

# Introduction

Lecture 1

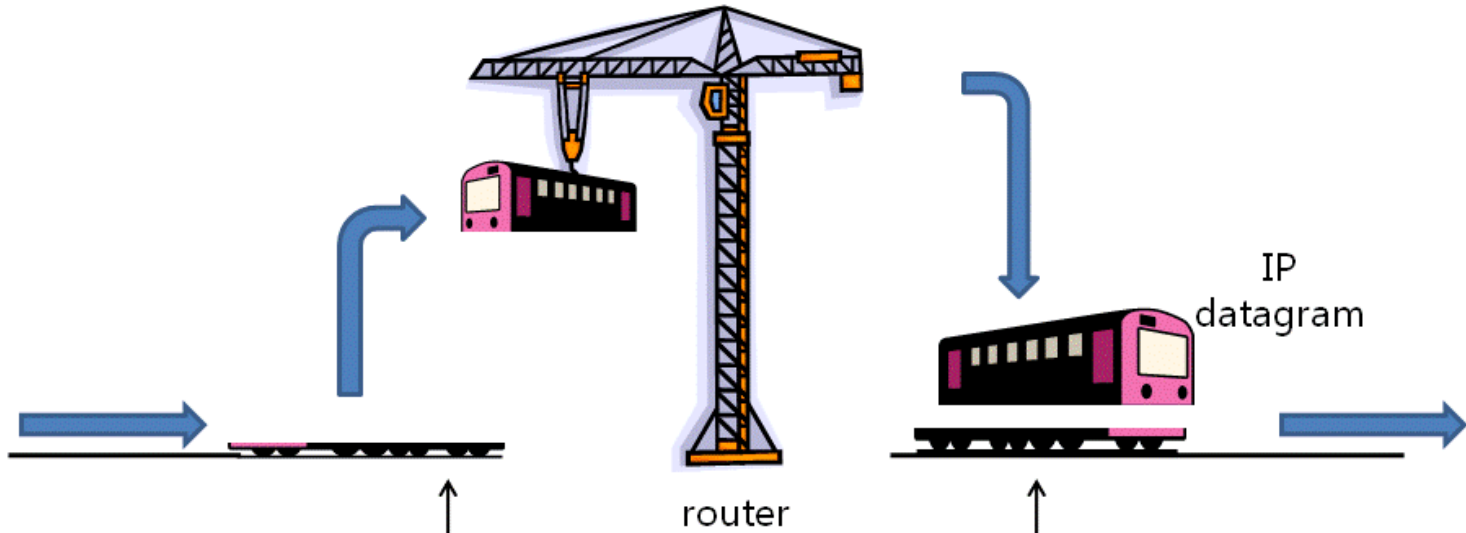
# Protocol

- (Formal) Language
- 3 elements

# Internet

- Internet = Inter + Net
- Inter
- Net

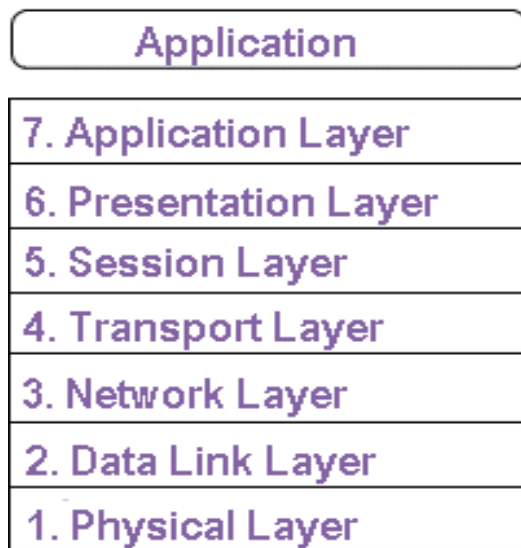
# I P



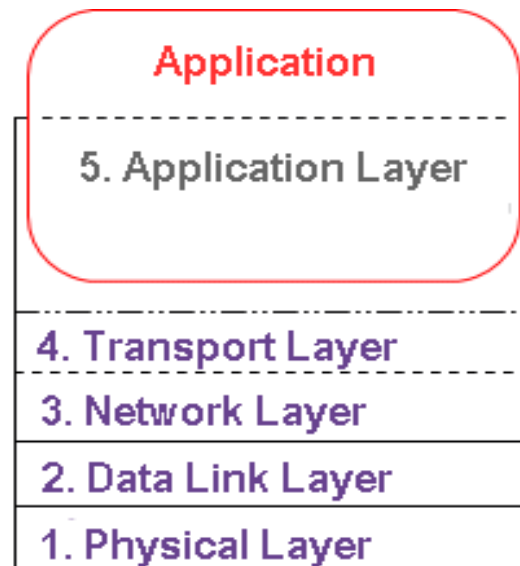
incompatible networking technologies

출처: 본인 작성

# Layering principle



(a) OSI 7-Layer Model



(b) TCP/IP (Current)

