

# Network Protocols and Communications and Network Access

Introduction to Networks v6.0



# Chapter 3: Network Protocols and Communications

## Pertemuan ke 3

# Kompetensi Khusus

- Mahasiswa dapat mengidentifikasi setiap layer model OSI pada perangkat komunikasi dan bagaimana aliran data pada jaringan untuk mencapai alamat tujuannya (C2)

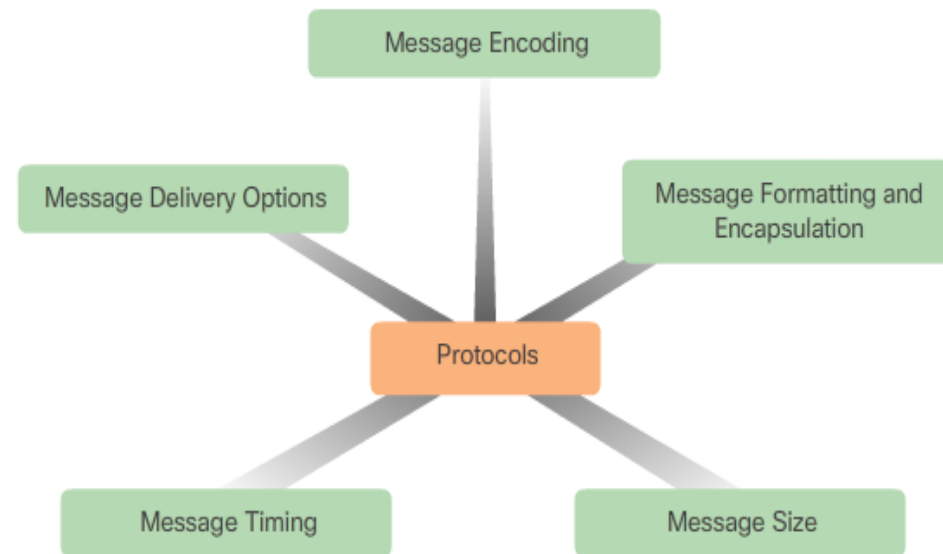
## Materi:

1. Rules of Communication
2. Network Protocols and Standards
3. Data Transfer in the Network

# 1. Rules of Communication

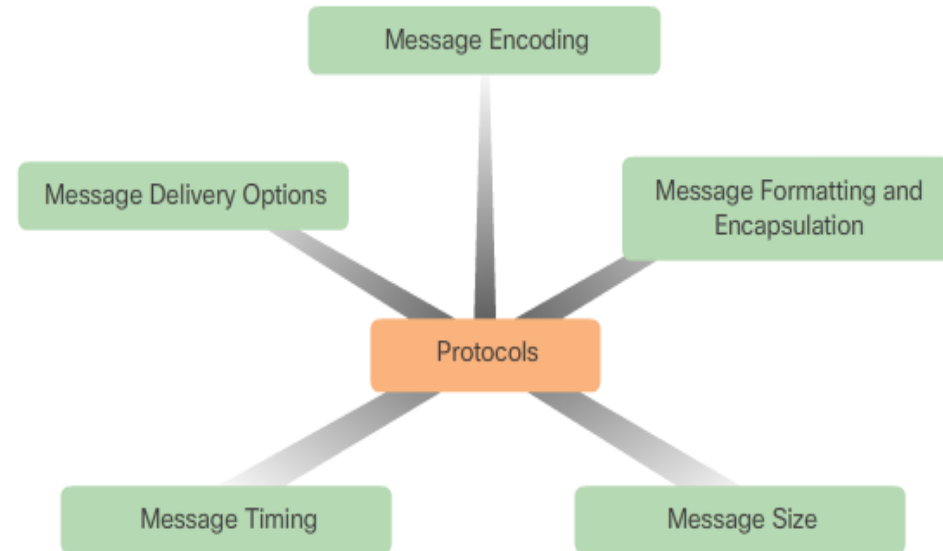
# 1.1 The Rules

- Rule Establishment
  - Identified sender and receiver
  - Common language and grammar
  - Speed and timing of delivery
  - Confirmation or acknowledgment requirements
- Message Encoding
  - Process of converting information into another acceptable form
- Message Formatting and Encapsulation
- Message Size



