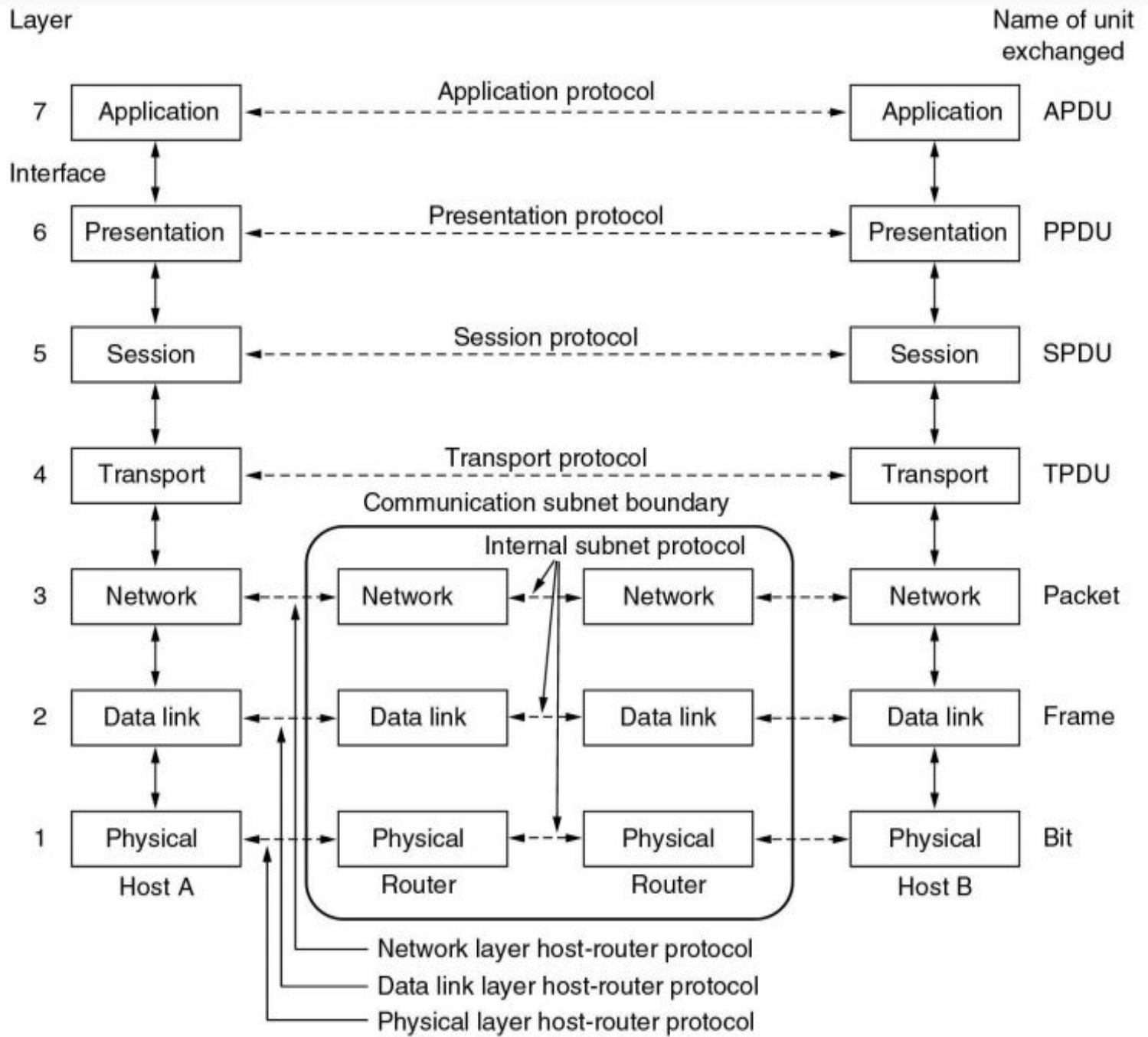# Introduction

Chapter 1

Reference Models

- OSI reference model

- TCP/IP reference model

- Model used for this text

- Comparison of OSI and TCP/IP

- Critique of OSI model and protocols
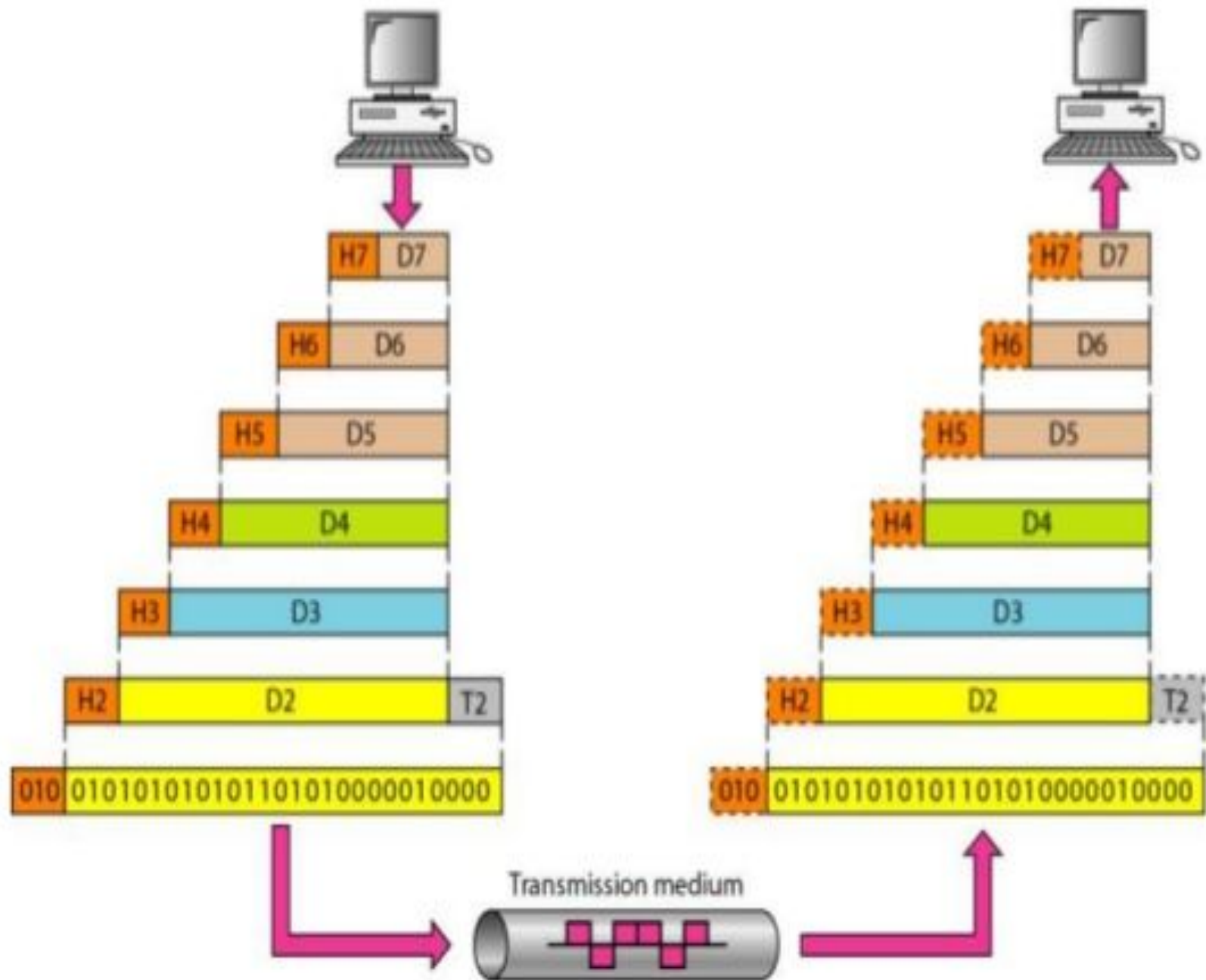
- Critique of TCP/IP model

The OSI Reference Model

Principles for the seven layers

- Layers created for different abstractions
- Each layer performs well-defined function
- Function of layer chosen with definition of international standard protocols in mind
- Minimize information flow across interfaces between boundaries
- Number of layers optimum

The OSI reference model.

