

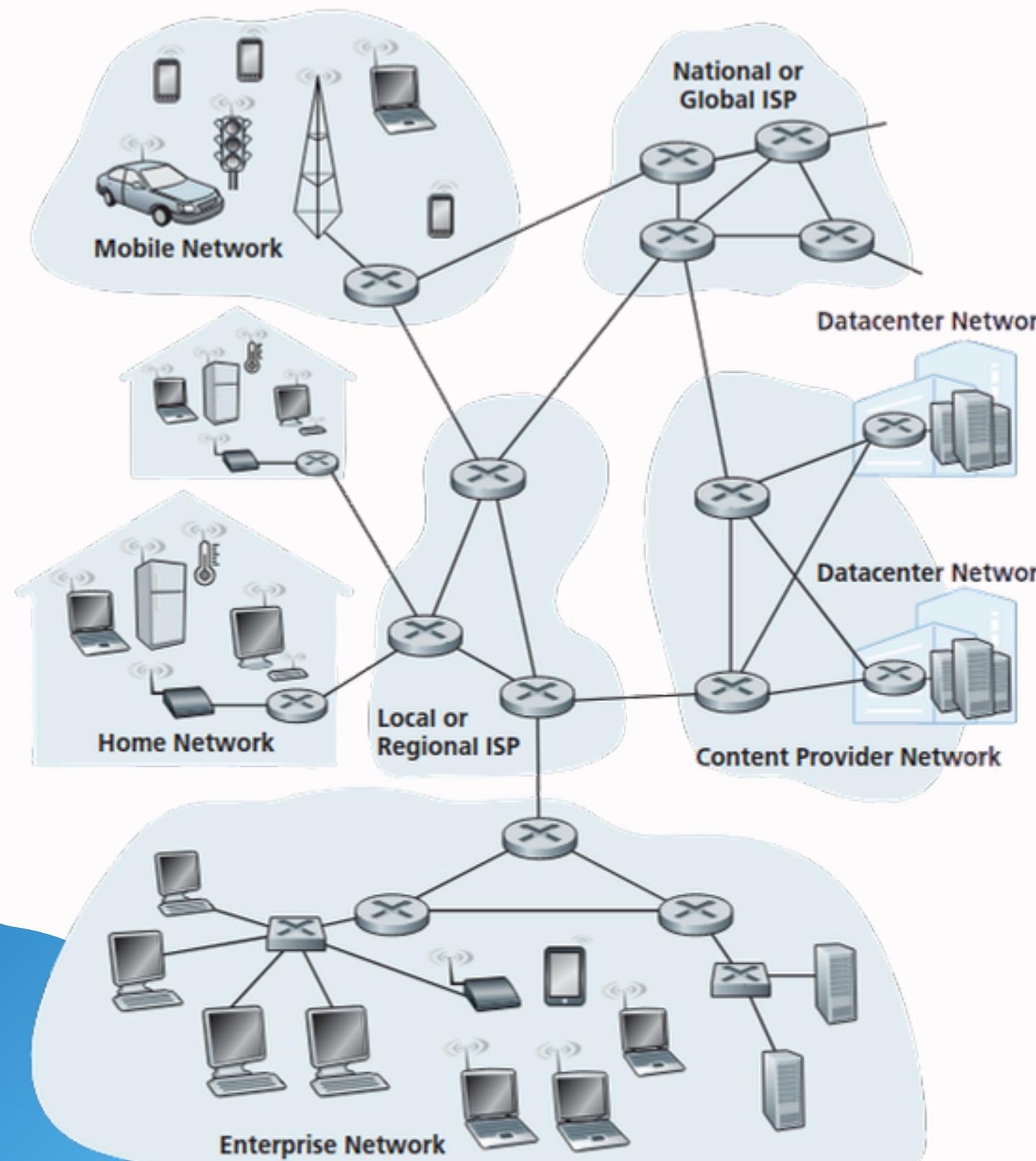
JORNADAS FORMATIVAS TIC **INTERNET**

20-22 FEBRERO 2026

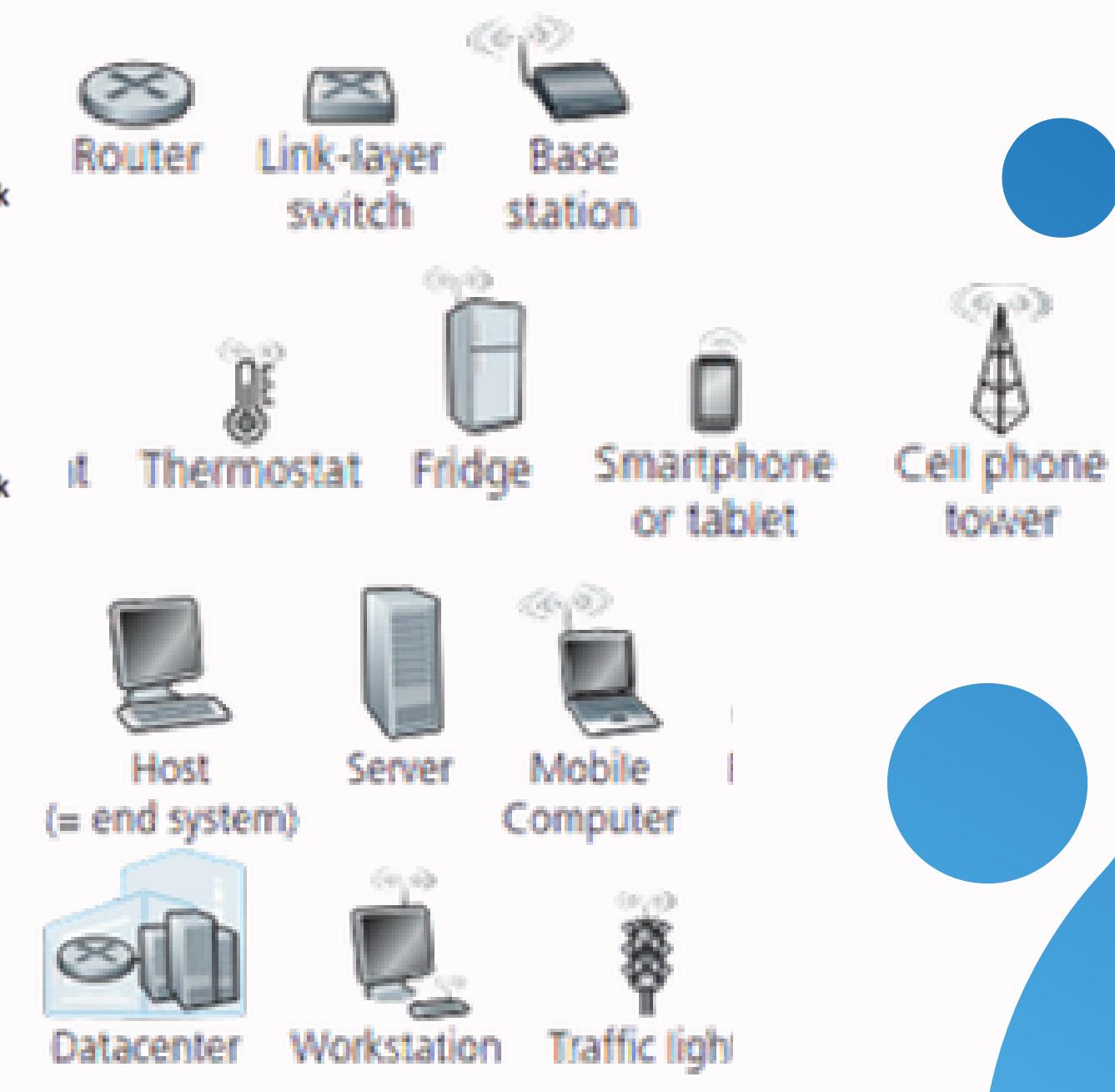
CONTENIDO

1. ¿Qué es Internet?
2. Estándares de Red
3. Capas de Red
4. Protocolos
 - a. DNS
 - b. HTTP
 - c. SMTP
 - d. SSH
 - e. SFTP

