



REDES IP – Metro Ethernet

SI.TRA.TEL - 2019

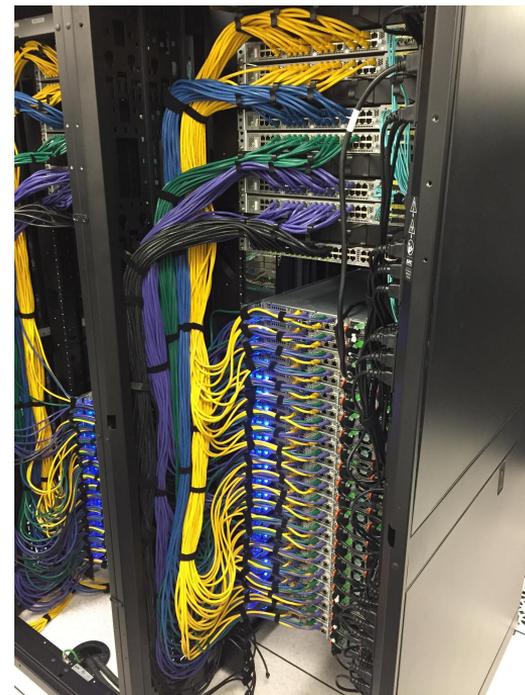


CONCEPTOS BÁSICOS





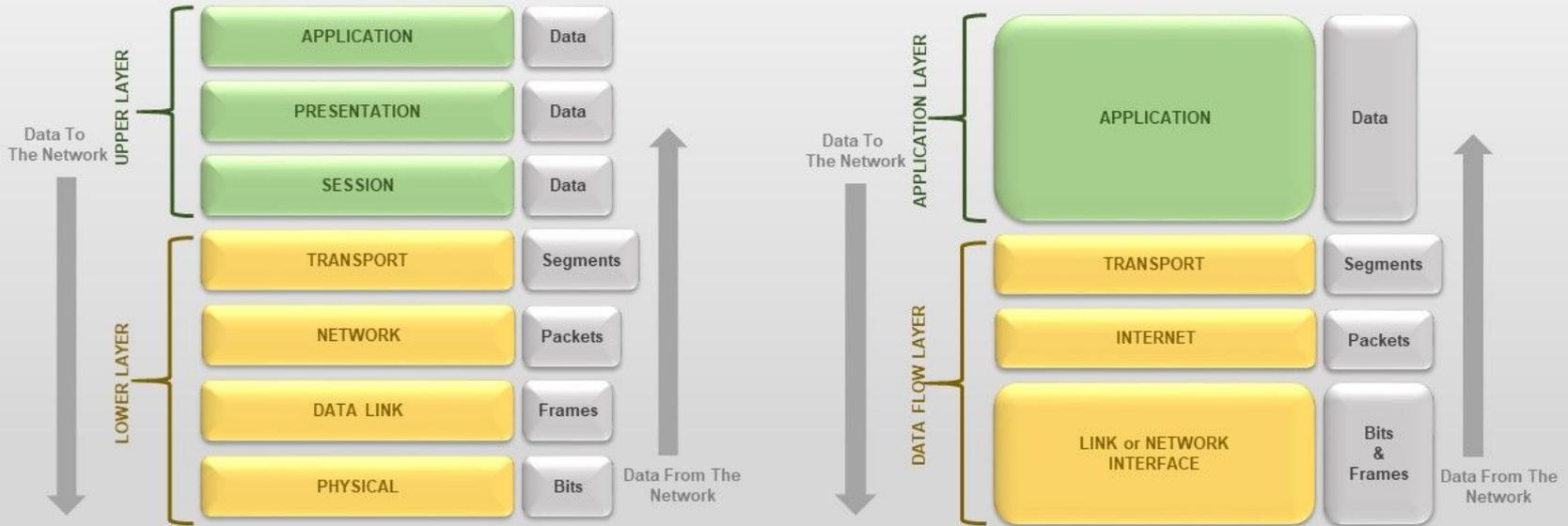
Factores de Forma





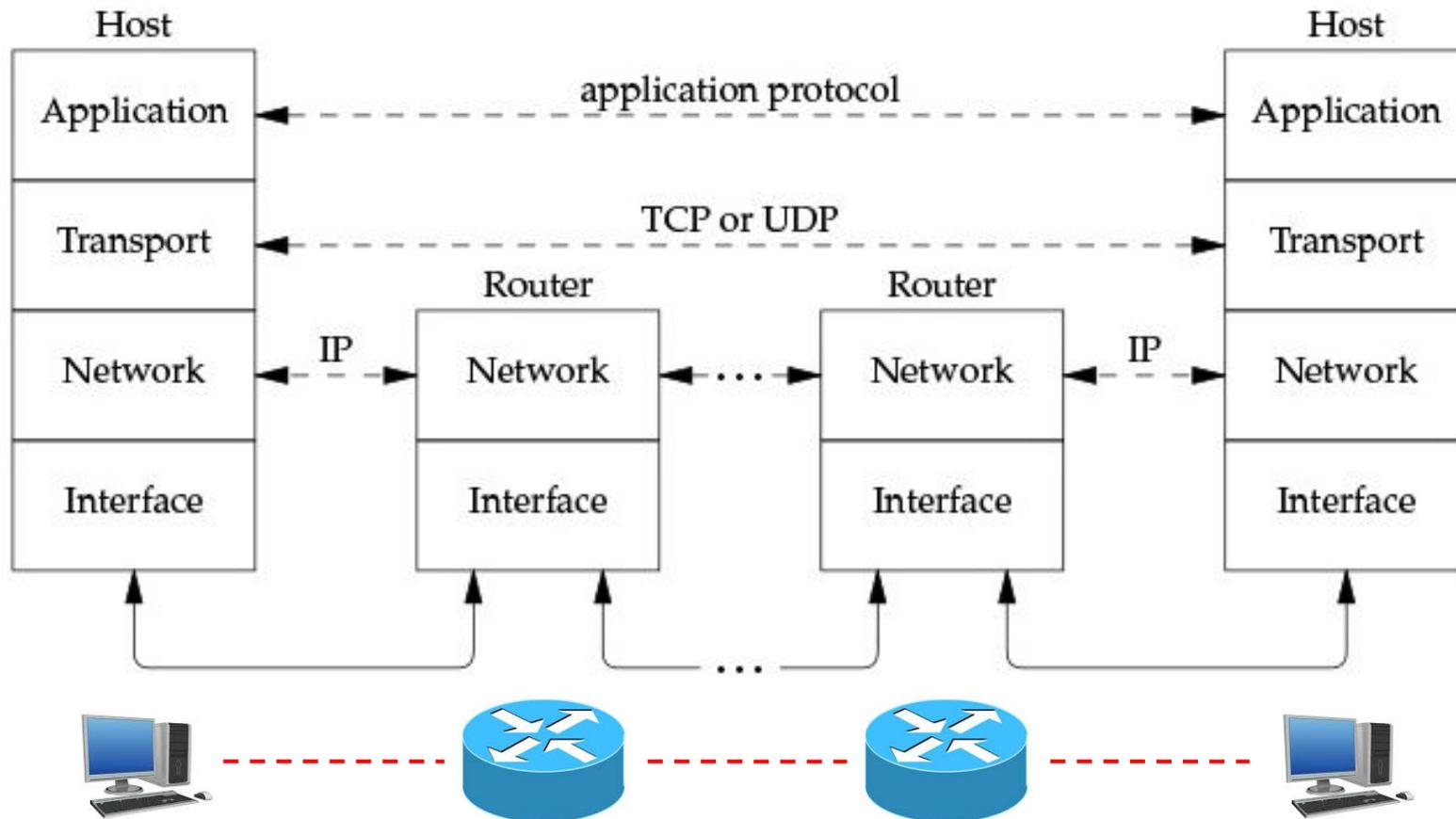
Modelos OSI y TCP/IP

OSI MODEL vs TCP/IP MODEL



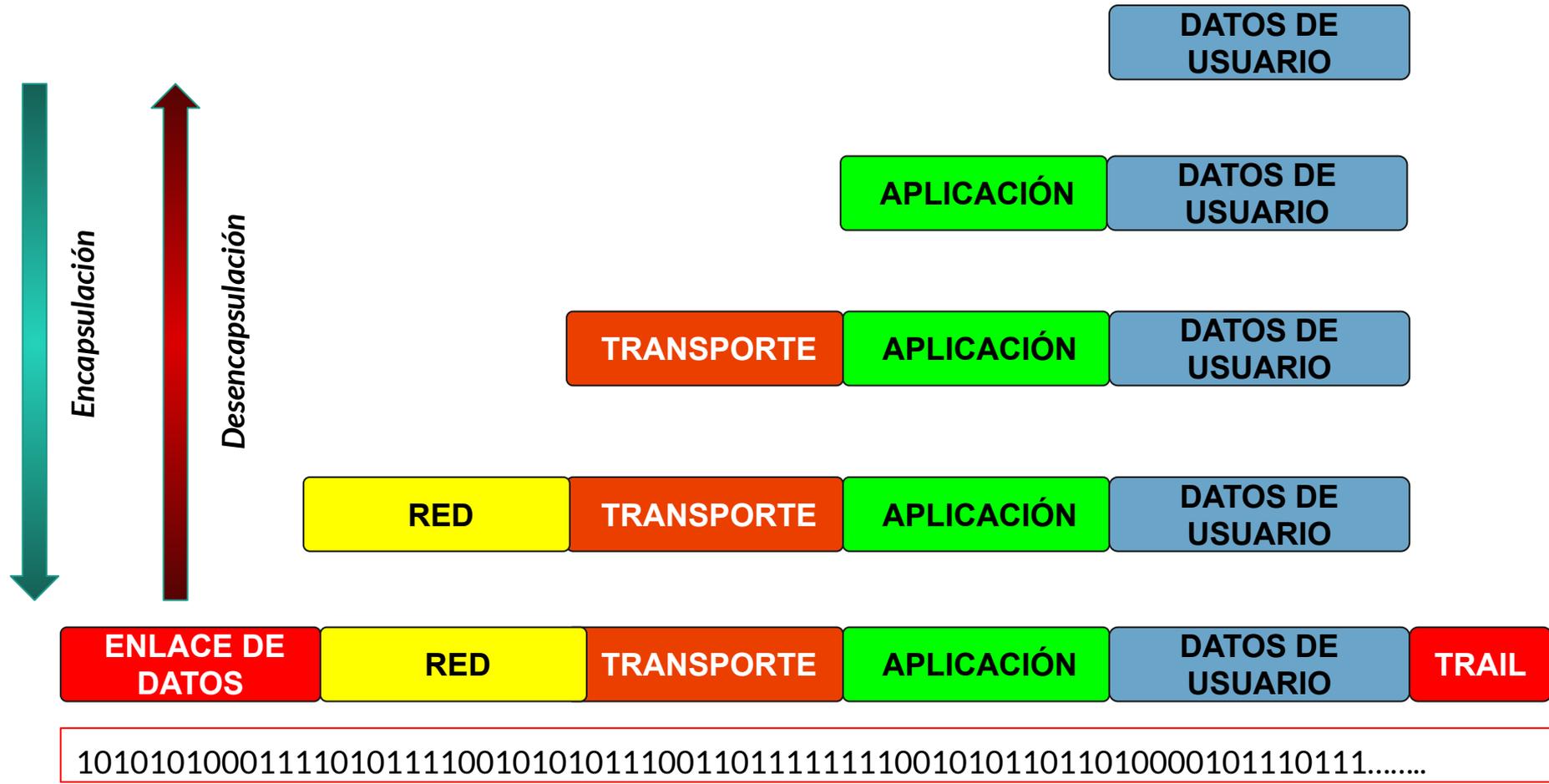


Modelos OSI y TCP/IP



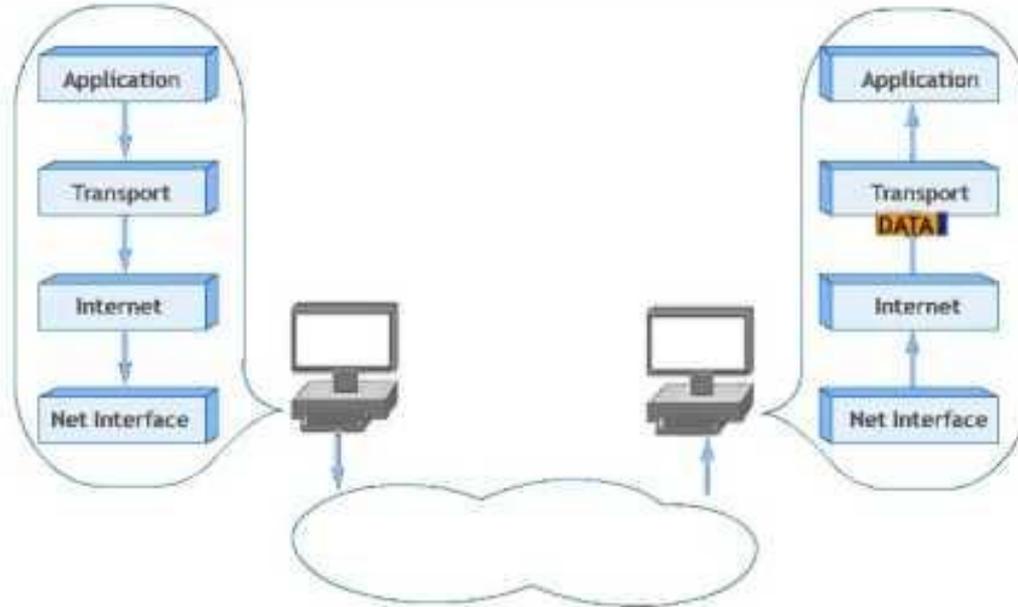


Protocolos y Encapsulación





