بخش دوم -شبکه

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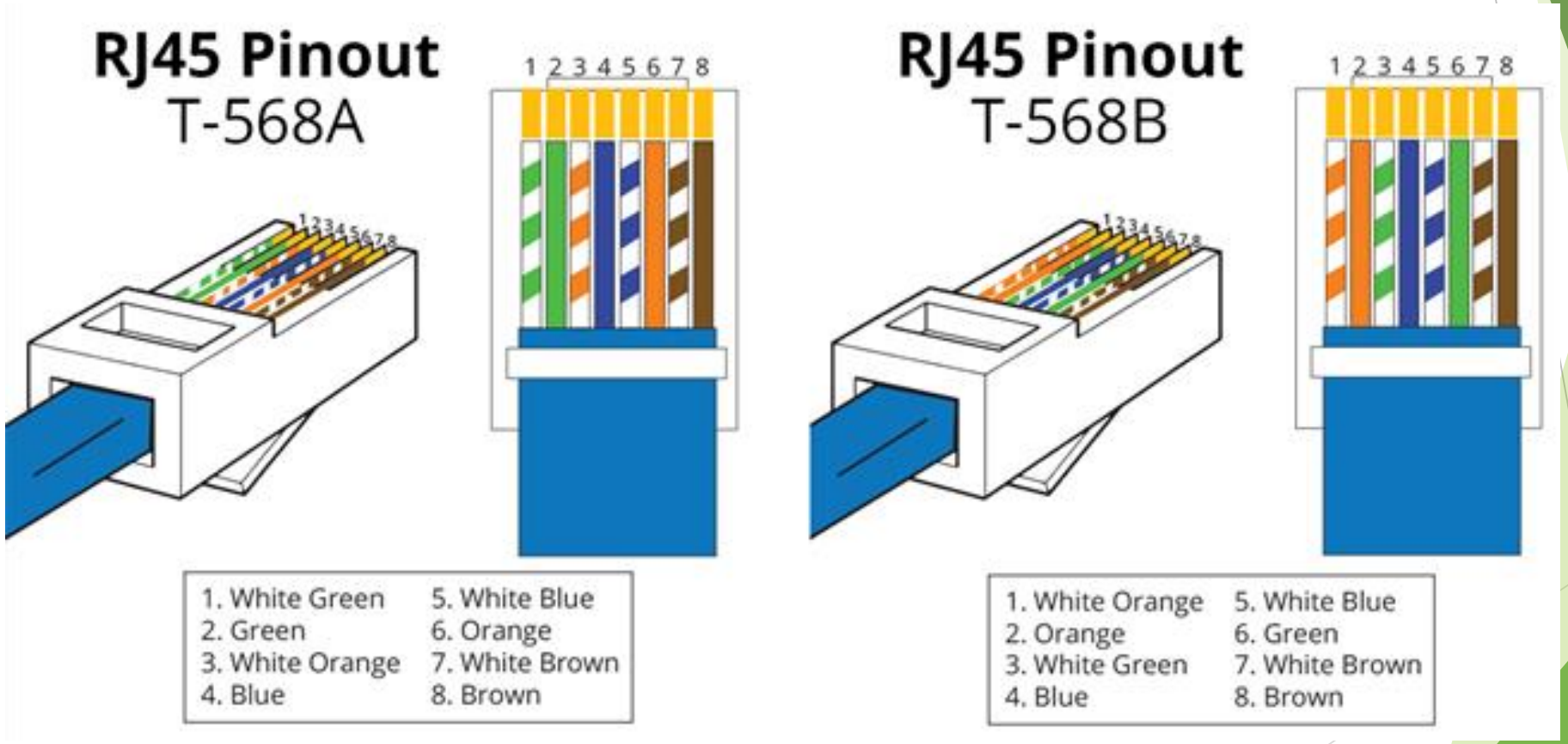
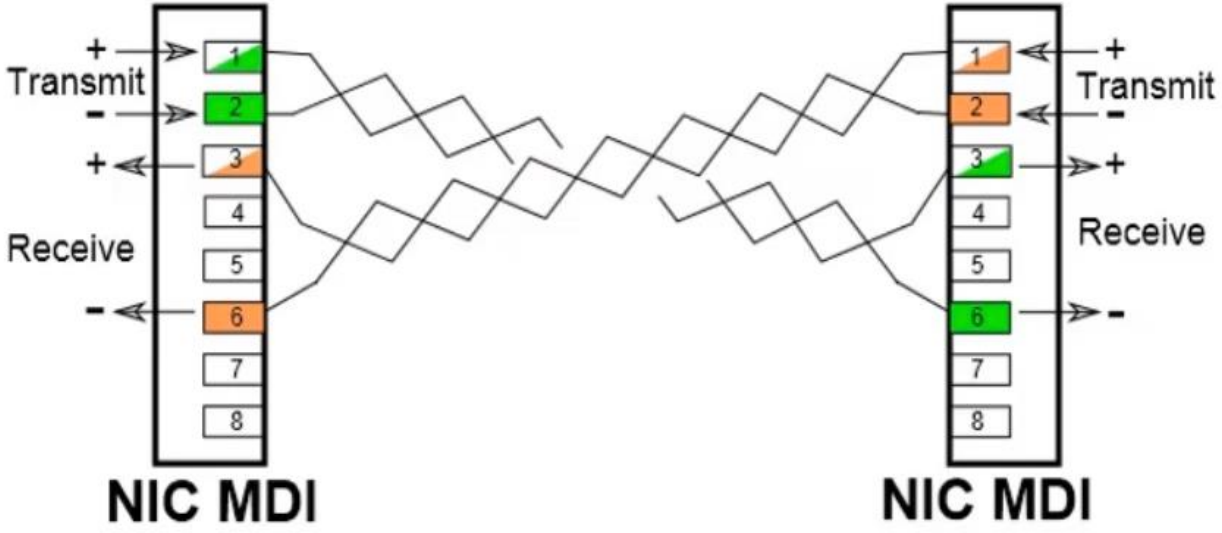
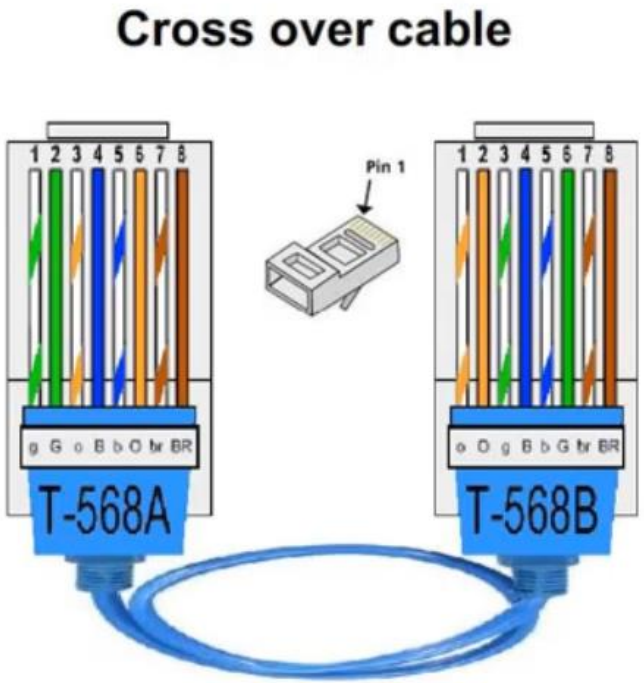
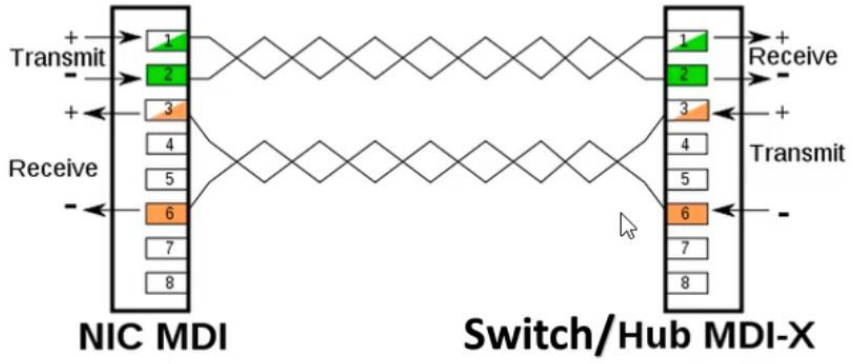
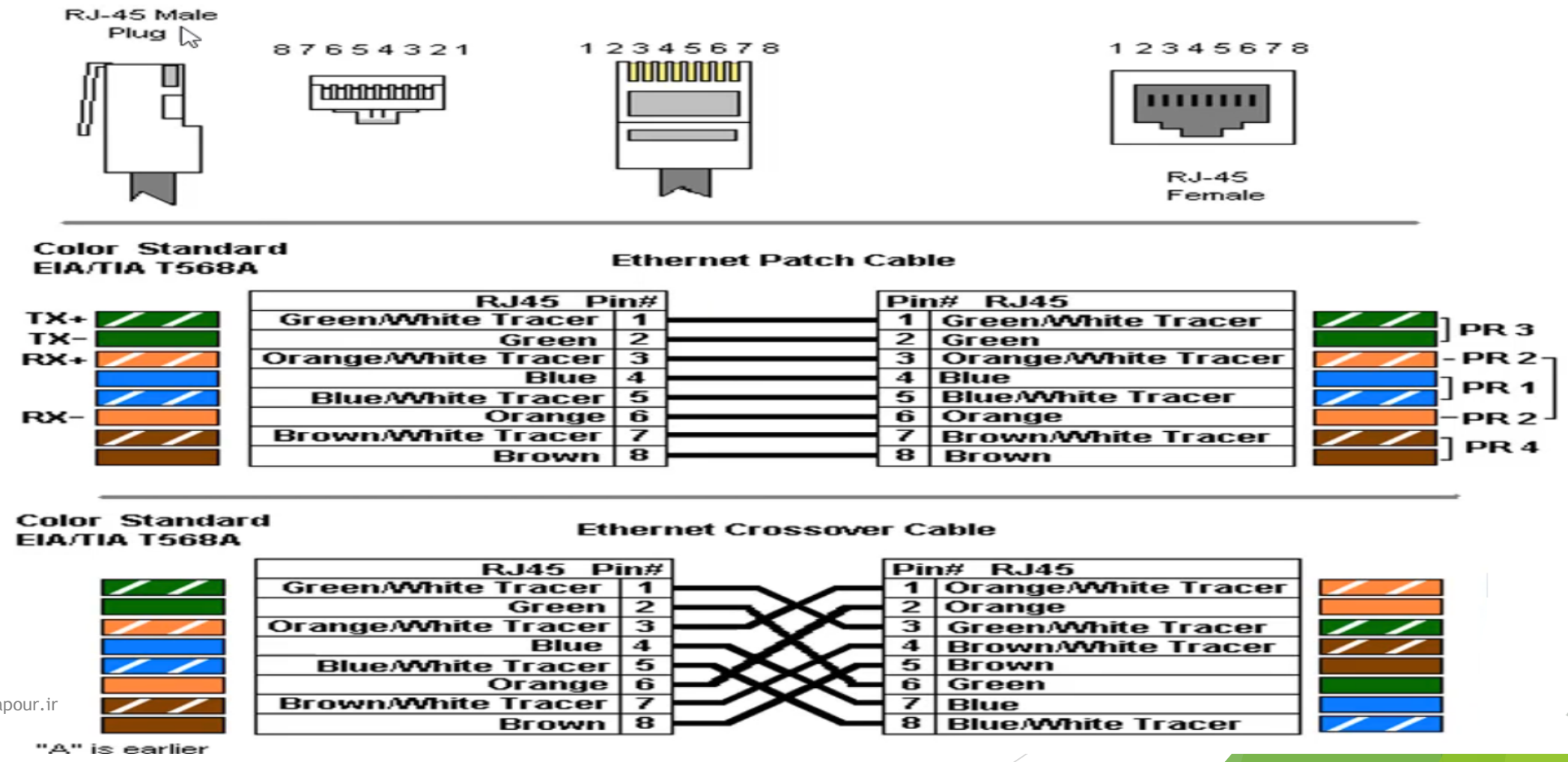
تفاوت کابل ها




