

# ARP, Special Address 127, RARP, BOOTP and DHCP

Complete Course on Computer Networks - Part II



Application  
Layer

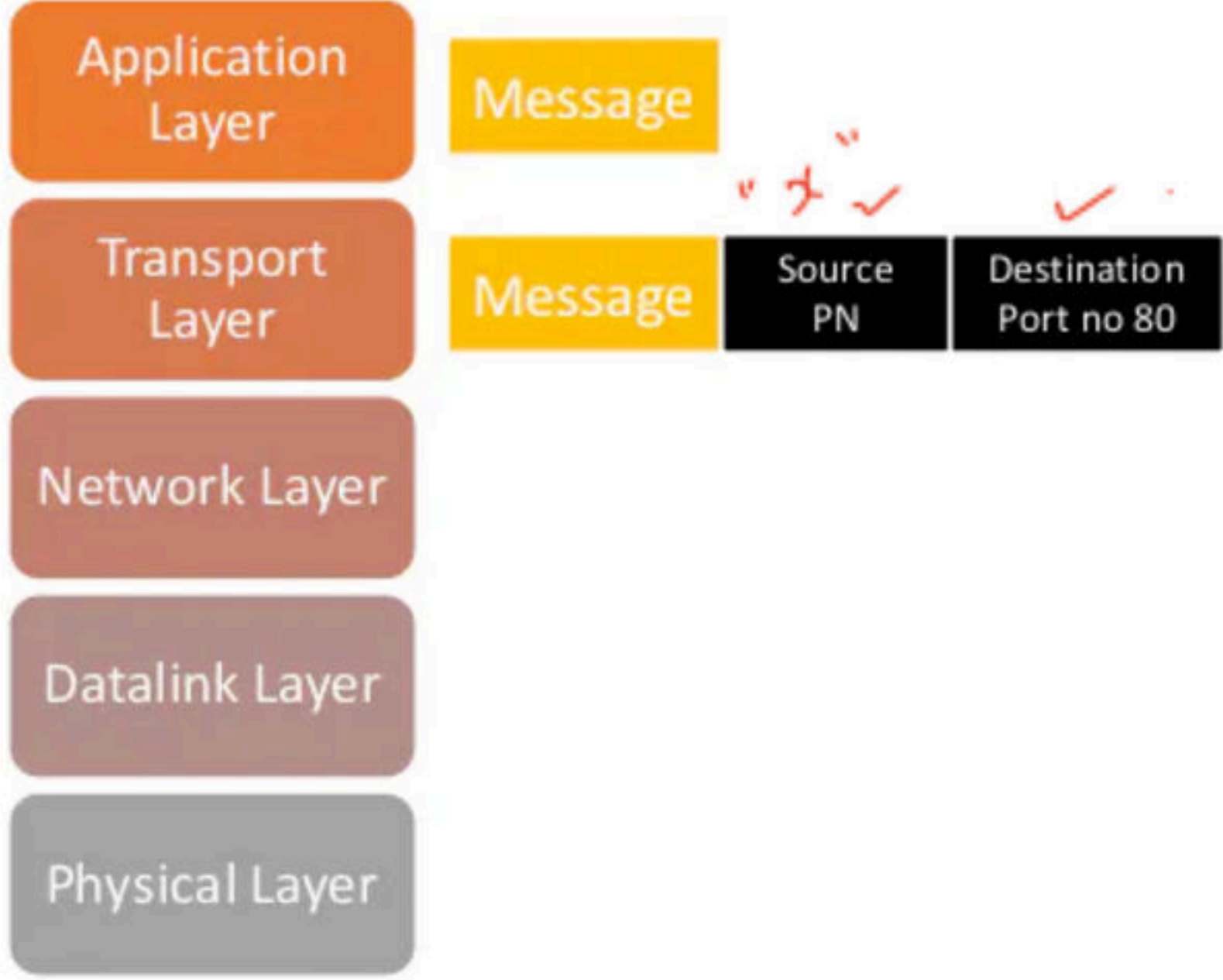
Message ✓

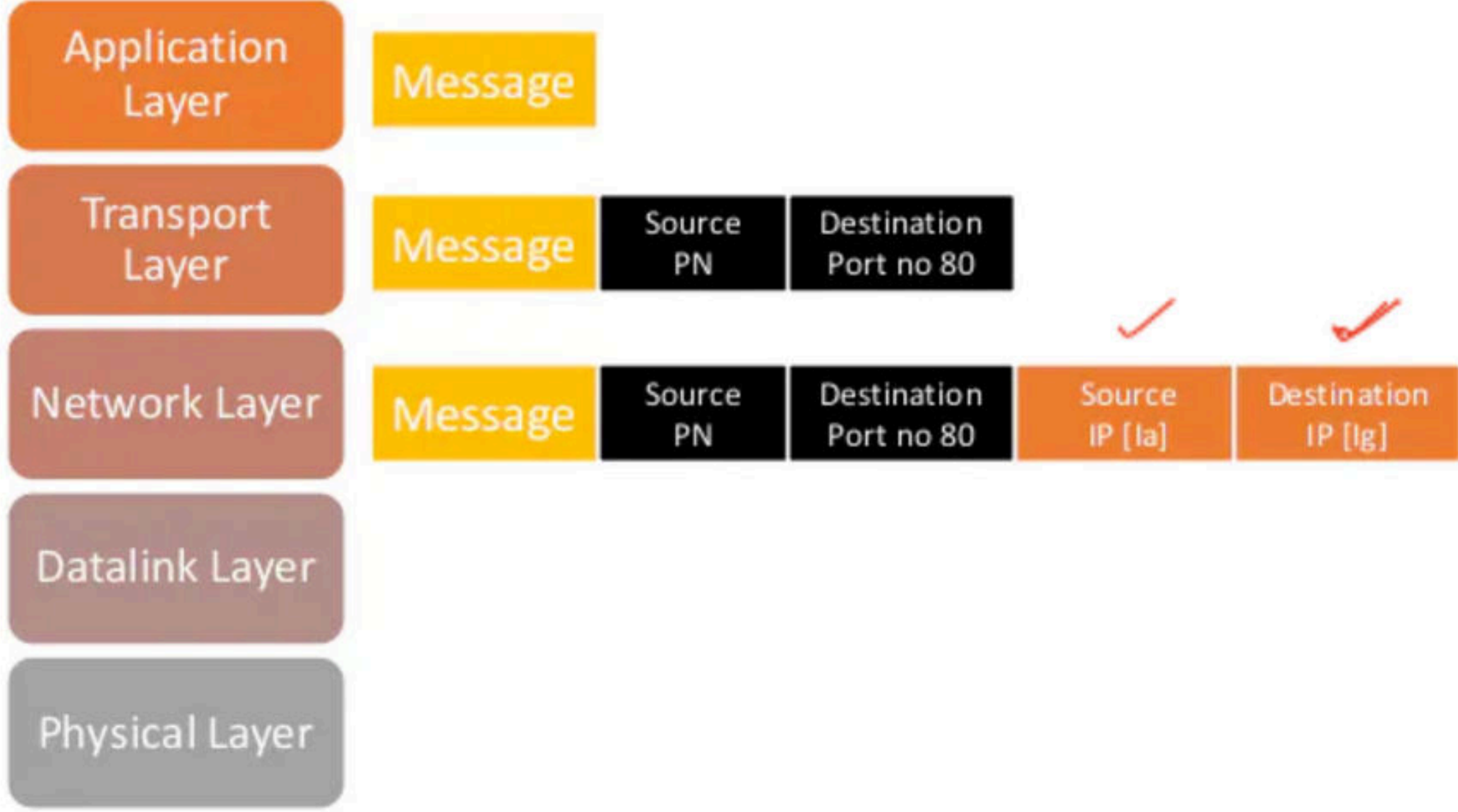
Transport  
Layer

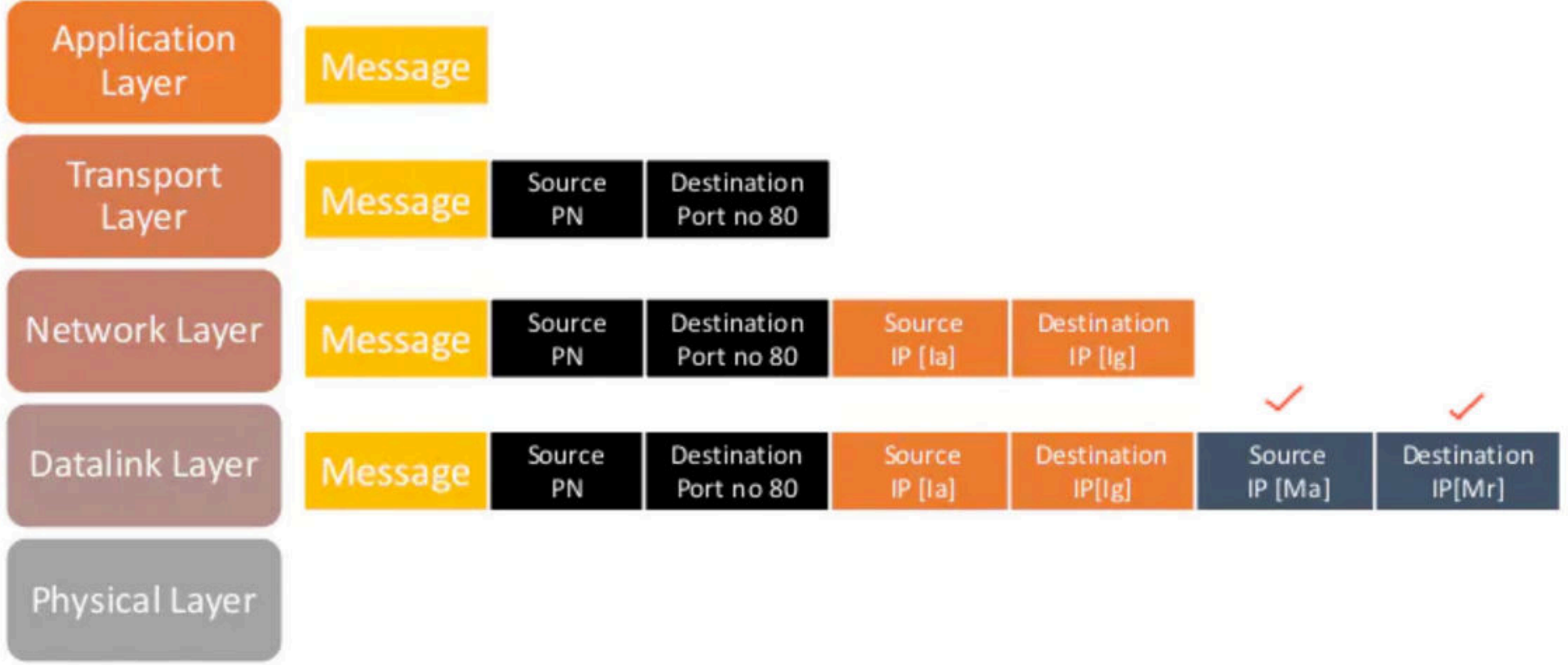
Network Layer

Datalink Layer

