actions=pop\_vlan, output:7
9. table=9, dl\_vlan=200, dl\_dst=ce:76:79:82:bb:7e actions=pop\_vlan, output:5

# Q & A



Your Time Is Now