Comparing TCP/IP with OSI

FIGURES

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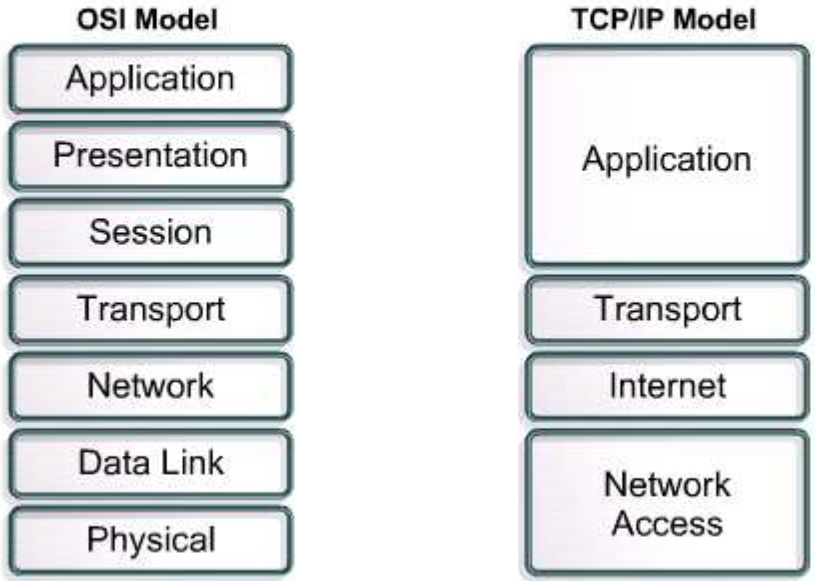
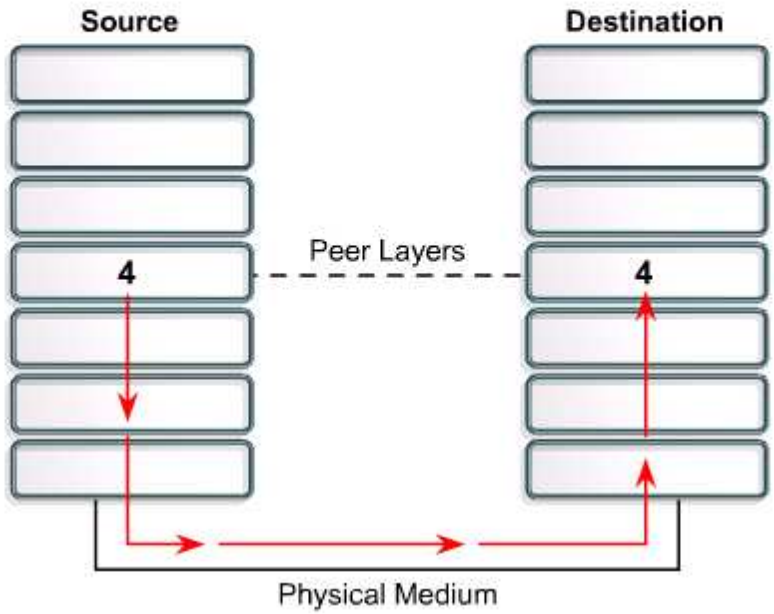
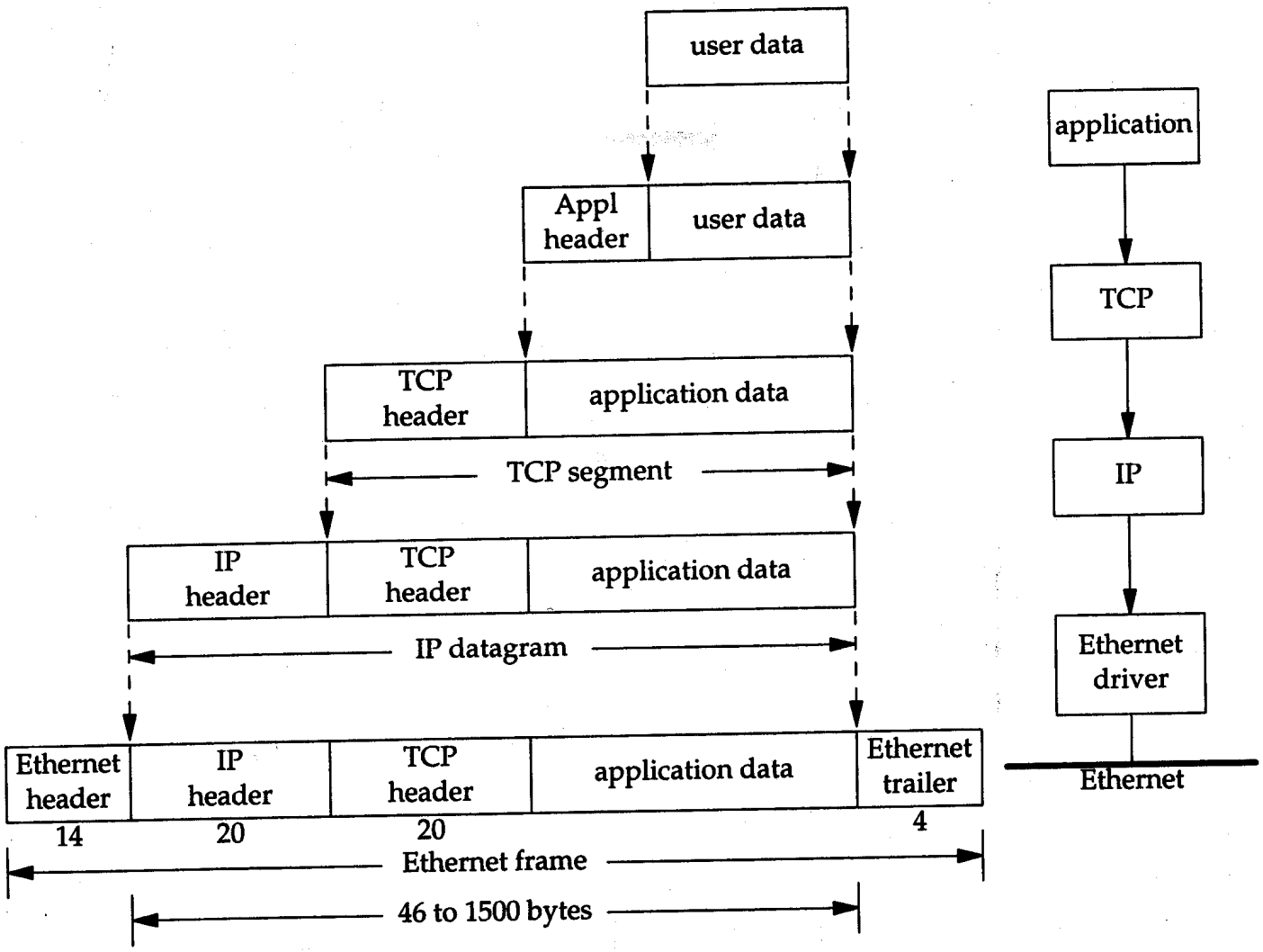