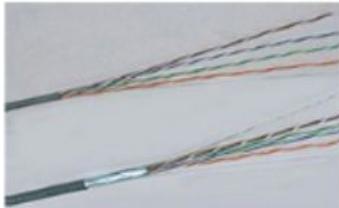
Modelos OSI y TCP/IP



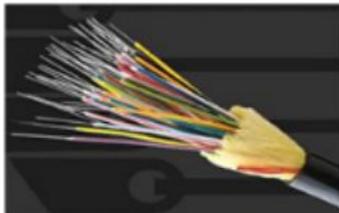


Capa Física

Cobre



Fibra óptica



Tecnología inalámbrica

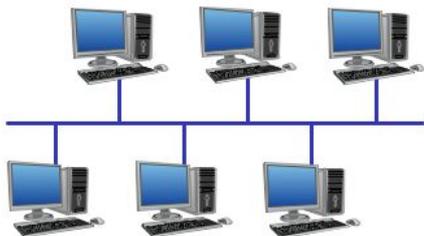




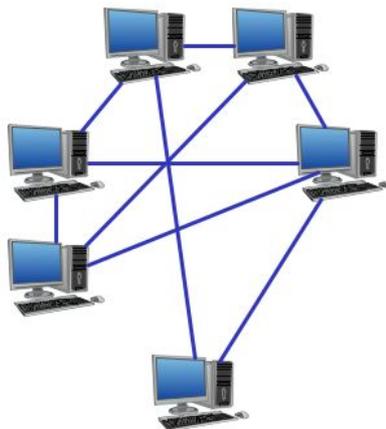
Clasificación de Redes



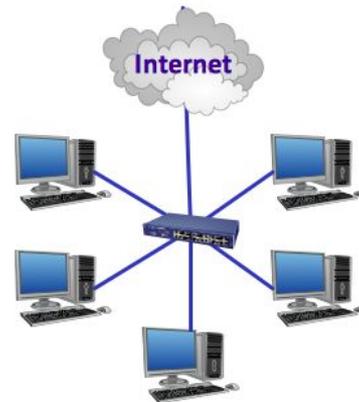
Fully Connected Network
Topology



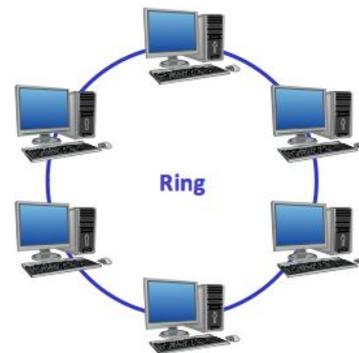