H7 D7

H6 D6

H5 D5

H4 D4

H3 D3

H2 D2 T2

010 01010101010110101000010000

H7 D7

H6 D6

H5 D5

H4 D4

H3 D3

H2 D2 T2

010 01010101010110101000010000
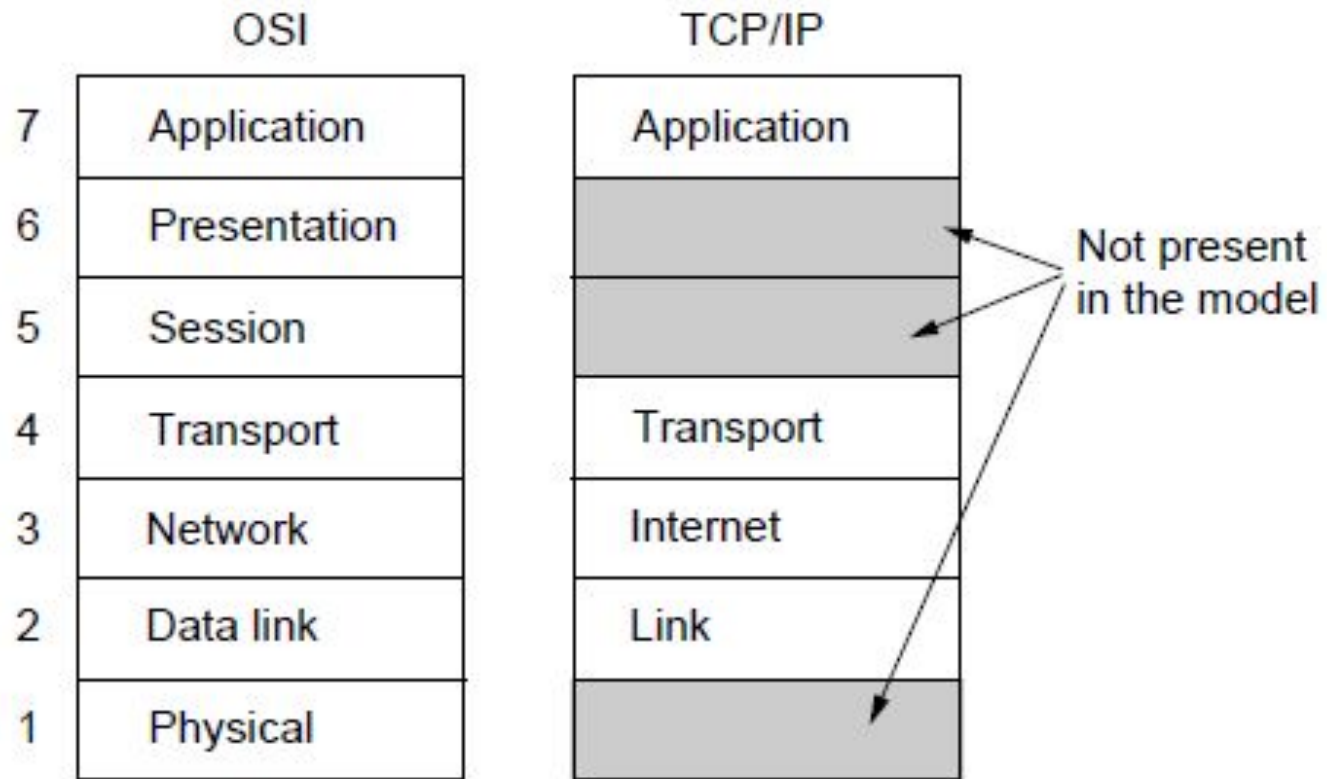
Transmission medium

