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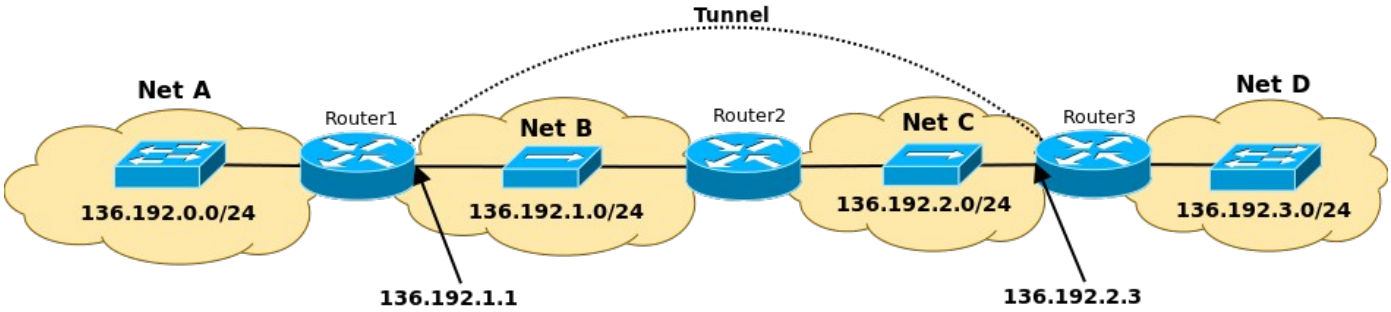
Arquitetura e Gestão de Redes

Laboratory Guide

Objectives

- IPv4 tunneling

IPv4 Tunnels



1. Assemble the above depicted network, start by configuring all interfaces' IPv4 addresses and RIP in all routers. Verify the interfaces' configurations and IPv4, routing table.

2. Configure an IPv4-IPv4 tunnel between Router1 and Router3 (as depicted in figure):

```
Router1(config)# interface Tunnel 0     !Tunnels can be numbered from 0 to 2147483647
Router1(config-if)# tunnel source 136.192.1.1
Router1(config-if)# tunnel destination 136.192.2.3
Router1(config-if)# tunnel mode ipip
…
Router3(config)# interface Tunnel 0
Router3(config-if)# tunnel source 136.192.2.3
Router3(config-if)# tunnel destination 136.192.1.1
Router3(config-if)# tunnel mode ipip
```

Check the status of Tunnel 0 on both routers:

```
show interface Tunnel 0
```

3. Configure a static route from Router1 to network 136.192.3.0/24 via Tunnel 0:

```
Router1(config)# ip route 136.192.3.0 255.255.255.0 Tunnel 0
```

Verify the routing table.
Note: The Tunnel interfaces (as any Layer3 interface) requires an IP address.

4. Associate the network 10.1.1.0/30 to the Tunnel and confoigure the end-points IPv4 addresses:

```
Router1(config)# interface Tunnel 0
Router1(config-if)# ip address 10.1.1.1 255.255.255.252
…
Router3(config)# interface Tunnel 0
Router3(config-if)# ip address 10.1.1.2 255.255.255.252
```

Verify the routing table and (is the static route is active) start a capture on Network B and perform a ping from Router1 interface with network 136.192.0.0/24 to Router3 interface with network 136.192.3.0/24.
(Example): `Router1# ping 136.192.3.3 source 136.192.0.1`
Analyze the captured packets.

5. Tunnel interfaces don't need to have specific IP addresses, they can reuse the physical interfaces IP addresses:

```
Router1(config)# interface Tunnel 0
Router1(config-if)# no ip address 10.1.1.1 255.255.255.252
Router1(config-if)# ip unnumbered FastEthernet0/0
```

Verify the routing table and (is the static route is active) start a capture on Network B and perform a ping from Router1 interface with network 136.192.0.0/24 to Router3 interface with network 136.192.3.0/24. Analyze the captured packets.

6. Change the type of the Tunnel to GRE IPv4:

```
Router1(config)# interface Tunnel 0
Router1(config-if)# tunnel mode gre ip
```

Verify the routing table and (is the static route is active) start a capture on Network B and perform a ping from Router1 interface with network 136.192.0.0/24 to Router3 interface with network 136.192.3.0/24. Analyze the captured packets.