Common Bus
Topology



Mesh Network
Topology



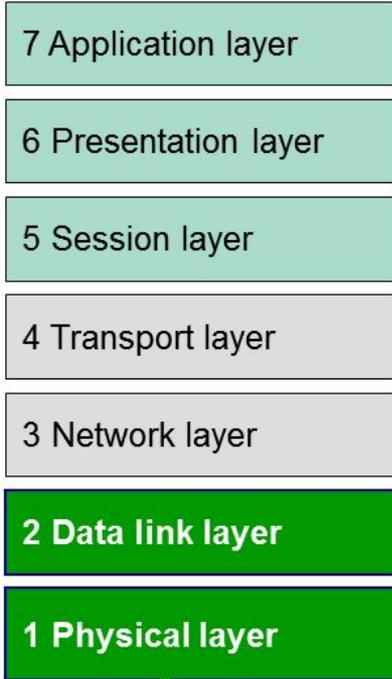
Star Network
Topology



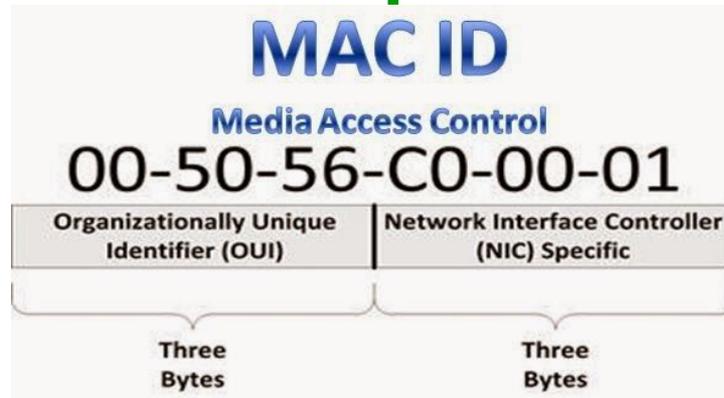
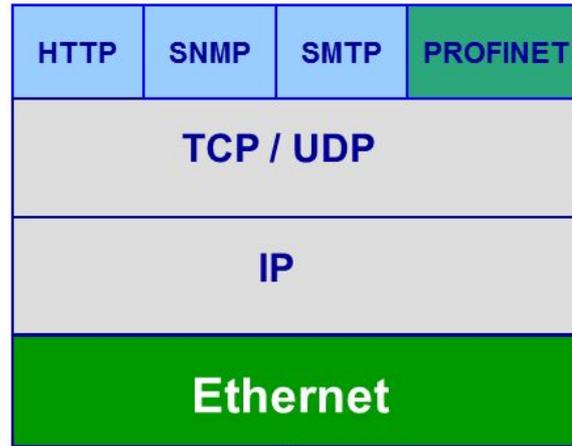
Ring Network
Topology

Protocolo Ethernet

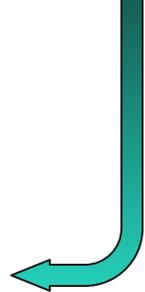
ISO/OSI



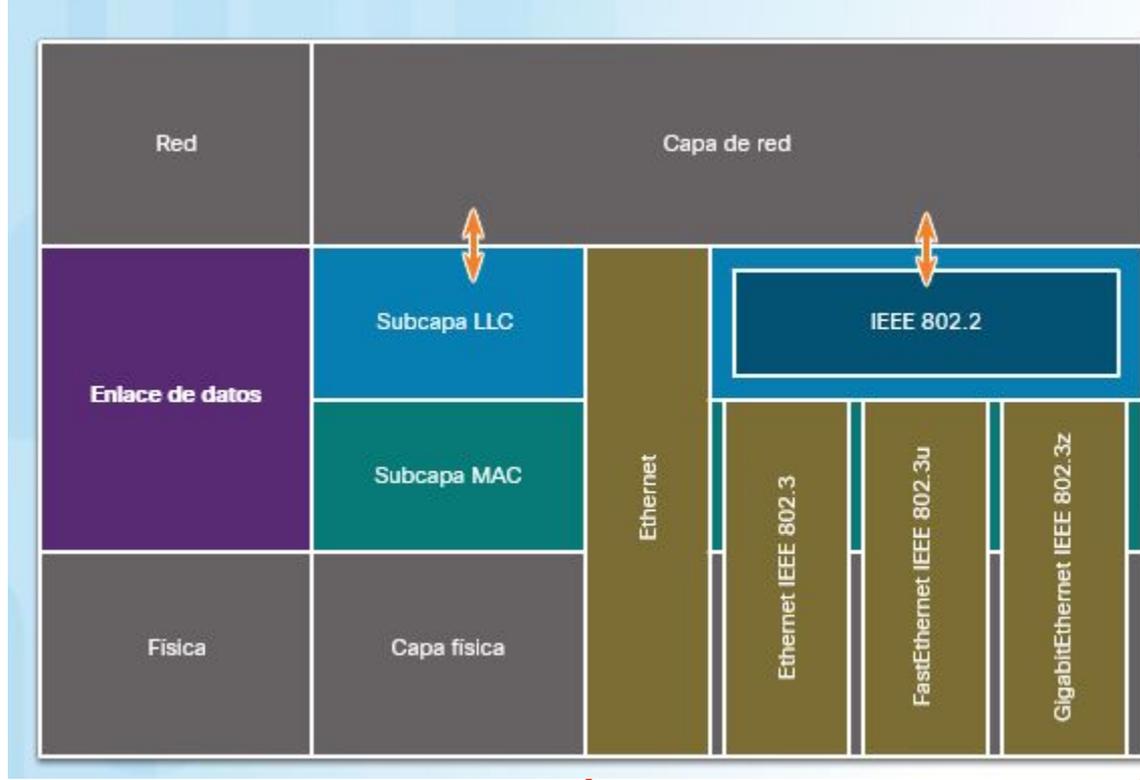
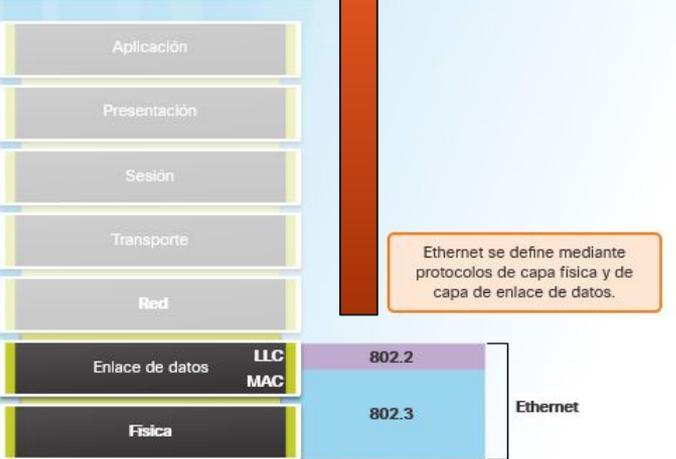
Ethernet



