



EDUCACIÓN
SECRETARÍA DE EDUCACIÓN PÚBLICA



TECNOLÓGICO
NACIONAL DE MÉXICO®

Instituto Tecnológico de Pabellón de Arteaga

NOMBRE DE LA MATERIA
Fundamentos de Redes

NOMBRE DEL DOCENTE
Rafael Preciado Gutiérrez

NOMBRE DEL TRABAJO
Practica 5

NOMBRE DEL ALUMNO
Alejandro Guevara de Luna

UNIDAD

FECHA Y LUGAR
21 de octubre del 2022
Instituto Tecnológico de Pabellón de Arteaga



Carretera a la Estación de Rincón Km 1, C.P. 20670 Pabellón de
Arteaga, Aguascalientes
tecnm.mx | pabellon.tecnm.mx



2022 Flores
Año de
Magón
PRECURSOR DE LA REVOLUCIÓN MEXICANA



Actividad





Realizar una conexión para una empresa en la cual se conectan 5 estados y todos deben de estar conectados simultáneamente. Respetando los dispositivos que la empresa nos encarga.

Dispositivos Conectados

Global:

| | |
|-----------|---|
| 3 Routers |  1841 Router10 |
|-----------|---|

Aguascalientes:





| | |
|-----------|---|
| 3 Routers |  1841 Router10 |
| 3 Switch |  2960-24TT Switch4 |
| 3 Servers |  Server-PT Server7 |
| 5 PC's |  PC-PT PC67 |







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Monterrey:

| | |
|----------|---|
| 1 Router |  1841 Router10 |
| 1 Switch |  2960-24TT Switch4 |
| 1 Server |  Server-PT Server7 |
| 20 PC's |  PC-PT PC67 |



Guadalajara

| | |
|------------------|--|
| 1 Router |  1841 Router10 |
| 1 Modem Wireless |  WRT300N Wireless Router2 |









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| | |
|----------|---|
| 1 Server |  Server-PT Server7 |
| 10 PC's |  PC-PT PC67 |

Campeche





| | |
|----------|---|
| 1 Router |  1841 Router10 |
| 1 Switch |  2960-24TT Switch4 |
| 1 Server |  Server-PT Server7 |
| 12 PC's |  PC-PT PC67 |





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Veracruz

| | |
|------------------|--|
| 1 Router |  1841 Router10 |
| 1 Modem Wireless |  WRT300N Wireless Router2 |
| 1 Server |  Server-PT Server7 |
| 10 PC's |  PC-PT PC67 |





Tablas IP

Aguascalientes:

| Dispositivo | Puerto | IPv4 | Mascara | Gateway |
|-------------|---------|-------------|---------------|-----------|
| R1 | Fa 0/1 | 10.10.3.1 | 255.0.0.0 | NA |
| | S 0/0 | 192.168.1.1 | 255.255.255.0 | NA |
| | S 0/1 | 192.168.2.1 | 255.255.255.0 | NA |
| | S 1/0 | 192.168.0.2 | 255.255.255.0 | NA |
| R2 | Fa 0/1 | 10.10.4.1 | 255.0.0.0 | NA |
| | S 0/0 | 192.168.1.2 | 255.255.255.0 | NA |
| | S 0/1 | 192.168.3.1 | 255.255.255.0 | NA |
| R3 | Fa 0/1 | 10.10.5.1 | 255.0.0.0 | NA |
| | S 0/0 | 192.168.2.2 | 255.255.255.0 | NA |
| | S 0/1 | 192.168.3.2 | 255.255.255.0 | NA |
| Server1 | Fa 0/1 | 10.10.3.2 | 255.0.0.0 | 10.10.3.1 |
| Server2 | Fa 0/2 | 10.10.4.2 | 255.0.0.1 | 10.10.4.1 |
| Server3 | Fa 0/3 | 10.10.5.2 | 255.0.0.2 | 10.10.5.1 |
| PC1 | Fa 0/4 | 10.10.3.3 | 255.0.0.3 | 10.10.3.1 |
| PC2 | Fa 0/5 | 10.10.3.4 | 255.0.0.4 | 10.10.3.1 |
| PC3 | Fa 0/6 | 10.10.3.5 | 255.0.0.5 | 10.10.3.1 |
| PC4 | Fa 0/7 | 10.10.3.6 | 255.0.0.6 | 10.10.3.1 |
| PC5 | Fa 0/8 | 10.10.3.7 | 255.0.0.7 | 10.10.3.1 |
| PC6 | Fa 0/9 | 10.10.4.3 | 255.0.0.8 | 10.10.4.1 |
| PC7 | Fa 0/10 | 10.10.4.4 | 255.0.0.9 | 10.10.4.1 |
| PC8 | Fa 0/11 | 10.10.4.5 | 255.0.0.10 | 10.10.4.1 |
| PC9 | Fa 0/12 | 10.10.4.6 | 255.0.0.11 | 10.10.4.1 |
| PC10 | Fa 0/13 | 10.10.4.7 | 255.0.0.12 | 10.10.4.1 |
| PC11 | Fa 0/14 | 10.10.5.2 | 255.0.0.13 | 10.10.5.1 |
| PC12 | Fa 0/15 | 10.10.5.3 | 255.0.0.14 | 10.10.5.1 |
| PC13 | Fa 0/16 | 10.10.5.4 | 255.0.0.15 | 10.10.5.1 |
| PC14 | Fa 0/17 | 10.10.5.5 | 255.0.0.16 | 10.10.5.1 |
| PC15 | Fa 0/18 | 10.10.5.6 | 255.0.0.17 | 10.10.5.1 |