+
Transmit
-
+
Receive
-
1
2
3
4
5
6
7
8
NIC MDI
+
Transmit
-
+
Receive
-
1
2
3
4
5
6
7
8
NIC MDI


Cross over cable
1 2 3 4 5 6 7 8
Pin 1
1 2 3 4 5 6 7 8
T-568A
T-568B


Transmit
Receive
Receive
Transmit
NIC MDI
Switch/Hub MDI-X



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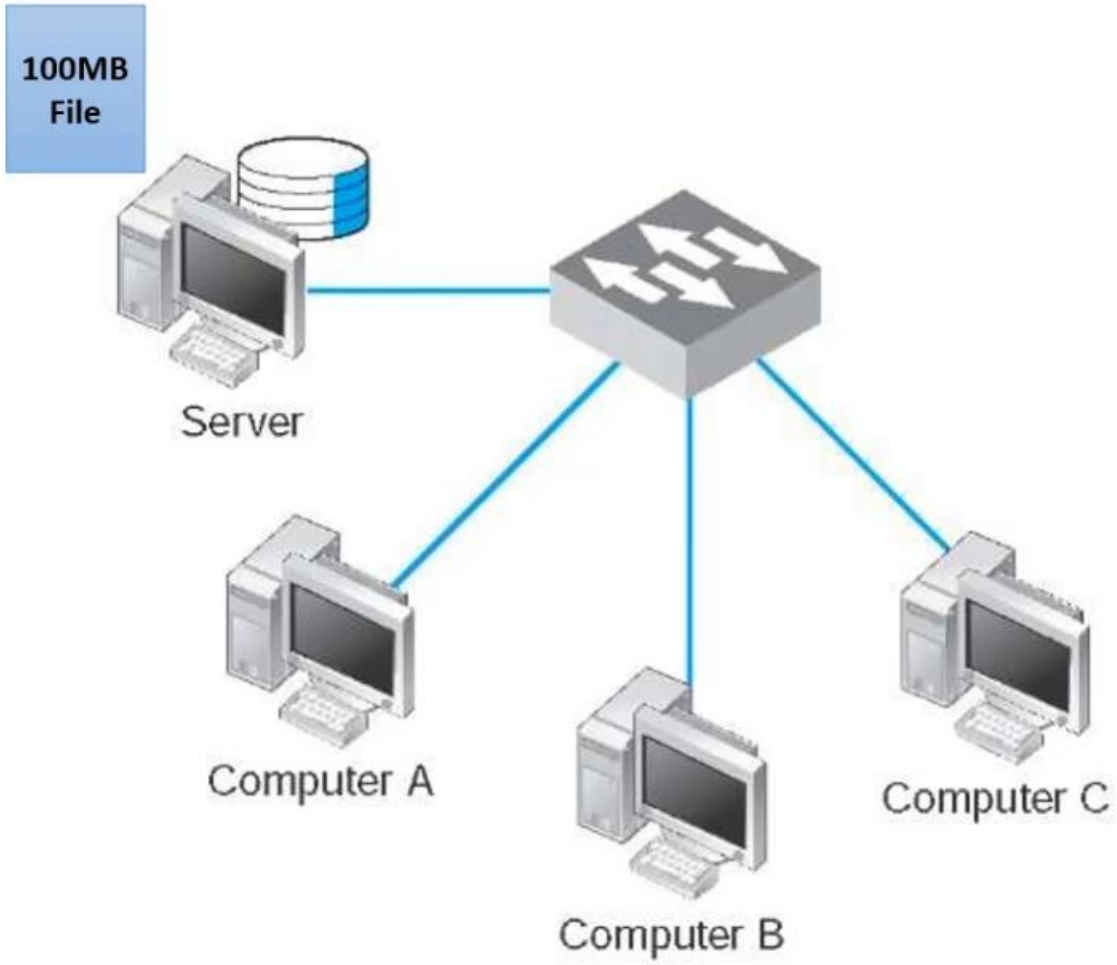