DIRECCIONES MAC

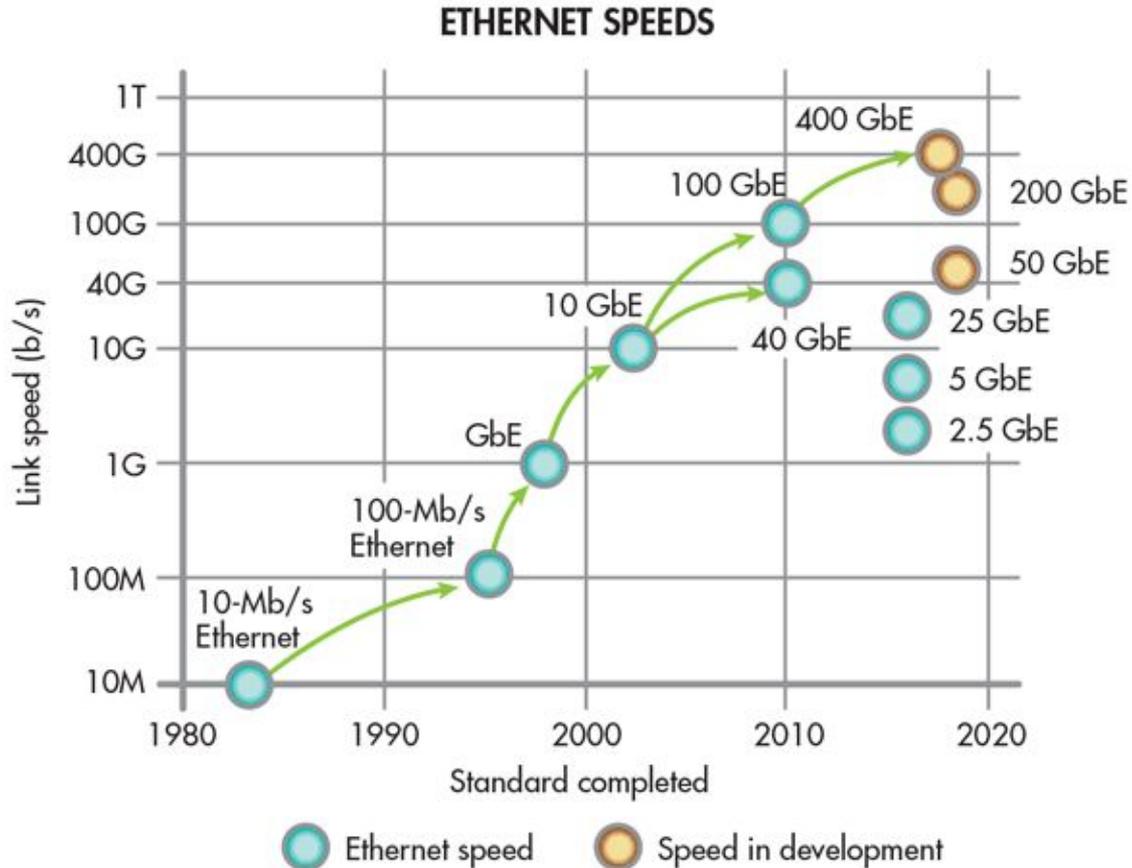


Protocolo Ethernet



MÚLTIPLES VARIANTES DEL PROTOCOLO

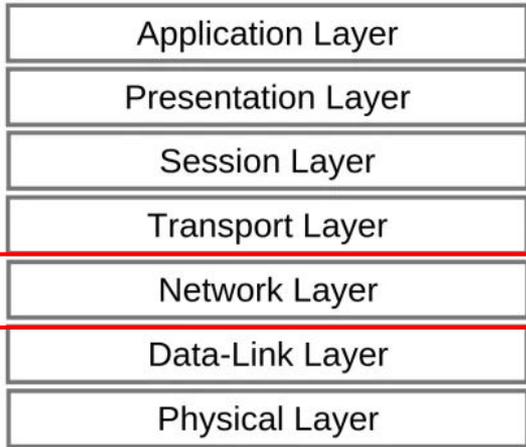
Protocolo Ethernet



PROTOCOLO Y ENRUTAMIENTO IP



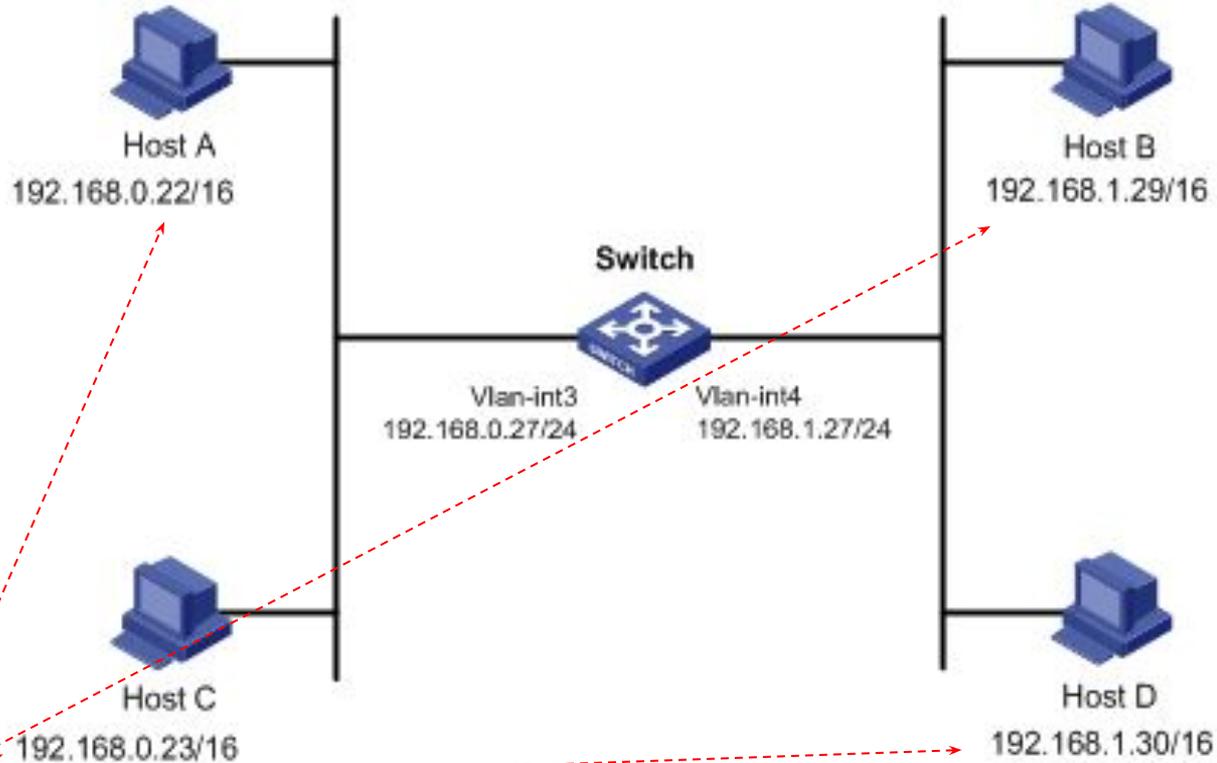
Protocolo IP



PROTOCOLO IP (CAPA 3)



DIRECCIONAMIENTO



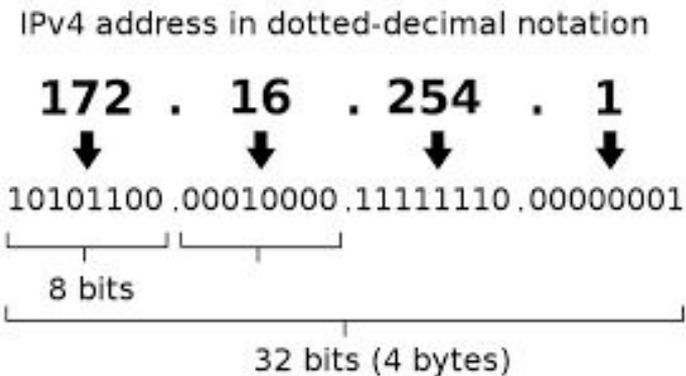
Direccionamiento IP

Protocolo adoptado por Internet y la mayoría de las redes domésticas

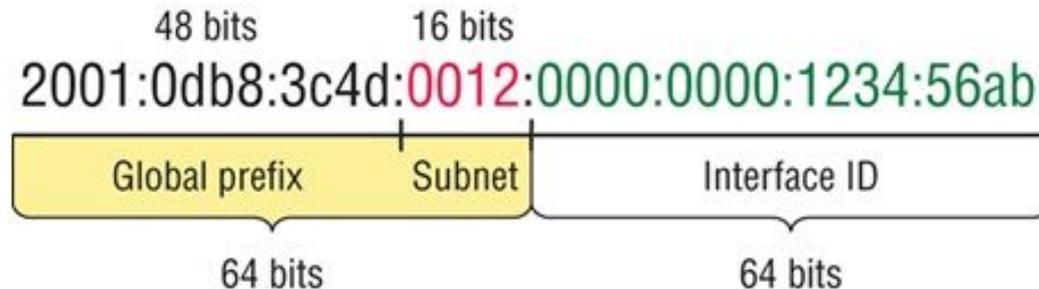
Altamente compatible con otros protocolos del mercado.