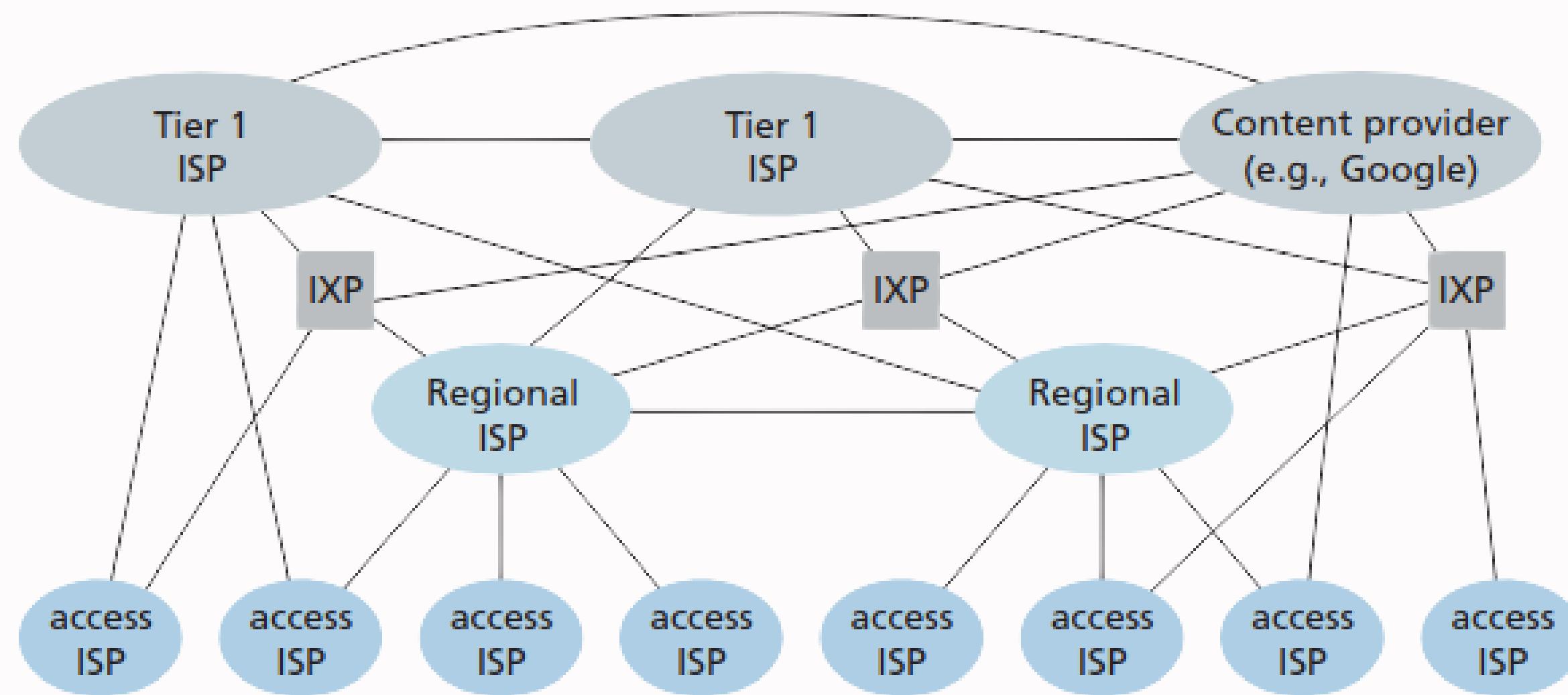
LA RED DE REDES



TERMINALES
ENLACES
CONMUTADORES

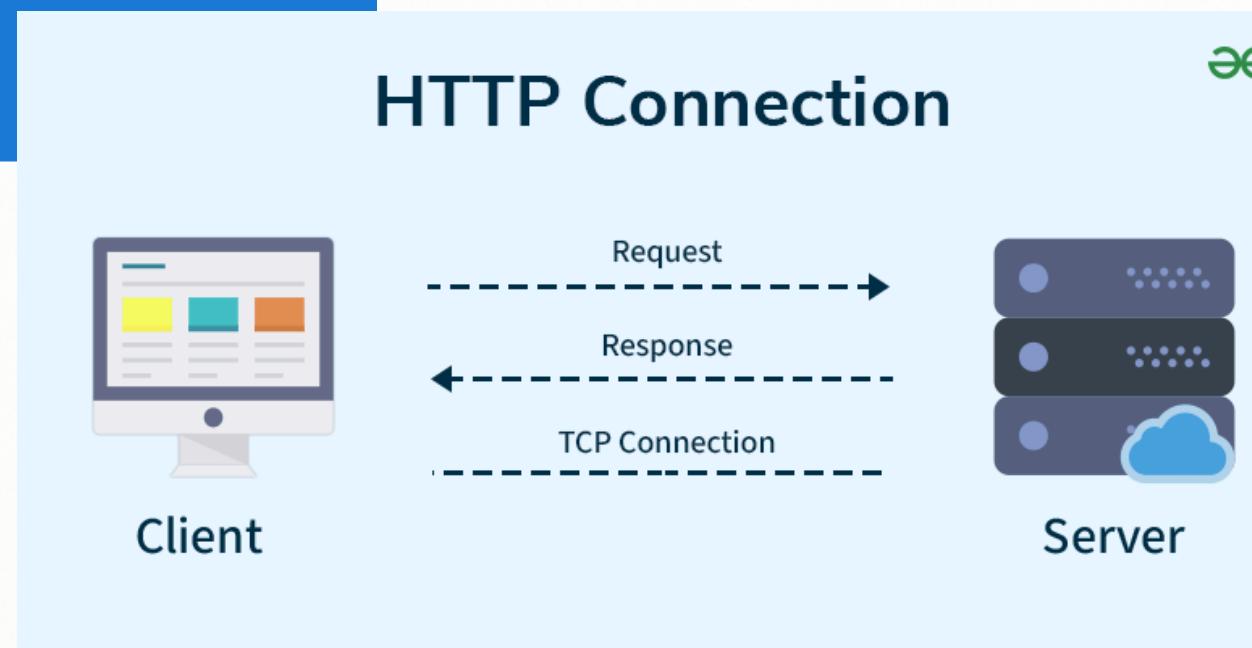


JERARQUÍAS



ESTÁNDARES DE INTERNET

- RFC 791: IPV4
- RFC 8200: IPV6
- RFC 768: UDP
- RFC 9293: TCP
- RFC 1034/1035: DNS
- RFC 5321: SMTP
- RFC 1925



A screenshot of a computer screen displaying the "Binary Packet Protocol" section of the "SSH Transport Layer Protocol" RFC (RFC 4253). The page header includes "Ylonen & Lonwick Standards Track [Page 7]" and the date "January 2006". The main content defines the packet format:

```
6. Binary Packet Protocol  
Each packet is in the following format:  
uint32 packet_length  
byte padding_length  
byte[n1] payload; n1 = packet_length - padding_length - 1  
byte[n2] random padding; n2 = padding_length  
byte[m] mac (Message Authentication Code - MAC); m = mac_length  
  
packet_length  
The length of the packet in bytes, not including 'mac' or the 'packet_length' field itself.  
  
padding_length  
Length of 'random padding' (bytes).  
  
payload  
The useful contents of the packet. If compression has been negotiated, this field is compressed. Initially, compression MUST be "none".  
  
random padding  
Arbitrary-length padding, such that the total length of (packet_length || padding_length || payload || random padding) is a multiple of the cipher block size or 8, whichever is
```

Below the definition, there are sections for "mac", "Note that the length of the concatenation of 'packet_length', 'padding_length', 'payload', and 'random padding' MUST be a multiple of the cipher block size or 8, whichever is larger.", and "The minimum size of a packet is 16 (or the cipher block size, whichever is larger) bytes (plus 'mac'). Implementations SHOULD decrypt the length after receiving the first 8 (or cipher block size, whichever is larger) bytes of a packet.".

Further down, sections include "6.1. Maximum Packet Length" and "6.2. Compression".

