

# AVALIAÇÃO - Projetos de Redes de Computadores

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## Descrição do projeto

### Objetivo

Elaborar um projeto de redes de computadores para as unidades da instituição e a comunicação entre elas,

O projeto deve conter um planejamento lógico e ao final ser capaz de possibilitar o aumento da qualidade de serviços e da produtividade dos usuários, assim como oferecer maiores facilidades de operação e manutenção

### Requisitos

- 2 comutadores (Cisco 2960)
- 8 PCs (Windows com um programa de emulador de terminal, como o Tera Term)
- 2 Roteadores (Cisco 2911)
- Cabos de console para configurar os dispositivos Cisco IOS por meio das portas de console Cabos ethernet conforme mostrado na topologia

## Escopo

### O Escopo do projeto prevê:

- **Duas Unidades** que se comunicam por roteadores.
- Comunicação dentro das unidades deve ser feita por **switches**.
- Expectativa de 500 alunos e 100 funcionários em cada unidade.
- Criação de uma VLAN para unidade de Medicina e computação.
- Criação de uma VLAN adm dentro de cada unidade.
- **Uso e configuração de 2 roteadores** para a comunicação entre as duas unidades.

## Descrição da implementação

### Segmentação da estrutura lógica da rede

#### Unidade 1:

PC0, PC1 conectados ao Switch0 dentro da VLAN med  
PC2, PC3 conectados ao Switch0 dentro da VLAN adm

PC0 - Fa0 na porta Fa/1 do Switch0

PC1 - Fa0 na porta Fa/2 do Switch0

PC2 - Fa0 na porta Fa/3 do Switch0

PC3 - Fa0 na porta Fa/4 do Switch0

Switch0 - Fa0/5 na porta Gig0/0 do Router0

Router0 conectado ao Router1 pelas portas Gig0/1

#### Unidade 2:

PC4, pc5 conectados ao Switch1 dentro da VLAN comp  
PC6, pc7 conectados ao Switch1 dentro da VLAN adm

PC4 - Fa0 na porta Fa/1 do Switch1

PC5 - Fa0 na porta Fa/2 do Switch1

PC6 - Fa0 na porta Fa/3 do Switch1

PC7 - Fa0 na porta Fa/4 do Switch1

Switch1 - Fa0/5 na porta Gig0/0 do Router1

Router1 conectado ao Router0 pelas portas Gig0/1

## Planejamento do Endereçamento IP

Dispositivo	Interface	Endereço IP	Máscara de subrede	Gateway padrão
Switch0	VLAN 10 VALAN 30	192.168.200.1	255.255.255.192	N/D
Switch1	VLAN 20 VLAN 30	192.168.200.65	255.255.255.192	N/D
PC0	N/D	192.168.200.2	255.255.255.192	192.168.200.1
PC1	N/D	192.168.200.3	255.255.255.192	192.168.200.1
PC2	N/D	192.168.200.4	255.255.255.192	192.168.200.1
PC3	N/D	192.168.200.5	255.255.255.192	192.168.200.1
PC4	N/D	192.168.200.66	255.255.255.192	192.168.200.65
PC5	N/D	192.168.200.67	255.255.255.192	192.168.200.65
PC6	N/D	192.168.200.68	255.255.255.192	192.168.200.65
PC7	N/D	192.168.200.69	255.255.255.192	192.168.200.65
Router0	N/D	192.168.200.1 192.168.200.129	255.255.255.192 255.255.255.252	N/D
Router1	N/D	192.168.200.65 192.168.200.130	255.255.255.192 255.255.255.252	N/D

## Listagem dos comandos utilizados na configuração dos ativos

### CONFIGURANDO AS VLANs

#### Switch0 - VLAN med

1. *en*
2. *conf t*
3. *vlan 10*
4. *name med*
5. *vlan 30*

6. *name adm*
7. *int range f0/1-2*
8. *swi access vlan 10*
9. *exit*

#### **VLAN adm**

1. *int range f0/3-4*
  2. *swi access vlan 30*
  3. *end*
- 

#### **Switch1 - VLAN comp**

1. *en*
2. *conf t*
3. *vlan 20*
4. *name comp*
5. *vlan 30*
6. *name adm*
7. *int range f0/1-2*
8. *swi access vlan 20*
9. *exit*