Coexisten en la actualidad 2 versiones:

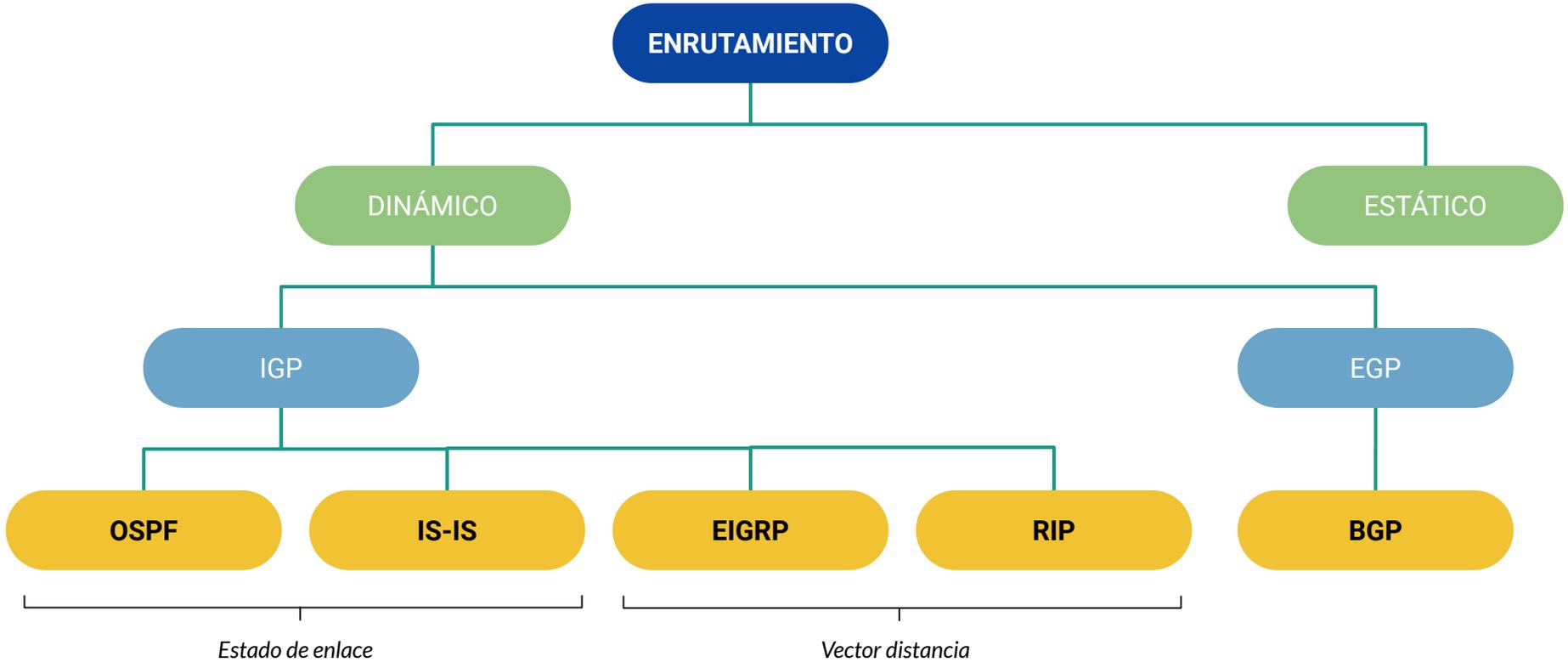
IPv4



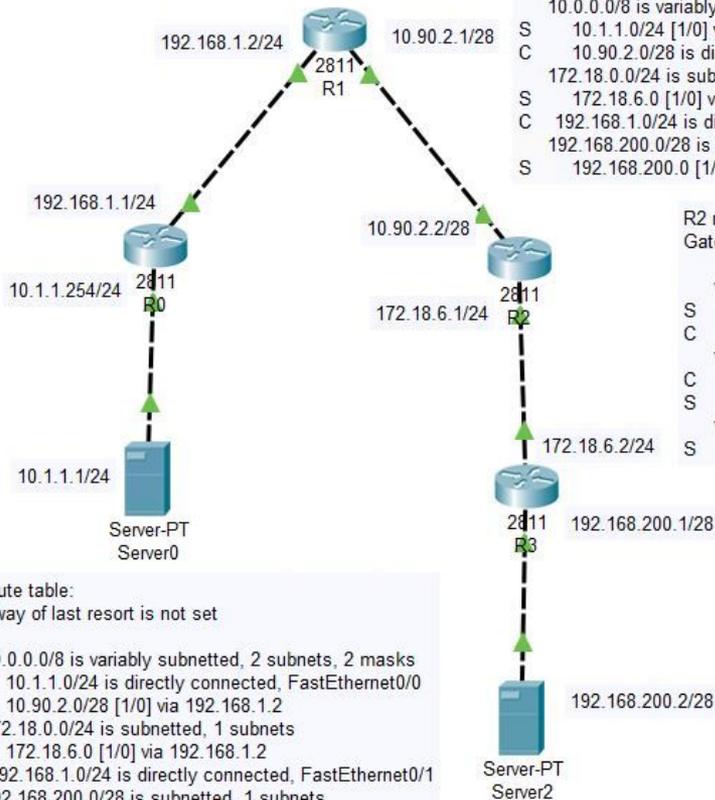
IPv6



Enrutamiento IP



Enrutamiento IP



R0 route table:
Gateway of last resort is not set

```

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.1.1.0/24 is directly connected, FastEthernet0/0
S 10.90.2.0/28 [1/0] via 192.168.1.2
172.18.0.0/24 is subnetted, 1 subnets
S 172.18.6.0 [1/0] via 192.168.1.2
C 192.168.1.0/24 is directly connected, FastEthernet0/1
192.168.200.0/28 is subnetted, 1 subnets
S 192.168.200.0 [1/0] via 192.168.1.2

```

R1 route table:
Gateway of last resort is not set

```

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
S 10.1.1.0/24 [1/0] via 192.168.1.1
C 10.90.2.0/28 is directly connected, FastEthernet0/1
172.18.0.0/24 is subnetted, 1 subnets
S 172.18.6.0 [1/0] via 10.90.2.2
C 192.168.1.0/24 is directly connected, FastEthernet0/0
192.168.200.0/28 is subnetted, 1 subnets
S 192.168.200.0 [1/0] via 10.90.2.2

```

R2 route table:
Gateway of last resort is not set

```

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
S 10.1.1.0/24 [1/0] via 10.90.2.1
C 10.90.2.0/28 is directly connected, FastEthernet0/0
172.18.0.0/24 is subnetted, 1 subnets
C 172.18.6.0 is directly connected, FastEthernet0/1
S 192.168.1.0/24 [1/0] via 10.90.2.1
192.168.200.0/28 is subnetted, 1 subnets
S 192.168.200.0 [1/0] via 172.18.6.2

```

R3 route table:
Gateway of last resort is not set

```

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
S 10.1.1.0/24 [1/0] via 172.18.6.1
S 10.90.2.0/28 [1/0] via 172.18.6.1
172.18.0.0/24 is subnetted, 1 subnets
C 172.18.6.0 is directly connected, FastEthernet0/0
S 192.168.1.0/24 [1/0] via 172.18.6.1
192.168.200.0/28 is subnetted, 1 subnets
C 192.168.200.0 is directly connected, FastEthernet0/1