ESTÁNDARES DE INTERNET



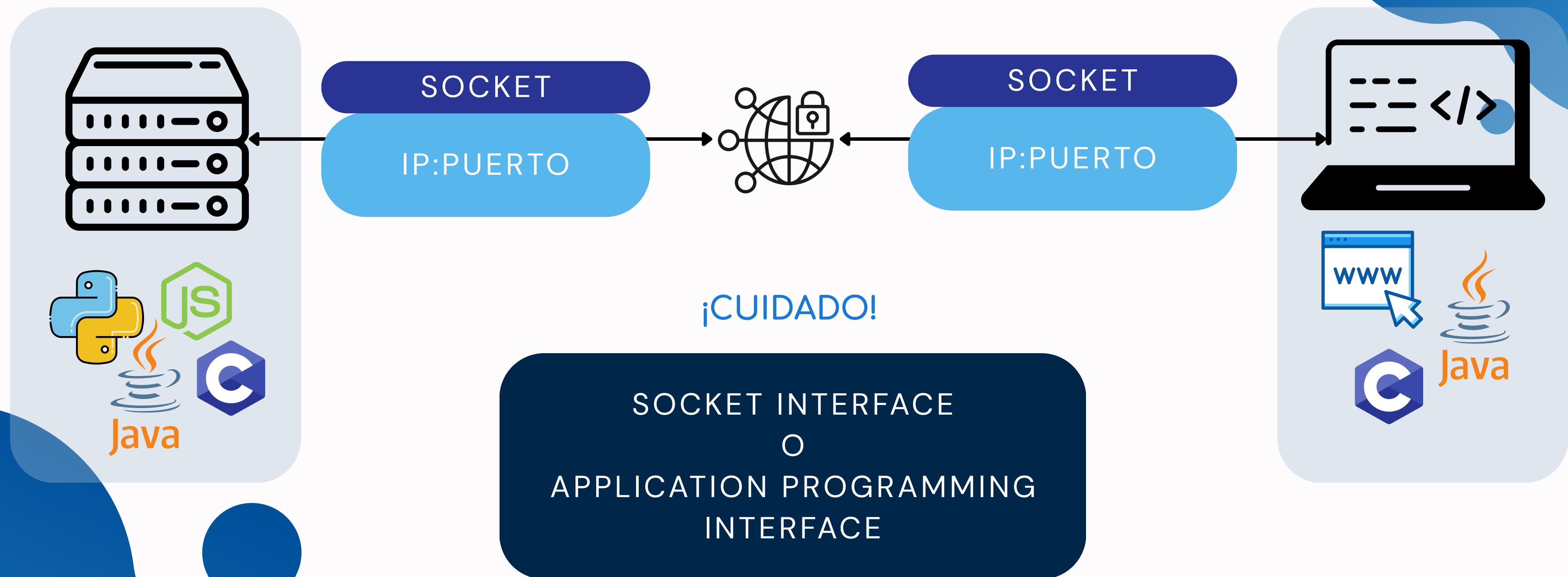
IEEE

IEEE 802 LMSC Working Groups, Technical Advisory Gro

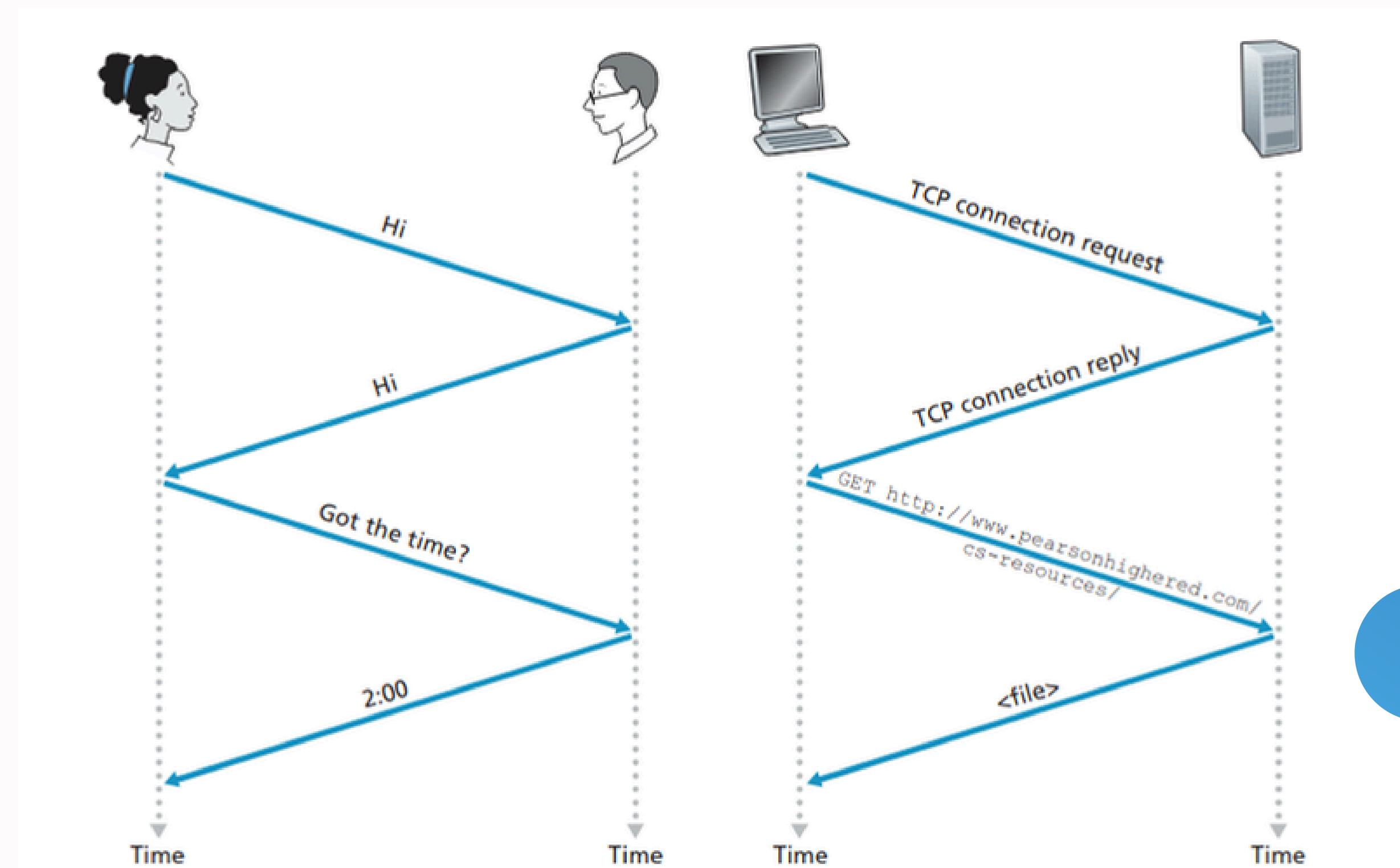
- [802.1 Higher Layer LAN Protocols Working Group](#)
- [802.3 Ethernet Working Group](#)
- [802.11 Wireless LAN Working Group](#)
- [802.15 Wireless Specialty Network \(WSN\) Working Group](#)
- [802.18 Radio Regulatory TAG](#)
- [802.19 Wireless Coexistence Working Group](#)
- [802.24 Vertical Applications TAG](#)
- [IEEE 802 LMSC Standing Committees](#)
- [List of Hibernating and Disbanded Working Groups and](#)