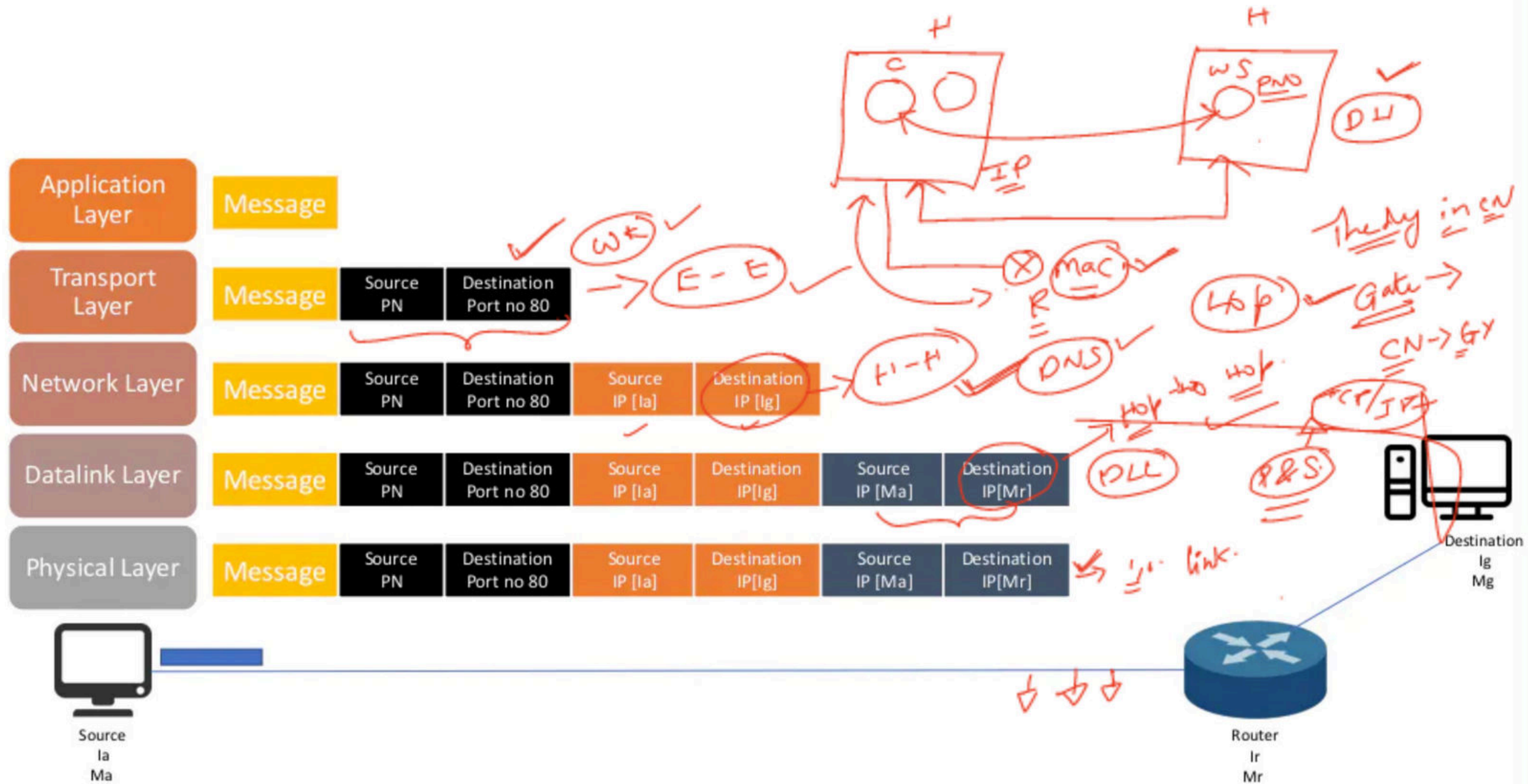
Physical Layer



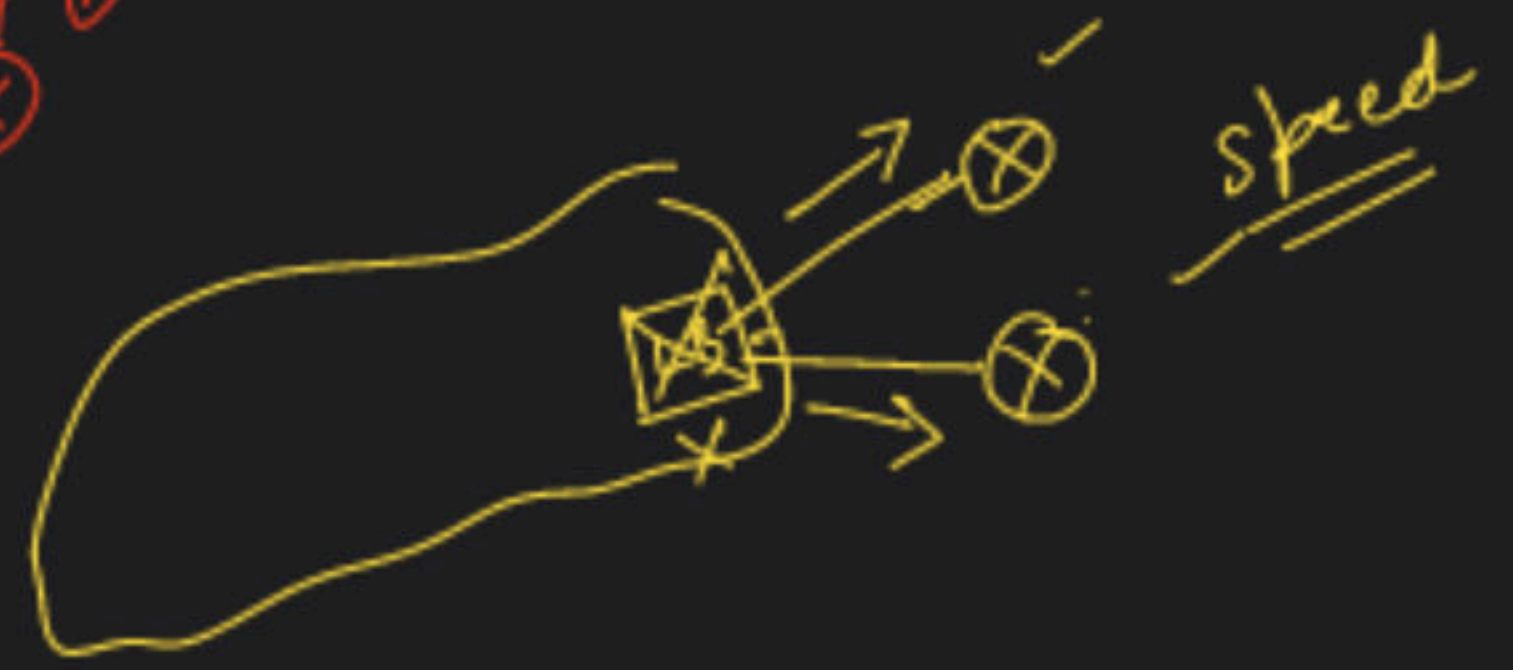






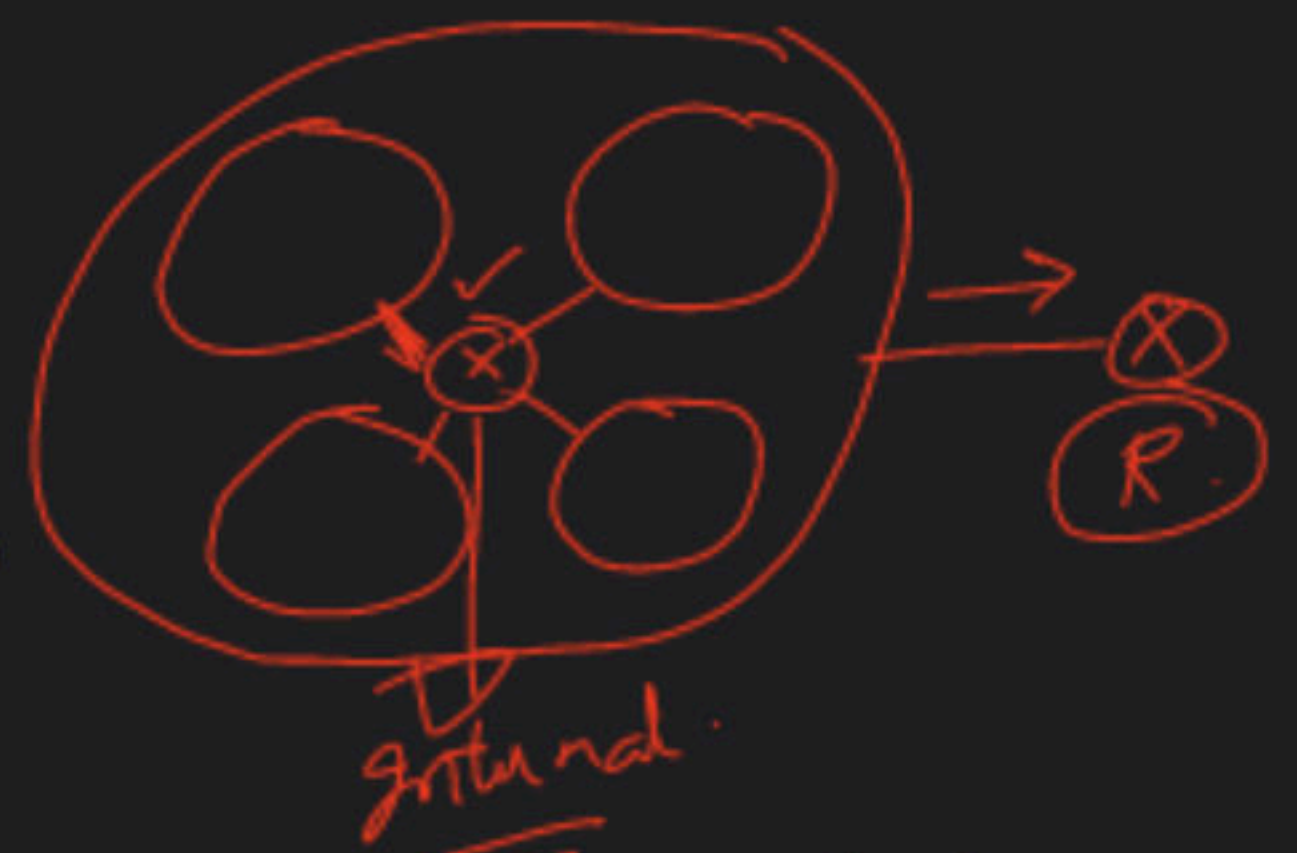






Traffic ✓  
Reliability ✓

Load balance



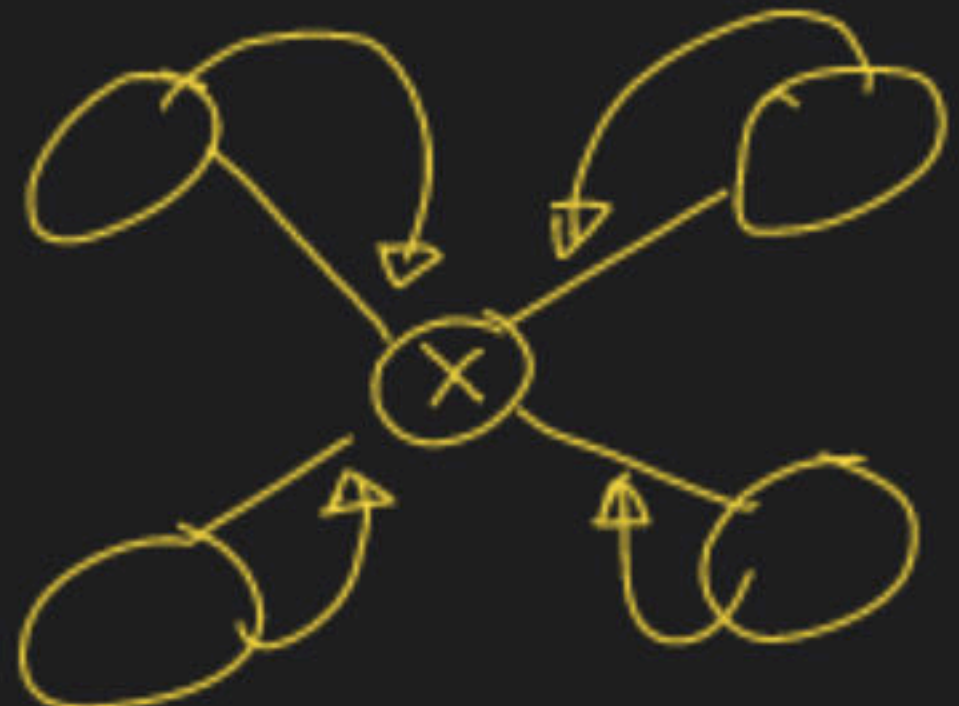
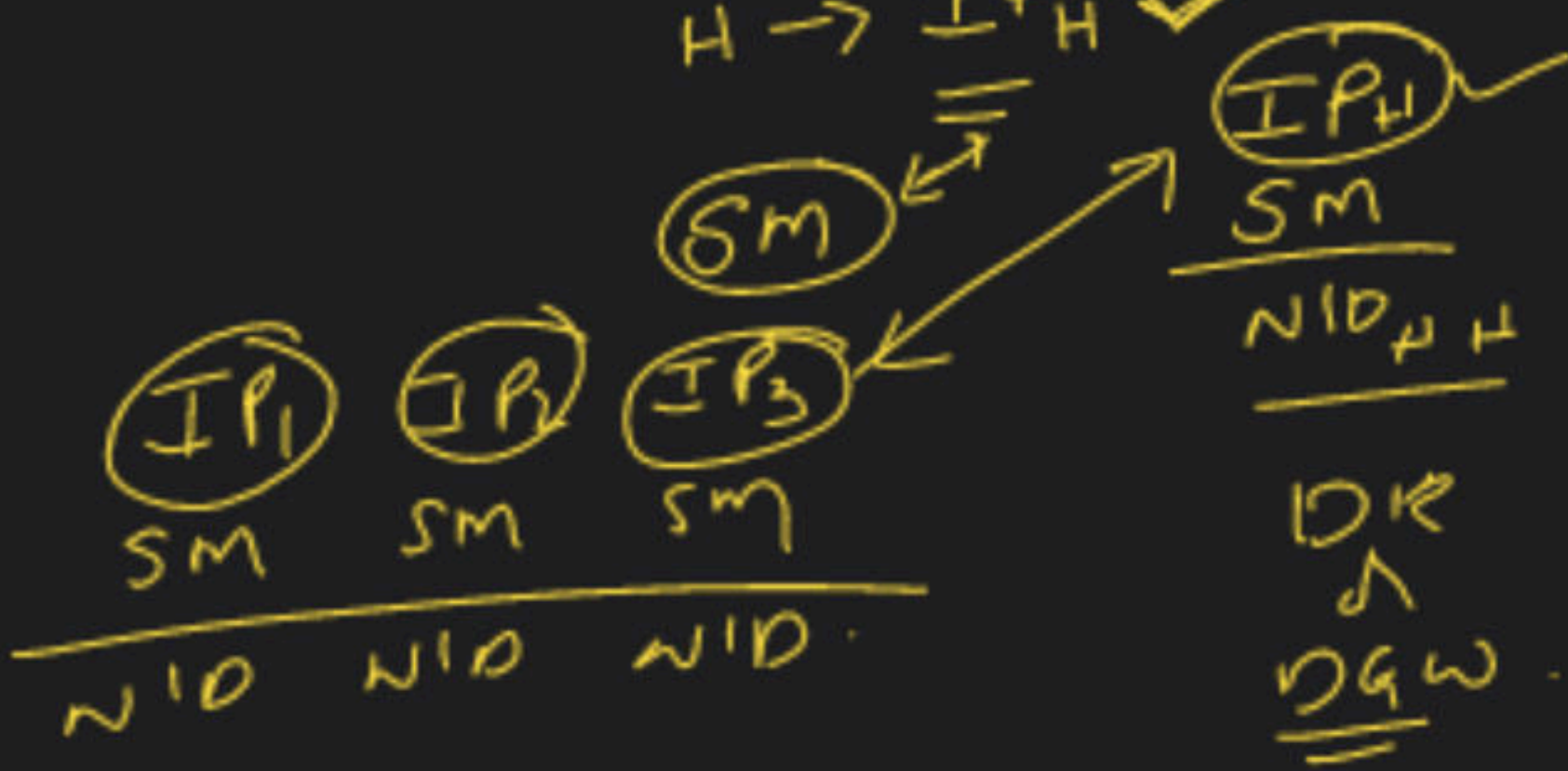
one Router → 5 Router  
one Gw → Default Gw



(10-100)