```

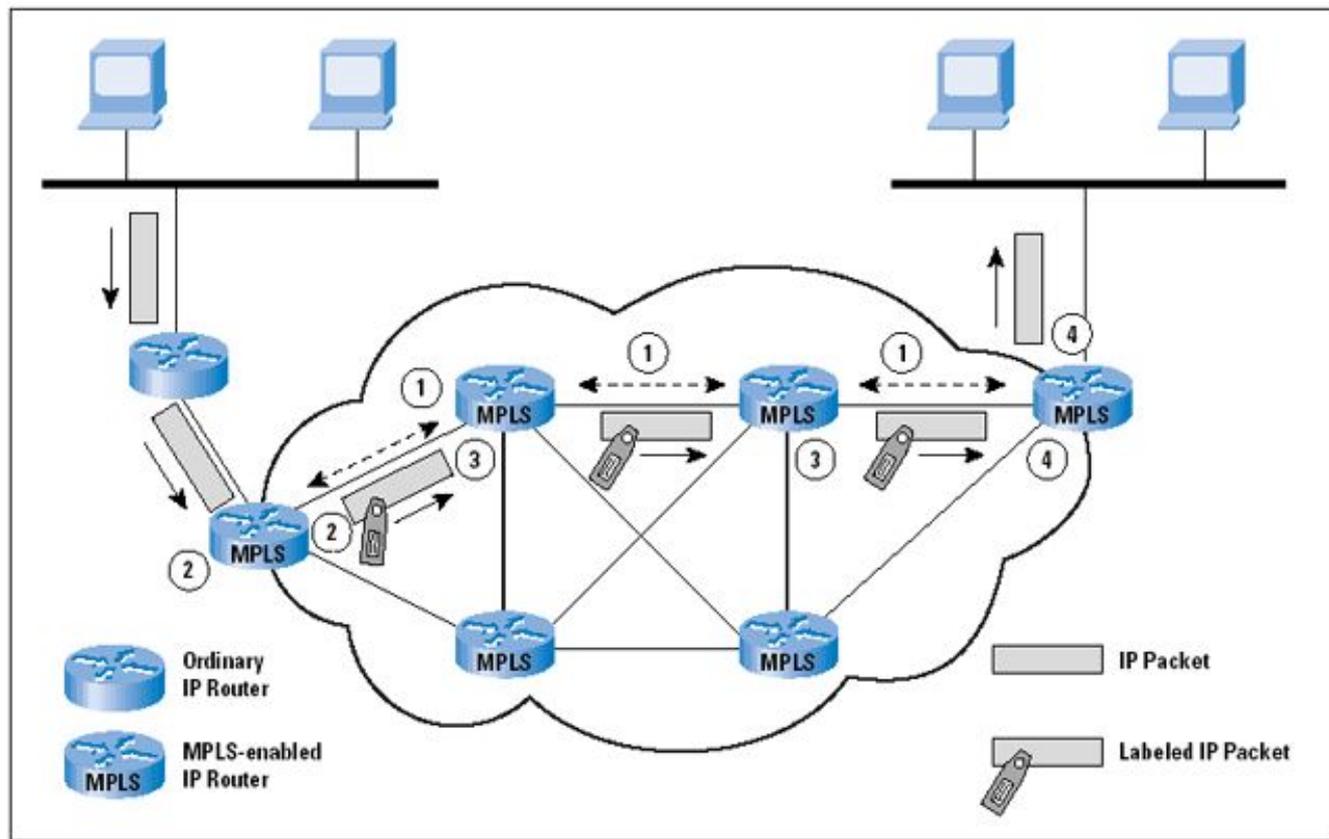
PROTOSCOLOS DE CAPA 4 Y SUPERIORES





MPLS

Figure 1: MPLS Operation



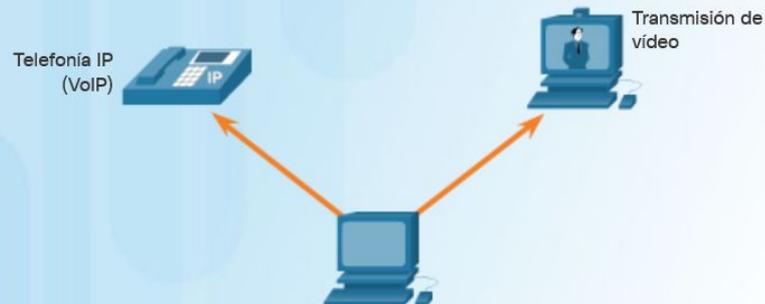
Protocolo TCP y UDP



- El **establecimiento de una sesión** garantiza que la aplicación esté lista para recibir los datos.
- La **entrega en el mismo orden** garantiza que los segmentos se rearmen en el orden correcto.
- La **entrega confiable** implica el reenvío de segmentos perdidos para que se reciban los datos en forma completa.
- El **control de flujo** garantiza que el receptor puede procesar los datos recibidos.