# 1.1 The Rules

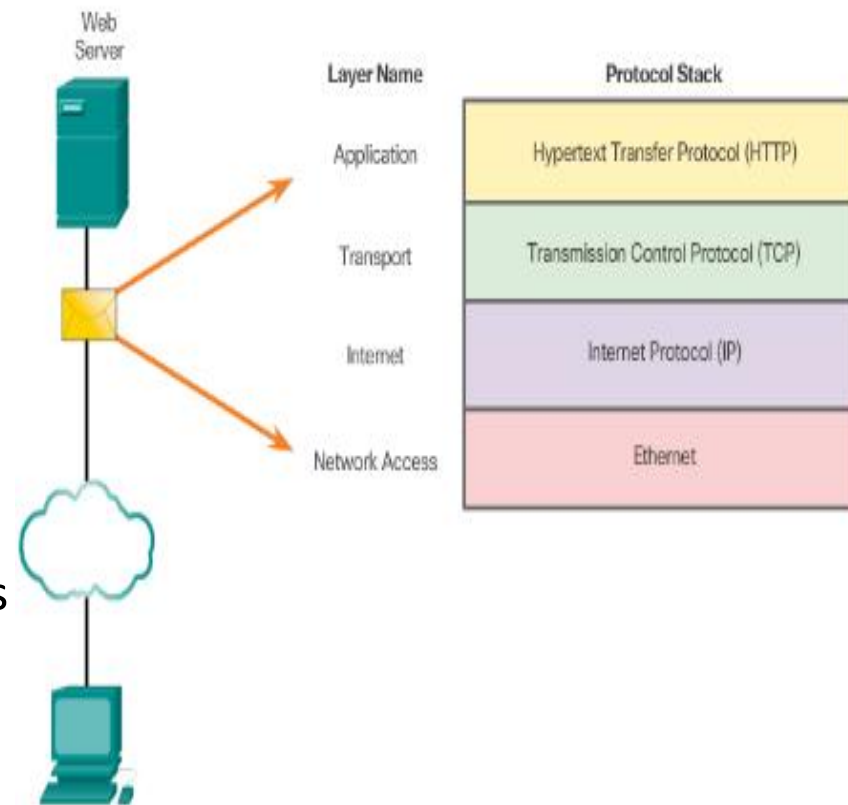
- Message Timing
  - Access method
  - Flow control
  - Response timeout
- Message Delivery Options
  - Unicast
  - Multicast
  - Broadcast



## 2. Network Protocols and Standards

## 2.1 Protocols

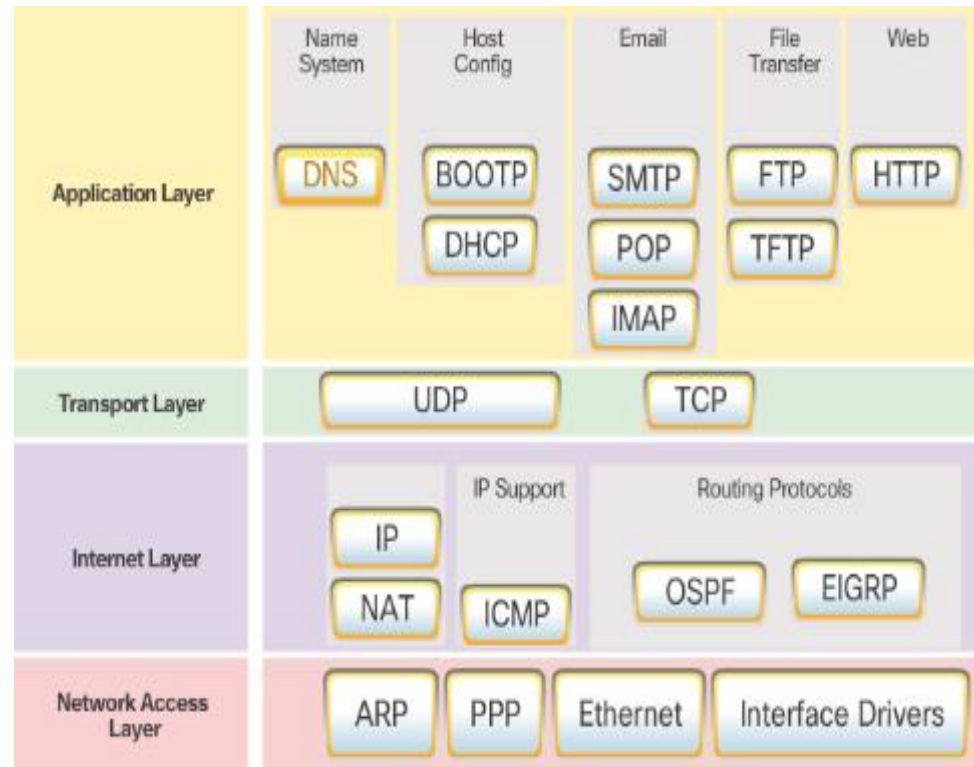
- Rules that Govern Communications
- Network Protocols
  - The role of protocols
  - How the message is formatted or structured
  - The process by which networking devices share information about pathways with other networks
  - How and when error and system messages are passed between devices
  - The setup and termination of data transfer sessions
- Protocol Interaction
  - Example: web server and client