$R \rightarrow \underline{IP_1, IP_2, IP_3}$

$H \rightarrow \underline{IP_H}$



Something  
→ Same

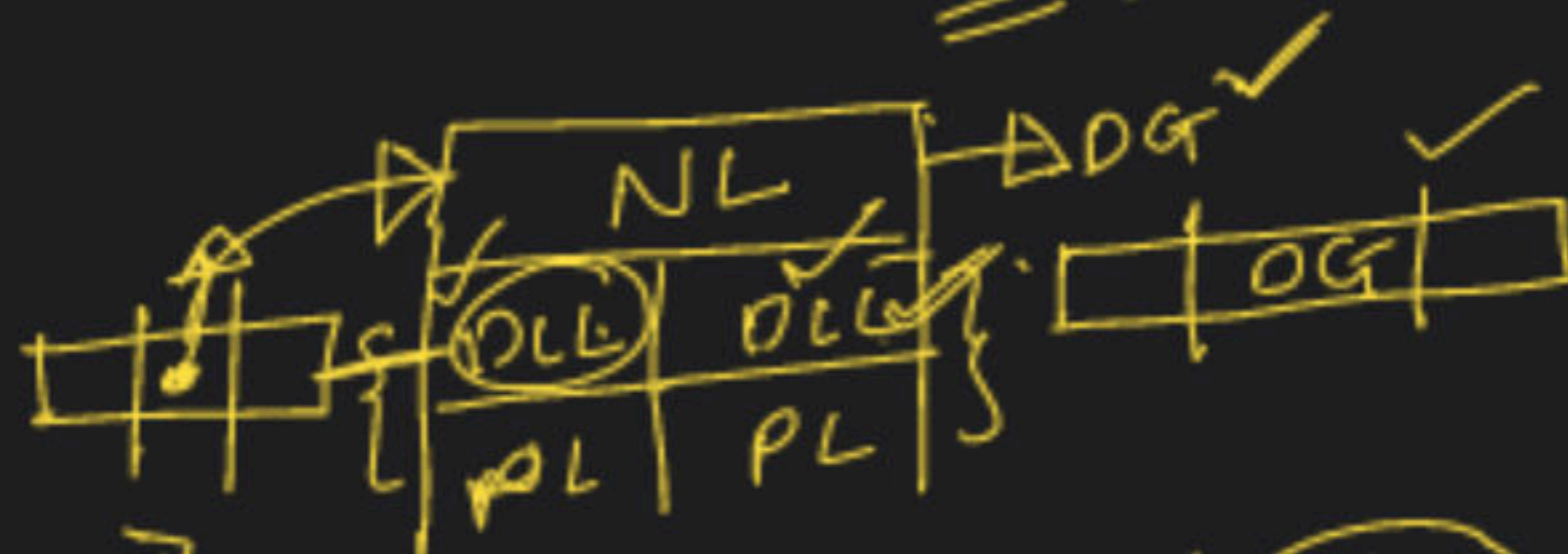




NL ✓  
TCP ✓

(A) 0 0 0 0  
ethernet  
1000

500 ✓  
TR LAW =



Frame



AL  
TL  
NL  
DLL

(R) ↓  
CN part 1  
CN part 2





11 → all ✓  
 R → 3 layers ✓

GA ✓  
 Cisco ✓  
 RECS ✓

IP  
 IPv  
 IPv  
 IPv

TLI → Packet (3) ✓

AL  
 TL  
 NL  
 DLL  
 PL

|     |     |
|-----|-----|
| NL  |     |
| DLL | DLL |
| PL  | PL  |

|     |     |
|-----|-----|
| NL  |     |
| DLL | DLL |
| PL  | PL  |

AL  
 TL  
 NL  
 DLL  
 PL

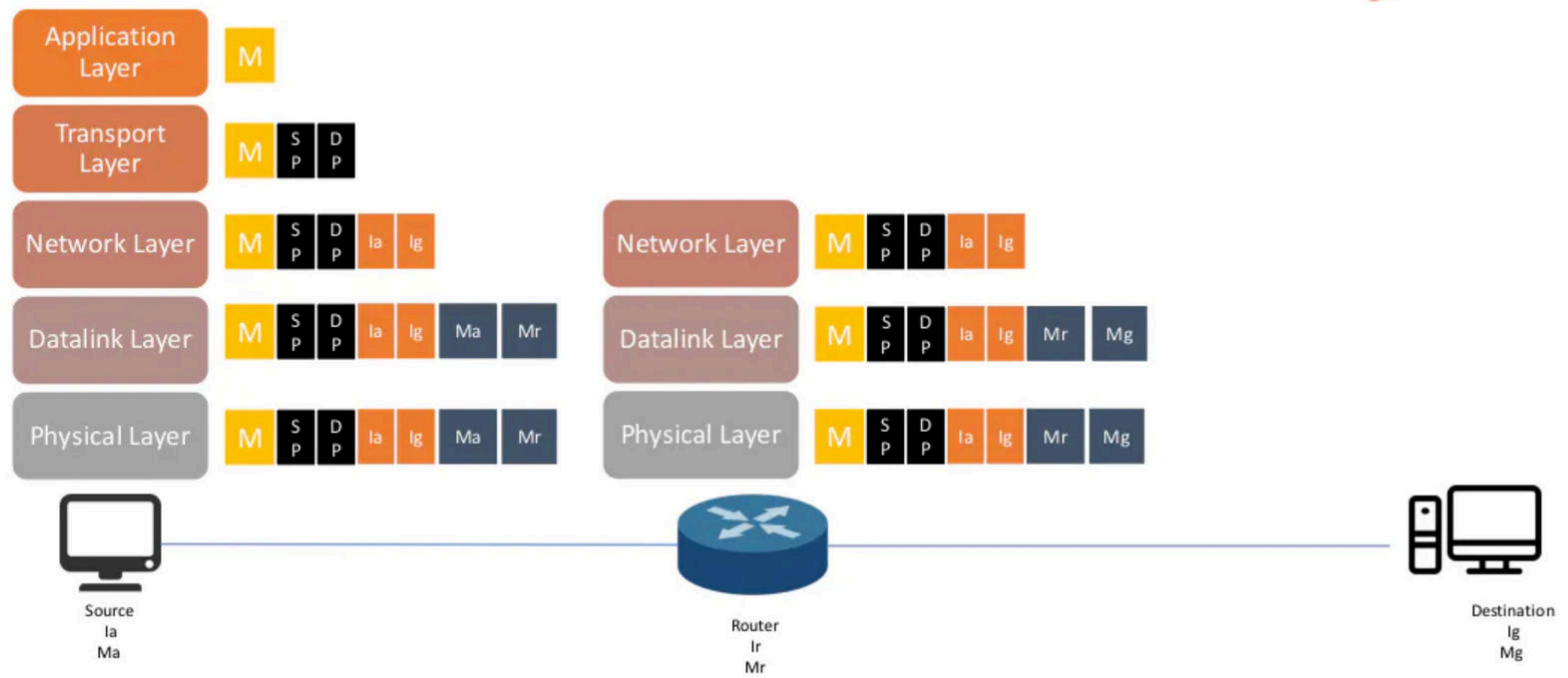
TL → 2 ✓  
 NL → 4  
 DLL → 6  
 PL → 6

(32) 130 ✓  
 NW → 2 hosts + 1 NW + 1 BC ✓  
 NW = 30  
 10 = 2 ✓  
 4 IP ✓  
 4 - 2 (2)