UN ENFOQUE DE SERVICIOS

Aplicaciones distribuidas

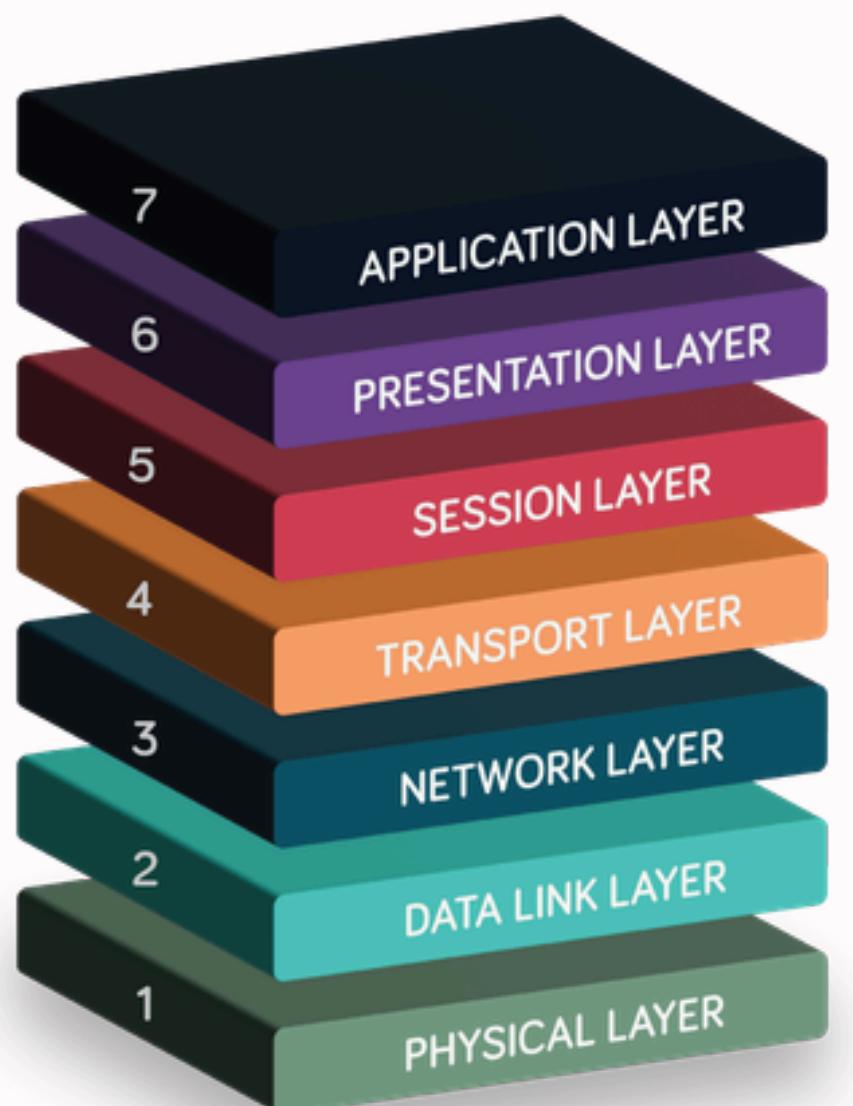


PROTOCOLOS DE INTERNET

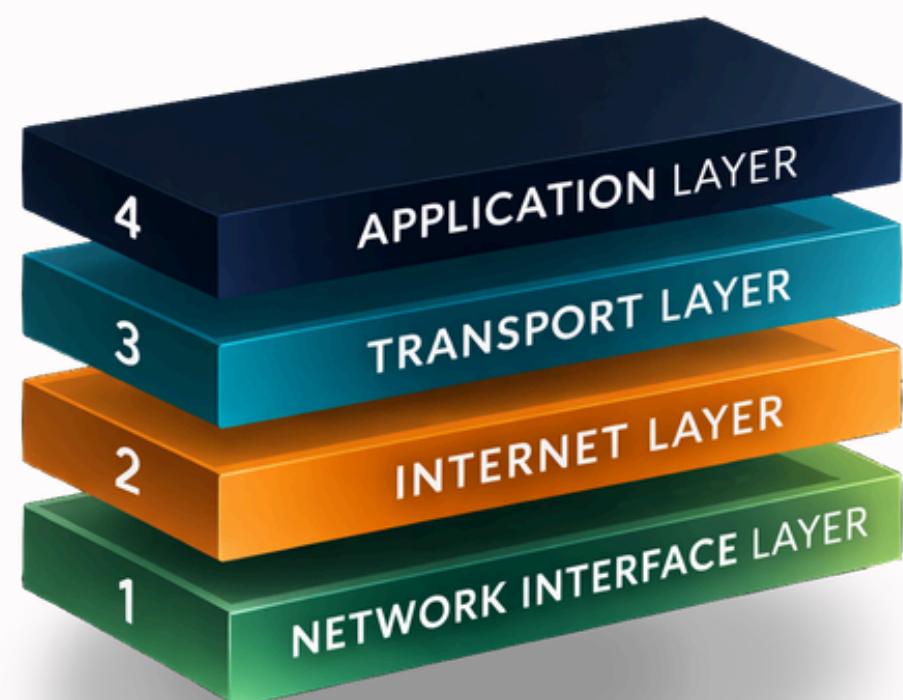


CAPAS DE RED

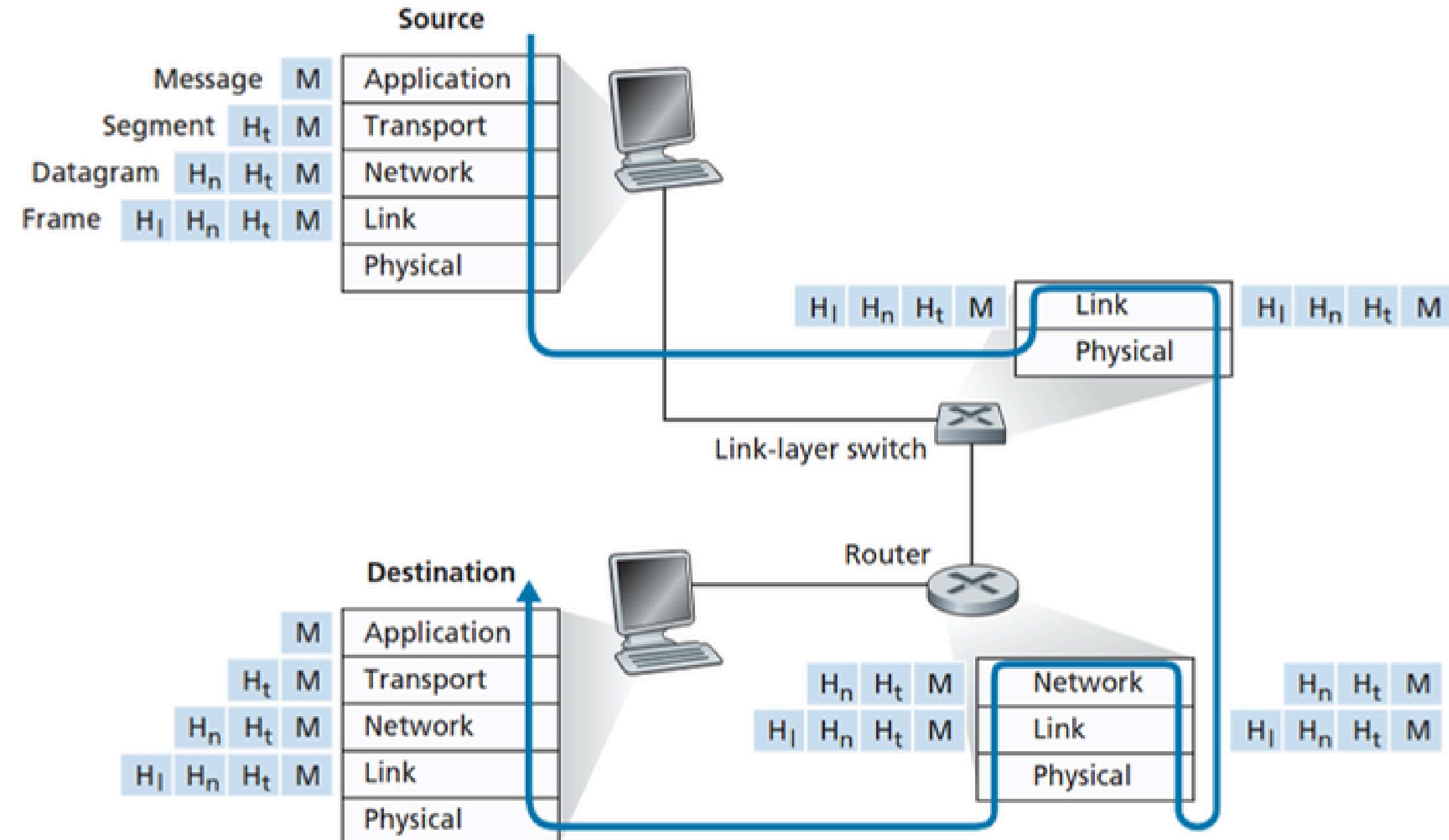
MODELO OSI



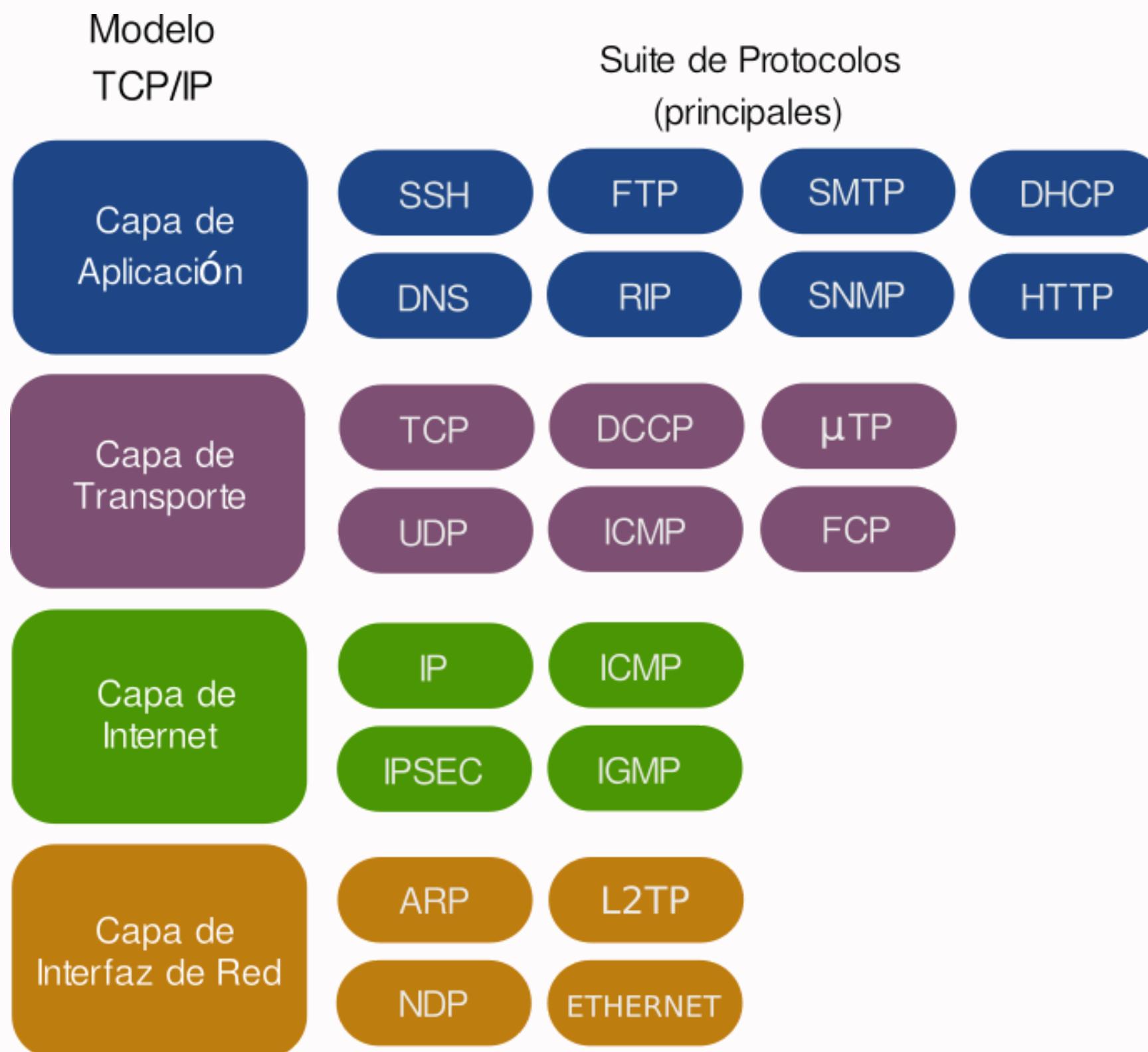
MODELO TCP/IP



ENCAPSULADO



PROTOCOLOS



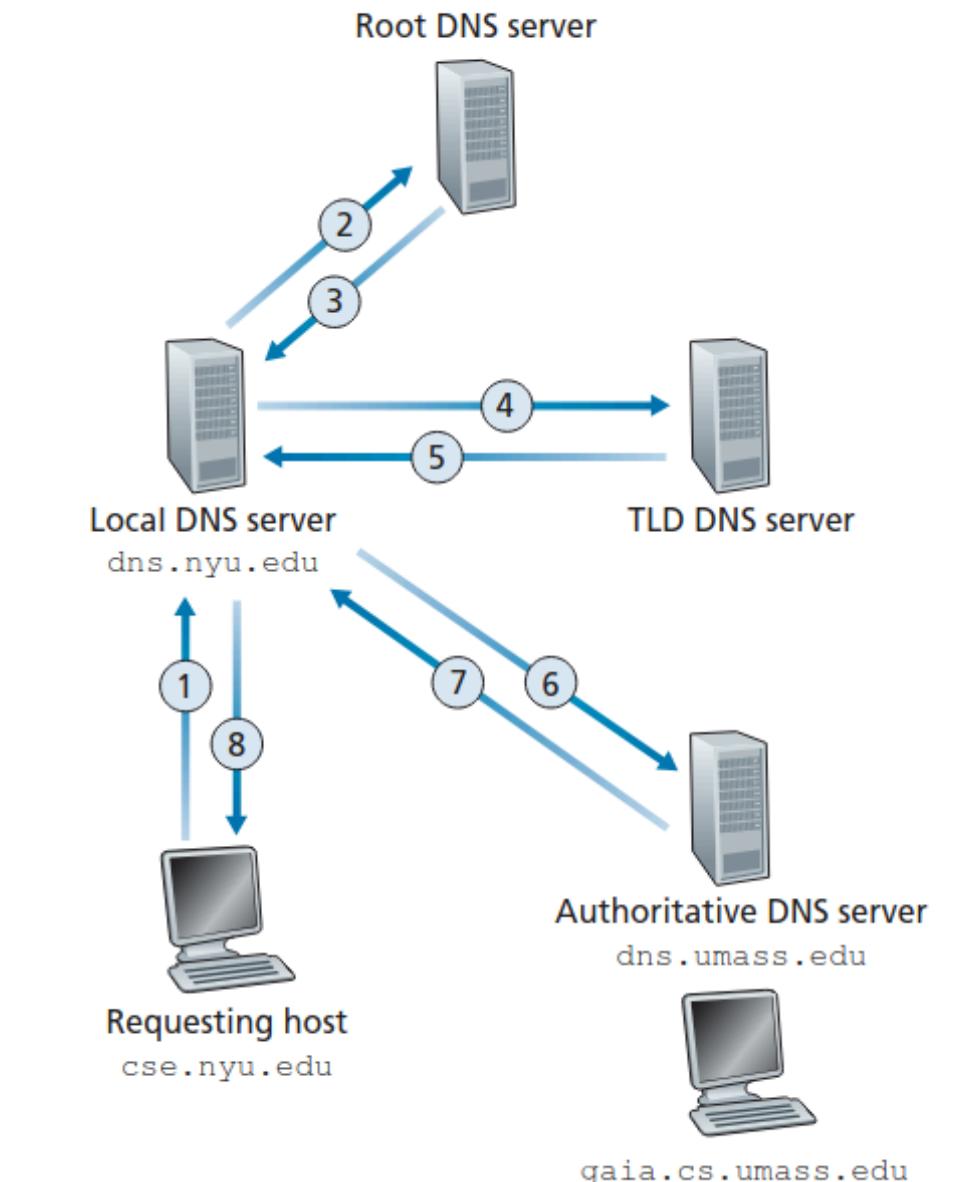
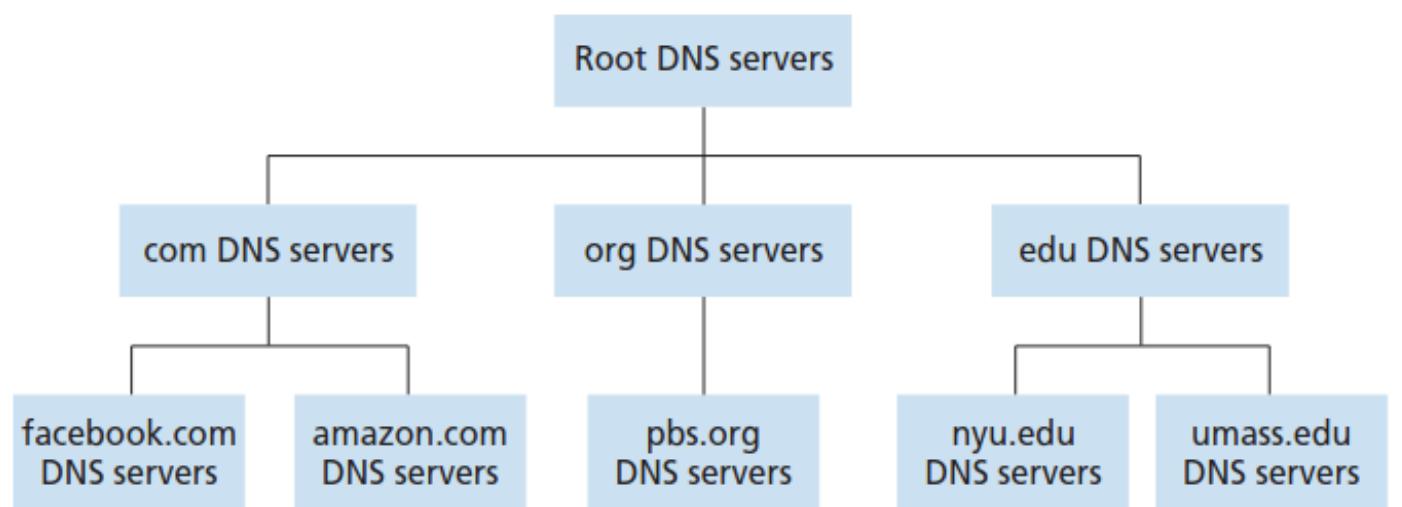
DNS

