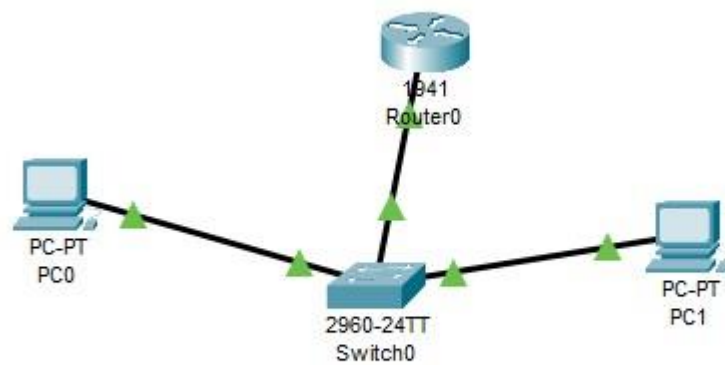


Objetivo

Analisar os protocolos envolvidos no envio de um pacote entre dois PCs simulando um ambiente de rede local.

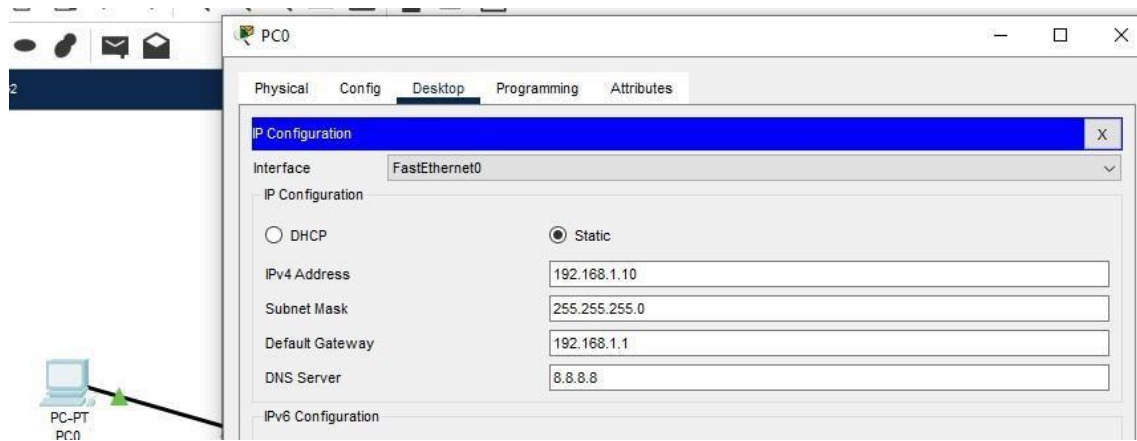
Topologia da Rede

- 2 PCs conectados a um Switch.
- Switch conectado a um Roteador.
- Todos configurados na mesma sub-rede.

