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Welcome

To

Network for you

OSPF Load Balancing



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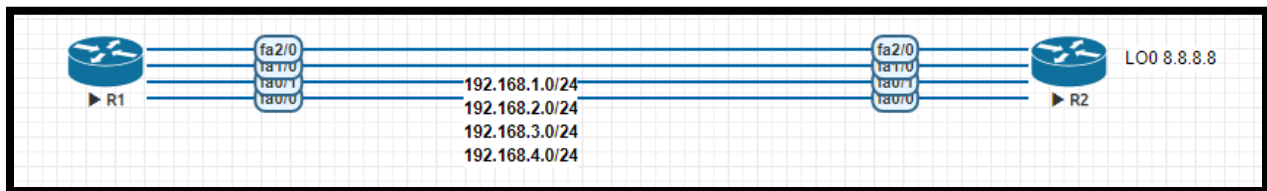
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OSPF Load Balancing:

- Its name implies, is the balancing of a traffic load across redundant links of equal cost.
- Equal-cost multi-path routing (ECMP) is strategy used in routing to forward traffic to a destination over multiple best paths.
- These best paths have calculated the same metric according to the routing protocol in use.
- The Load balancing occurs when the router receives a multiple paths with the same AD.
- Load balancing occurs when router receives multiple paths with same cost to destination.
- Equal-cost multi-path allows router to insert more than one path to destination in routing.
- OSPF protocol load balances across equal cost paths to the same destination by default.
- By default, OSPF supports of **four paths** to install to single network with identical metric.
- In Open Shortest Path First protocol however can be changed to a **maximum of 32 paths**.
- The maximum-paths command & specify how many equal-cost paths router should use.



Lab Time:

R1 Configuration:	R2 Configuration:
<pre>!R1 Configuration: en config t hostname R1 int f0/0 ip add 192.168.1.1 255.255.255.0 no sh int f0/1 ip add 192.168.2.1 255.255.255.0 no sh</pre>	<pre>!R2 Configuration: en config t hostname R2 int f0/0 ip add 192.168.1.2 255.255.255.0 no sh int f0/1 ip add 192.168.2.2 255.255.255.0 no sh</pre>

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```
int f1/0
ip add 192.168.3.1 255.255.255.0
no sh
```

```
int f2/0
ip add 192.168.4.1 255.255.255.0
no sh
```

```
router ospf 1
router-id 1.1.1.1
```

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

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

```
int f1/0
ip ospf 1 area 0
```

```
int f2/0
ip ospf 1 area 0
```

```
int f1/0
ip add 192.168.3.2 255.255.255.0
no sh
```

```
int f2/0
ip add 192.168.4.2 255.255.255.0
no sh
```

```
int lo0
ip add 8.8.8.8 255.0.0.0
router ospf 1
router-id 2.2.2.2
```

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

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

```
int f1/0
ip ospf 1 area 0
```

```
int f2/0
ip ospf 1 area 0
```

```
int lo0
ip ospf 1 area 0
```

```
R1#sh ip route ospf
      8.0.0.0/32 is subnetted, 1 subnets
O       8.8.8.8 [110/2] via 192.168.4.2, 00:13:00, FastEthernet2/0
          [110/2] via 192.168.3.2, 00:13:00, FastEthernet1/0
          [110/2] via 192.168.2.2, 00:08:59, FastEthernet0/1
          [110/2] via 192.168.1.2, 00:09:09, FastEthernet0/0
```

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```
R1#traceroute 8.8.8.8 probe 8
Type escape sequence to abort.
Tracing the route to 8.8.8.8

 0 192.168.1.2 32 msec
 1 192.168.4.2 48 msec
 2 192.168.3.2  8 msec
 3 192.168.2.2 28 msec
 4 192.168.1.2 40 msec
 5 192.168.4.2 28 msec
 6 192.168.3.2 48 msec
 7 192.168.2.2 28 msec
```

```
R1#sh ip route 8.8.8.8
Routing entry for 8.8.8.8/32
  Known via "ospf 1", distance 110, metric 2, type intra area
  Last update from 192.168.2.2 on FastEthernet0/1, 00:11:38 ago
  Routing Descriptor Blocks:
    192.168.4.2, from 2.2.2.2, 00:15:39 ago, via FastEthernet2/0
      Route metric is 2, traffic share count is 1
    * 192.168.3.2, from 2.2.2.2, 00:15:39 ago, via FastEthernet1/0
      Route metric is 2, traffic share count is 1
    192.168.2.2, from 2.2.2.2, 00:11:38 ago, via FastEthernet0/1
      Route metric is 2, traffic share count is 1
    192.168.1.2, from 2.2.2.2, 00:11:48 ago, via FastEthernet0/0
      Route metric is 2, traffic share count is 1
```

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