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**Welcome
To
Network for you
VRF Lite**



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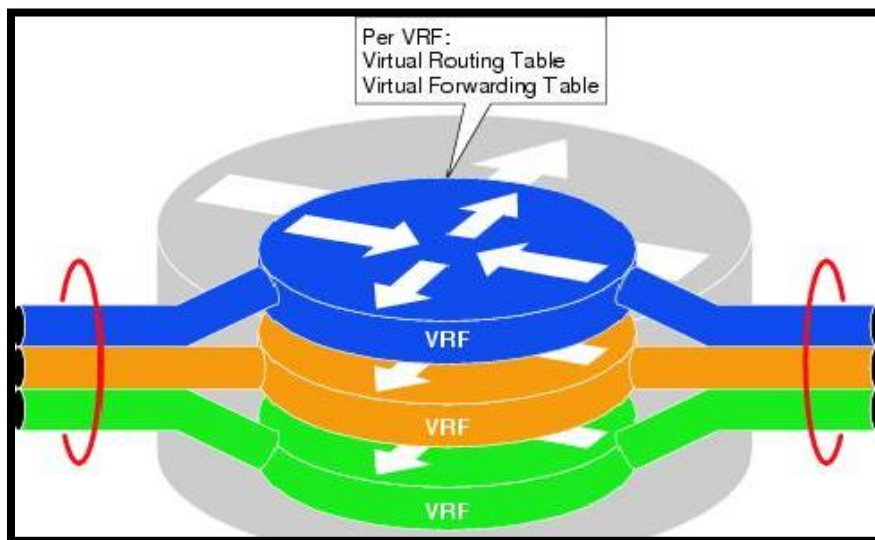
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VRF Lite:

- VRF stand for Virtual Routing and Forwarding.
- By default a router uses a single global routing table that contains all the directly connected networks and prefixes that it learned through static or dynamic routing protocols.
- VRFs are like VLANs for routers, instead of using a single global routing table we can use multiple virtual routing tables. Each interface of the router is assigned to a different VRF.
- VRFs are commonly used for MPLS deployments, when we use VRFs without MPLS then we call it VRF lite.



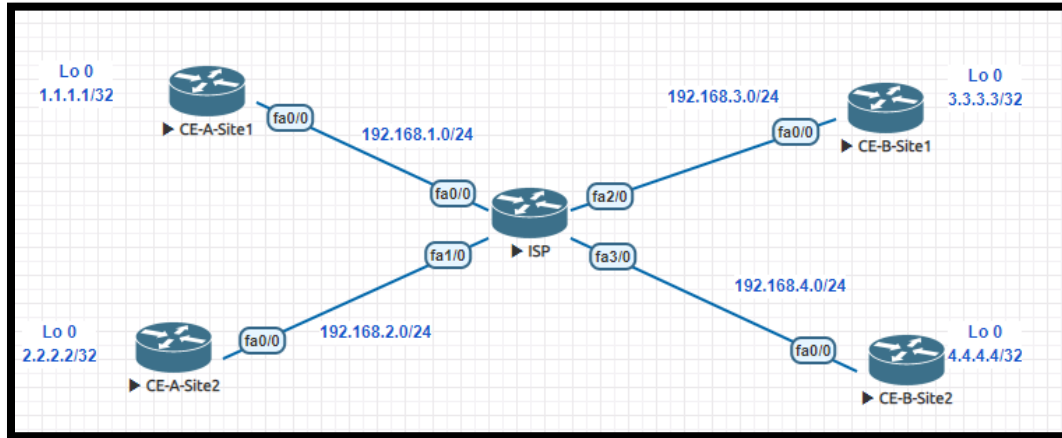
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Lab:



CE-A-Site1 Configuration:	CE-A-Site2 Configuration:
<pre>en config t hostname CE-A-Site1 int f0/0 ip add 192.168.1.1 255.255.255.0 no sh int lo 0 ip add 1.1.1.1 255.255.255.255 router ospf 1 int f0/0 ip ospf 1 area 0 int lo 0 ip ospf 1 area 0</pre>	<pre>en config t hostname CE-A-Site2 int f0/0 ip add 192.168.2.1 255.255.255.0 no sh int lo 0 ip add 2.2.2.2 255.255.255.255 router ospf 1 int f0/0 ip ospf 1 area 0 int lo 0 ip ospf 1 area 0</pre>
CE-B-Site1 Configuration:	CE-B-Site2 Configuration:
<pre>en config t</pre>	<pre>en config t</pre>

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```
hostname CE-B-Site1
```

```
int f0/0  
ip add 192.168.3.1 255.255.255.0  
no sh
```

```
int lo 0  
ip add 3.3.3.3 255.255.255.255
```

```
router ospf 1  
int f0/0  
ip ospf 1 area 0  
int lo 0  
ip ospf 1 area 0
```

```
hostname CE-B-Site2
```

```
int f0/0  
ip add 192.168.4.1 255.255.255.0  
no sh
```

```
int lo 0  
ip add 4.4.4.4 255.255.255.255
```

```
router ospf 1  
int f0/0  
ip ospf 1 area 0  
int lo 0  
ip ospf 1 area 0
```

Router ISP Configuration:

```
en  
config t  
hostname ISP  
ip vrf A  
exit  
ip vrf B  
  
int f0/0  
ip vrf forwarding A  
ip address 192.168.1.2 255.255.255.0  
no sh  
  
int f1/0  
ip vrf forwarding A  
ip address 192.168.2.2 255.255.255.0  
no sh
```

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```
int f2/0
ip vrf forwarding B
ip address 192.168.3.2 255.255.255.0
no sh
```

```
int f3/0
ip vrf forwarding B
ip address 192.168.4.2 255.255.255.0
no sh
```

```
router ospf 1 vrf A
network 192.168.1.0 0.0.0.255 area 0
network 192.168.2.0 0.0.0.255 area 0
```

```
router ospf 2 vrf B
network 192.168.3.0 0.0.0.255 area 0
network 192.168.4.0 0.0.0.255 area 0
```

```
CE-A-Site1#ping 2.2.2.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2 seconds:
!!!!!
```

```
CE-A-Site2#ping 1.1.1.1
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 40/48/52 ms
```

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```
ISP#sh ip route vrf A ospf
```

```
Routing Table: A
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP  
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
E1 - OSPF external type 1, E2 - OSPF external type 2  
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
ia - IS-IS inter area, * - candidate default, U - per-user static route  
o - ODR, P - periodic downloaded static route, + - replicated route
```

```
Gateway of last resort is not set
```

```
1.0.0.0/32 is subnetted, 1 subnets  
O 1.1.1.1 [110/2] via 192.168.1.1, 00:24:57, FastEthernet0/0  
2.0.0.0/32 is subnetted, 1 subnets  
O 2.2.2.2 [110/2] via 192.168.2.1, 00:25:20, FastEthernet1/0
```

```
ISP#sh ip route vrf B ospf
```

```
Routing Table: B
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP  
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
E1 - OSPF external type 1, E2 - OSPF external type 2  
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
ia - IS-IS inter area, * - candidate default, U - per-user static route  
o - ODR, P - periodic downloaded static route, + - replicated route
```

```
Gateway of last resort is not set
```

```
3.0.0.0/32 is subnetted, 1 subnets  
O 3.3.3.3 [110/2] via 192.168.3.1, 00:18:34, FastEthernet2/0  
4.0.0.0/32 is subnetted, 1 subnets  
O 4.4.4.4 [110/2] via 192.168.4.1, 00:18:34, FastEthernet3/0
```

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