Layer Communication

FIGURE 1

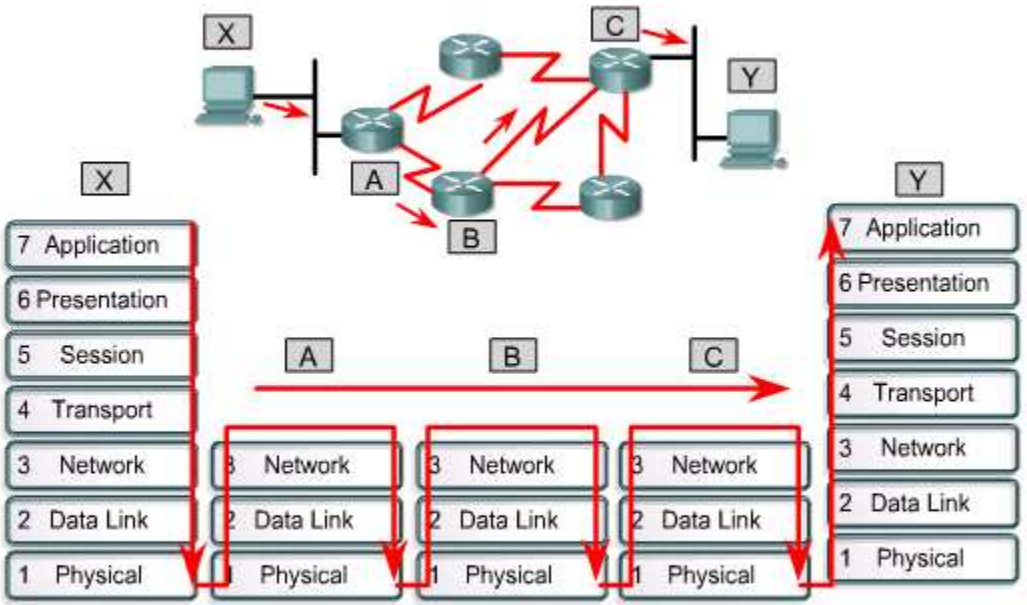


Encapsulamento



Data Flow through a Network

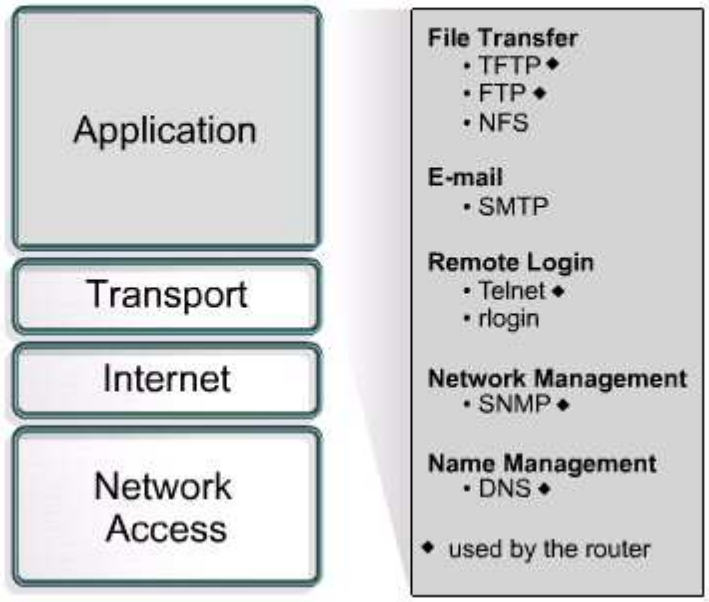
FIGURE 1



Data flow in a network focuses on Layers 1, 2, and 3 of the OSI model. This is after being transmitted by the sending host and before arriving at the receiving host.

TCP/IP Applications

FIGURE 1



Transport Layer Protocols

FIGURES

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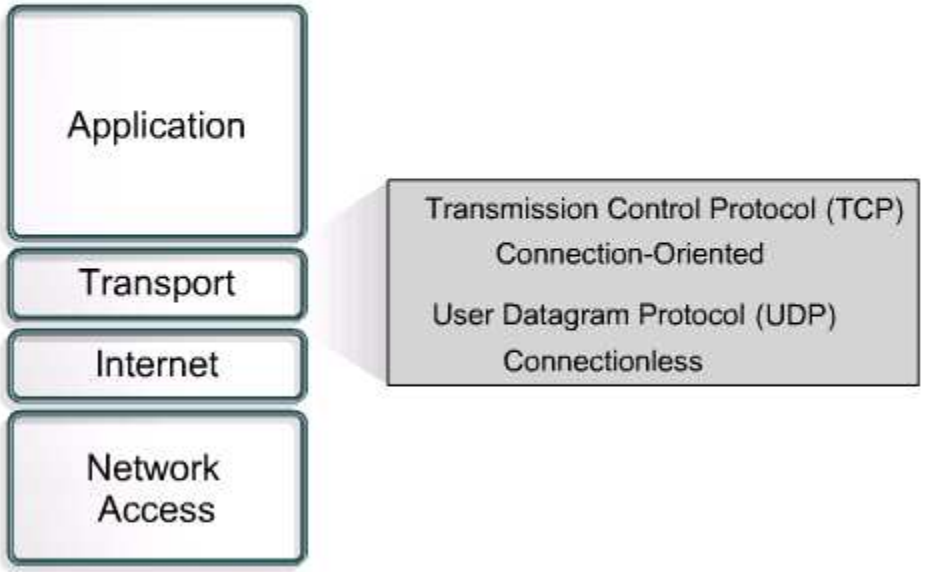