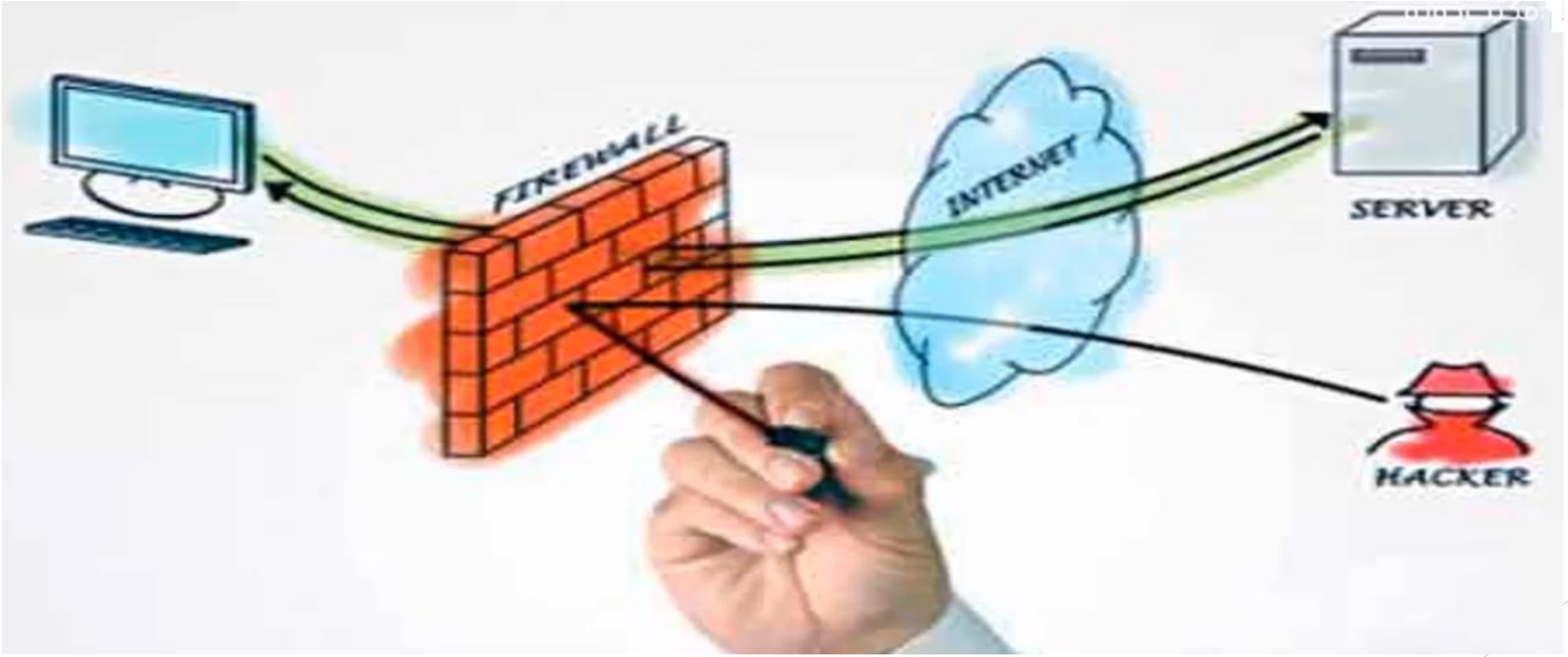
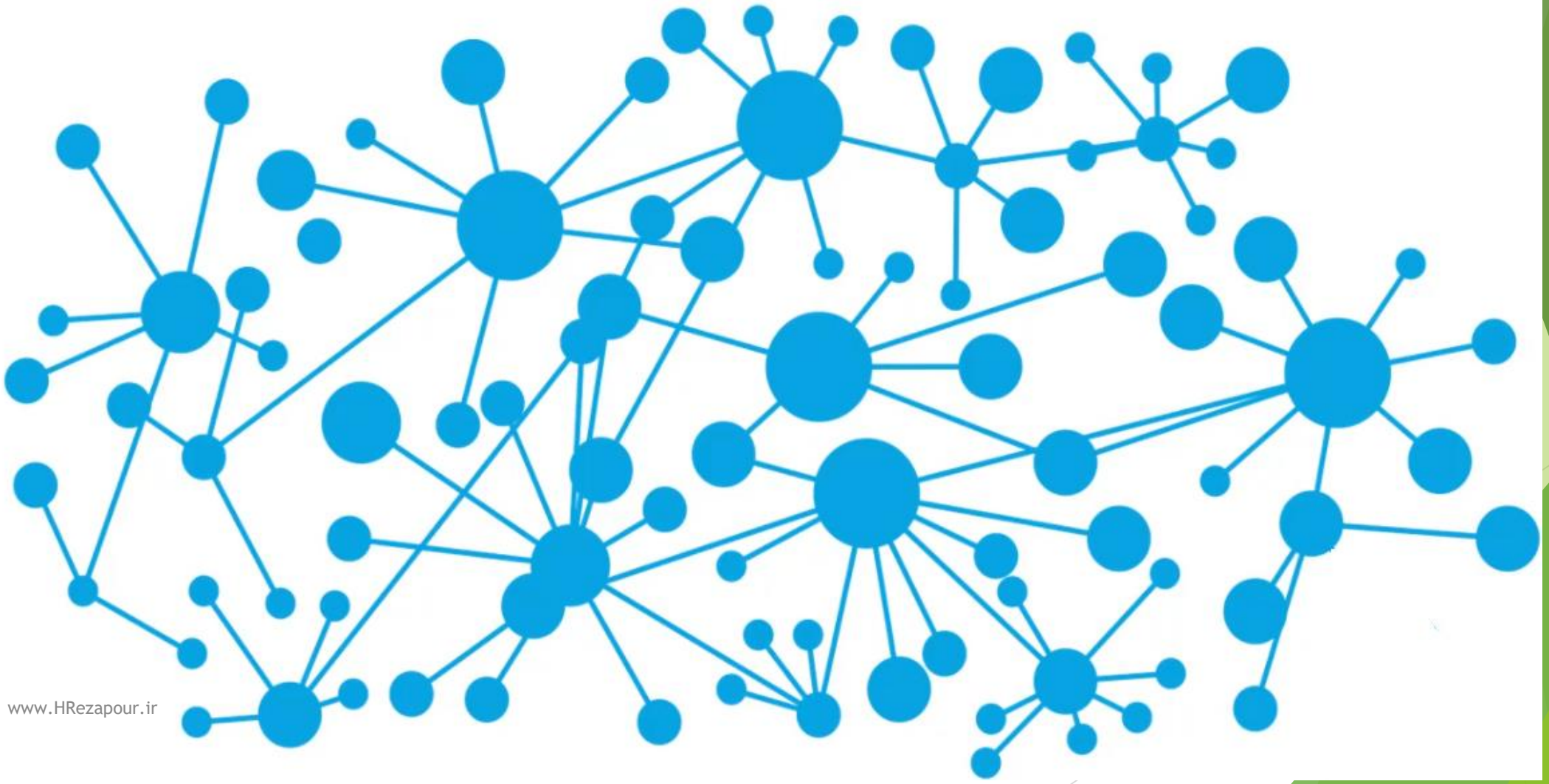
طرز کاری سوییچ و هاب

سناریوی اول




FIREWALL
INTERNET
SERVER
HACKER



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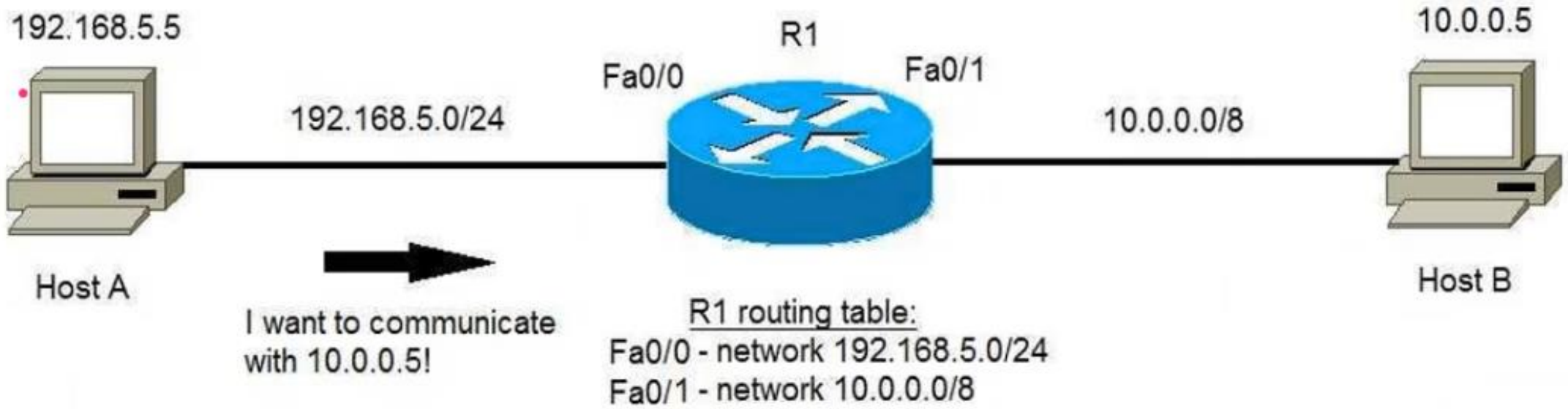