OSI Reference Model Layers

- Physical layer

- Data link layer

- Network layer

- Transport layer

- Session layer

- Presentation layer

- Application layer

The TCP/IP Reference Model Layers

- Host to network layer
- Internet layer
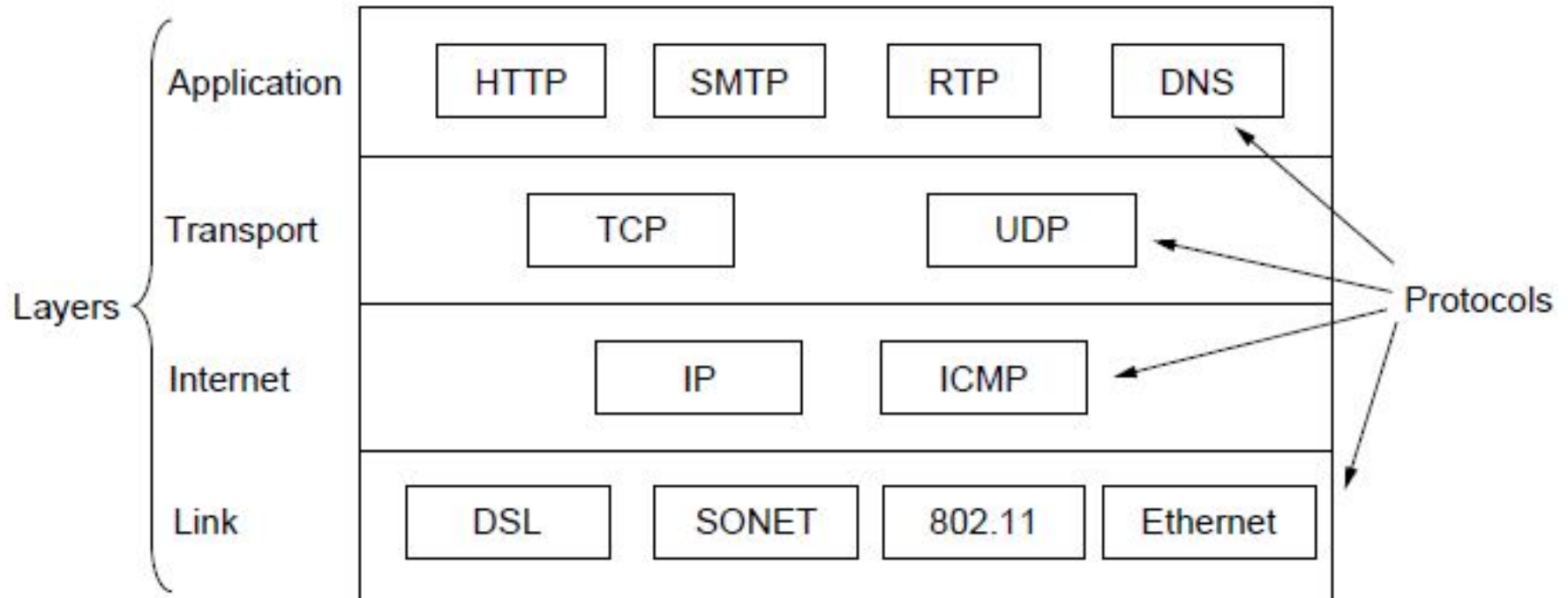- Transport layer
- Application layer

The TCP/IP Reference Model (1)

The TCP/IP reference model

The TCP/IP Reference Model (2)

The TCP/IP reference model with some protocols we will study

The Model Used in this Book

The reference model used in this book.

