

Internet Simulation

Introduction:

Internet is a world wide web of interconnected routers with deferent destinations, this PoC is a small simulation of interconnected routers using OSPF routing protocol in a single area, but with a little twist

As the local network would be routed using static route, specifically RIP version 2, the router between the FAMAS routers and the internet would have both OSPF and RIP configured, but by adding in the OSPF configuration the command "redistribute rip subnets" the internal network of FAMAS (that is routed in RIP) will get to connect to all other networks in the internet (configured with OSPF)

and as a final touch, FAMAS routers had to have a static route pointing to the first hop (the ISP router's IP) with the command "ip route 0.0.0.0 0.0.0.0 10.0.0.1"

with the aid of a DNS server users in FAMAS can ping by name instead of remembering deferent IPs for the servers in the internet

Technical Aspects:

This setup involves simulating interconnected routers using a combination of OSPF (Open Shortest Path First) and RIP (Routing Information Protocol) version 2, integrating different routing domains in a single network.

Here's a breakdown of the configuration:

- OSPF and RIP Integration:
 - OSPF is used for routing in the broader network (internet).
 - RIP v2 is used for routing within the FAMAS network, a specific local network segment.
 - The router that connects FAMAS to the internet (ISP router) is configured with both OSPF and RIP.
 - To ensure that the internal network using RIP can communicate with the rest of the internet (which uses OSPF), the command `redistribute rip subnets` is applied on the router. This tells OSPF to include the routes learned via RIP in its own route advertisements.

- Static Route on FAMAS Routers:
 - FAMAS routers use a static default route to forward traffic to the ISP router with the command ``ip route 0.0.0.0 0.0.0.0 10.0.0.1``, where ``10.0.0.1`` is the IP address of the ISP router.
 - This enables FAMAS routers to send traffic for unknown destinations out to the internet.

- DNS for Name Resolution:
 - A DNS server is configured so that users within the FAMAS network can use domain names instead of IP addresses when accessing servers on the internet.
 - This provides a more user-friendly way to access resources, as users don't have to remember IP addresses.

Key Concepts:

- OSPF Redistribution:
 - The ``redistribute rip subnets`` command is essential because it allows routes learned via RIP to be shared with the OSPF process, enabling seamless communication between two different routing protocols.
- Static Default Route:
 - The static route on FAMAS routers ensures that any traffic for destinations outside the FAMAS network is directed to the ISP router, which then forwards it based on OSPF routing.
- DNS:
 - DNS servers map domain names to IP addresses, enabling users to ping or access servers using names instead of IPs.

This configuration allows for efficient routing and communication between the local FAMAS network and the larger internet, despite using different routing protocols within the two environments.