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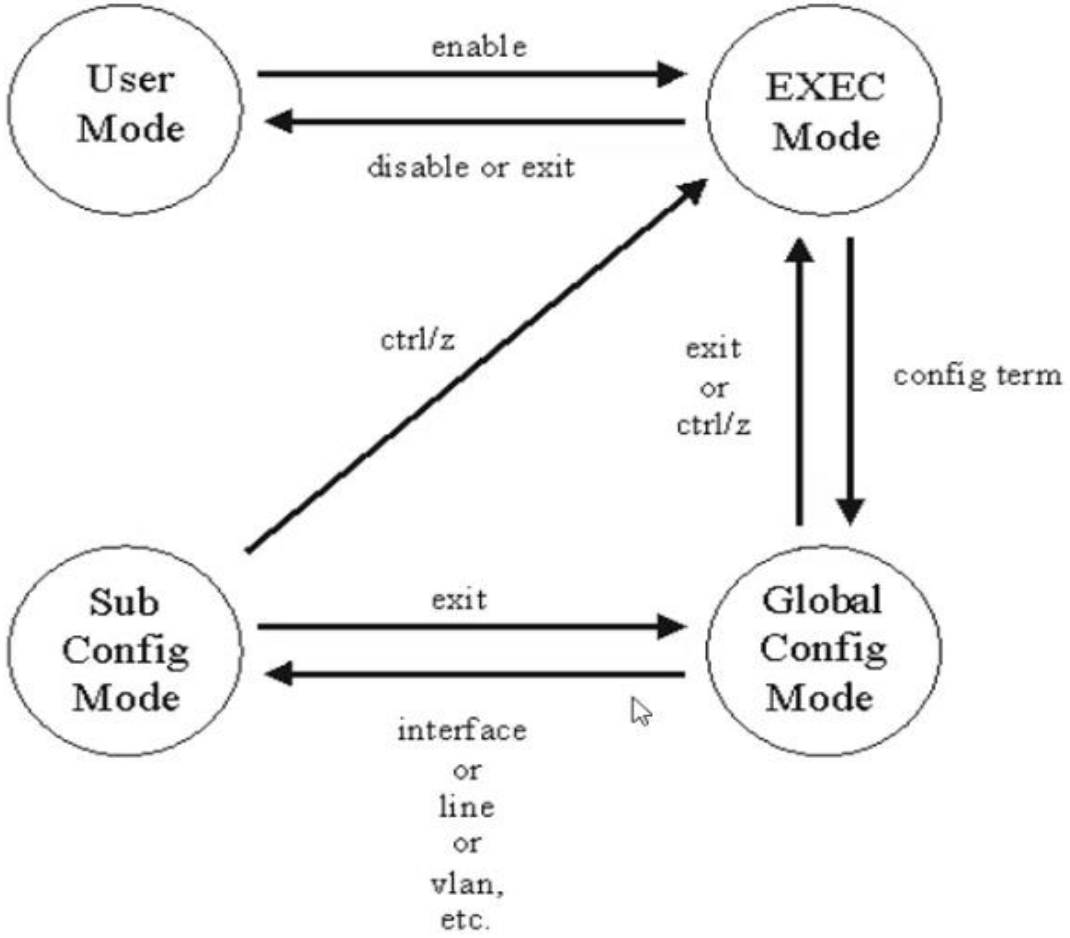
Cisco

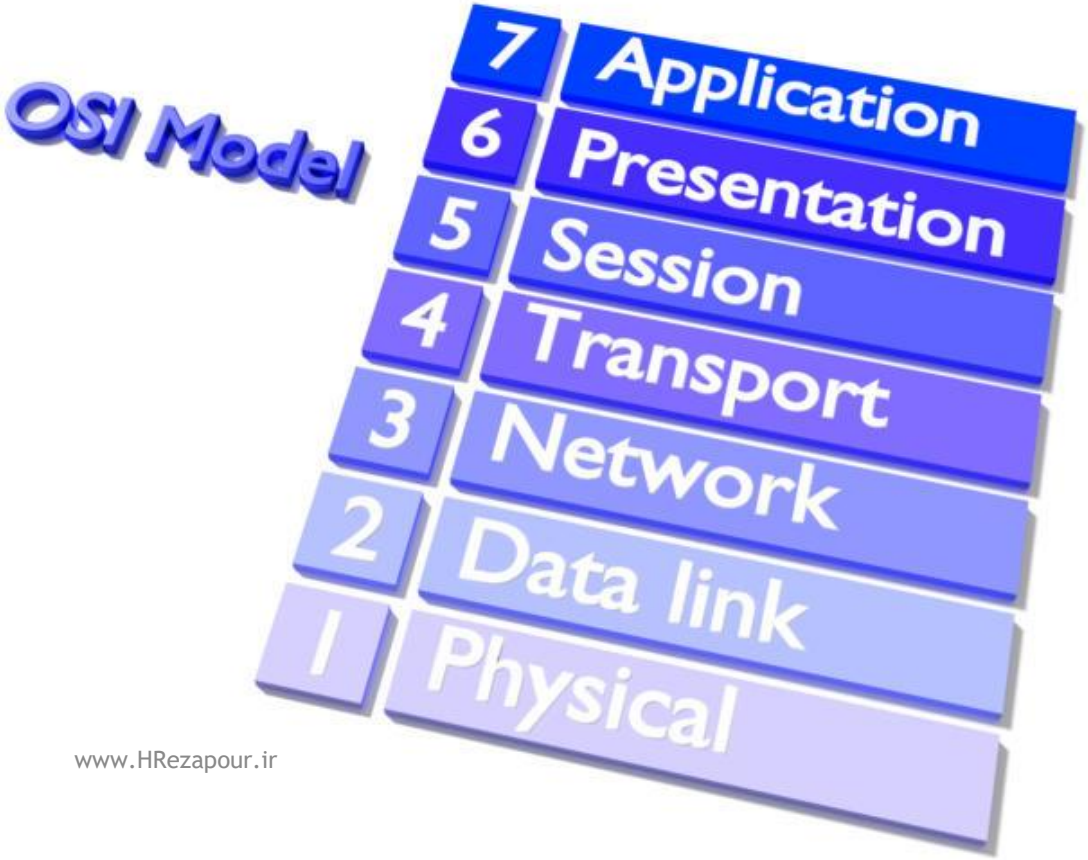
CISCO

CISCO
ROUTERS
Cisco 2851
Cisco 3825
Cisco 2821
Cisco 3845
Cisco 2811
Cisco 7201
Cisco 2801
Cisco 7204 VXR
Cisco 7206 VXR
Cisco 7609
Cisco 7613


User Mode
enable
disable or exit
EXEC Mode
ctrl/z
exit
or
ctrl/z
config term
Sub Config Mode
exit
interface
or
line
or
vlan,
etc.
Global Config Mode