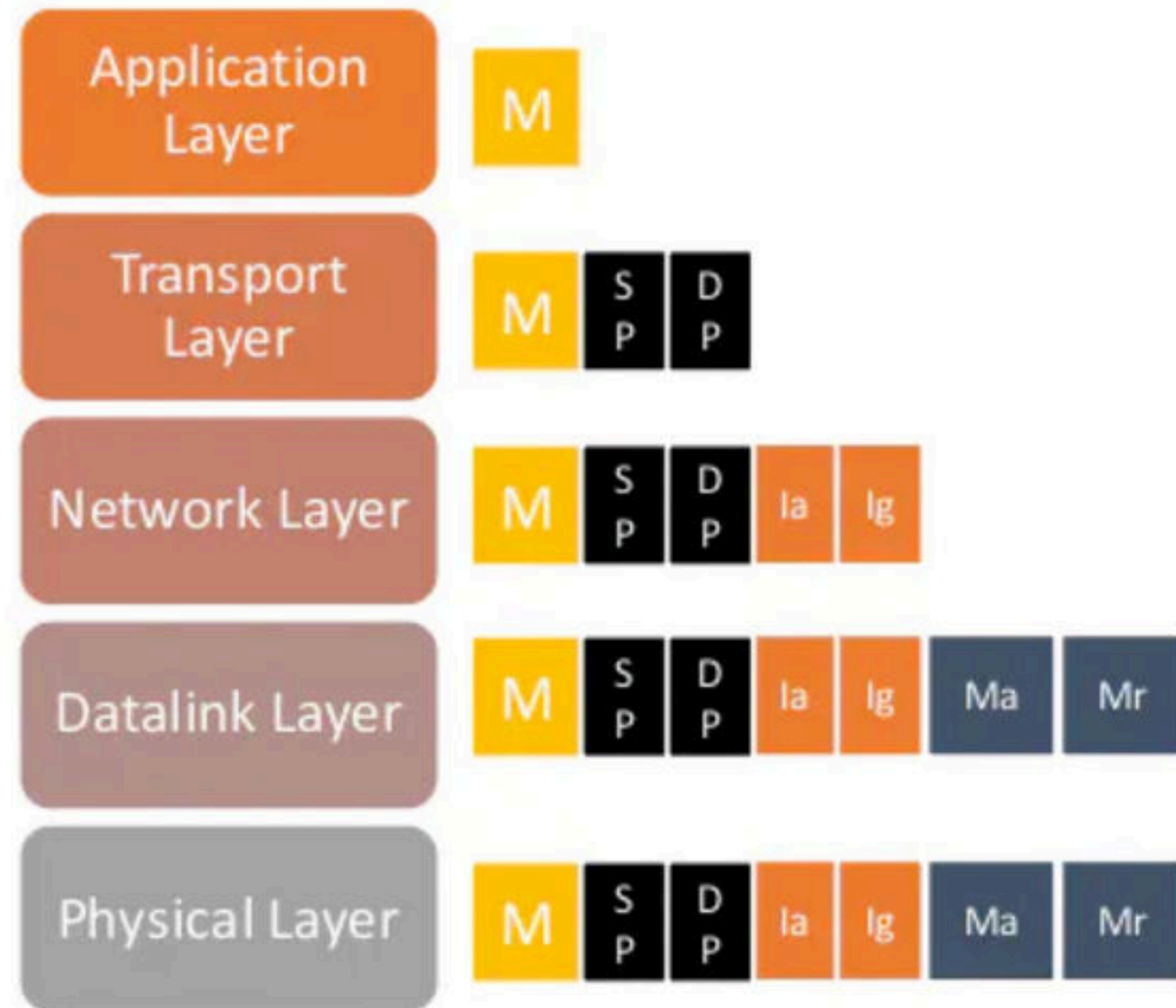
4 hosts IP → 130 → 410 ✓  
 130 → 410 ✓



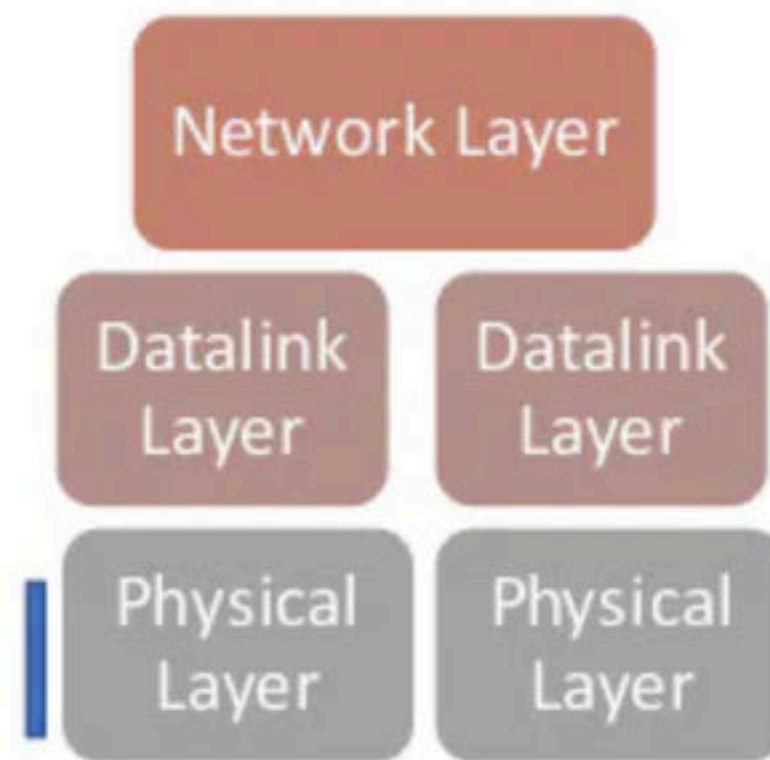
S, 6, 7  
+ ✓



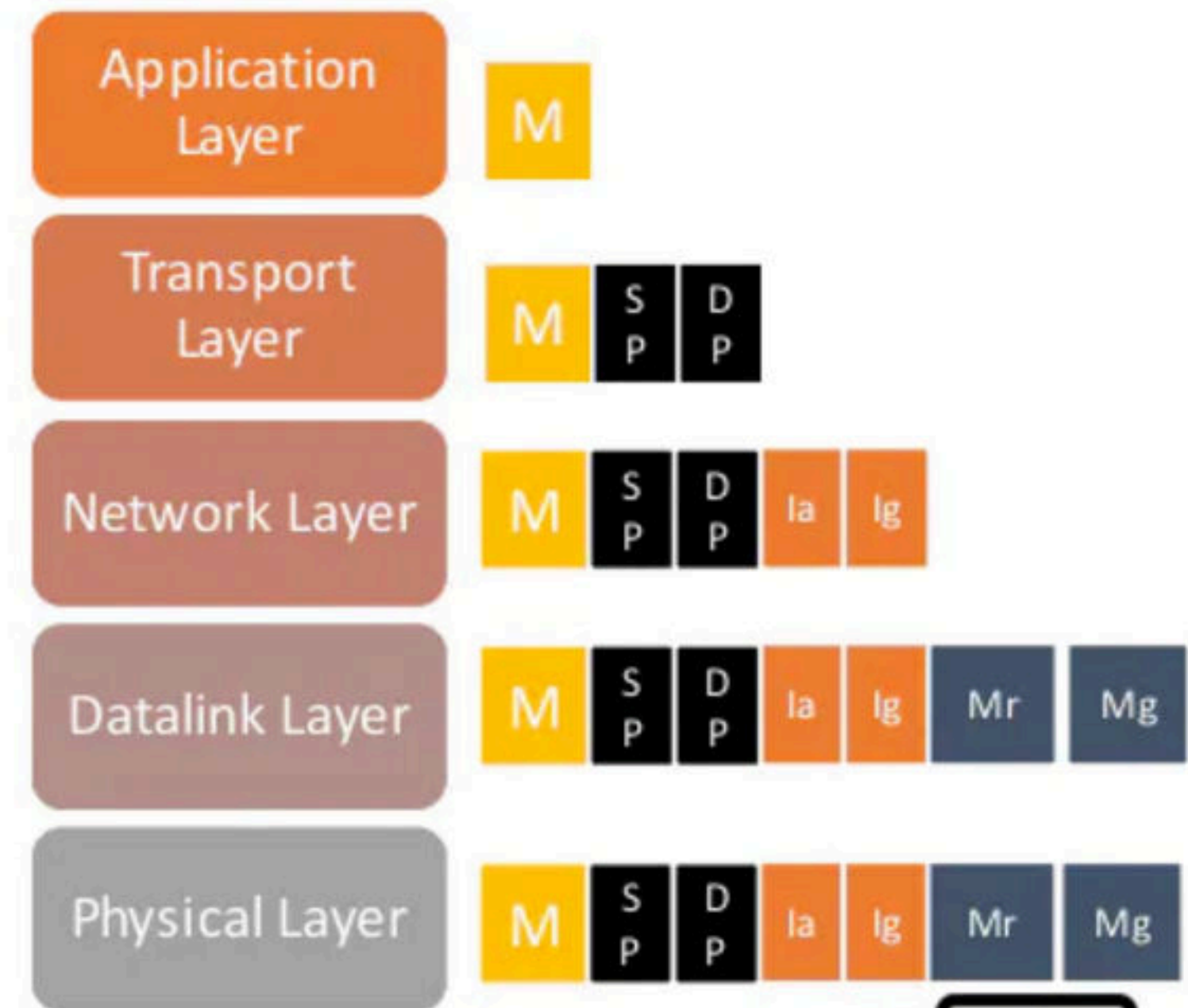




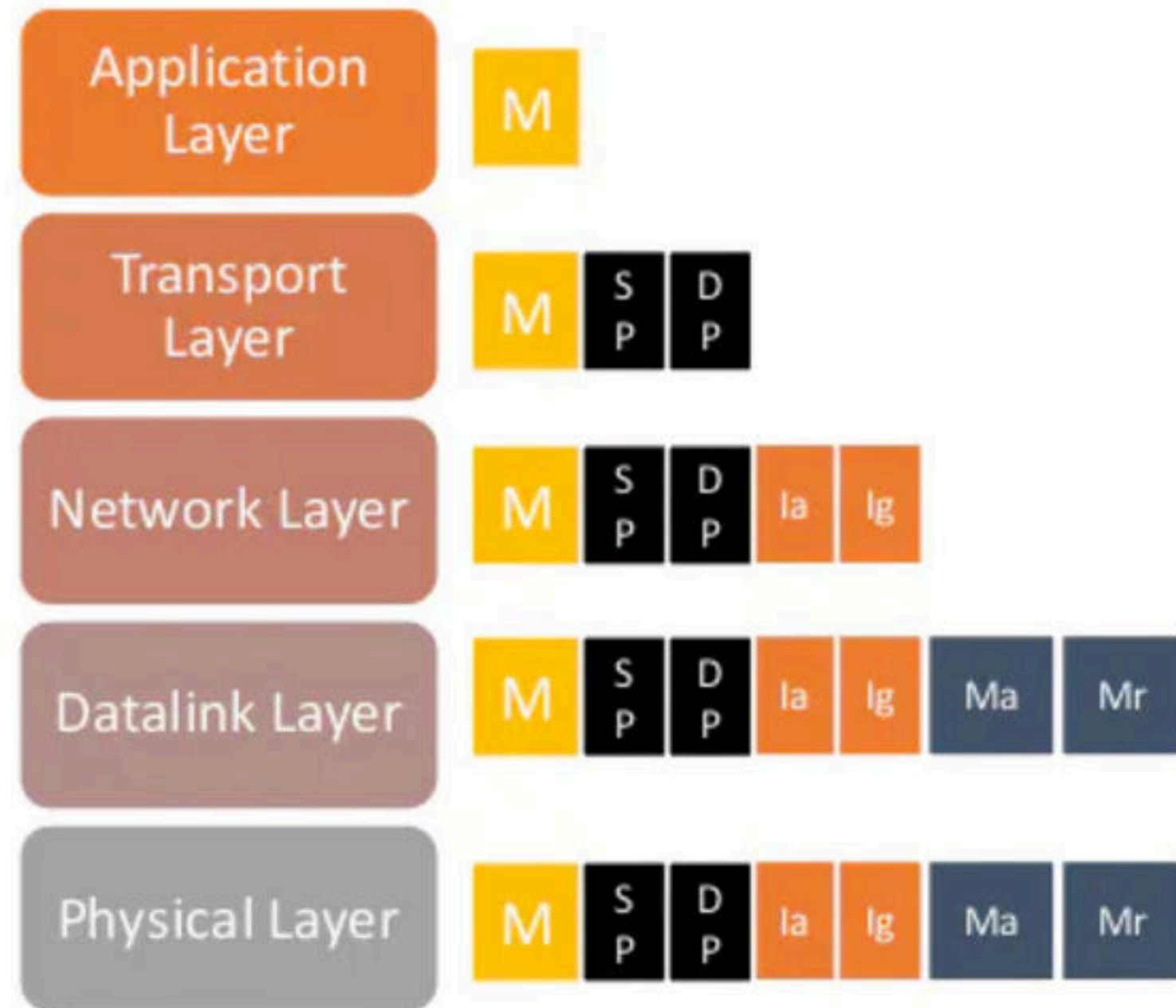
Source  
Ia  
Ma



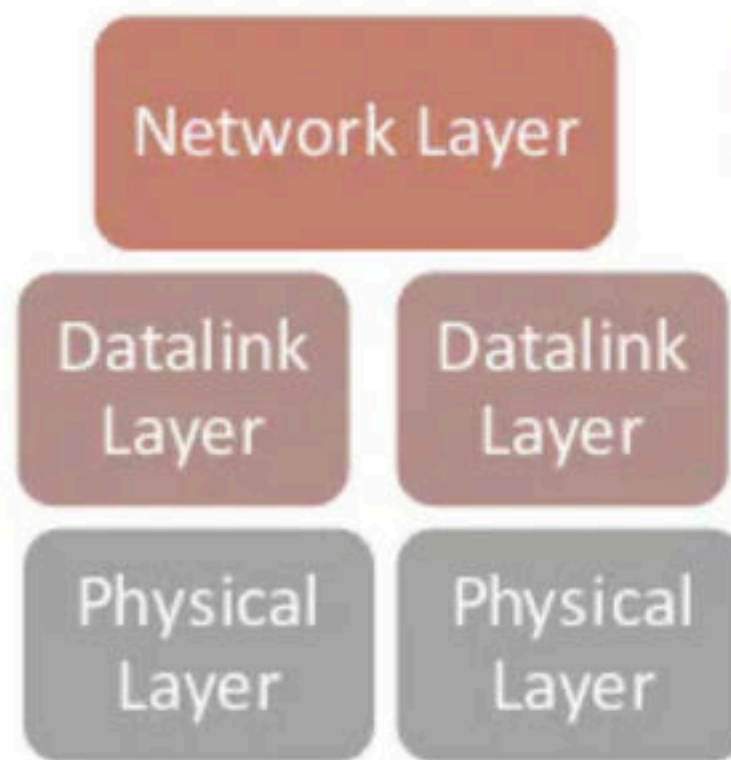
Router  
Ir  
Mr



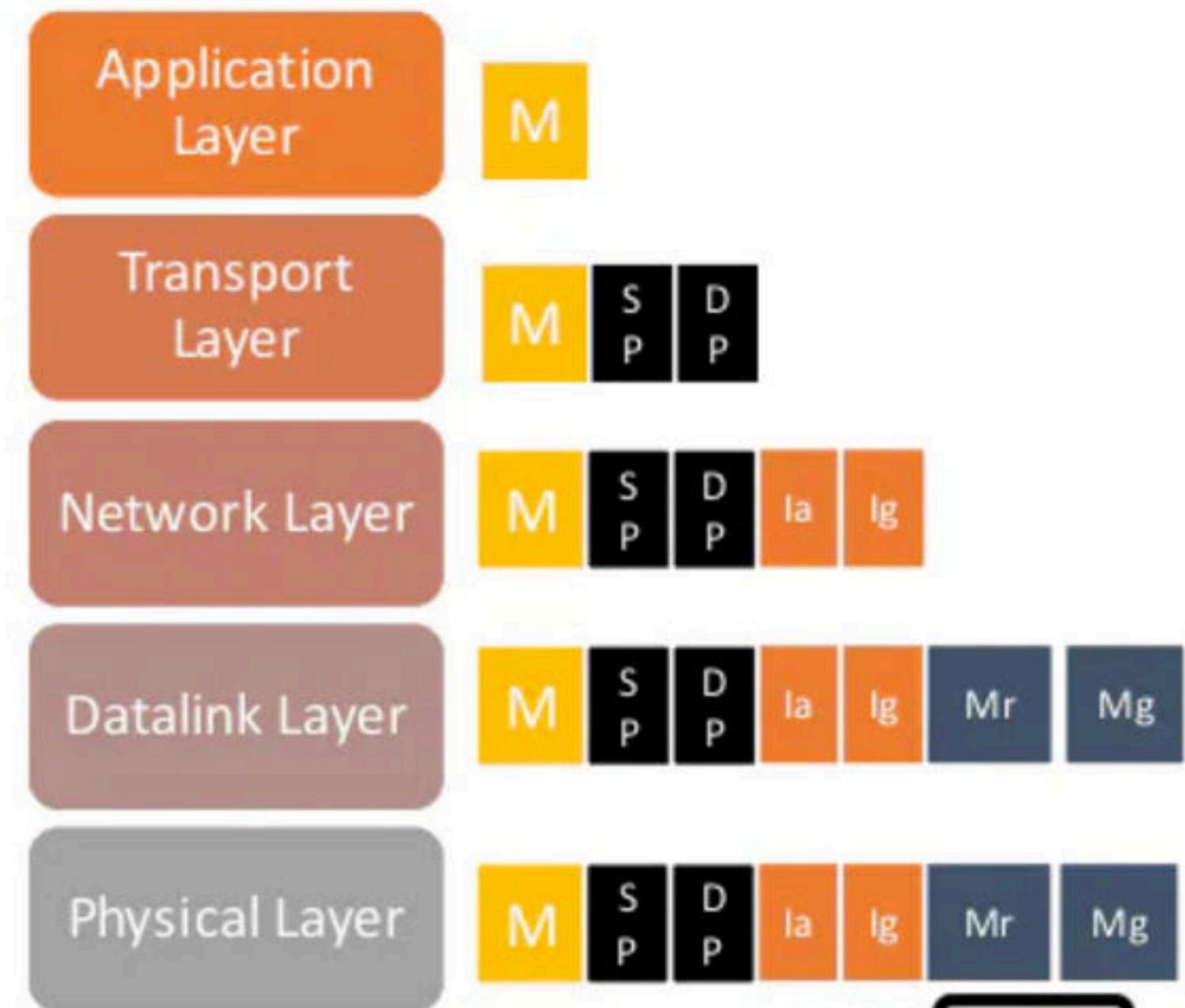
Destination  
Ig  
Mg



Source  
Ia  
Ma