Internet Layer Protocols

FIGURES

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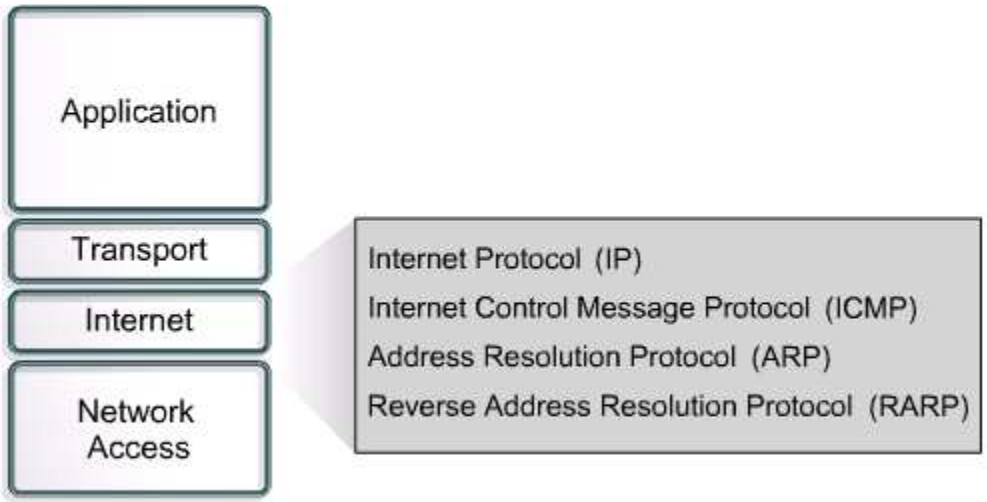
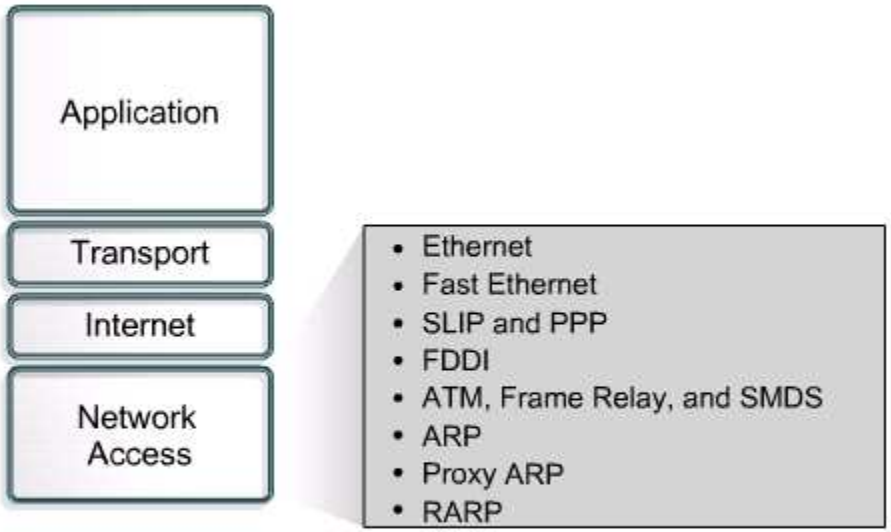


Network Access Protocols

FIGURE 1



ARP and RARP work at both Internet and network access layers.