Sharing

مدل OSI



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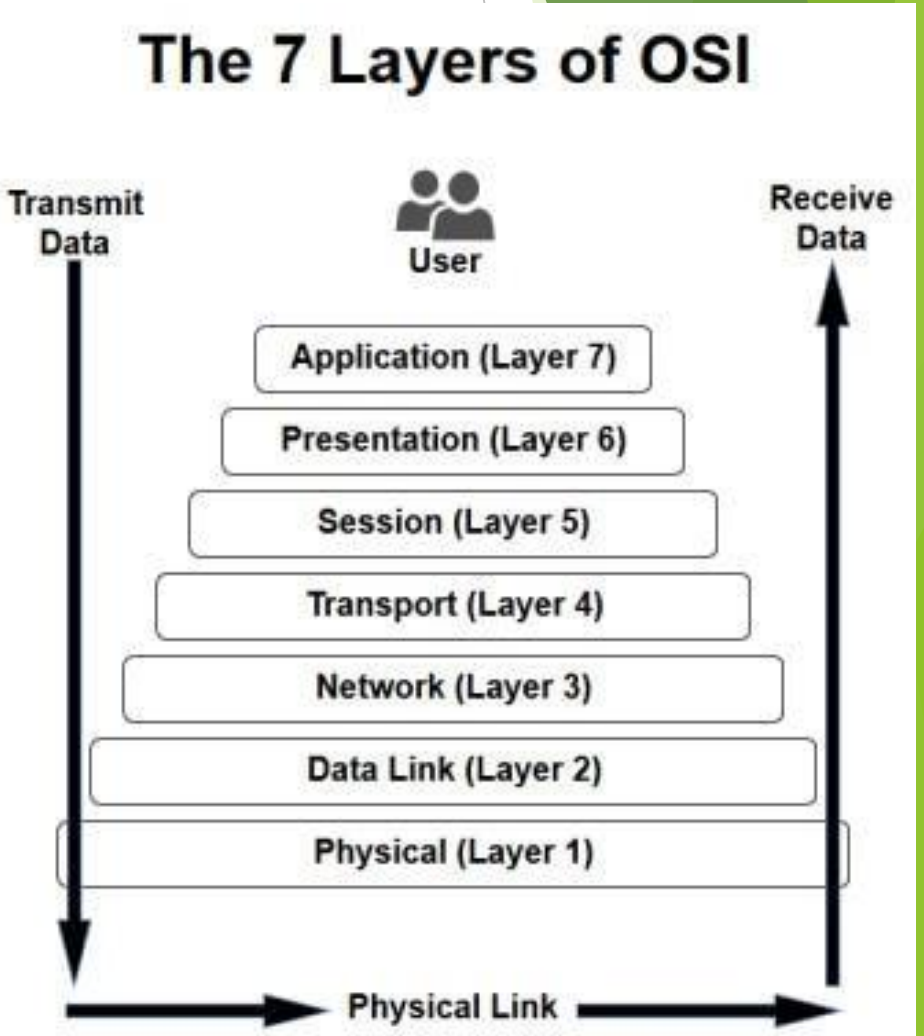
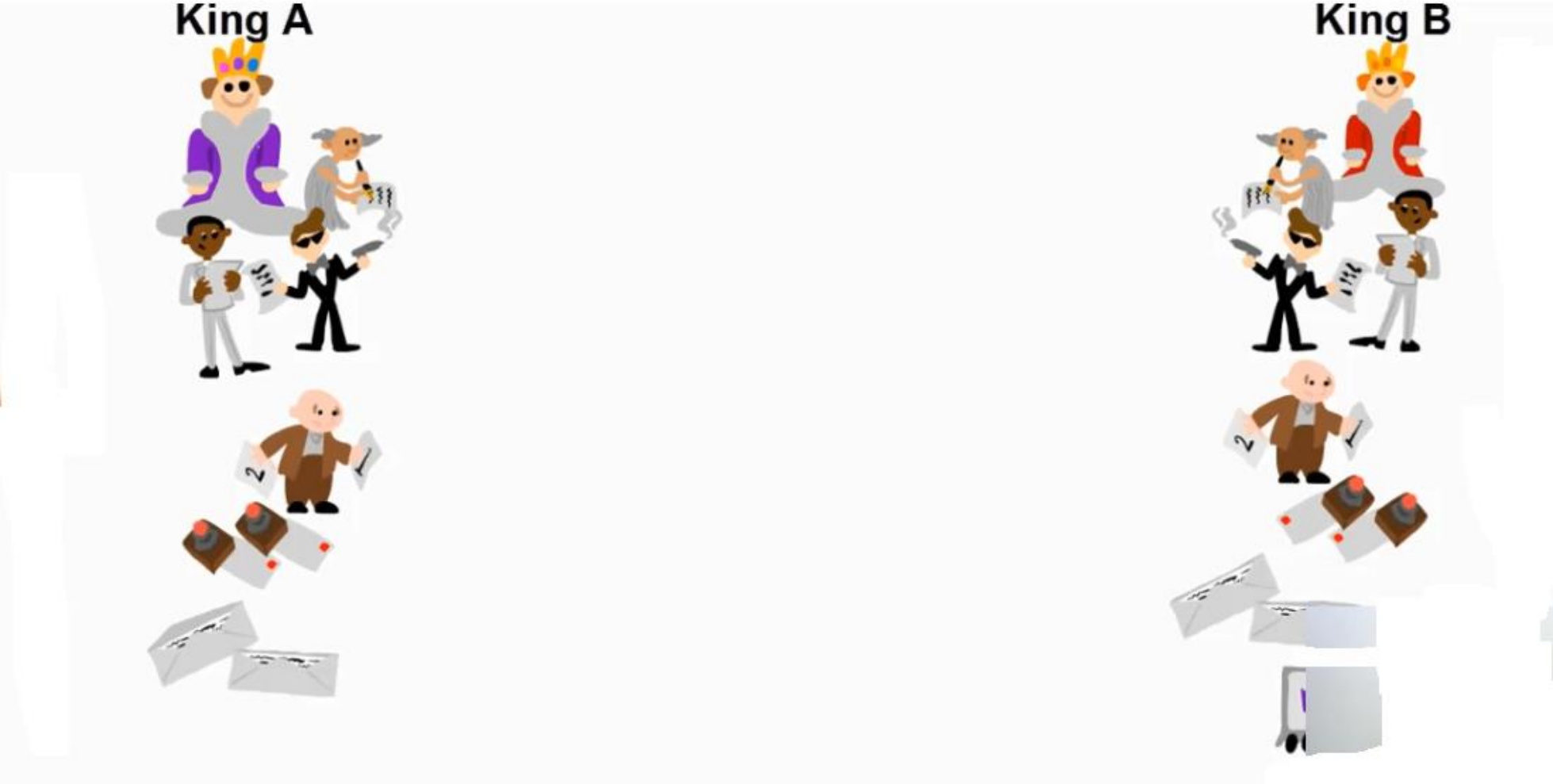
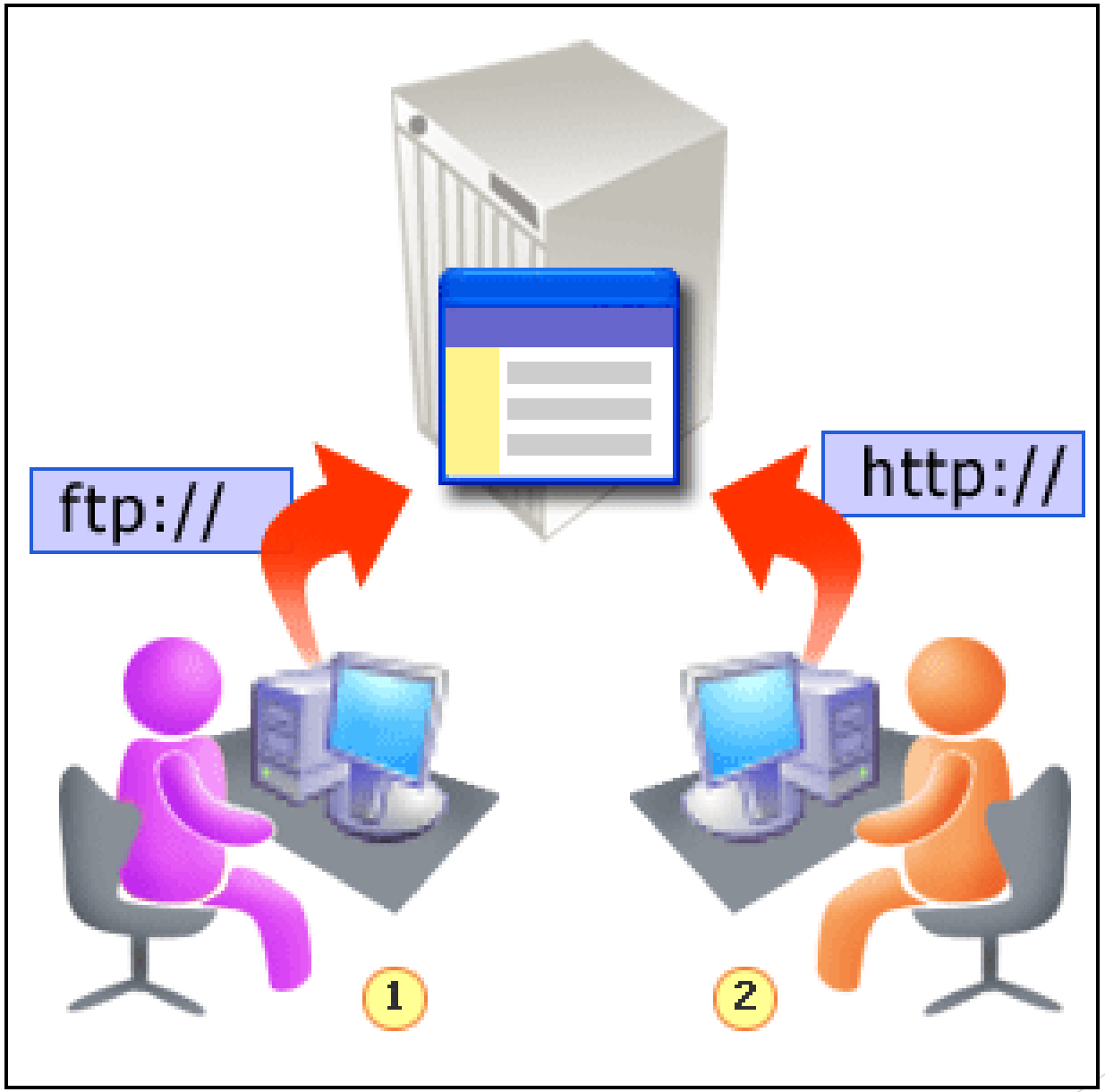