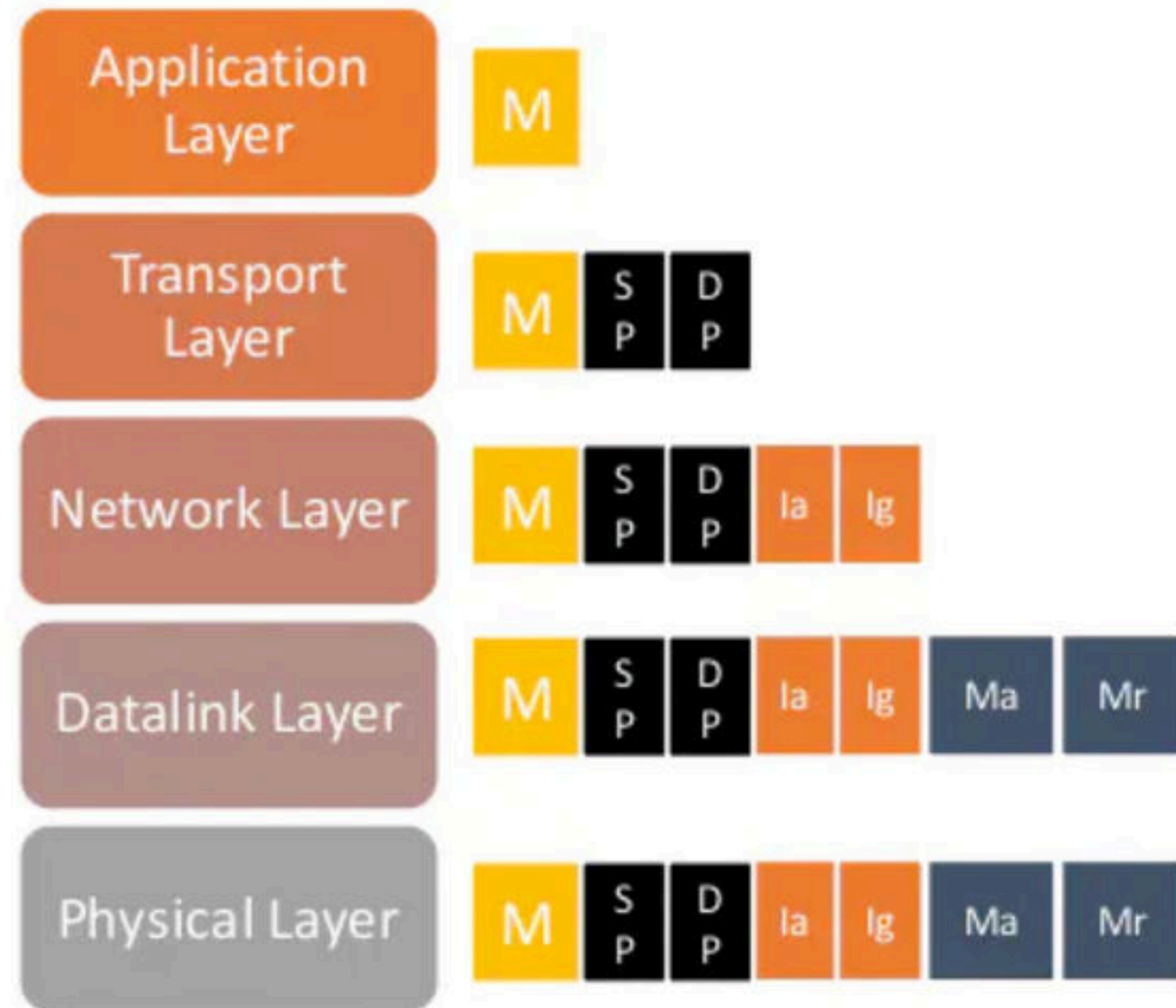


Router  
Ir  
Mr

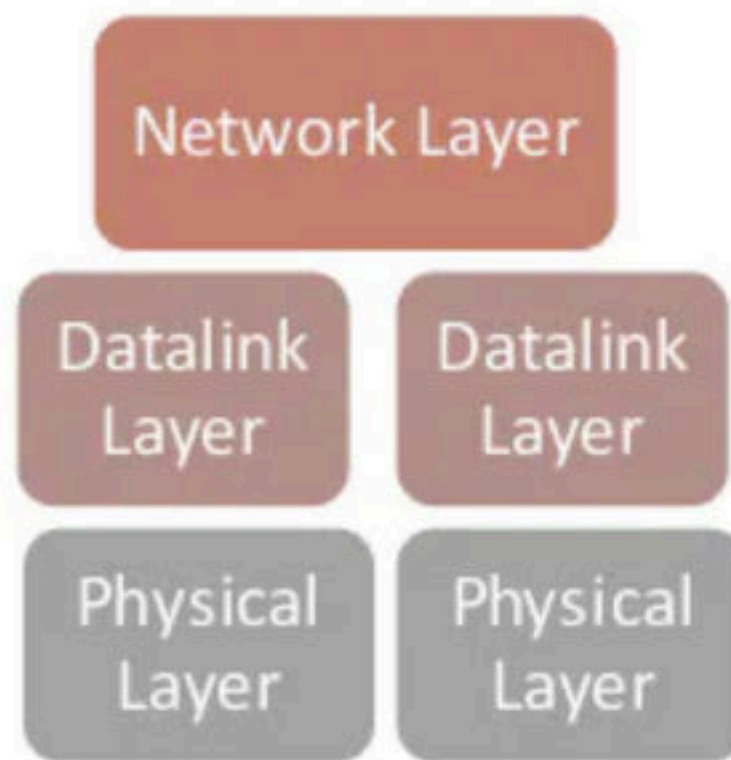


Destination  
Ig  
Mg

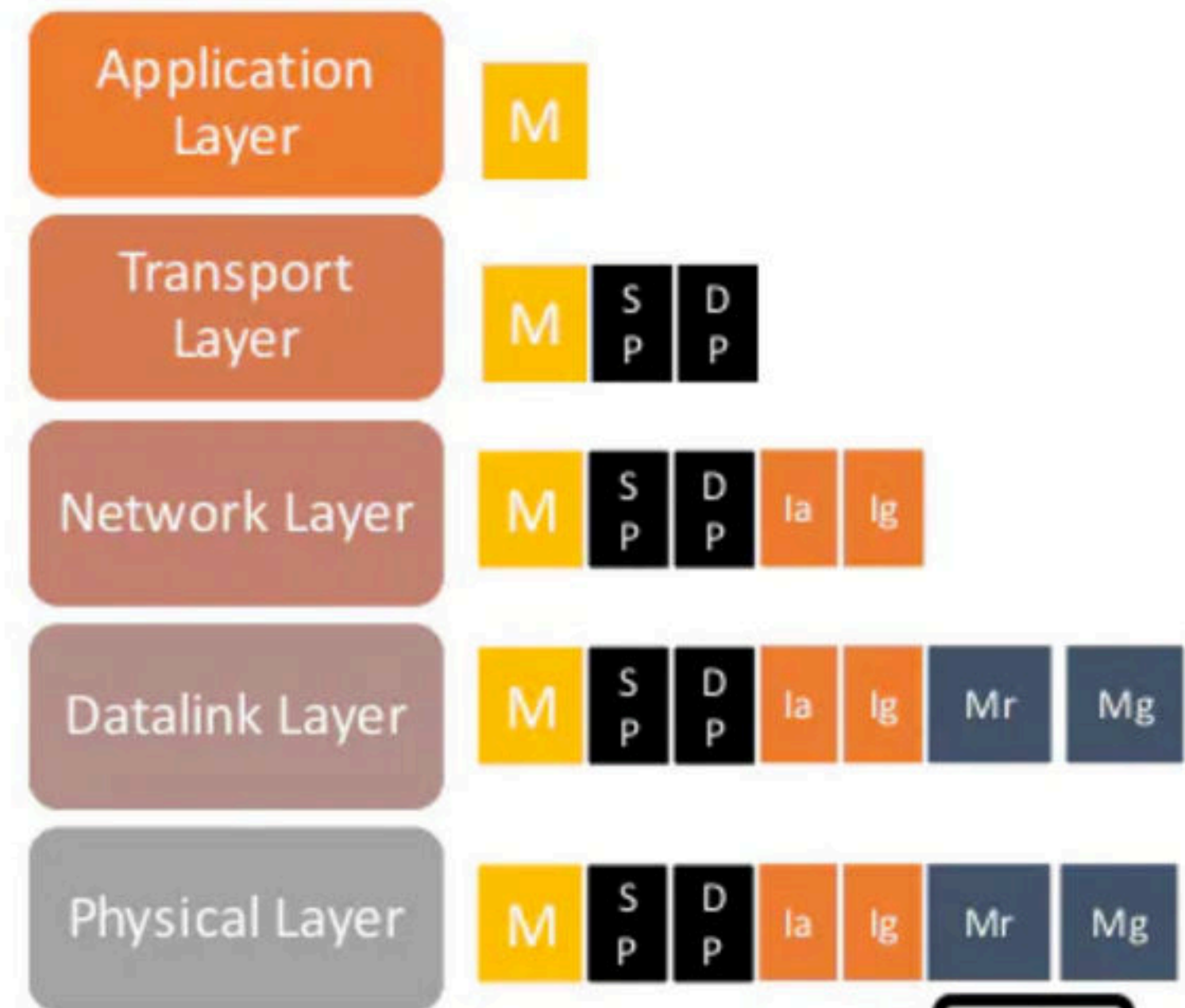




Source  
Ia  
Ma

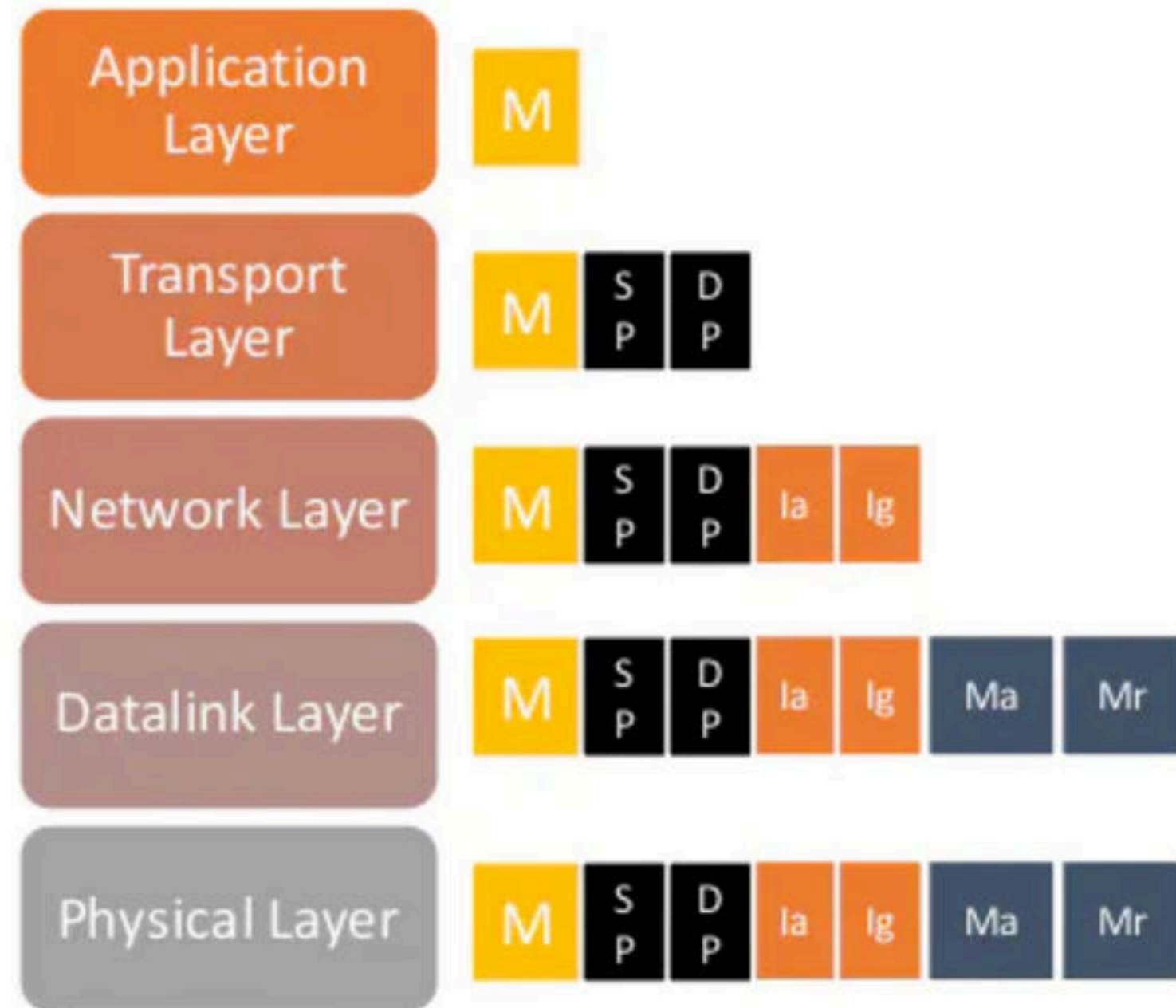


Router  
Ir  
Mr

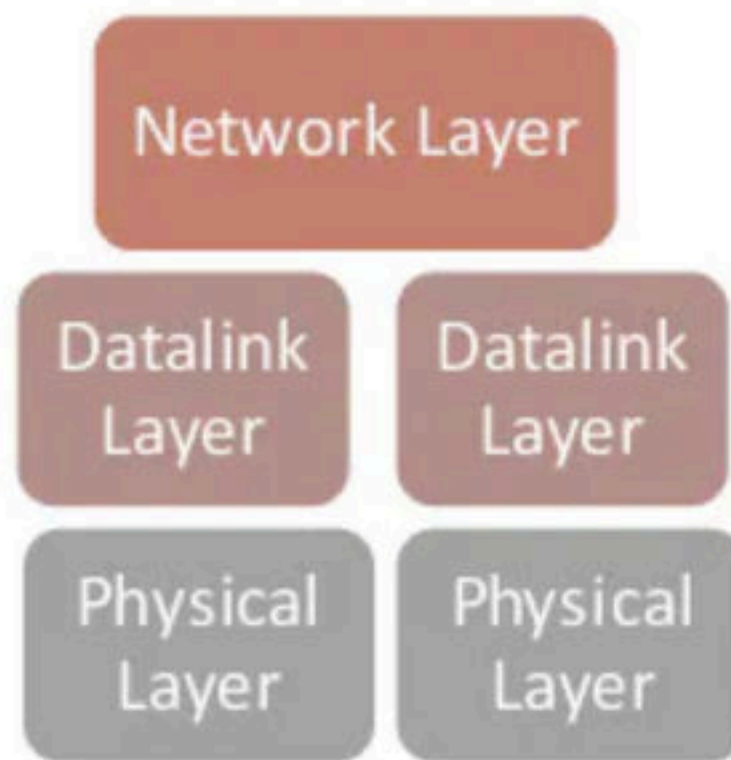


Destination  
Ig  
Mg

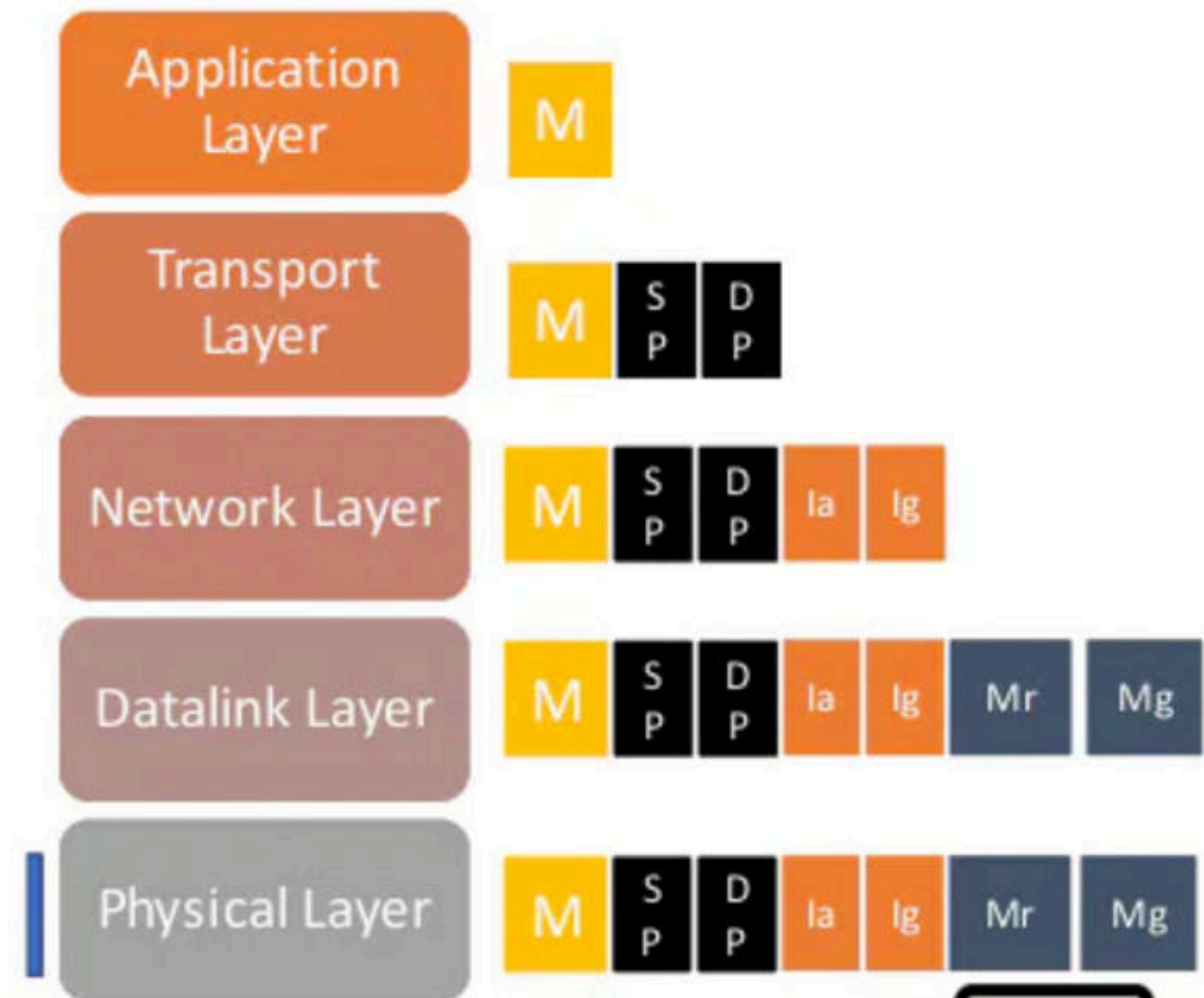




Source  
I<sub>a</sub>  
M<sub>a</sub>



Router  
I<sub>r</sub>  
M<sub>r</sub>



Destination  
I<sub>g</sub>  
M<sub>g</sub>

# Computer Networks

Session Layer

## Functions of Session Layer

Authentication and Authorisation

Checkpointing

Synchronisation

Dialog control



## Functions of Session Layer

Authentication and Authorization

Checkpointing

Synchronisation

Dialog control

Authentication is the process of recognizing a user's identity. It is the mechanism of associating an incoming request with a set of identifying credentials. The credentials provided are compared to those on a file in a database of the authorized user's information on a local operating system or within an authentication server.

Authorization is the process of granting or denying access to a network resource which allows the user access to various resources based on the user's identity.

