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**Welcome  
To  
Network for you  
Policy Based Routing**



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1 of 5

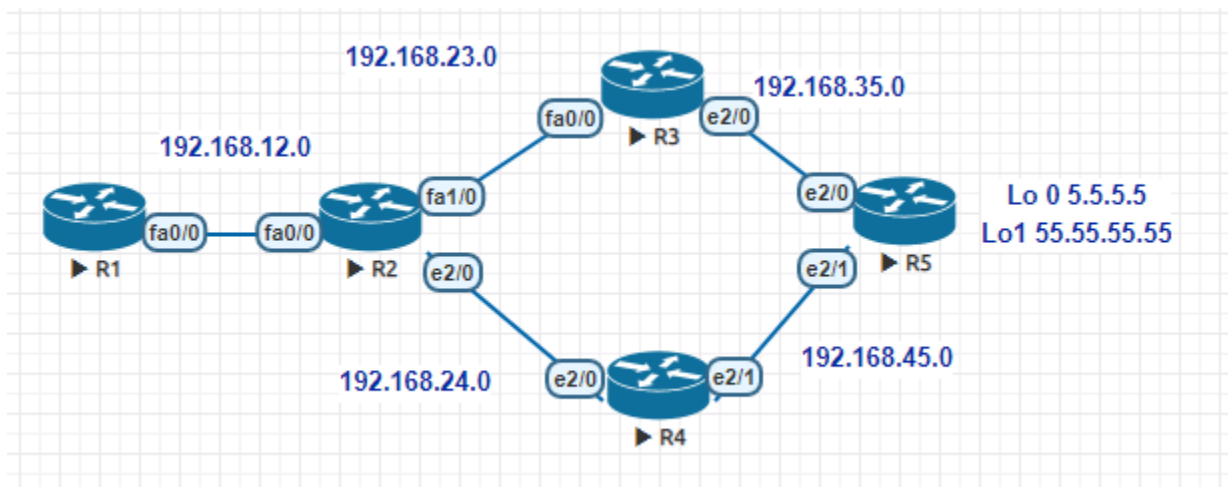
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## Policy Based Routing:

- Policy-based routing can be used to change the next hop IP address for traffic matching certain criteria. This can be useful to overrule your routing table for certain traffic types.
- PBR is network routing term, which is a stand for Policy Based Routing.
- Traditional routing systems route traffic based on destination of the traffic.
- Normal Routing is only concerned about destination-based forwarding.
- PBR altering a packet's path based on criteria other than the destination.
- PBR is a feature to manipulate packet routing and forwarding to follow policy set.
- PBR is a technique that forwards & routes data packets based on policies or filters.
- Policy Based Routing is a feature that has been supported on Cisco Routers.
- PBR provides flexible, granular traffic-handling capabilities for forwarding packets.
- PBR enables network administrators to achieve optimal bandwidth utilization.
- Policy Based Routing is very useful because it can manipulate traffic flow based on source
- Prioritize apps by selecting high-bandwidth, low-latency links for important apps.
- PBR allows routing to be performed based on criteria other than destination IP.
- Policy Based Routing allows to change a packet's path based on different criteria.
- Policy-based routing can be used to change next hop IP address for certain criteria.
- Popular scenario is to route some traffic to ISP1 and some other traffic to ISP2.
- **PBR use Access Control Lists and route maps to selectively route an IP packet.**
- ACLs classify traffic & route maps match on ACLs set routing attributes for the traffic.
- To configure Policy Based Routing (PBR), define policies using ACLs and route maps.
- To apply Policy Based Routing (PBR), then enable it on individual interfaces of device.

## Lab time: (PBR Lab):



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2 of 5

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R1 Configuration	R2 Configuration
<pre>en config t hostname R1  int f0/0 ip add 192.168.12.1 255.255.255.0 no sh  router eigrp 1 network 0.0.0.0</pre>	<pre>en config t hostname R2  int f0/0 ip add 192.168.12.2 255.255.255.0 no sh  int f1/0 ip add 192.168.23.2 255.255.255.0 no sh  int e2/0 ip add 192.168.24.2 255.255.255.0 no sh  router eigrp 1 network 0.0.0.0  !PBR let do for 5.5.5.5 network to go 192.168.24.0 ip access-list extended ABC permit ip host 192.168.12.1 host 5.5.5.5 exit  route-map PBR permit 10 match ip address ABC set ip next-hop 192.168.24.4 exit  int f0/0 ip policy route-map PBR</pre>
R3 Configuration	R4 Configuration
<pre>en config t hostname R3  int f0/0 ip add 192.168.23.3 255.255.255.0 no sh</pre>	<pre>en config t hostname R4  int e2/0 ip add 192.168.24.4 255.255.255.0 no sh</pre>

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3 of 5

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```
int e2/0
ip add 192.168.35.3 255.255.255.0
no sh
```

```
router eigrp 1
network 0.0.0.0
```

```
int e2/1
ip add 192.168.45.4 255.255.255.0
no sh
```

```
router eigrp 1
network 0.0.0.0
```

### R5 configuration

```
en
config t
hostname R5

int e2/0
ip add 192.168.35.5 255.255.255.0
no sh

int e2/1
ip add 192.168.45.5 255.255.255.0
no sh

int lo 0
ip add 5.5.5.5 255.0.0.0

int lo 1
ip add 55.55.55.55 255.0.0.0

router eigrp 1
network 0.0.0.0
```

### Output

```
Look in R1

traceroute 5.5.5.5 numeric
traceroute 55.55.55.55 numeric
```

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### Before PBR:

```
R1#traceroute 55.55.55.55 numeric
Type escape sequence to abort.
Tracing the route to 55.55.55.55
VRF info: (vrf in name/id, vrf out name/id)
 1 192.168.12.2 40 msec 52 msec 32 msec
 2 192.168.23.3 28 msec 20 msec 44 msec
 3 192.168.35.5 52 msec * 72 msec
R1#traceroute 5.5.5.5 numeric
Type escape sequence to abort.
Tracing the route to 5.5.5.5
VRF info: (vrf in name/id, vrf out name/id)
 1 192.168.12.2 28 msec 52 msec 28 msec
 2 192.168.23.3 52 msec 52 msec 56 msec
 3 192.168.35.5 36 msec * 92 msec
```

### After PBR:

```
R1#traceroute 5.5.5.5 numeric
Type escape sequence to abort.
Tracing the route to 5.5.5.5
VRF info: (vrf in name/id, vrf out name/id)
 1 192.168.12.2 56 msec 28 msec 56 msec
 2 192.168.24.4 56 msec 48 msec 52 msec
 3 192.168.45.5 52 msec * 96 msec
R1#traceroute 55.55.55.55 numeric
Type escape sequence to abort.
Tracing the route to 55.55.55.55
VRF info: (vrf in name/id, vrf out name/id)
 1 192.168.12.2 28 msec 56 msec 32 msec
 2 192.168.23.3 52 msec 52 msec 48 msec
 3 192.168.35.5 32 msec * 48 msec
```

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5 of 5

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