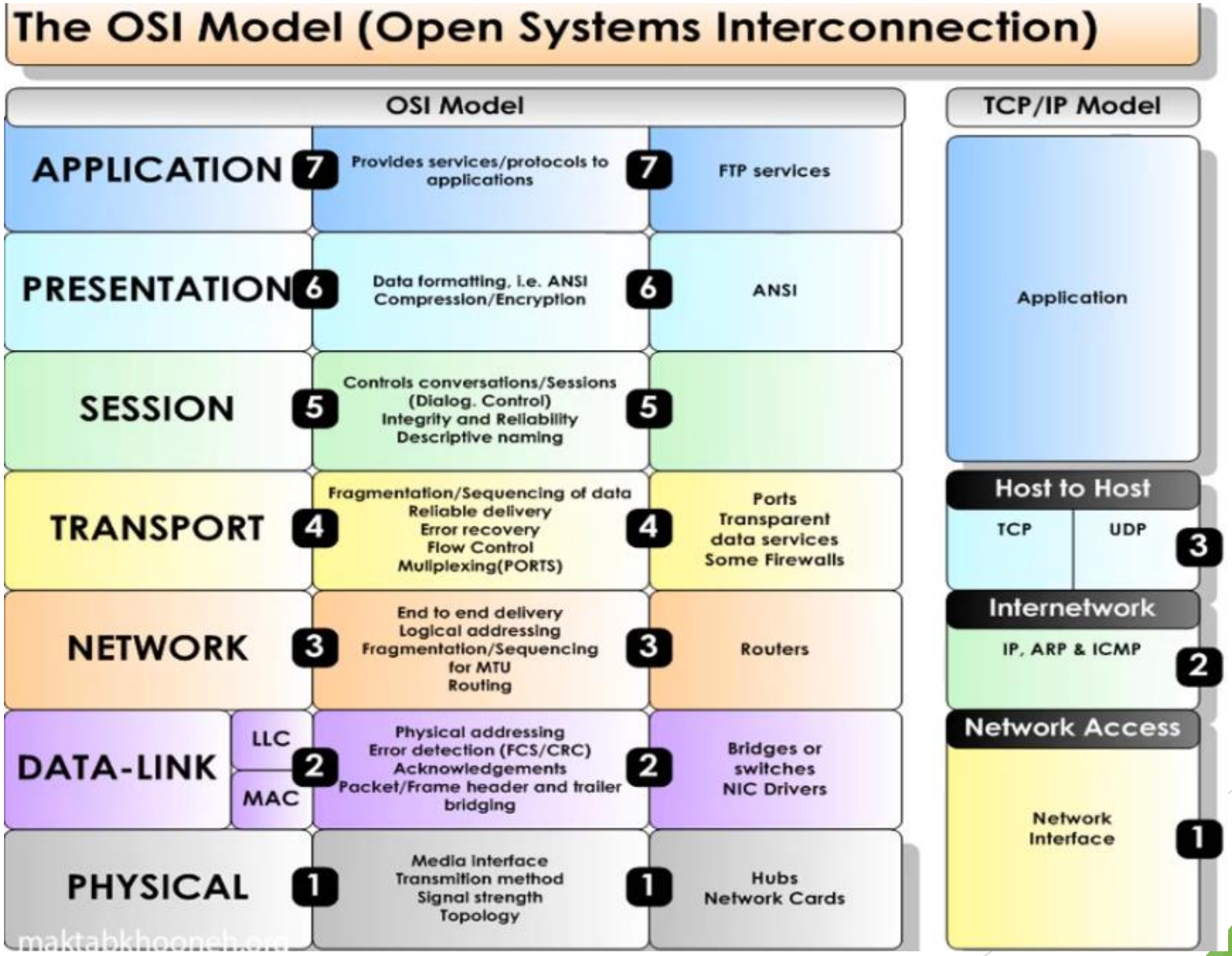
OSI Model



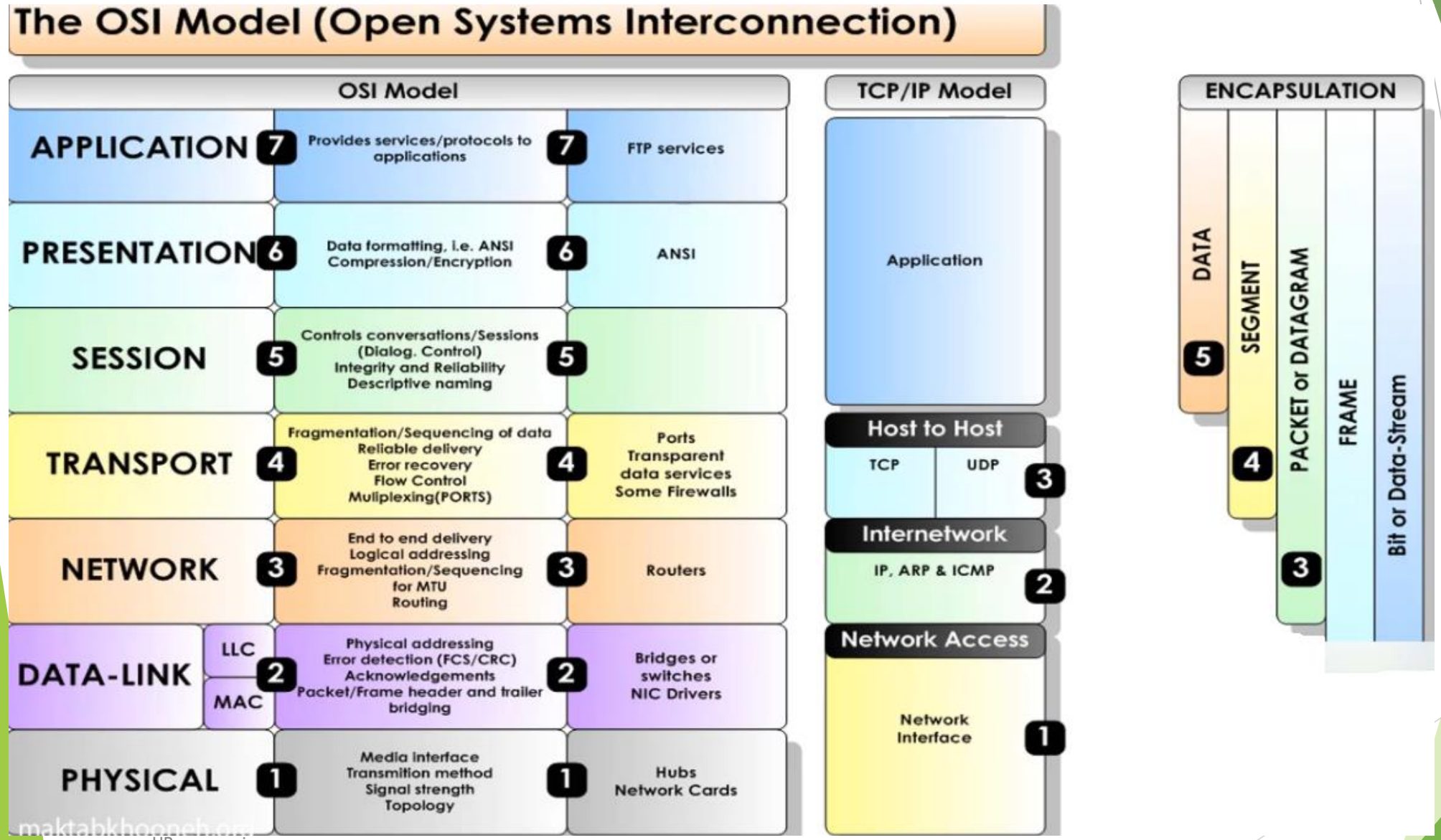
HTTP &FTP



OSI &TCP/IP


The OSI Model (Open Systems Interconnection)
OSI Model
TCP/IP Model
APPLICATION 7
Provides services/protocols to applications
7
FTP services
PRESENTATION 6
Data formatting, i.e. ANSI Compression/Encryption
6
ANSI
SESSION 5
Controls conversations/Sessions (Dialog. Control) Integrity and Reliability Descriptive naming
5
TRANSPORT 4
Fragmentation/Sequencing of data Reliable delivery Error recovery Flow Control Mulipleking(PORTS)
4
Ports Transparent data services Some Firewalls
NETWORK 3
End to end delivery Logical addressing Fragmentation/Sequencing for MTU Routing
3
Routers
DATA-LINK
LLC
MAC
2
Physical addressing Error detection (FCS/CRC) Acknowledgements Packet/Frame header and trailer bridging
2
Bridges or switches NIC Drivers
PHYSICAL 1
Media Interface Transmition method Signal strength Topology
1
Hubs Network Cards
Application
Host to Host
TCP
UDP
3
Internetwork
IP, ARP & ICMP
2
Network Access
Network Interface
1