Monterrey:

| Dispositivo | Puerto | IPv4 | Mascara | Gateway |
|-------------|--------|--------------|---------------|-------------|
| R1 | Fa 0/1 | 192.168.4.1 | 255.255.255.0 | NA |
| | S 0/0 | 192.168.9.2 | 255.255.255.0 | NA |
| Server1 | Fa 0/1 | 192.168.4.2 | 255.255.255.0 | 192.168.4.1 |
| PC1 | Fa 0/1 | 192.168.4.3 | 255.255.255.0 | 192.168.4.1 |
| PC2 | Fa 0/1 | 192.168.4.4 | 255.255.255.0 | 192.168.4.1 |
| PC3 | Fa 0/1 | 192.168.4.5 | 255.255.255.0 | 192.168.4.1 |
| PC4 | Fa 0/1 | 192.168.4.6 | 255.255.255.0 | 192.168.4.1 |
| PC5 | Fa 0/1 | 192.168.4.7 | 255.255.255.0 | 192.168.4.1 |
| PC6 | Fa 0/1 | 192.168.4.8 | 255.255.255.0 | 192.168.4.1 |
| PC7 | Fa 0/1 | 192.168.4.9 | 255.255.255.0 | 192.168.4.1 |
| PC8 | Fa 0/1 | 192.168.4.10 | 255.255.255.0 | 192.168.4.1 |
| PC9 | Fa 0/1 | 192.168.4.11 | 255.255.255.0 | 192.168.4.1 |
| PC10 | Fa 0/1 | 192.168.4.12 | 255.255.255.0 | 192.168.4.1 |
| PC11 | Fa 0/1 | 192.168.4.13 | 255.255.255.0 | 192.168.4.1 |
| PC12 | Fa 0/1 | 192.168.4.14 | 255.255.255.0 | 192.168.4.1 |
| PC13 | Fa 0/1 | 192.168.4.15 | 255.255.255.0 | 192.168.4.1 |
| PC14 | Fa 0/1 | 192.168.4.16 | 255.255.255.0 | 192.168.4.1 |
| PC15 | Fa 0/1 | 192.168.4.17 | 255.255.255.0 | 192.168.4.1 |
| PC16 | Fa 0/1 | 192.168.4.18 | 255.255.255.0 | 192.168.4.1 |
| PC17 | Fa 0/1 | 192.168.4.19 | 255.255.255.0 | 192.168.4.1 |
| PC18 | Fa 0/1 | 192.168.4.20 | 255.255.255.0 | 192.168.4.1 |
| PC19 | Fa 0/1 | 192.168.4.21 | 255.255.255.0 | 192.168.4.1 |
| PC20 | Fa 0/1 | 192.168.4.22 | 255.255.255.0 | 192.168.4.1 |