NOMBRE CANÓNICO VS ALIAS

VPS20.CESVIMA.UPM.ES
DA.UPM.ES

DISTRIBUCIÓN DE CARGA

SISTEMA JERÁRQUICO DISTRIBUIDO



NSLOOKUP / DIG

HTTP/HTTPS

THREE WAY HANDSHAKE

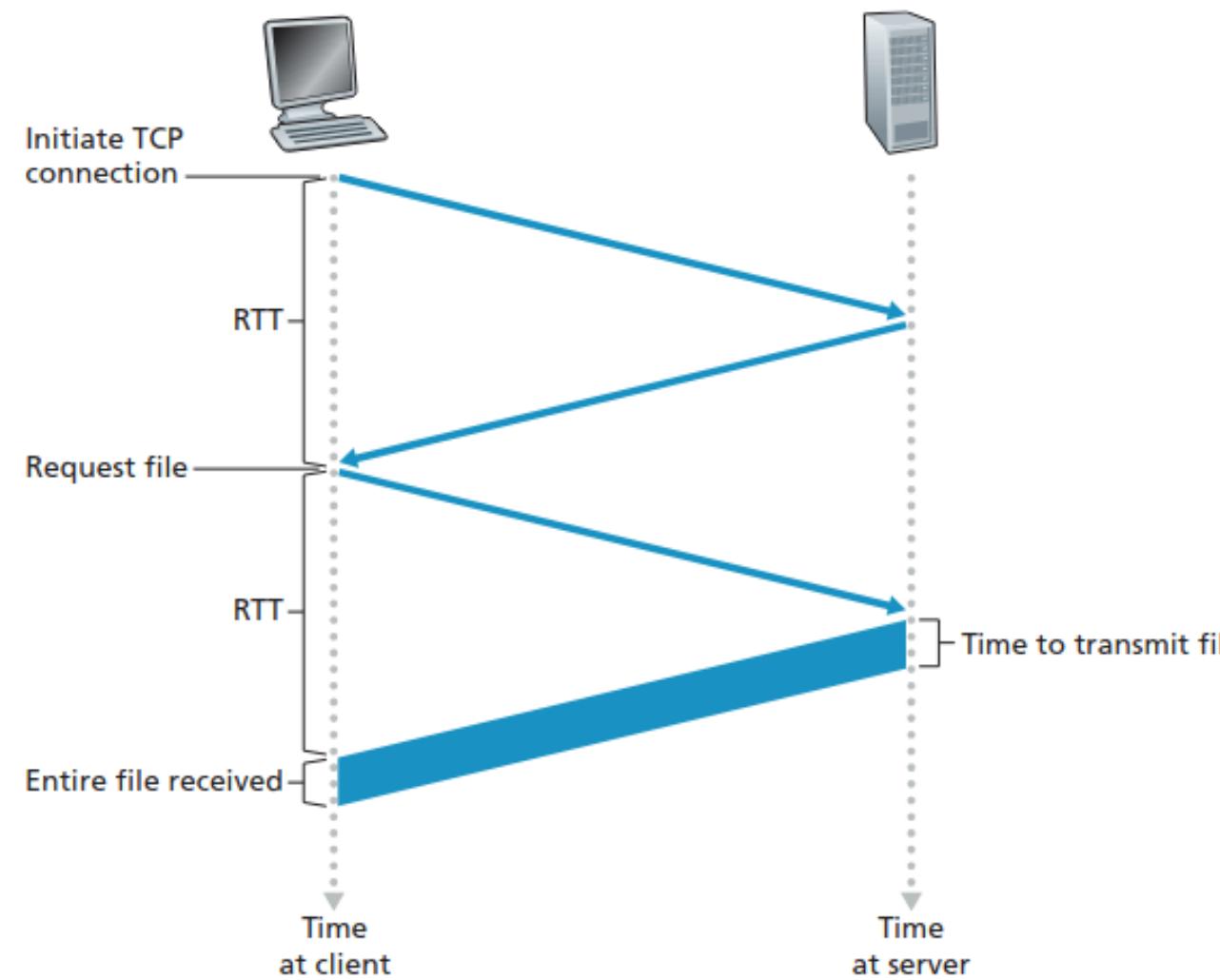
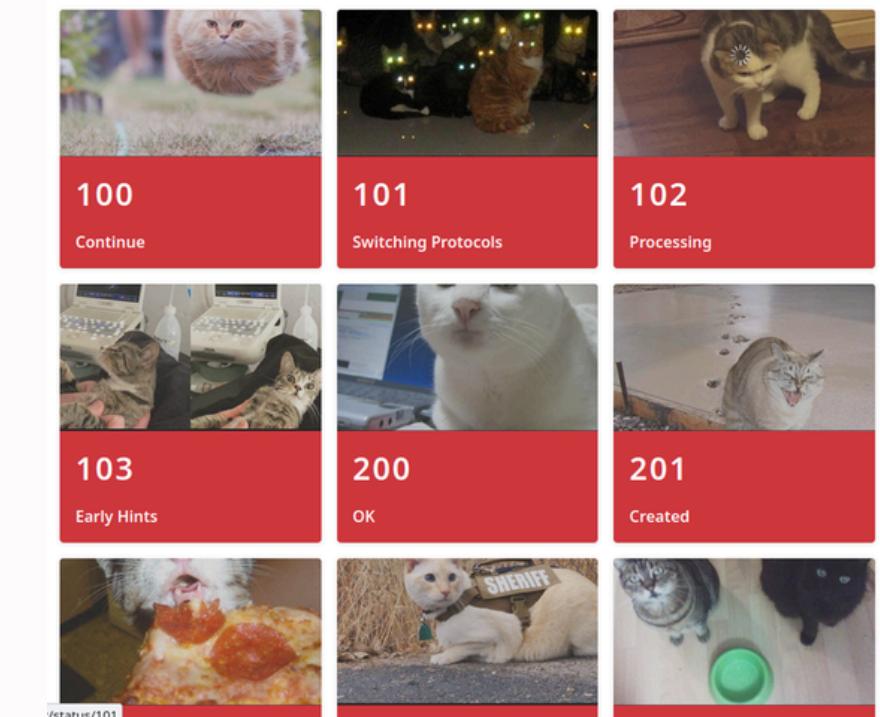


Figure 2.7 ♦ Back-of-the-envelope calculation for the time needed to request and receive an HTML file

```
GET /somedir/page.html HTTP/1.1  
Host: www.someschool.edu  
Connection: close  
User-agent: Mozilla/5.0  
Accept-language: fr
```

```
HTTP/1.1 200 OK  
Connection: close  
Date: Tue, 18 Aug 2015 15:44:04 GMT  
Server: Apache/2.2.3 (CentOS)  
Last-Modified: Tue, 18 Aug 2015 15:11:03 GMT  
Content-Length: 6821  
Content-Type: text/html  
(data data data data data ...)
```