## 2.2 Protocol Suites

- Protocol Suites and Industry Standards
  - TCP/IP is an open standard
  - Can you name other protocol suites?
- TCP/IP Protocol Suites
  - Can you name some of the protocols from the TCP/IP protocol suite.
- TCP/IP Communication Process
  - Can you describe the process?



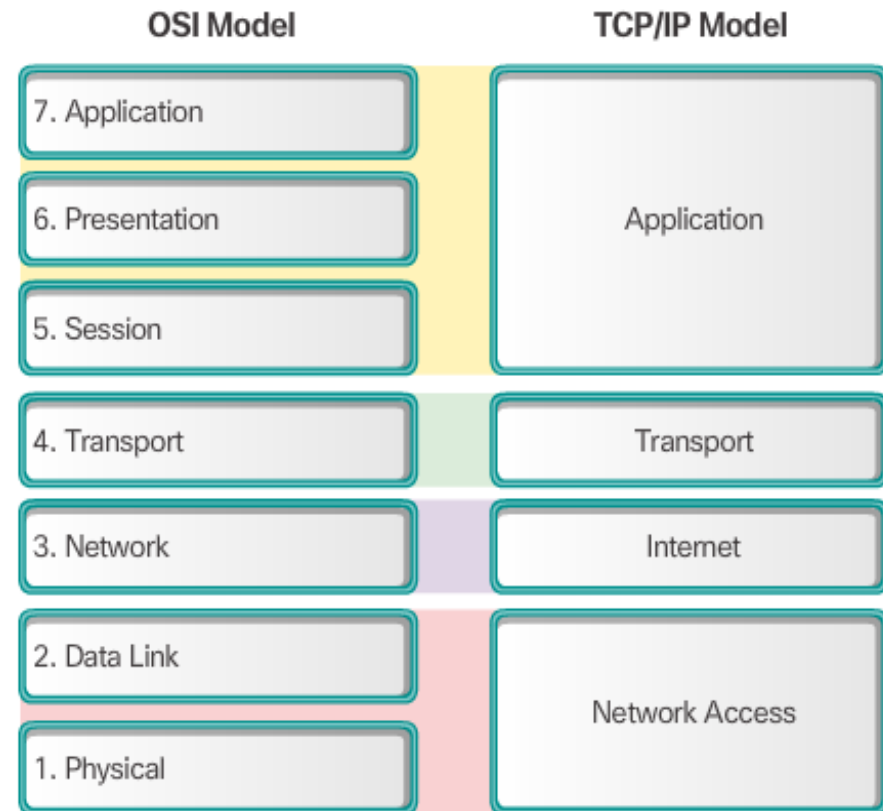
## 2.3 Standard Organizations

- Open Standards
  - Name some advantages of open standards
- Internet Standards
  - Name a few standard organizations
- Electronics and Communications Standards Organizations
  - Name a few organizations