#### **VLAN adm**

1. *int range f0/3-4*
  2. *swi access vlan 30*
  3. *end*
- 

#### **Router0 - CONFIGURANDO ROTEADOR**

1. *en*
2. *conf t*
3. *int gig0/0*
4. *ip add 192.168.200.1 255.255.255.192*
5. *no shut*
6. *end*
7. *conf t*
8. *int gig0/1*
9. *ip add 192.168.200.129 255.255.255.252*
10. *no shut*
11. *end*

## ROUTER 2

1. *en*
  2. *config t*
  3. *int gig0/0*
  4. *ip add 192.168.200.65 255.255.255.192*
  5. *no shut*
  6. *end*
  7. *config t*
  8. *int gig0/1*
  9. *ip add 192.168.200.130 255.255.255.252*
  10. *no shut*
  11. *end*
- 

## ALOCANDO IPS PARA OS COMPUTADORES

### VLAN med

PC0 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.2, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.1

PC1 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.3, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.1

### VLAN comp

PC4 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.66, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.65

PC5 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.67, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.65

## VLAN adm

PC2 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.4, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.1

PC3 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.5, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.1

PC6 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.68, Subnet Mask: 255.255.255.192
- [Gateway] IPv4: 192.168.200.65

PC7 (interface FastEthernet: Fa0):

- [Desktop > IP Configuration] IP Address: 192.168.200.69, Subnet Mask: 255.255.255.192
  - [Gateway] IPv4: 192.168.200.65
- 

## CONFIGURANDO ROTAS ESTÁTICAS PARA OS ROTEADORES

### ROUTER 0

1. *en*
  2. *conf t*
  3. *ip route 192.168.200.64 255.255.255.192 192.168.200.130*
  4. *end*
- 

### ROUTER 1

1. *en*
  2. *conf t*
  3. *ip route 192.168.200.0 255.255.255.192 192.168.200.129*
  4. *end*
-

## CONFIGURANDO OS TRUNK PARA O ROUTER (PARA AMBOS SWITCHES)

1. *conf t*
  2. *int f0/5*
  3. *swi mode trunk*
  4. *end*
- 

## CONFIGURANDO IPS DAS VLANS

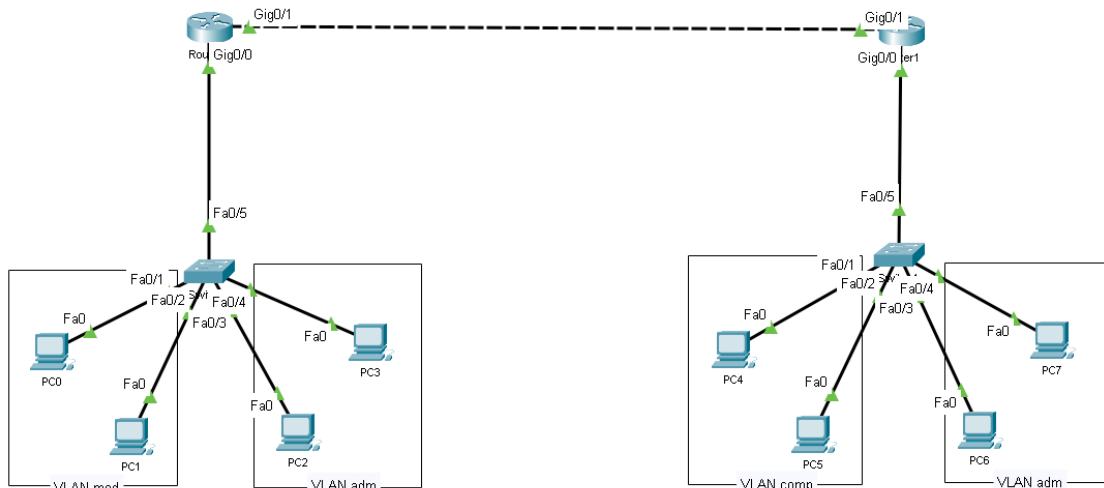
### SWITCH0

1. *interface vlan 10*
  2. *ip address 192.168.200.1 255.255.255.192*
  3. *end*
  4. *interface vlan 30*
  5. *ip address 192.168.200.1 255.255.255.192*
  6. *end*
- 