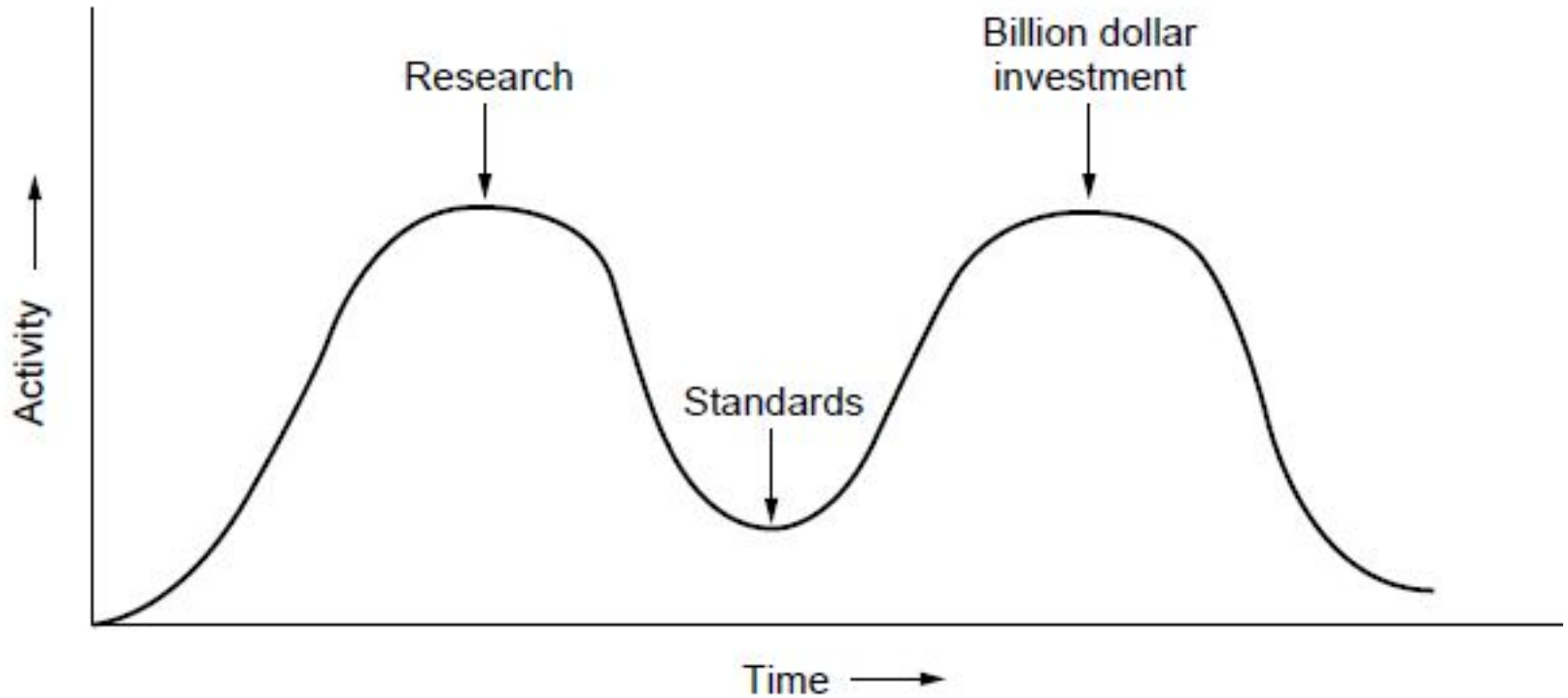# Comparison of the OSI and TCP/IP Reference Models

Concepts central to OSI model

- Services

- Interfaces

- Protocols

Critique of the OSI Model and Protocols

- Bad timing.
- Bad technology.
- Bad implementations.
- Bad politics.

OSI Model Bad Timing

The apocalypse of the two elephants.

A Critique of the TCP/IP Reference Model

Problems:

- Service, interface, and protocol not distinguished

- Not a general model

- Host-to-network "layer" not really a layer (is an interface)

- No mention of physical and data link layers

- Minor protocols deeply entrenched, hard to replace

  (The virtual terminal protocol, TELNET, was designed for mechanical teletype terminal)

Hybrid Model

5	Application layer
4	Transport layer
3	Network layer
2	Data link layer
1	Physical layer

The hybrid reference model to be used in this book.