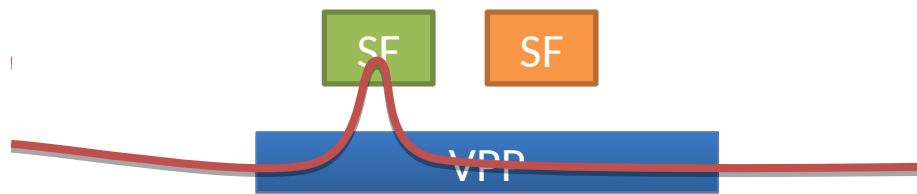
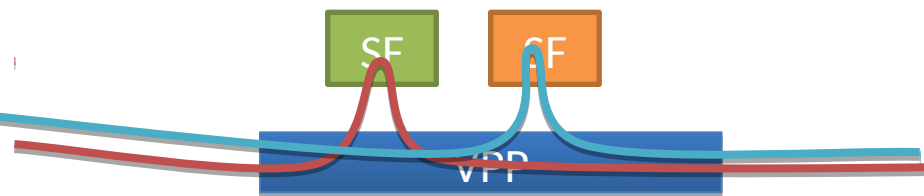


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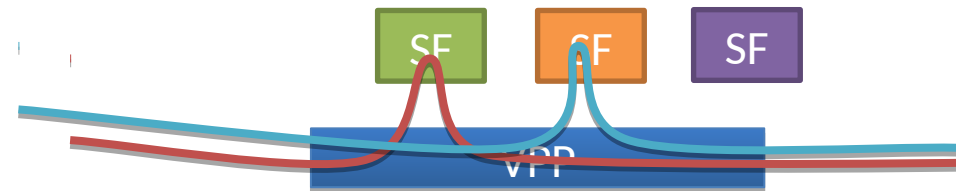
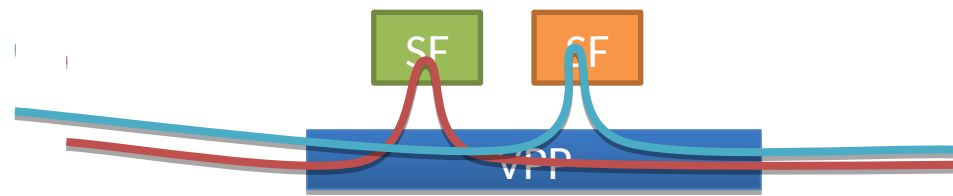
- Load balancing and service chaining
- Usual issues



Scale down or SF Migration
Wait for all flow expiration



Scale Up: Ensure Flow stickyness



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- VPP
 - Flow table plugin
 - Round robin load balancer node
- Mininet
 - Integration of VPP

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```
[root@vpp mininet]# python ./bin/mn --switch vpp
```

```
mininet> dpctl set interface loadbalanced host-s1-eth1 to host-s1-eth2 host-s1-eth3
```

```
mininet> h1 curl 10.0.0.10:8080
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 3.2 Final//EN"><html>
```

```
<title>Directory listing for /</title>
```

```
<body>
```

```
<h2>Directory listing for /</h2>
```

```
<hr>
```

```
<ul>
```

```
<li><a href="red">red</a>
```

```
</ul>
```

```
<hr>
```

```
</body>
```

```
</html>
```

```
mininet> h1 curl 10.0.0.10:8080
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 3.2 Final//EN"><html>
```

```
<title>Directory listing for /</title>
```

```
<body>
```

```
<h2>Directory listing for /</h2>
```

```
<hr>
```

```
<ul>
```

```
<li><a href="green">green</a>
```

```
</ul>
```

```
<hr>
```

```
</body>
```

```
</html>
```

```
mininet> 
```

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- Mininet integration: Done

<https://github.com/christophefontaine/mininet>

- Flowtable & Loadbalancer

<https://github.com/christophefontaine/flowtable-plugin>

- Code entirely written here
- Simple Round Robin LB
- Currently only working with interfaces, not tunnels
- Not yet working with NSH ↯

- Next:

- NSH ↗
- Test, Test, Test
- Optimization