GET
HEAD
POST
PUT
PATCH
DELETE

SOLICITAMOS UN RECURSO

COMPRUEBA SI EXISTE UN RECURSO

ENVIA DATOS PARA CREAR UN RECURSO

ENVIA DATOS PARA REEMPLAZAR UN RECURSO

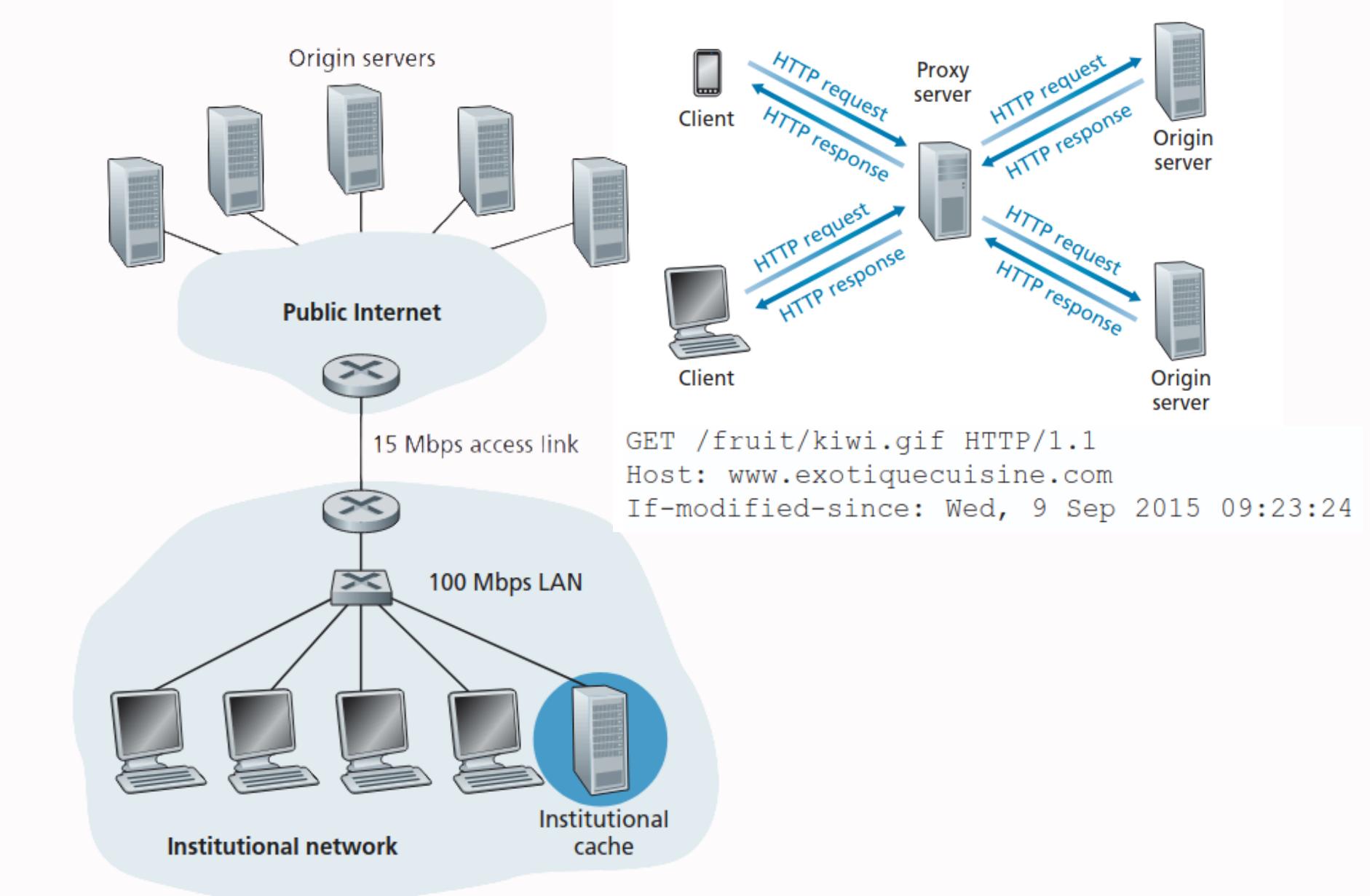
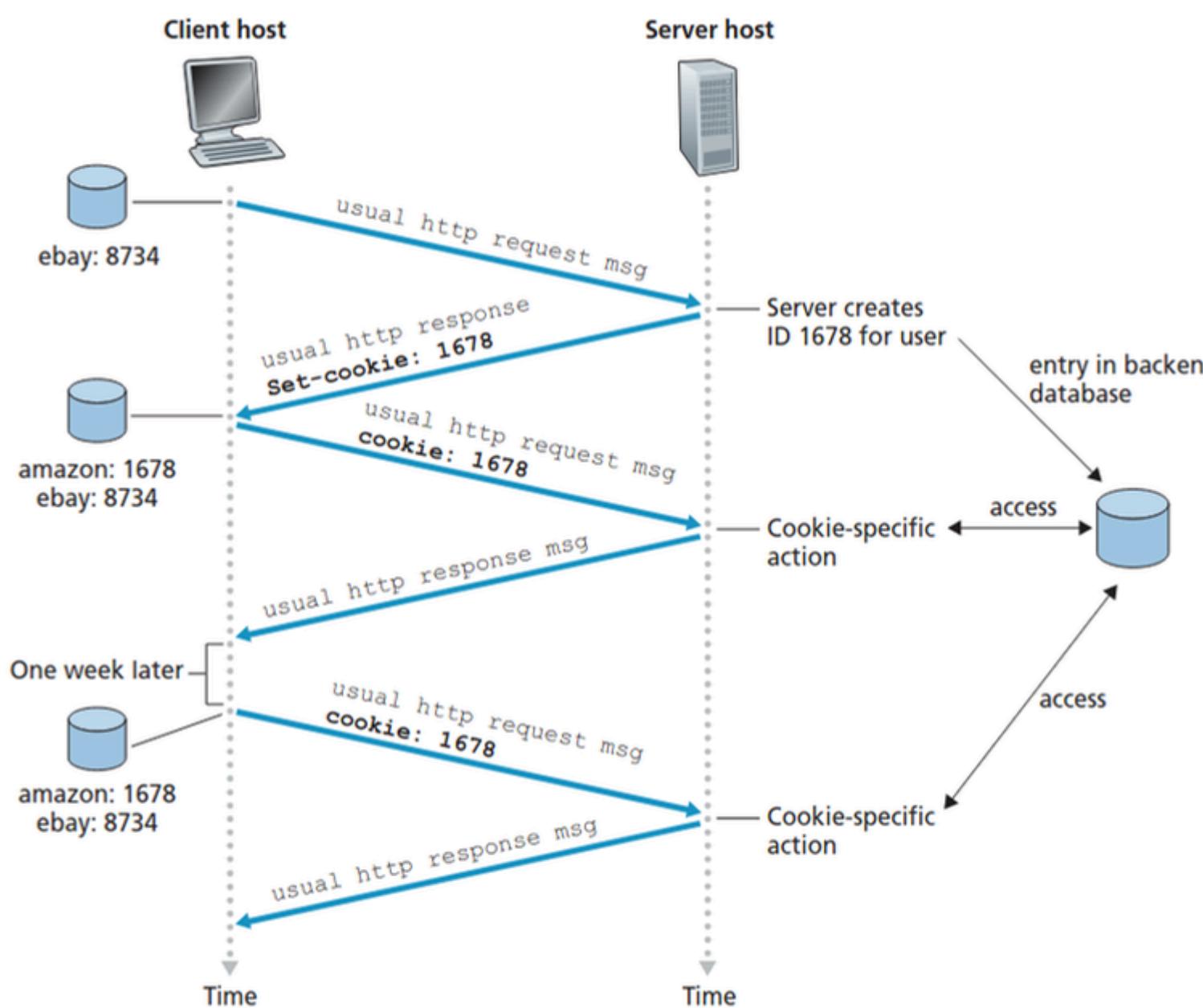
ENVIA DATOS PARA MODIFICAR UN RECURSO