출처:

"[http://markun.cs.shinshu-u.ac.jp/learn/osi/e\\_learn-a-6.htm](http://markun.cs.shinshu-u.ac.jp/learn/osi/e_learn-a-6.htm)"

# Layering principle

- Physical
- (Data)Link
- (Inter)Network
- Transport
- Application

# Internet protocol suite

출처:

"<http://www.thevirabali.com/rooms/suite-room.html>"

- Not just IP!

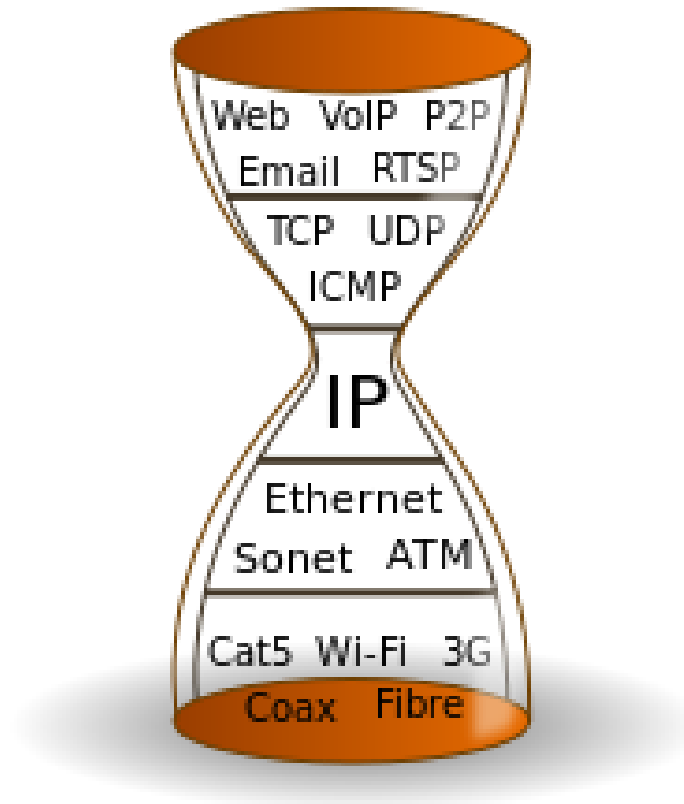


Application Layer	HTTP POP3/IMAP Time/NTP NNTP	FTP SMTP Whois SSL/TLS (https, etc.)	Telnet SMT Whois TACACS+ SSH SOCKS	Finger Gopher BGP SSH SOCKS	DNS BGP SSH SOCKS	DNS RADIUS traceroute DHCP	SNMP Archie tftp Kerberos	RIP DHCP	Ping tracert
Transport Layer	TCP			UDP		ICMP	OSPF		
Network Layer	IP							ARP	
Network Access	Ethernet/802.3 Frame Relay Cable modem								
	Token Ring (802.5) SMDS DS0/T1/T3								
	SNAP/802.2 ATM SONET								
	X.25 802.x DWDM								
	FDDI Fibre Channel HDLC								
	ISDN xDSL PPP								
	SLIP/CSLIP								

출처:

"<http://www.garykessler.net/library/tcpip.html>"

# Hourglass



출처: "<http://upload.wikimedia.org/wikipedia/commons/b/b8/Internet-hourglass.svg>"



# Switching

- Packet switching
  - Datagram
  - Virtual circuit
- Circuit switching

# Duplex modes

- Simplex
- Duplex
  - Half duplex
  - Full duplex

# Connection

- Connectionless
- Connection-oriented

# Encapsulation

- Encapsulation
- Decapsulation
- Multiplexing
- Demultiplexing

# Standardization

- Internet Engineering Task Force (IETF)
- Internet Engineering Steering Group (IESG)
- Internet Architecture Board (IAB)