

Fundamentos de Redes

Mini-Projeto

Professors:

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Objective 1: Definition of the Pv4 and IPv6 addressing scheme of a business network (deadline: 28/10).

Description:

Consider the communication network of a company depicted in the following figure:

- (a) it contains the IPv4 public class C address 193.11.11.0/25;
 - (b) it contains the IPv6 global address 2200:A:A::/56;
 - (c) it internally uses the range of IPv4 private class C address 192.168.0.0/16 (several class C networks);
 - (d) every local network has a private IPv4 and an IPv6 network;
 - (e) considering the public IPv4 addressing, there are several equipments in the network that need public addressing: 5 servers (DMZ), 20 servers (Datacenter interno), 4 equipments of video-conference, 35 PCs in the research VLAN, and Router1 needs 10 public addresses IPv4 to configure NAT/PAT mechanisms for translation between private and public addresses.
1. Define the private and public IPv4 sub-networks, and the global IPv6 networks with its network address and mask. Define also the range of IP addresses of the terminals and servers.

Objective 2: Configure the company communication network (deadline: 04/01).

Description:

Consider the communication network of the company defined before. The Internet is simulated with the IPv4 network 110.1.1.0/24 and the IPv6 network 2001:B:B:B::/64.

1. Configure in the switches Layer 2 and Layer 3 the respective VLANs and the access and inter-switch/trunk ports.
2. Configure the IPv4 and IPv6 addressing in the equipments.
3. Include and configure 2 terminals in each VLAN with the IP addresses and gateways.
4. Configure in Router 1 the NAT/PAT mechanisms in an appropriate way. Use the range of public IPv4 addresses to configure the translation with the private network.
5. Configure the internal routing IPv4 and IPv6 in the network with the RIP and RIPng protocols.
6. The old building should be interconnected with the remaining network using a static route.
7. Configure default static IPv4 and IPv6 routes for the Internet through Router 1. Include and configure a terminal in the “Internet” and test the connectivity with the terminals in the company.