ELIMINA UN RECURSO

HTTP/HTTPS

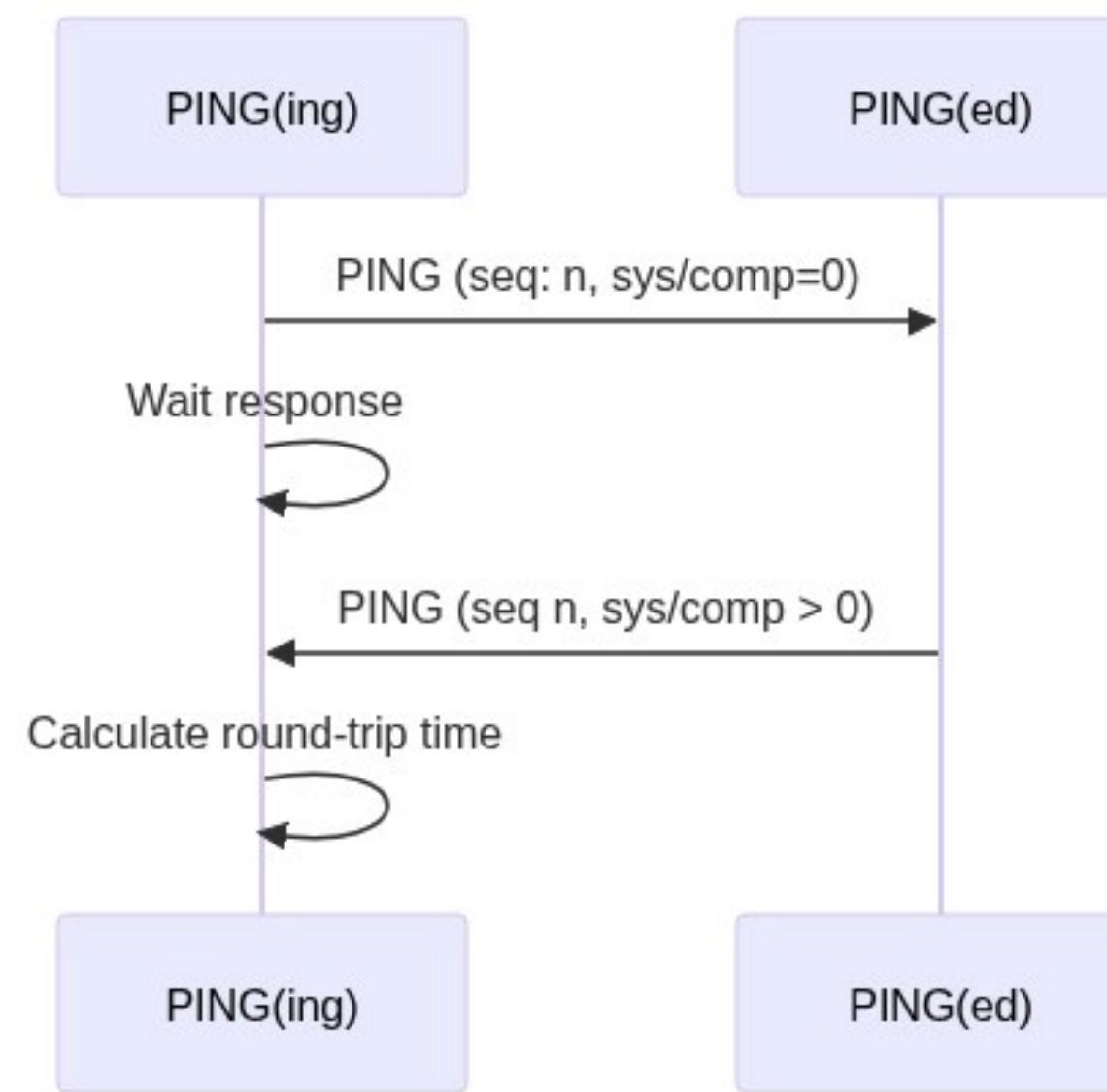
WEB CACHE / PROXY

COOKIES DE SESIÓN

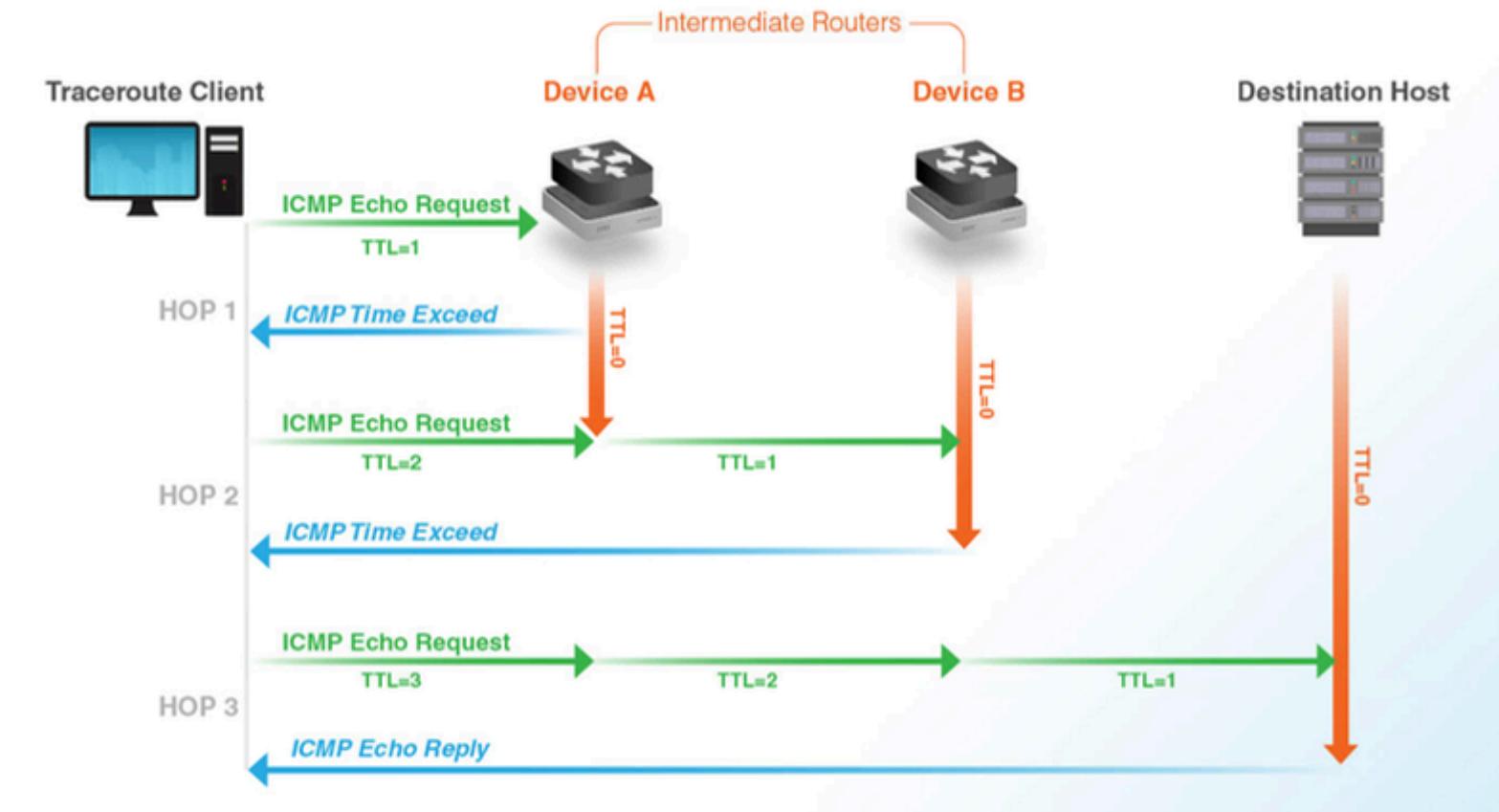


ICMP

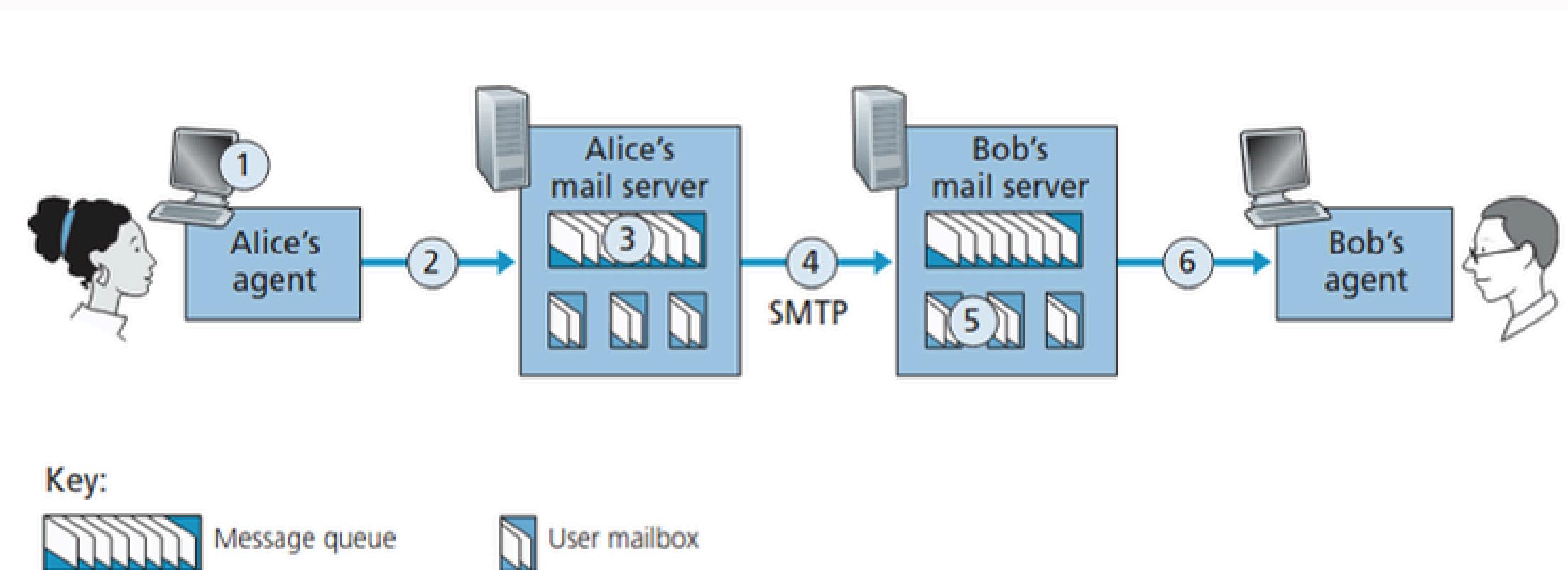
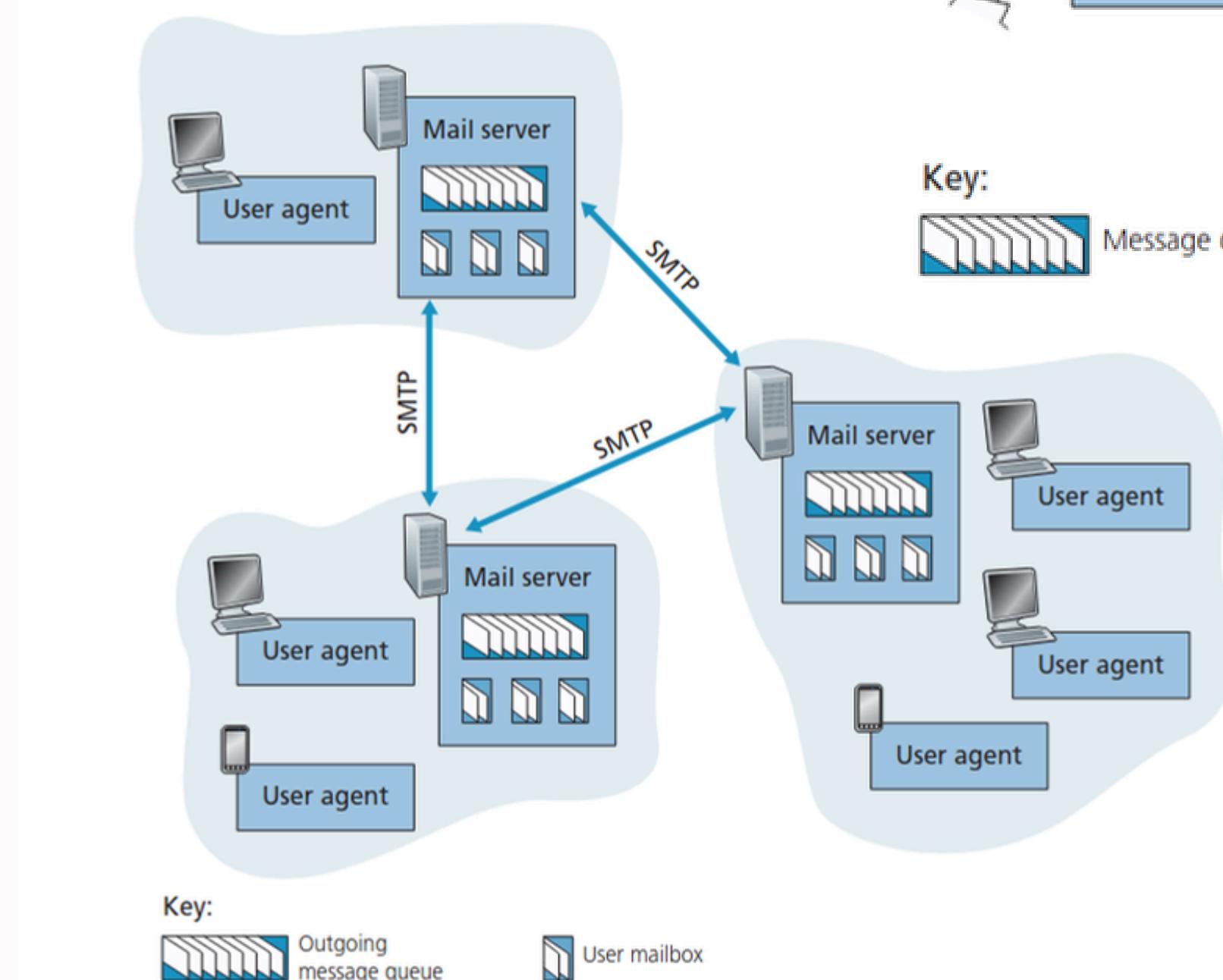
PING