Encapsulation



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SMB
Server Message Block Protocol Version2

- SMB2
- NetBIOS

} Application Layer

- Transmission Control Protocol → پروتکل TCP که اطلاعات لایه ۴ اینجا قرار دارد
- Internet Protocol Version → اطلاعات لایه ۳ (لایه IP) در اینجا قرار دارد
  Sourceسیستم مبدا
  Destination سیستم مقصد
- Ethernet II → اطلاعات لایه ۲ یا Data-link و Mac مبدا و مقصد در اینجا قرار دارد
- Frame → پایین ترین لایه و اطلاعاتی که برای دیتا وجود دارد در اینجا قرار دارد

فایل شیرینگ ویندوز روی پورت TCP=445

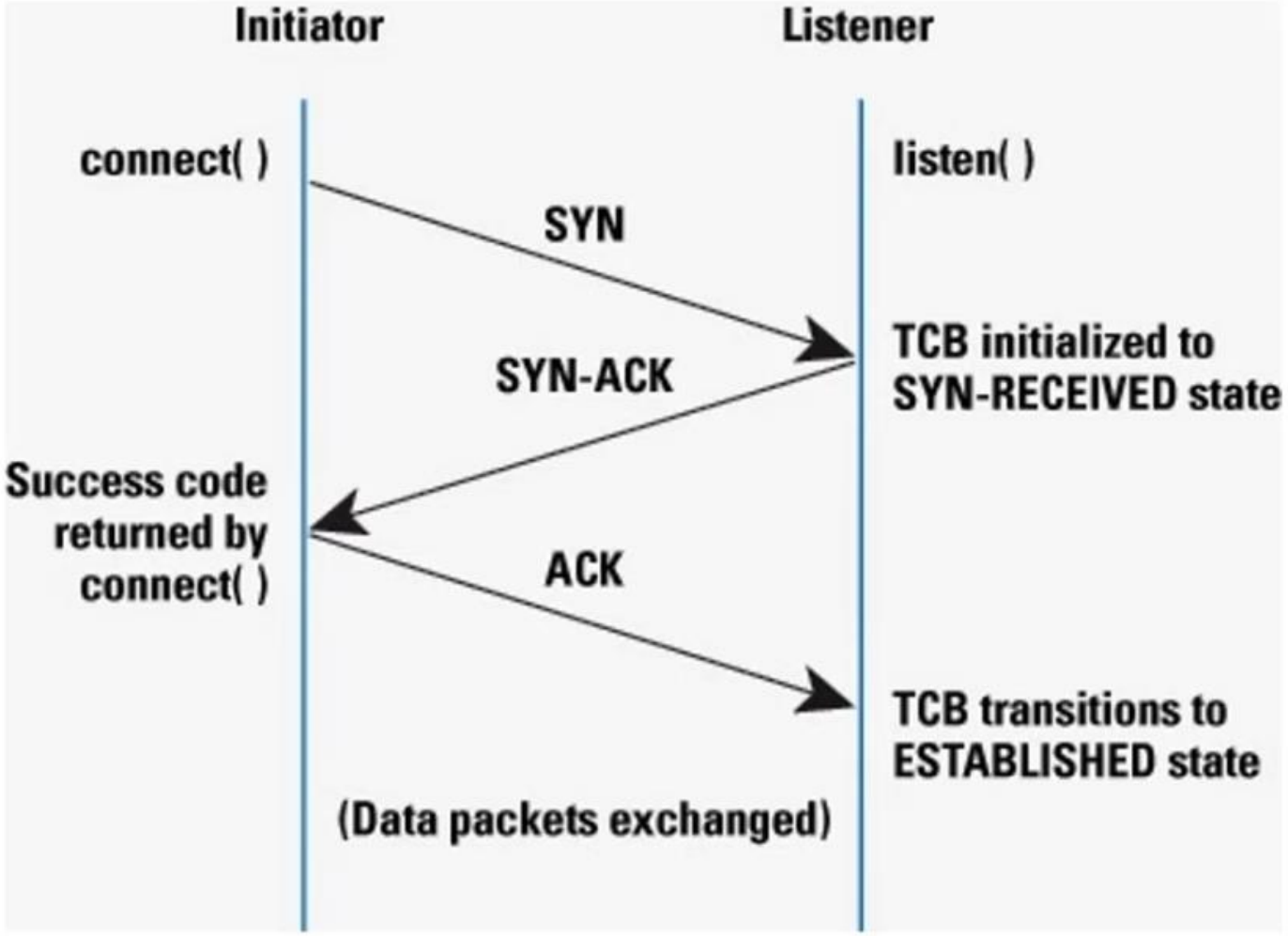
طول بسته حداقل ۶۴ بایت و حداکثر ۱۵۰۰ بایت

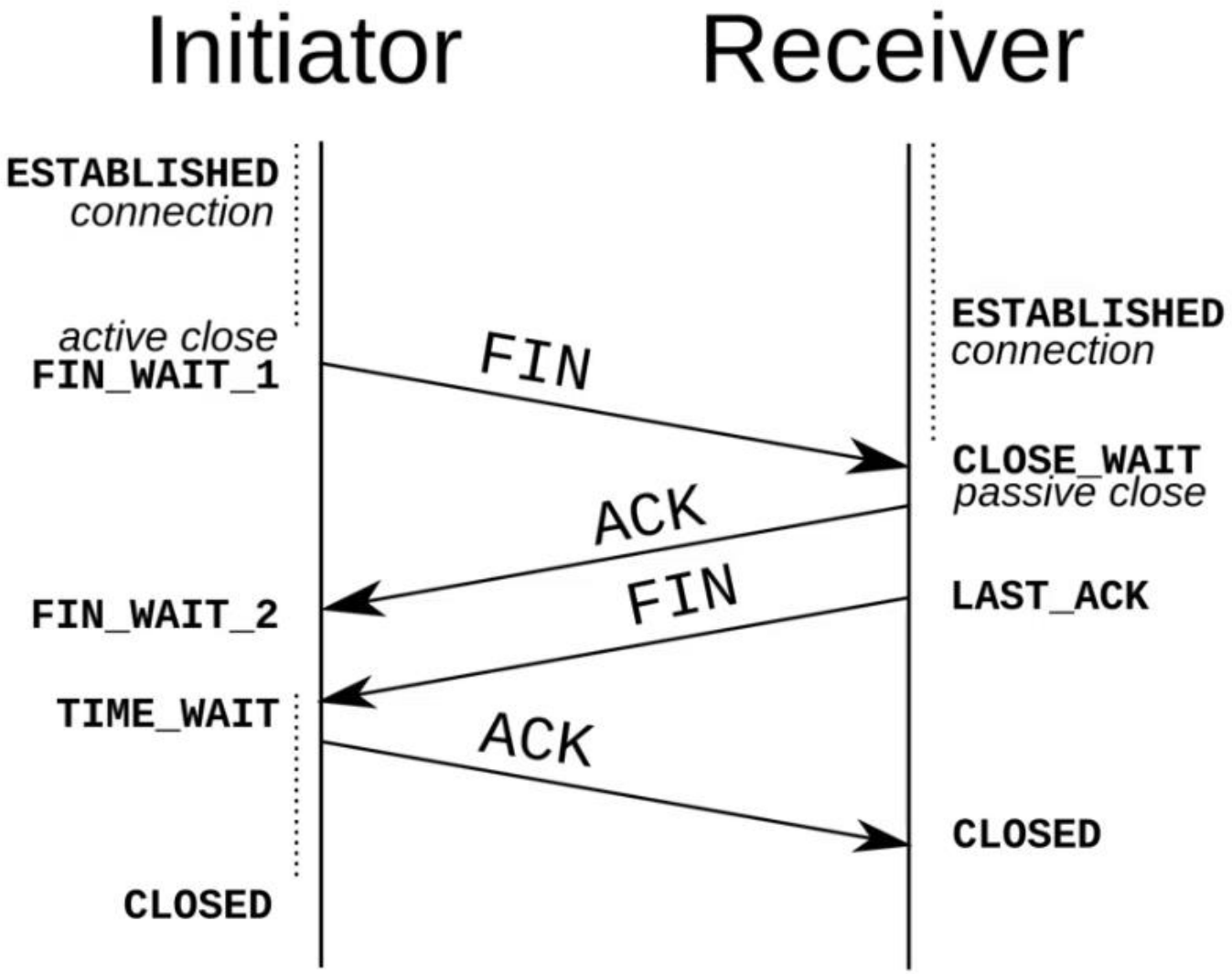
TCP & UDP

TCP	UDP
Reliable	Unreliable
Connection-oriented	Connectionless
Segment retransmission and flow control through windowing	No windowing or retransmission
Segment sequencing	No sequencing
Acknowledge segments	No acknowledgement