## 2.4 Reference Models

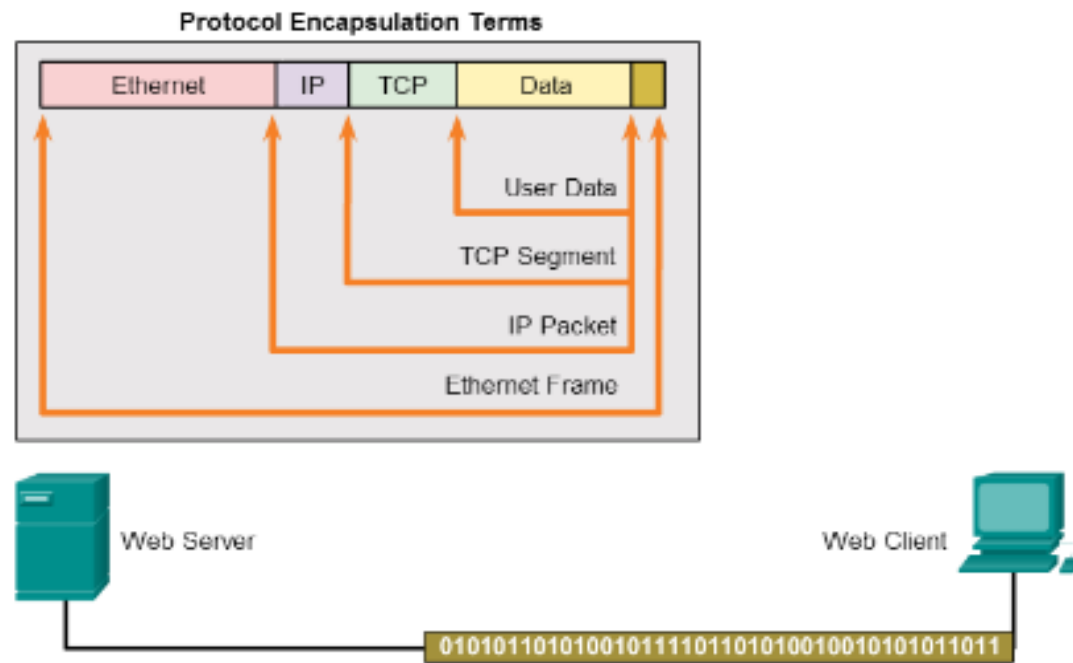
- The Benefits of Using a Layered Model
  - Name some benefits
- The OSI Reference Model
  - Provides list of functions
  - Describes interactions between layers
- OSI Model and TCP/IP Model Comparison
  - Similar: transport and network layers
  - Contrast: relationship between layers



# 3. Data Transfer in the Network

## 3.1 Data Encapsulation

- Message Segmentation
  - Segmentation - Break communication into pieces
  - Multiplexing – interleaving the pieces
- Protocol Data Units
  - What are PDUs called at each layer?
- Encapsulation and de-encapsulation process

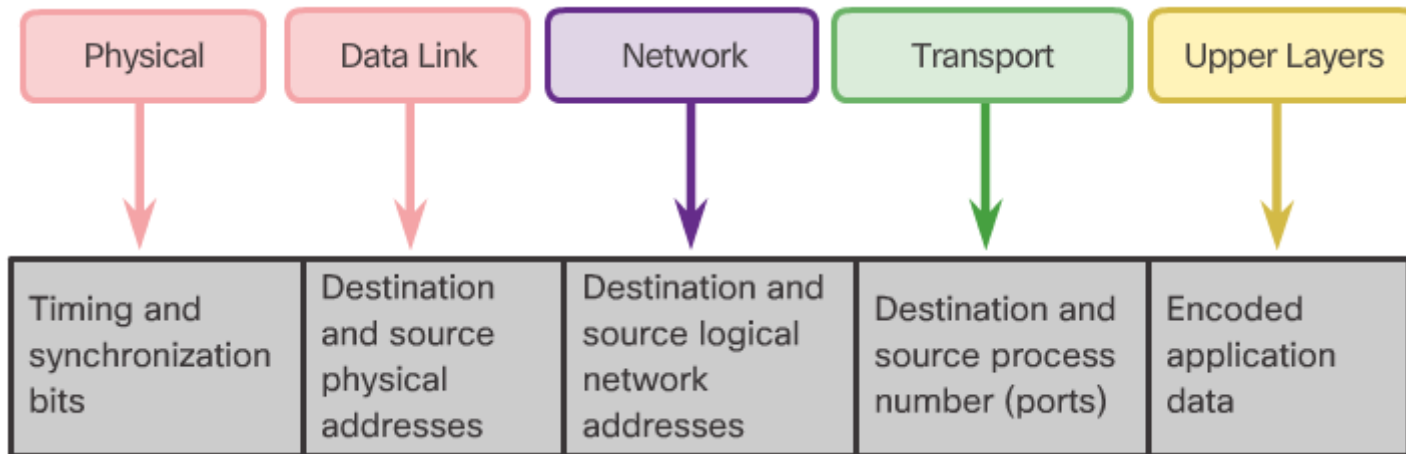


## 3.2 Data Access

- Network Addresses
  - Source IP address
  - Destination IP address
  - Deliver the IP packet from the original source to the final destination, either on the same network or to a remote network.
- Data Link Addresses
  - Source data link address
  - Destination data link address
  - Deliver the data link frame from one network interface card (NIC) to another NIC on the same network

## 3.2 Data Access (Cont.)

- Devices on the Same Network
- Devices on a Remote Network





# Chapter Summary



# Summary

- Explain how rules are used to facilitate communication.
- Explain the role of protocols and standards organizations in facilitating interoperability in network communications.
- Explain how devices on a LAN access resources in a small to medium-sized business network.

**TERIMA KASIH**