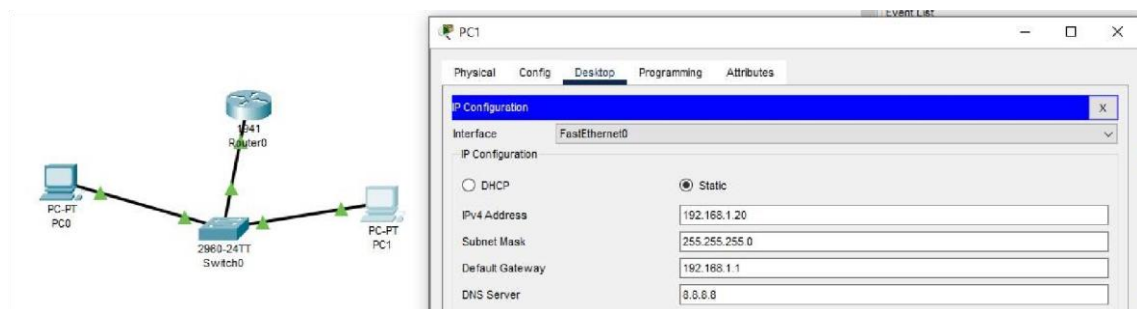


Configurações de Rede

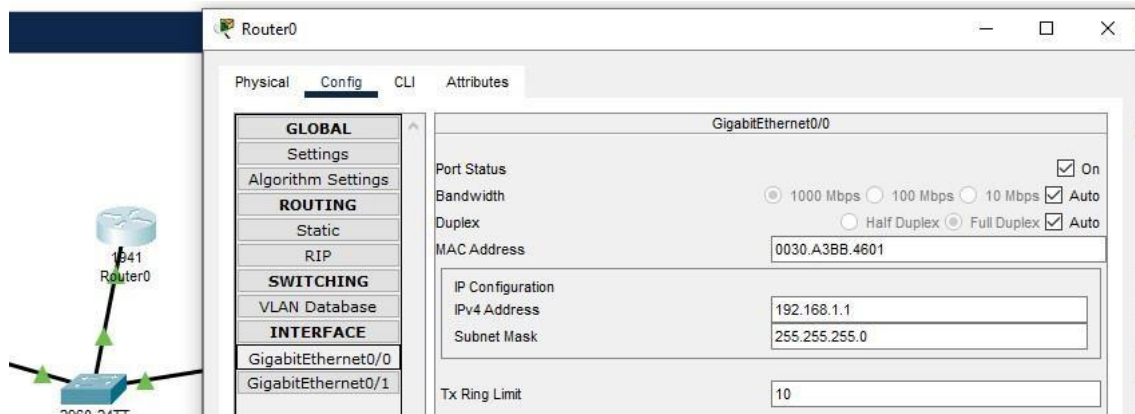
PC0



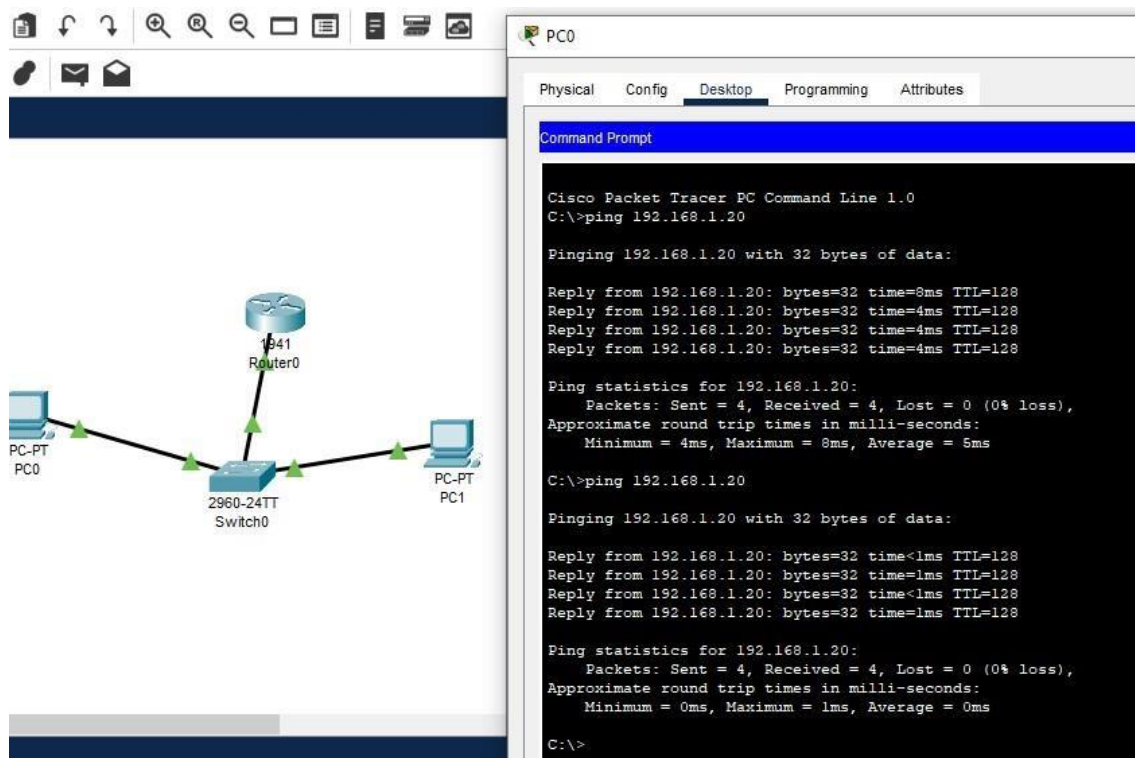
PC1



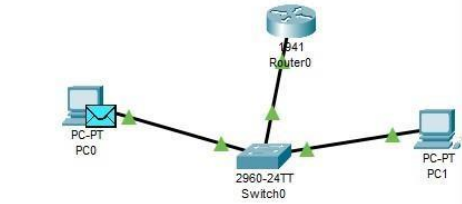
Router



Teste de Comunicação



Visualização das Camadas OSI



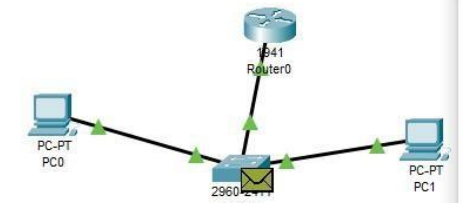
PDU Information at Device: PC0

OSI Model Outbound PDU Details

At Device: PC0
Source: PC0
Destination: 192.168.1.20

| In Layers | Out Layers |
|-----------|--------------------------------------------------------------------------------------|
| Layer7 | Layer7 |
| Layer6 | Layer6 |
| Layer5 | Layer5 |
| Layer4 | Layer4 |
| Layer3 | Layer3: IP Header Src. IP: 192.168.1.10, Dest. IP: 192.168.1.20 ICMP Message Type: 8 |
| Layer2 | Layer2: Ethernet II Header 0050.0F2E.2AB6 >> 0003.E4EC.8B82 |
| Layer1 | Layer1: Port(s): FastEthernet0 |

1. The Ping process starts the next ping request.
2. The Ping process creates an ICMP Echo Request message and sends it to the lower process.
3. The source IP address is not specified. The device sets it to the port's IP address.
4. The destination IP address is in the same subnet. The device sets the next-hop to destination.



PDU Information at Device: Switch0

OSI Model Inbound PDU Details Outbound PDU Details

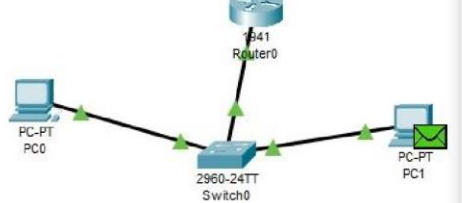
At Device: Switch0
Source: PC0
Destination: 192.168.1.20

| In Layers | Out Layers |
|-----------|-------------------------------------------------------------|
| Layer7 | Layer7 |
| Layer6 | Layer6 |
| Layer5 | Layer5 |
| Layer4 | Layer4 |
| Layer3 | Layer3 |
| Layer2 | Layer2: Ethernet II Header 0003.E4EC.8B82 >> 0050.0F2E.2AB6 |
| Layer1 | Layer1: Port FastEthernet0/2 |

Layer 2: Ethernet II Header 0003.E4EC.8B82 >> 0050.0F2E.2AB6

Layer 1: Port(s): FastEthernet0/1

1. FastEthernet0/2 receives the frame.