Guadalajara:

| Dispositivo | Puerto | IPv4 | Mascara | Gateway |
|-------------|--------|--------------|---------------|-------------|
| R1 | Fa 0/1 | 192.168.5.1 | 255.255.255.0 | NA |
| | S 0/0 | 192.168.15.2 | 255.255.255.0 | NA |
| Server | Fa 0/1 | 192.168.5.2 | 255.255.255.0 | 192.168.5.1 |
| PC1 | Fa 0/1 | 192.168.5.3 | 255.255.255.0 | 192.168.5.1 |
| PC2 | Fa 0/1 | 192.168.5.4 | 255.255.255.0 | 192.168.5.1 |
| PC3 | Fa 0/1 | 192.168.5.5 | 255.255.255.0 | 192.168.5.1 |
| PC4 | Fa 0/1 | 192.168.5.6 | 255.255.255.0 | 192.168.5.1 |
| PC5 | Fa 0/1 | 192.168.5.7 | 255.255.255.0 | 192.168.5.1 |
| PC6 | Fa 0/1 | 192.168.5.8 | 255.255.255.0 | 192.168.5.1 |
| PC7 | Fa 0/1 | 192.168.5.9 | 255.255.255.0 | 192.168.5.1 |
| PC8 | Fa 0/1 | 192.168.5.10 | 255.255.255.0 | 192.168.5.1 |
| PC9 | Fa 0/1 | 192.168.5.11 | 255.255.255.0 | 192.168.5.1 |
| PC10 | Fa 0/1 | 192.168.5.12 | 255.255.255.0 | 192.168.5.1 |

Campeche:

| Dispositivo | Puerto | IPv4 | Mascara | Gateway |
|-------------|--------|--------------|---------------|-------------|
| R1 | Fa 0/1 | 192.168.6.1 | 255.255.255.0 | NA |
| | S 0/0 | 192.168.10.2 | 255.255.255.0 | NA |
| Server1 | Fa 0/1 | 192.168.6.2 | 255.255.255.0 | 192.168.6.1 |
| PC1 | Fa 0/1 | 192.168.6.3 | 255.255.255.0 | 192.168.6.1 |
| PC2 | Fa 0/1 | 192.168.6.4 | 255.255.255.0 | 192.168.6.1 |
| PC3 | Fa 0/1 | 192.168.6.5 | 255.255.255.0 | 192.168.6.1 |
| PC4 | Fa 0/1 | 192.168.6.6 | 255.255.255.0 | 192.168.6.1 |
| PC5 | Fa 0/1 | 192.168.6.7 | 255.255.255.0 | 192.168.6.1 |
| PC6 | Fa 0/1 | 192.168.6.8 | 255.255.255.0 | 192.168.6.1 |
| PC7 | Fa 0/1 | 192.168.6.9 | 255.255.255.0 | 192.168.6.1 |
| PC8 | Fa 0/1 | 192.168.6.10 | 255.255.255.0 | 192.168.6.1 |
| PC9 | Fa 0/1 | 192.168.6.11 | 255.255.255.0 | 192.168.6.1 |
| PC10 | Fa 0/1 | 192.168.6.12 | 255.255.255.0 | 192.168.6.1 |
| PC11 | Fa 0/1 | 192.168.6.13 | 255.255.255.0 | 192.168.6.1 |
| PC12 | Fa 0/1 | 192.168.6.14 | 255.255.255.0 | 192.168.6.1 |





Veracruz

| Dispositivo | Puerto | IPv4 | Mascara | Gateway |
|-------------|--------|--------------|---------------|-------------|
| R1 | Fa 0/1 | 192.168.8.1 | 255.255.255.0 | NA |
| | S 0/0 | 192.168.11.2 | 255.255.255.0 | NA |
| Server1 | Fa 0/1 | 192.168.8.2 | 255.255.255.0 | 192.168.8.1 |
| PC1 | Fa 0/1 | 192.168.8.3 | 255.255.255.0 | 192.168.8.1 |
| PC2 | Fa 0/1 | 192.168.8.4 | 255.255.255.0 | 192.168.8.1 |
| PC3 | Fa 0/1 | 192.168.8.5 | 255.255.255.0 | 192.168.8.1 |
| PC4 | Fa 0/1 | 192.168.8.6 | 255.255.255.0 | 192.168.8.1 |
| PC5 | Fa 0/1 | 192.168.8.7 | 255.255.255.0 | 192.168.8.1 |
| PC6 | Fa 0/1 | 192.168.8.8 | 255.255.255.0 | 192.168.8.1 |
| PC7 | Fa 0/1 | 192.168.8.9 | 255.255.255.0 | 192.168.8.1 |
| PC8 | Fa 0/1 | 192.168.8.10 | 255.255.255.0 | 192.168.8.1 |
| PC9 | Fa 0/1 | 192.168.8.11 | 255.255.255.0 | 192.168.8.1 |
| PC10 | Fa 0/1 | 192.168.8.12 | 255.255.255.0 | 192.168.8.1 |