### SWITCH1

1. *interface vlan 20*
2. *ip address 192.168.200.65 255.255.255.192*
3. *end*
4. *interface vlan 30*
5. *ip address 192.168.200.65 255.255.255.192*
6. *end*

# Captura de telas no Cisco Packet Tracer



## Projeto Lógico

PC0

Physical Config **Desktop** Programming Attributes

**IP Configuration** X

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.200.2

Subnet Mask: 255.255.255.192

Default Gateway: 192.168.200.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::202:4AFF:FEE8:D1DB

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

PC0



PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.200.3

Subnet Mask 255.255.255.192

Default Gateway 192.168.200.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::204:9AFF:FEE9:36A1

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC1

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.200.4

Subnet Mask 255.255.255.192

Default Gateway 192.168.200.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:C7FF:FEDA:D94A

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC2

PC3

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.200.5

Subnet Mask 255.255.255.192

Default Gateway 192.168.200.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:43FF:FE70:9B24

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC3

PC4

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.200.66

Subnet Mask 255.255.255.192

Default Gateway 192.168.200.65

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::230:A3FF:FE62:9644

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC4

PC5

Physical Config **Desktop** Programming Attributes

**IP Configuration** X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.200.67

Subnet Mask 255.255.255.192

Default Gateway 192.168.200.65

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:A3FF:FE91:78DE

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC5

PC6

Physical Config **Desktop** Programming Attributes

**IP Configuration** X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.200.68

Subnet Mask 255.255.255.192

Default Gateway 192.168.200.65

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::260:5CFF:FE1A:C39D

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC6

PC7

Physical Config Desktop Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.200.69