TCP

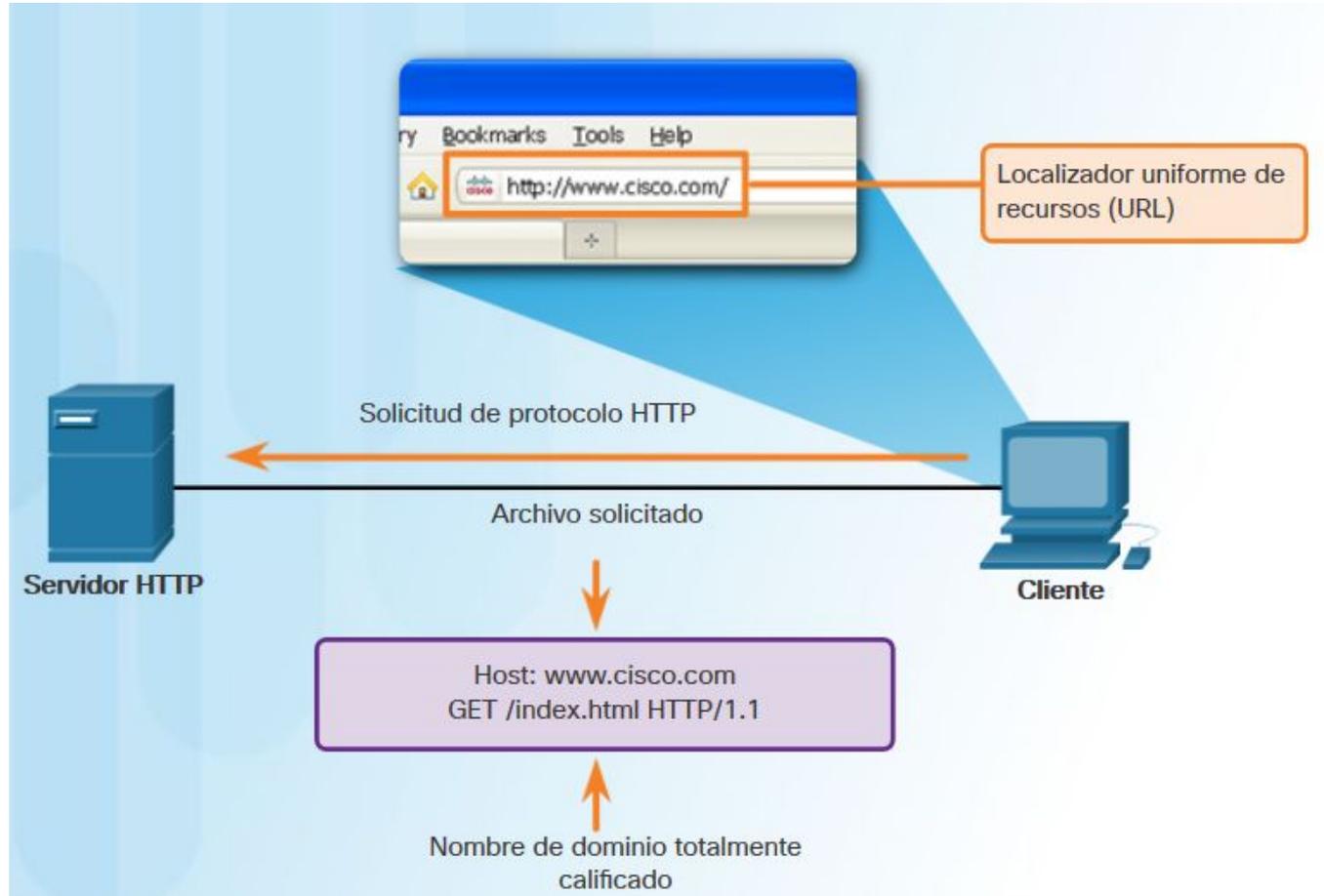
UDP



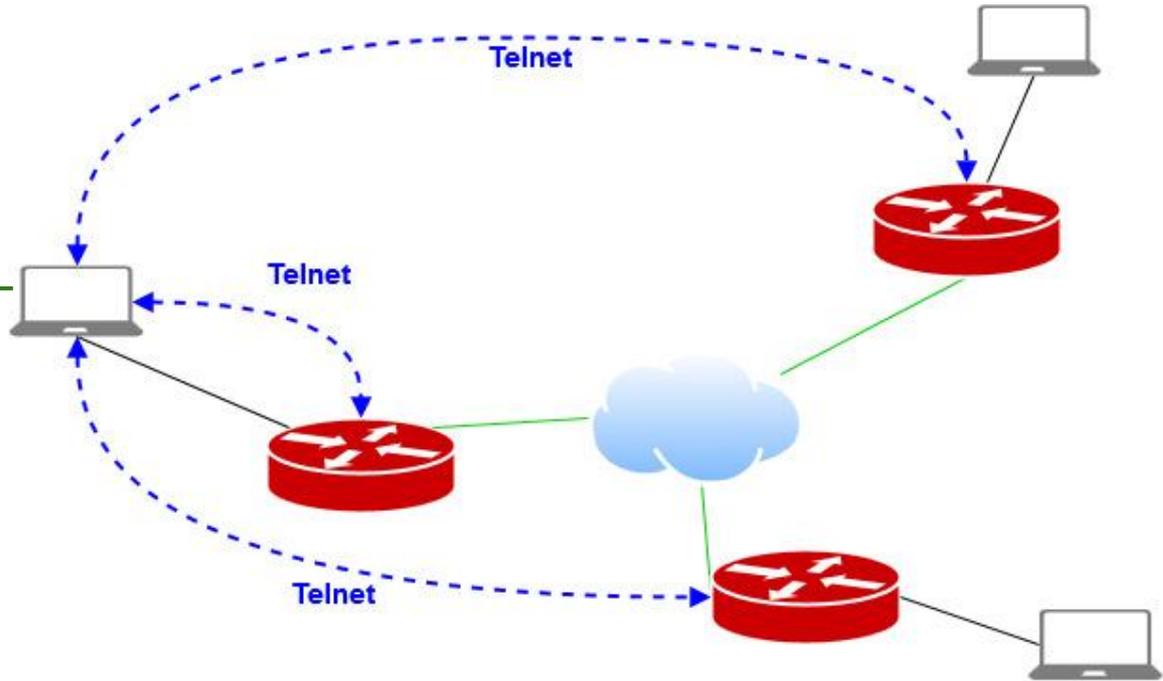
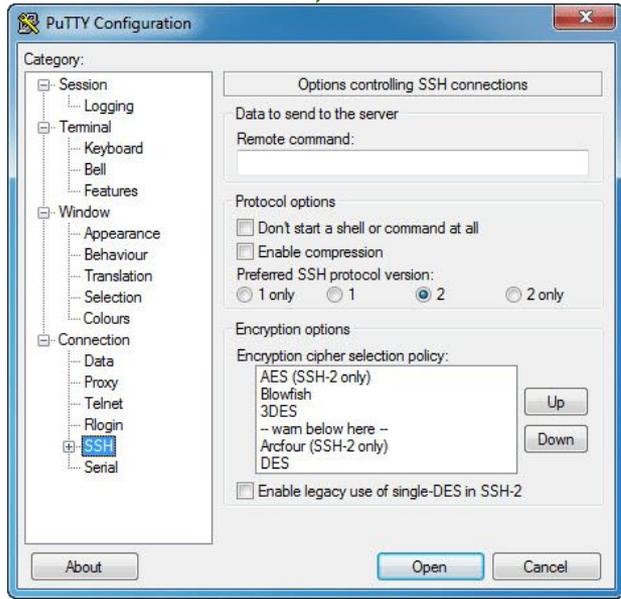
Características de UDP

- Los datos se reconstruyen en el orden en que se recibieron.
- Los segmentos perdidos no se vuelven a enviar.
- No hay establecimiento de sesión.
- No le informa al emisor sobre la disponibilidad de recursos.