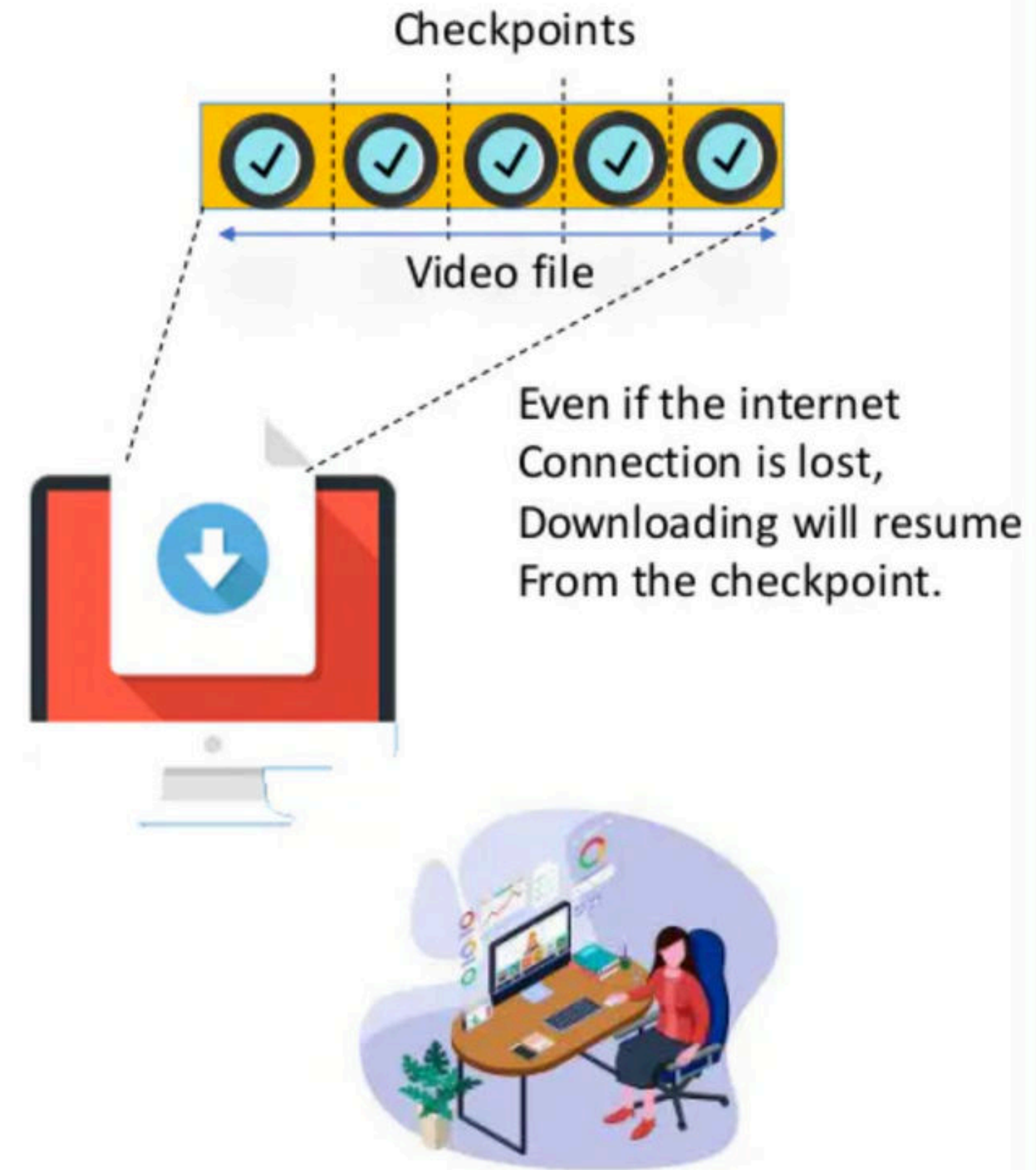
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Authentication and Authorisation

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## Functions of Session Layer

Authentication and Authorisation

Checkpointing

Synchronisation

Dialog control

Video conferencing – Only one person must speak at once



# Computer Networks

Presentation Layer and GATE 2014 question

## Functions of Presentation Layer

Data Translation

Encryption and Decryption

Data compression

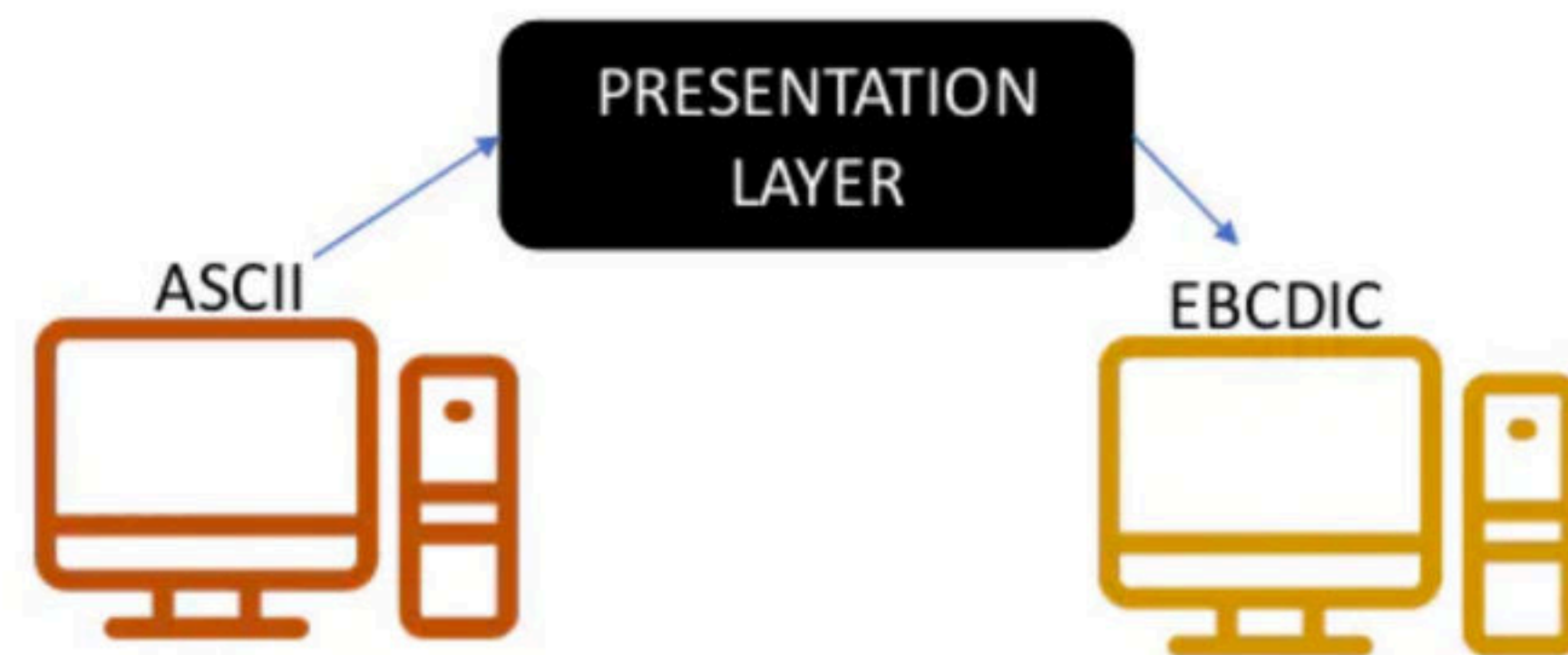


## Functions of Presentation Layer

Data Translation

Encryption and Decryption

Data compression



## Functions of Presentation Layer

Data Translation

Encryption and Decryption

Data compression

## Encryption & Decryption

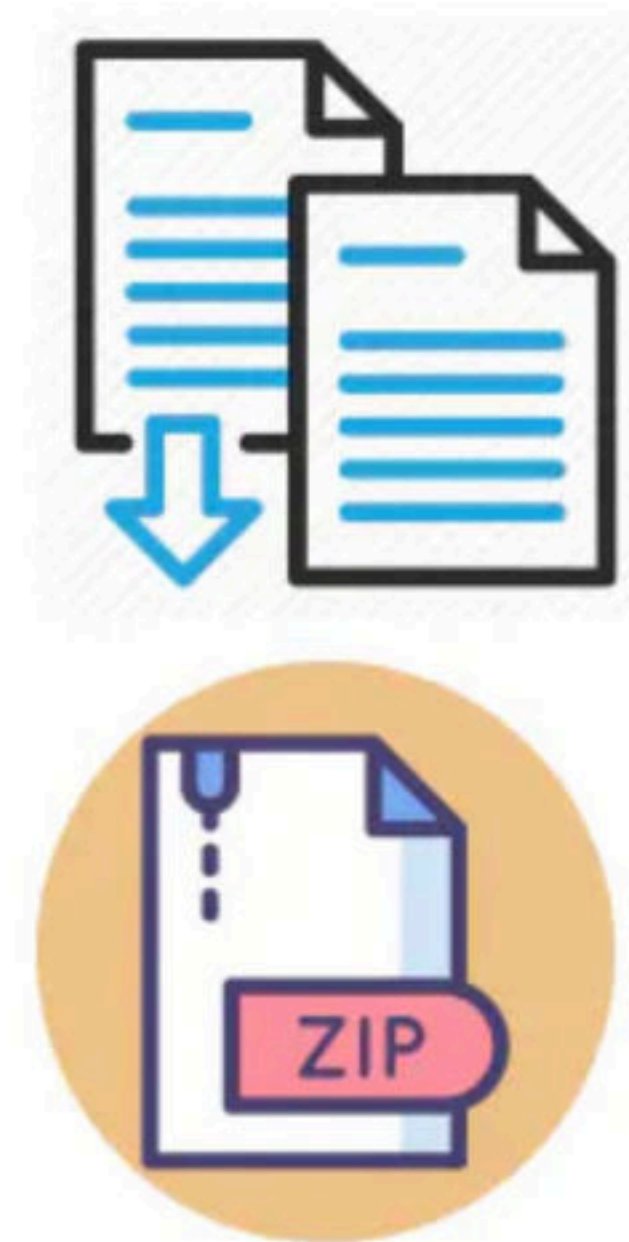


## Functions of Presentation Layer

Data Translation

Encryption and Decryption

Data compression





GATE 2014

An IP machine Q has a path to another IP machine H via three IP routers R1, R2, and R3.

Q—R1—R2—R3—H

H acts as an HTTP server, and Q connects to H via HTTP and downloads a file. Session layer encryption is used, with DES as the shared key encryption protocol. Consider the following four pieces of information:

[I1] The URL of the file downloaded by Q

[I2] The TCP port numbers at Q and H

[I3] The IP addresses of Q and H

[I4] The link layer addresses of Q and H

Which of I1, I2, I3, and I4 can an intruder learn through sniffing at R2 alone?

A) Only I1 and I2

B) Only I1

C) Only I2 and I3

D) Only I3 and I4

GATE 2014

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A) Only I1 and I2

B) Only I1

C) Only I2 and I3

D) Only I3 and I4

Answer:

An Intruder can't learn [I1] through sniffing at R2 because URLs and Download are functioned at Application layer of OSI Model.

An Intruder can learn [I2] through sniffing at R2 because Port Numbers are encapsulated in the payload field of IP Datagram.

An Intruder can learn [I3] through sniffing at R2 because IP Addresses and Routers are functioned at network layer of OSI Model.

An Intruder can't learn [I4] through sniffing at R2 because it is related to Data Link Layer of OSI Model.