Subnet Mask: 255.255.255.192

Default Gateway: 192.168.200.65

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::240:BFF:FE99:506

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

PC7

```
Switch#show vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/6, Fa0/7, Fa0/8, Fa0/9 Fa0/10, Fa0/11, Fa0/12, Fa0/13 Fa0/14, Fa0/15, Fa0/16, Fa0/17 Fa0/18, Fa0/19, Fa0/20, Fa0/21 Fa0/22, Fa0/23, Fa0/24, Gig0/1 Gig0/2
10	med	active	Fa0/1, Fa0/2
30	adm	active	Fa0/3, Fa0/4
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Switch#

SWITCH0

VLAN Name	Status	Ports
1 default	active	Fa0/6, Fa0/7, Fa0/8, Fa0/9 Fa0/10, Fa0/11, Fa0/12, Fa0/13 Fa0/14, Fa0/15, Fa0/16, Fa0/17 Fa0/18, Fa0/19, Fa0/20, Fa0/21 Fa0/22, Fa0/23, Fa0/24, Gig0/1 Gig0/2
20 comp	active	Fa0/1, Fa0/2
30 adm	active	Fa0/3, Fa0/4
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

## SWITCH1

Device Name: Switch0  
Custom Device Model: 2960 IOS15  
Hostname: Switch

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	10	--	00E0.8F49.8501
FastEthernet0/2	Up	10	--	00E0.8F49.8502
FastEthernet0/3	Up	30	--	00E0.8F49.8503
FastEthernet0/4	Up	30	--	00E0.8F49.8504
FastEthernet0/5	Up	--	--	00E0.8F49.8505
FastEthernet0/6	Down	1	--	00E0.8F49.8506
FastEthernet0/7	Down	1	--	00E0.8F49.8507
FastEthernet0/8	Down	1	--	00E0.8F49.8508
FastEthernet0/9	Down	1	--	00E0.8F49.8509
FastEthernet0/10	Down	1	--	00E0.8F49.850A
FastEthernet0/11	Down	1	--	00E0.8F49.850B
FastEthernet0/12	Down	1	--	00E0.8F49.850C
FastEthernet0/13	Down	1	--	00E0.8F49.850D
FastEthernet0/14	Down	1	--	00E0.8F49.850E
FastEthernet0/15	Down	1	--	00E0.8F49.850F
FastEthernet0/16	Down	1	--	00E0.8F49.8510
FastEthernet0/17	Down	1	--	00E0.8F49.8511
FastEthernet0/18	Down	1	--	00E0.8F49.8512
FastEthernet0/19	Down	1	--	00E0.8F49.8513
FastEthernet0/20	Down	1	--	00E0.8F49.8514
FastEthernet0/21	Down	1	--	00E0.8F49.8515
FastEthernet0/22	Down	1	--	00E0.8F49.8516
FastEthernet0/23	Down	1	--	00E0.8F49.8517
FastEthernet0/24	Down	1	--	00E0.8F49.8518
GigabitEthernet0/1	Down	1	--	00E0.8F49.8519
GigabitEthernet0/2	Down	1	--	00E0.8F49.851A
Vlan1	Down	1	<not set>	0001.4339.321E
Vlan10	Up	10	192.168.200.1/26	0001.4339.3201
Vlan30	Up	30	192.168.200.1/26	0001.4339.3202

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Switch2

## SWITCH0

Device Name: Switch1  
Custom Device Model: 2960 IOS15  
Hostname: Switch

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	20	--	00D0.5846.D8CE
FastEthernet0/2	Up	20	--	0005.5E13.CB52
FastEthernet0/3	Up	30	--	000B.BE89.07BA
FastEthernet0/4	Up	30	--	0002.16ED.BE7C
FastEthernet0/5	Up	--	--	0001.97A9.BC01
FastEthernet0/6	Down	1	--	0090.0CE3.25B6
FastEthernet0/7	Down	1	--	00D0.BC39.BA06
FastEthernet0/8	Down	1	--	0009.7C5E.18A3
FastEthernet0/9	Down	1	--	0002.163E.956C
FastEthernet0/10	Down	1	--	0001.9660.A75E
FastEthernet0/11	Down	1	--	00D0.5882.3B61
FastEthernet0/12	Down	1	--	00D0.BC1B.1D02
FastEthernet0/13	Down	1	--	00D0.BCBE.7CA1
FastEthernet0/14	Down	1	--	0005.5E61.9A65
FastEthernet0/15	Down	1	--	0006.2A63.C896
FastEthernet0/16	Down	1	--	0005.5EBD.71AC
FastEthernet0/17	Down	1	--	00E0.B0AB.0EE0
FastEthernet0/18	Down	1	--	0060.5C43.D2A6
FastEthernet0/19	Down	1	--	0005.5E5D.19D0
FastEthernet0/20	Down	1	--	00D0.FF44.417B
FastEthernet0/21	Down	1	--	0004.9AC1.5683
FastEthernet0/22	Down	1	--	0050.0E49.01CD
FastEthernet0/23	Down	1	--	0001.97A1.7086
FastEthernet0/24	Down	1	--	0010.11DD.7272
GigabitEthernet0/1	Down	1	--	0001.9669.8EA4
GigabitEthernet0/2	Down	1	--	0001.97E3.B02A
Vlan1	Down	1	<not set>	0060.4704.DD5B
Vlan20	Up	20	192.168.200.65/26	0060.4704.DD01
Vlan30	Up	30	192.168.200.65/26	0060.4704.DD02

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Switch1

## SWITCH1

Device Name: Router0  
Device Model: 2911  
Hostname: Router

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
GigabitEthernet0/0	Up	--	192.168.200.1/26	<not set>	0004.9AAE.E301
GigabitEthernet0/1	Up	--	192.168.200.129/30	<not set>	0004.9AAE.E302
GigabitEthernet0/2	Down	--	<not set>	<not set>	0004.9AAE.E303
Vlan1	Down	1	<not set>	<not set>	0040.0BE5.3037

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Router0

## ROUTER0

Device Name: Router1  
Device Model: 2911  
Hostname: Router

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
GigabitEthernet0/0	Up	--	192.168.200.65/26	<not set>	0090.2B74.E672
GigabitEthernet0/1	Up	--	192.168.200.130/30	<not set>	0006.2A52.0D56
GigabitEthernet0/2	Down	--	<not set>	<not set>	0001.C7AC.B75A
Vlan1	Down	1	<not set>	<not set>	0090.2B36.3DB0

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Router1

## ROUTER1

**Arquivo do projeto. (Cisco Packet Tracer – pkt)**

<https://github.com/Geckkou/Projeto-de-Redes.git>