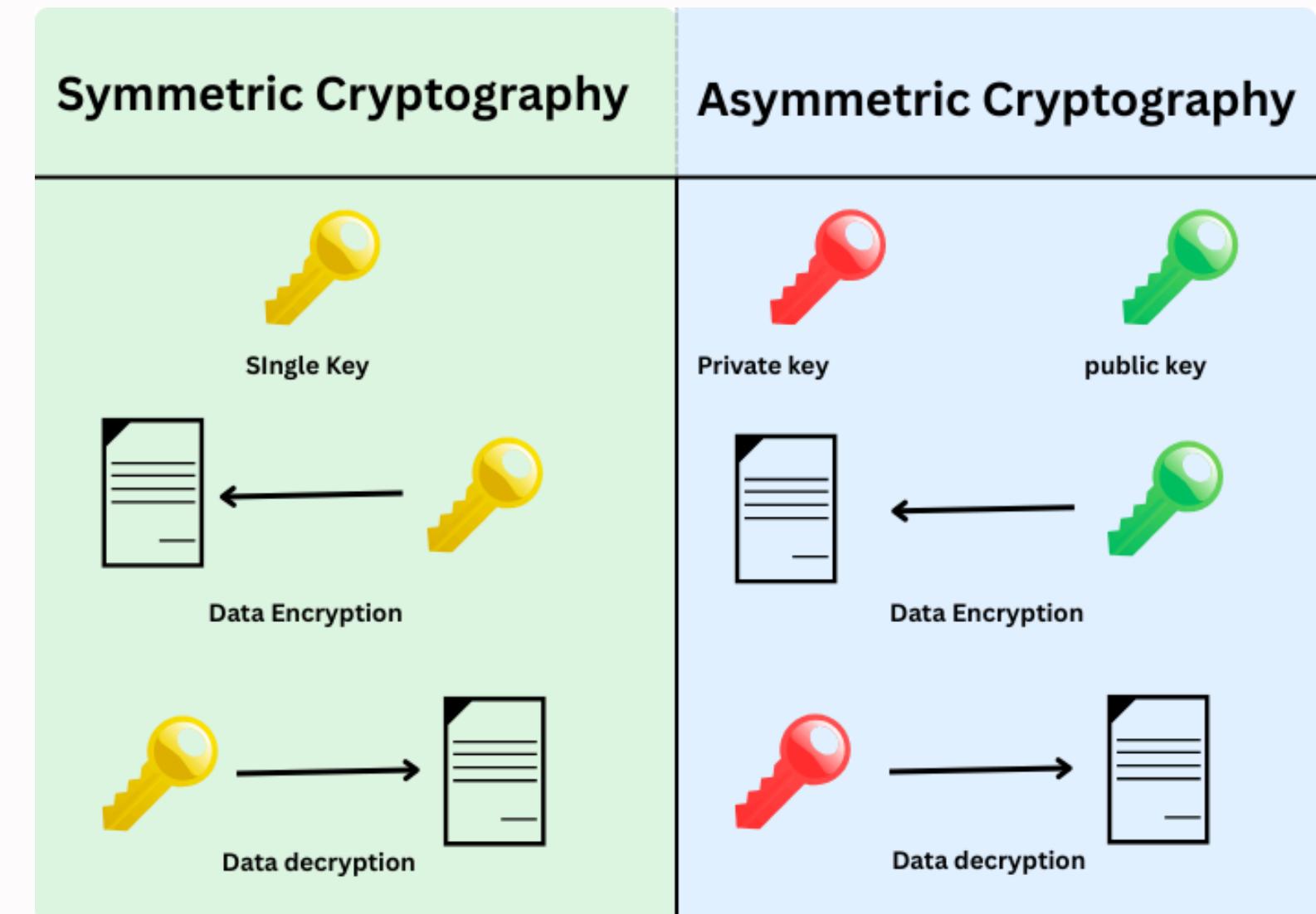
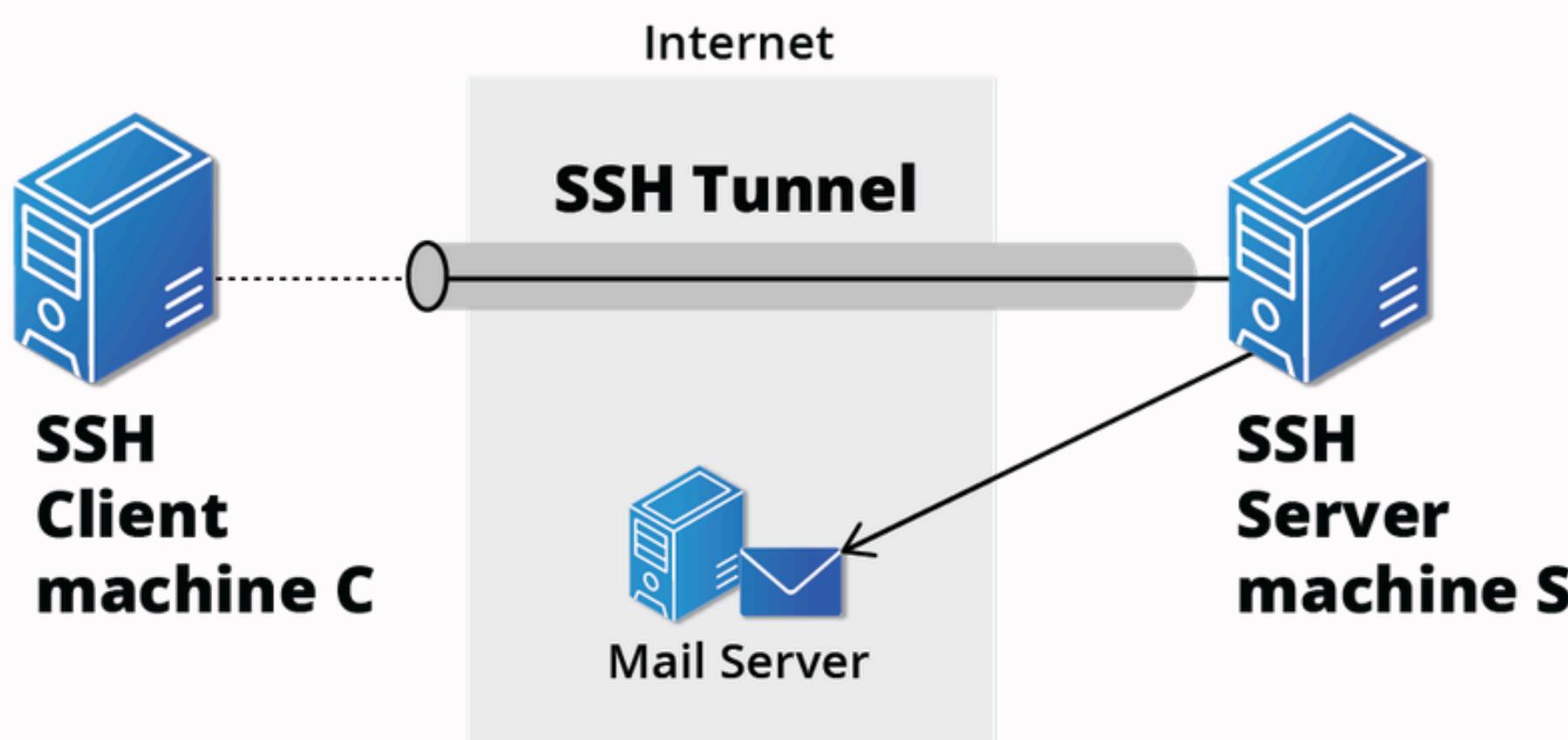
TRACEROUTE



SMTP



SSH



SCP/SFTP



**THANK
YOU!**

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