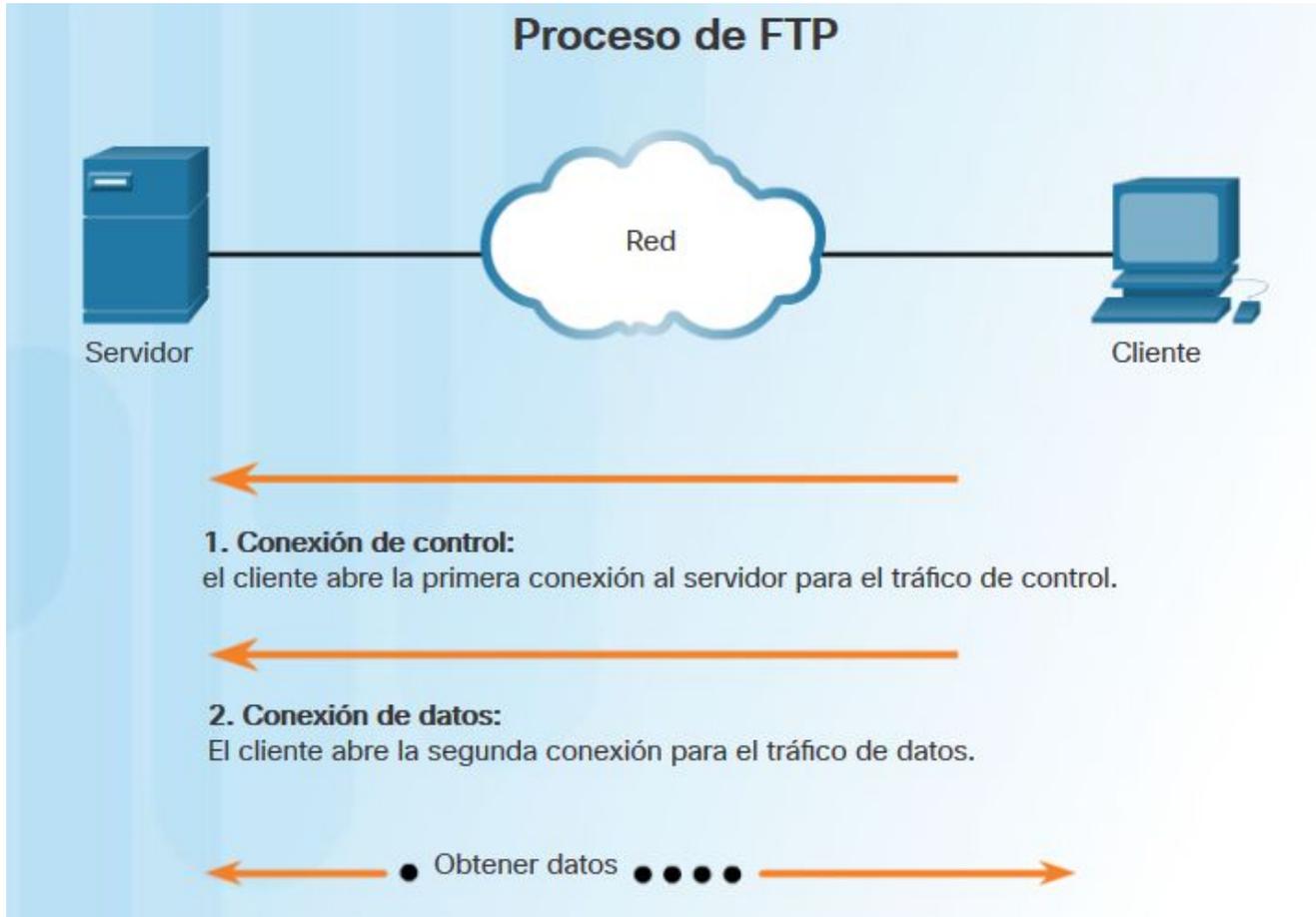
Protocolo HTTP



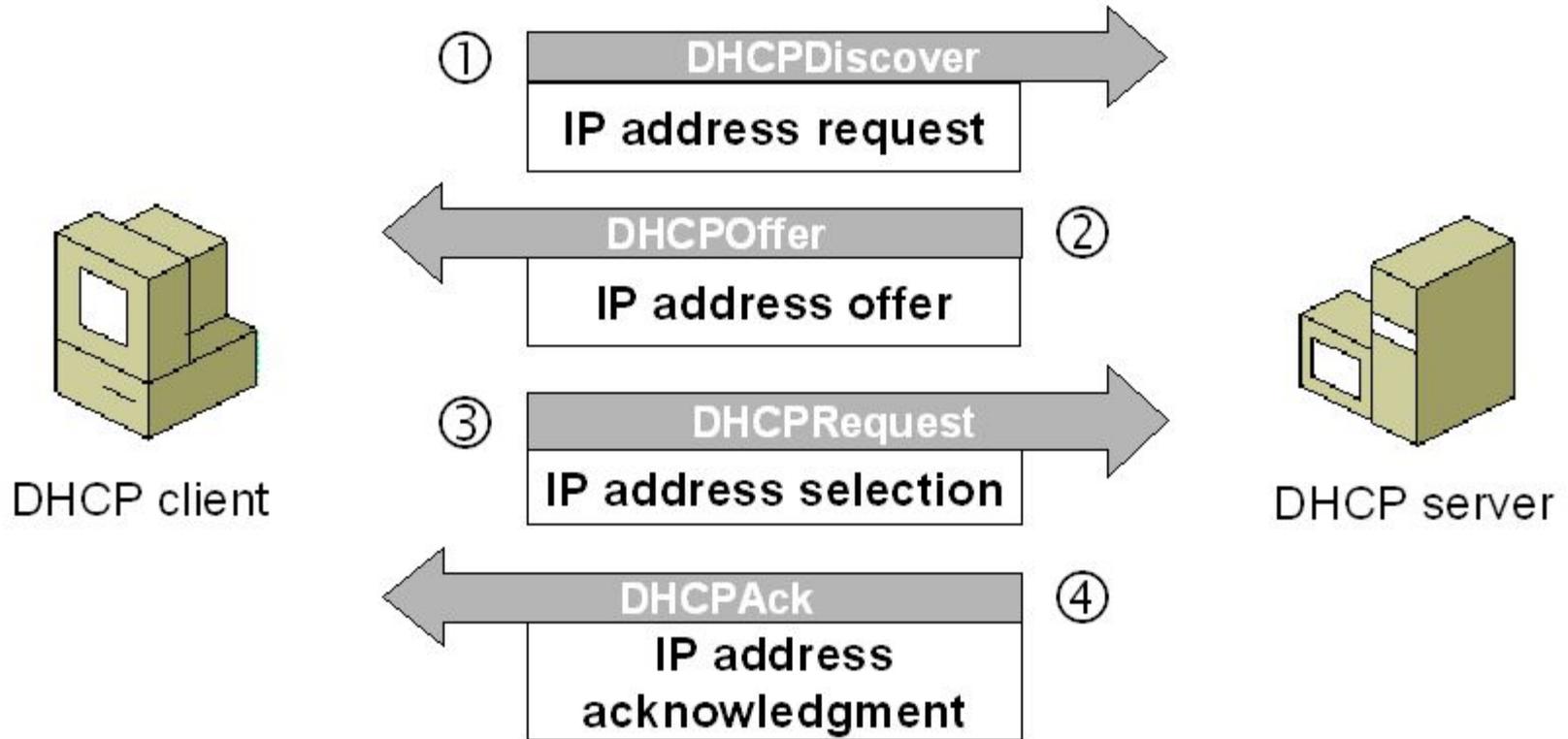
Protocollo Telnet/SSH



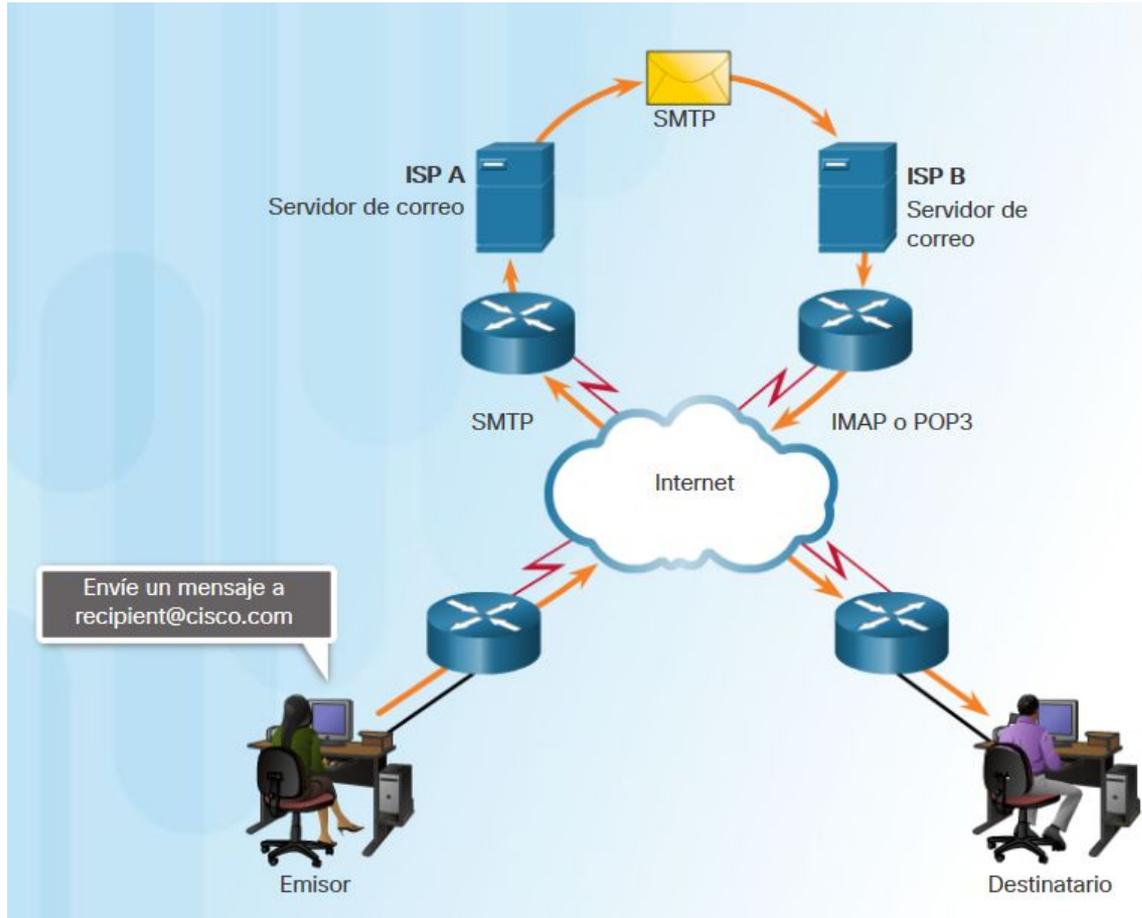
Protocolo FTP



Protocollo DHCP



Protocolo SMTP, POP, IMAP



Protocollo DNS