Global:

| Dispositivo | Puerto | IPv4 | Mascara | Gateway |
|-------------|--------|--------------|---------------|---------|
| R1 | S 0/0 | 192.168.0.1 | 255.255.255.0 | NA |
| | S 0/1 | 192.168.12.1 | 255.255.255.0 | NA |
| | S 1/0 | 192.168.13.1 | 255.255.255.0 | NA |
| | S 0/0 | 192.168.12.2 | 255.255.255.0 | NA |
| R2 | S 0/1 | 192.168.7.1 | 255.255.255.0 | NA |
| | S 1/0 | 192.168.9.1 | 255.255.255.0 | NA |
| | S 1/1 | 192.168.15.1 | 255.255.255.0 | NA |
| | S 0/0 | 192.168.13.2 | 255.255.255.0 | NA |
| R3 | S 0/1 | 192.168.7.2 | 255.255.255.0 | NA |
| | S 1/0 | 192.168.10.1 | 255.255.255.0 | NA |
| | S 1/1 | 192.168.11.1 | 255.255.255.0 | NA |





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Precio de cada dispositivo:

Router: \$372,639.00



Router Cisco Firewall ISR4451-X-SEC/K9, Alámbrico, 8x RJ-45

SKU: ISR4451-X-SEC/K9

- Cortafuego :

\$372,639.00

Costo de envío: \$154.00

Producto agotado

Notificarme de nuevas existencias

☐ Comparar

Switch: \$19,529.00



Switch Allied Telesis Fast Ethernet, 48 Puertos 10/100Mbps + 4 Puertos SFP, 17.6 Gbit/s, 16.000 Entradas - Gestionado

SKU: AT-FS980M/52-10

- Cantidad de Puertos: **48**
- Puertos RJ-45 Ethernet: **Fast Ethernet (10/100)**
- Capacidad de conmutación: **17,6 Gbit/s**
- Tipo de interruptor: **Gestionado**
- Energía sobre Ethernet (PoE):

\$19,529.00

Costo de envío: \$99.00

Disponibles: 2 pzas. ☐ Comparar

Añadir al carrito

Wireless Router: \$2009.00



Access Point MikroTik LHG 5 ac, 1000 Mbit/s, 1x RJ-45, 5GHz, Antena Integrada 24.5dBi

SKU: RBLHGG-5ACD

- Cantidad de puertos LAN: 1
- 5GHz:
- 2.4GHz:
- Tasa de transferencia (máx): **1000 Mbit/s**,

~~\$2,489.00~~

\$2,009.00

Añadir al carrito

Costo de envío: \$144.00

Disponibles: 215 pzas. ☐ Comparar

-19% ¡Ahorra \$ 480.00!





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Costo de la instalación

| Estado: | Precio |
|---|--------------------|
| Conexión Global: <ul style="list-style-type: none">• 3 Routers | \$ 1,117,917 |
| Aguascalientes <ul style="list-style-type: none">• 3 Routers• 3 Switch | \$ 1,176,504 |
| Monterrey <ul style="list-style-type: none">• 1 Router• 1 Switch | \$392,168 |
| Guadalajara <ul style="list-style-type: none">• 1 Router• 1 Wireless Modem | \$374,648 |
| Campeche <ul style="list-style-type: none">• 1 Router• 1 Switch | \$392,168 |
| Veracruz <ul style="list-style-type: none">• 1 Router• 1 Wireless Modem | \$374,648 |
| Total <ul style="list-style-type: none">• 10 Router• 5 Switch• 2 Wireless Modem | \$3,828,053 |