Seq num

ایجاد و قطع ارتباط در پروتکل TCP





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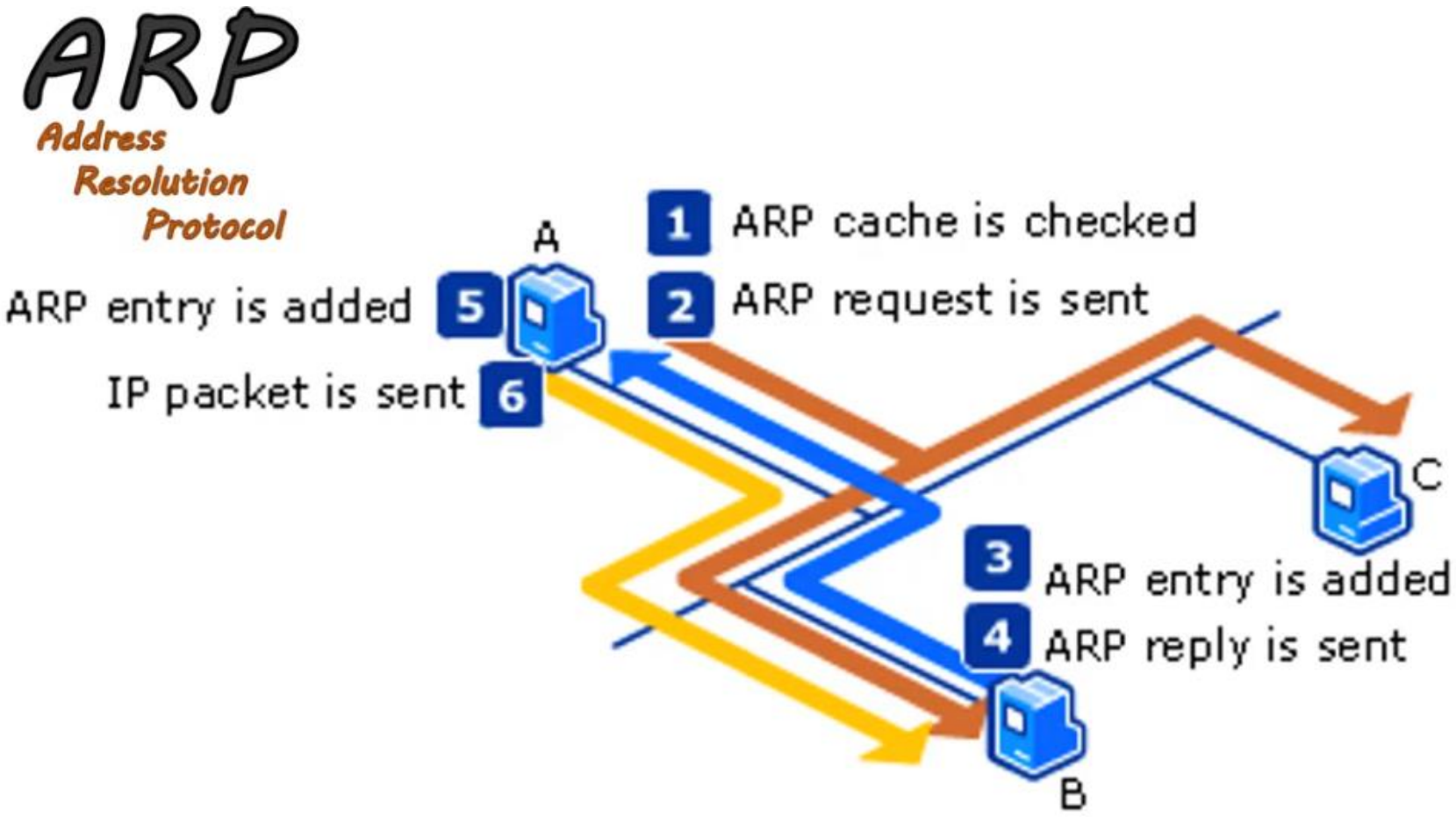
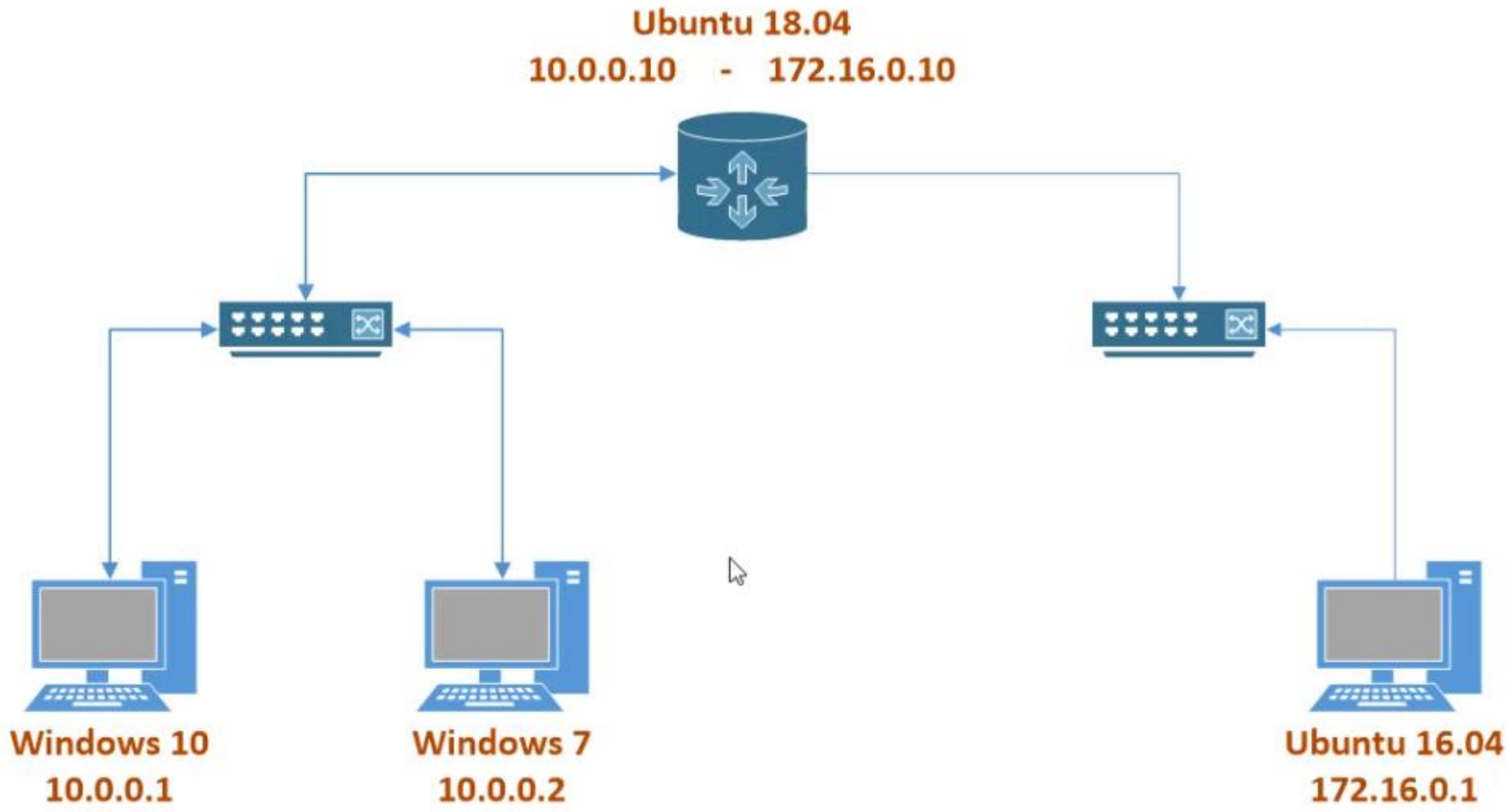
NTPپروتکلی که برای Synchronize ساعت استفاده و با UDPکار میکند

ARP Protocol




Ubuntu 18.04
10.0.0.10 - 172.16.0.10
Windows 10
10.0.0.1
Windows 7
10.0.0.2
Ubuntu 16.04
172.16.0.1