PDU Information at Device: PC1

OSI Model Inbound PDU Details Outbound PDU Details

At Device: PC1
Source: PC0
Destination: 192.168.1.20

| In Layers | Out Layers |
|-----------|--------------------------------------------------------------------------------------|
| Layer7 | Layer7 |
| Layer6 | Layer6 |
| Layer5 | Layer5 |
| Layer4 | Layer4 |
| Layer3 | Layer3: IP Header Src. IP: 192.168.1.10, Dest. IP: 192.168.1.20 ICMP Message Type: 8 |
| Layer2 | Layer2: Ethernet II Header 0050.0F2E.2AB6 >> 0003.E4EC.8B82 |
| Layer1 | Layer1: Port FastEthernet0 |

Layer 3: IP Header Src. IP: 192.168.1.10, Dest. IP: 192.168.1.20 ICMP Message Type: 8

Layer 2: Ethernet II Header 0050.0F2E.2AB6 >> 0003.E4EC.8B82

Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

Ao clicar nos pacotes, foram visualizadas as seguintes camadas:

| Camada OSI | Nome | Protocolo/Comentário |
|------------|------|----------------------|
|------------|------|----------------------|

| | | |
|---|-----------------|-----------------------------|
| 7 | Aplicação | ICMP (ping) |
| 6 | Apresentação | - (não utilizado com ICMP) |
| 5 | Sessão | - (não utilizado com ICMP) |
| 4 | Transporte | - (ICMP não usa TCP/UDP) |
| 3 | Rede | IP |
| 2 | Enlace de Dados | Ethernet |
| 1 | Física | Cabo (transmissão elétrica) |

Qual camada atua quando o pacote chega corrompido ao destino?

A Camada 2 – Enlace de Dados é responsável por detectar erros de transmissão, usando mecanismos como o FCS (Frame Check Sequence). Quando um erro é detectado, o pacote é descartado.

Conclusão

A simulação no Packet Tracer permitiu:

- Montar uma rede local funcional.
- Configurar IPs e gateways corretamente.
- Testar conectividade com ping.
- Visualizar, passo a passo, as camadas OSI envolvidas.
- Entender a atuação da camada de enlace em erros de transmissão.