Common TCP/IP Protocols

FIGURES

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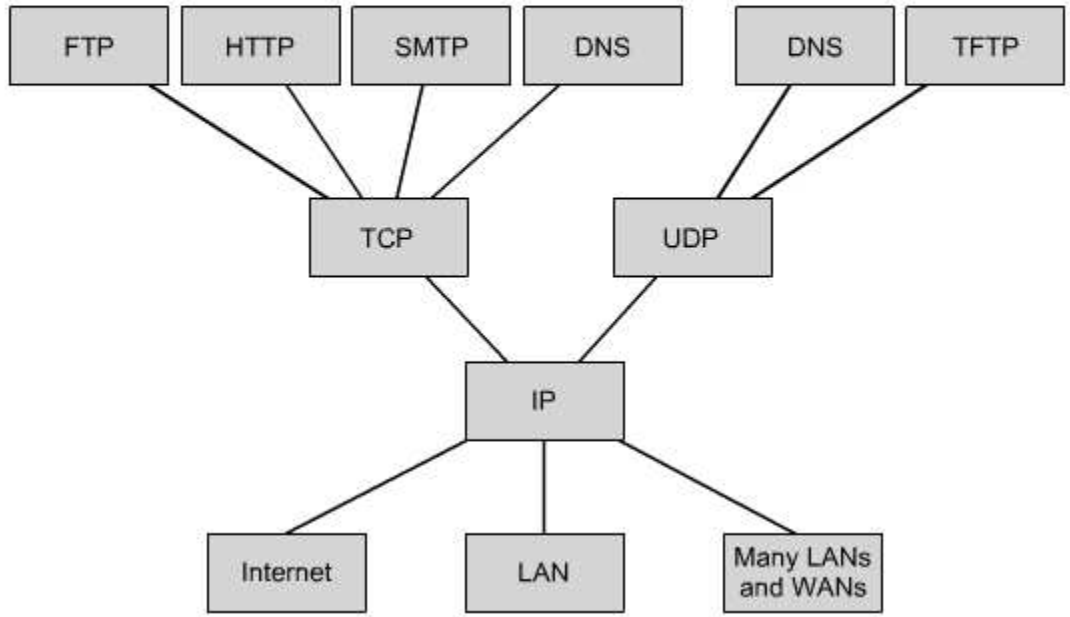

MAC Address Format

FIGURES

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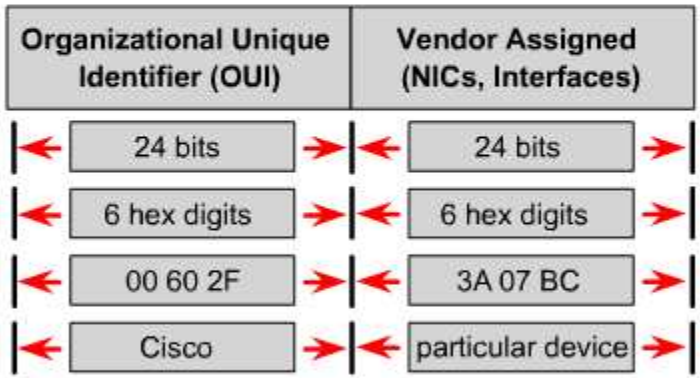

IP Addressing Format

FIGURES

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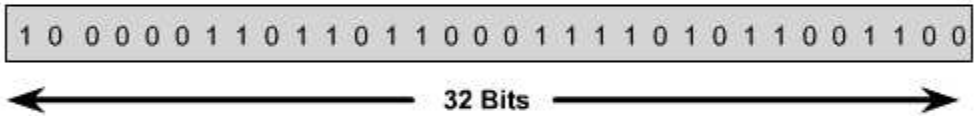

Consecutive Decimal and Binary Values

FIGURES

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Binary : 11000000.10101000.00000001.00001000 and 11000000.10101000.00000001.00001001

Decimal : 192.168.1.8 and 192.168.1.9

Both the binary and decimal numbers represent the same values, but it is much easier to see with the dotted decimal values. This is one of the common problems found in working directly with binary numbers. The long strings of repeated ones and zeros make transposition and omission errors more likely.

Address Class Prefixes

FIGURES

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Class A	Network	Host		
Octet	1	2	3	4

Class B	Network		Host	
Octet	1	2	3	4

Class C	Network			Host
Octet	1	2	3	4

Class D	Host			
Octet	1	2	3	4

Class D addresses are used for multicast groups. There is no need to allocate octets or bits to separate network and host addresses. Class E addresses are reserved for research use only.

IP Address Range

FIGURES

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IP address class	IP address range (First Octet Decimal Value)
Class A	1-126 (00000001-01111110) *
Class B	128-191 (10000000-10111111)
Class C	192-223 (11000000-11011111)
Class D	224-239 (11100000-11101111)
Class E	240-255 (11110000-11111111)

Determine the class based on the decimal value of the first octet.
* 127 (011111111) is a Class A address reserved for loopback testing and cannot be assigned to a network.

Private IP Addresses

FIGURES

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Class	RFC 1918 internal address range
A	10.0.0.0 to 10.255.255.255
B	172.16.0.0 to 172.31.255.255
C	192.168.0.0 to 192.168.255.255

Port Numbers

FIGURES

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