CO - 2

COURSE NAME : SYSTEM DESIGN AND INTRODUCTION TO CLOUD

COURSE CODE : 23AD2103A

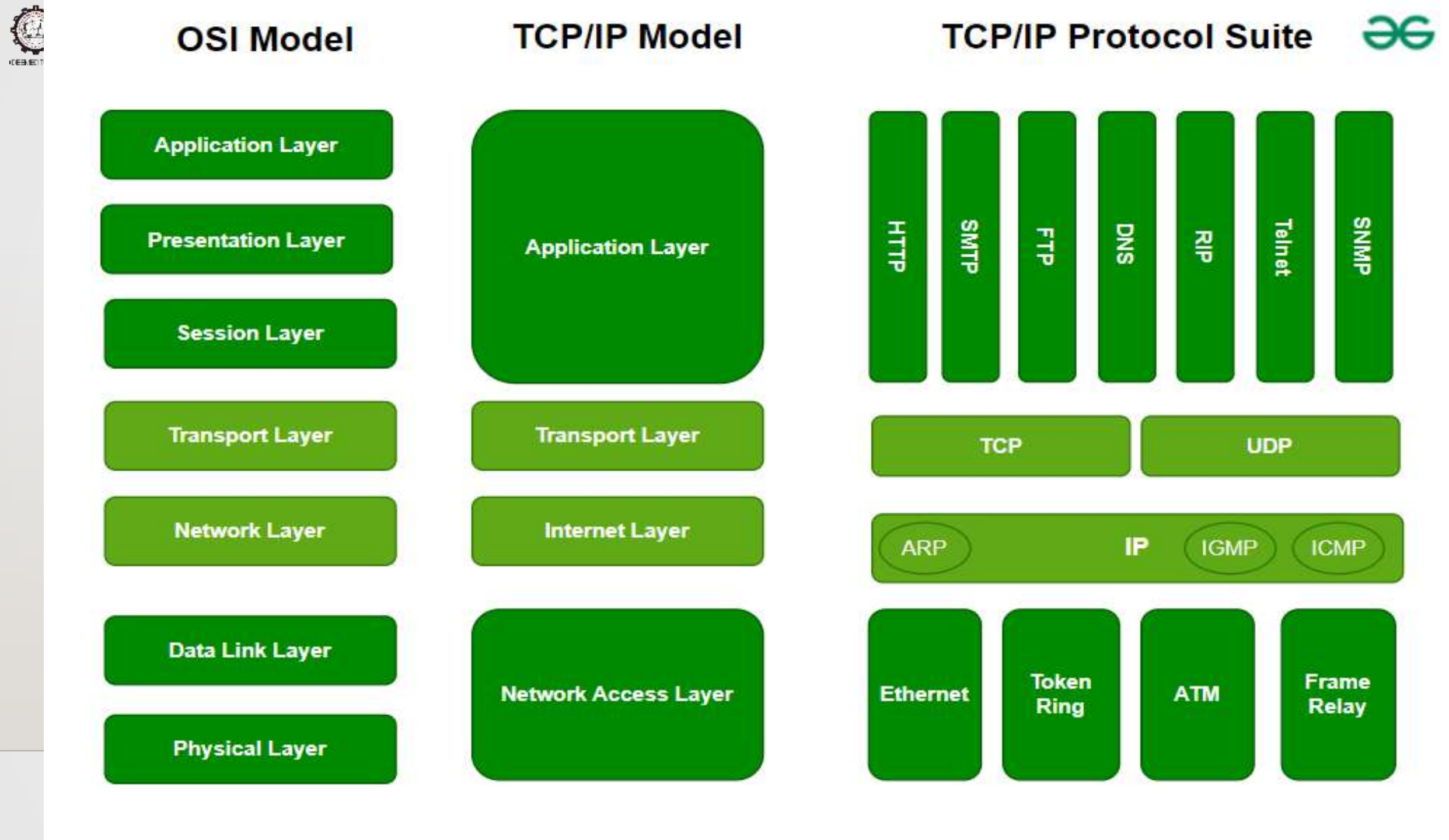
TOPICS : A COMPARISON OF THE OSI AND TCP/IP REFERENCE MODELS, OSI VS TCP/IP

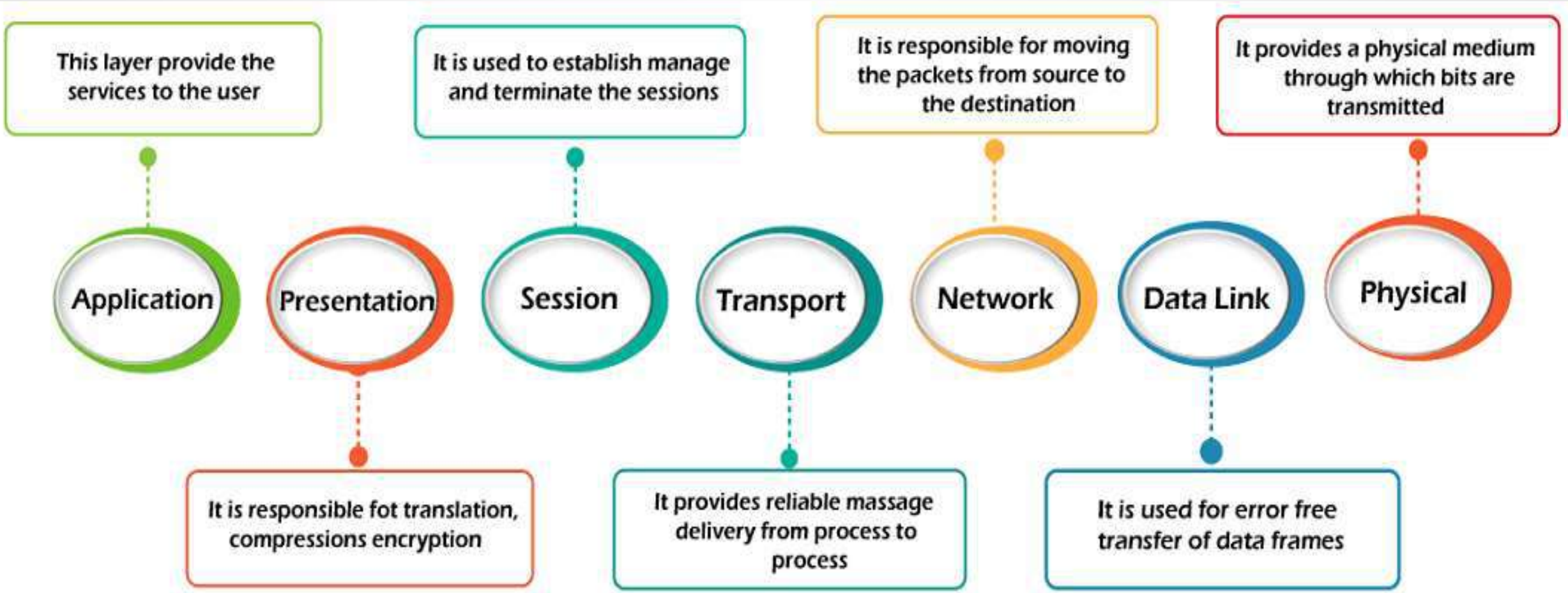
SESSION DESCRIPTION

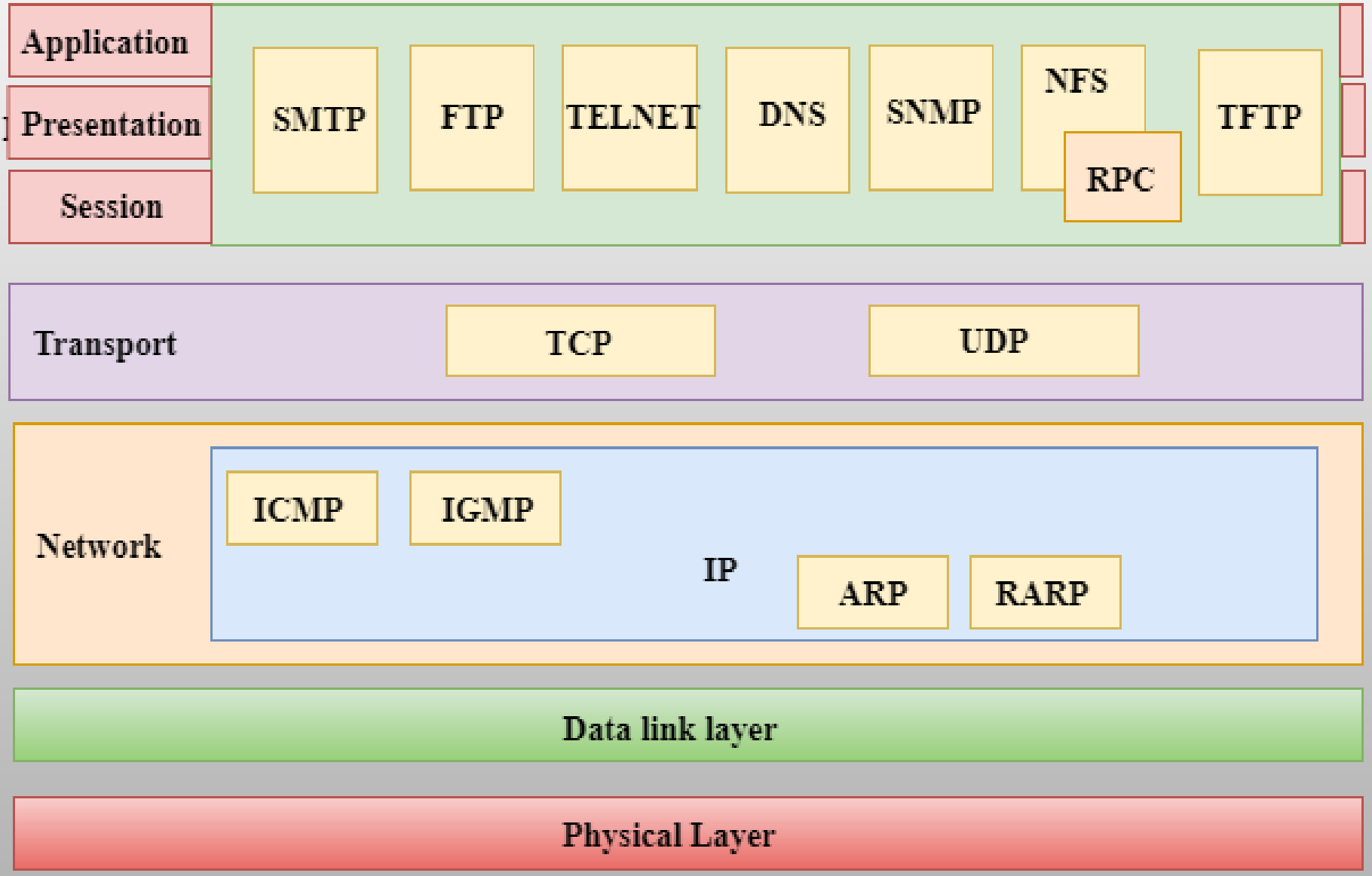
- A Comparison of the OSI and TCP/IP Reference Models,
- OSI Vs TCP/IP

OSI VS TCP/IP MODEL

- TCP/IP protocol (Transfer Control Protocol/Internet Protocol) was created by U.S. Department of Defense's Advanced Research Projects Agency (ARPA) in 1970s.
- **Some key differences between the OSI model and the TCP/IP Model are:**
- TCP/IP model consists of 4 layers but OSI model has 7 layers. Layers 5,6,7 of the OSI model are combined into the Application Layer of TCP/IP model and OSI layers 1 and 2 are combined into Network Access Layers of TCP/IP protocol.
- The TCP/IP model is older than the OSI model, hence it is a foundational protocol that defines how should data be transferred online.
- Compared to the OSI model, the TCP/IP model has less strict layer boundaries.
- All layers of the TCP/IP model are needed for data transmission but in the OSI model, some applications can skip certain layers. Only layers 1,2 and 3 of the OSI model are necessary for data transmission.


OSI Model
TCP/IP Model
TCP/IP Protocol Suite
Application Layer
Presentation Layer
Session Layer
Transport Layer
Network Layer
Data Link Layer
Physical Layer
Application Layer
Transport Layer
Internet Layer
Network Access Layer
HTTP
SMTP
FTP
DNS
RIP
Telnet
SNMP
TCP
UDP
ARP
IP
IGMP
ICMP
Ethernet
Token Ring
ATM
Frame Relay


This layer provide the services to the user
Application
Presentation
It is responsible fot translation, compressions encryption
It is used to establish manage and terminate the sessions
Session
Transport
It provides reliable massage delivery from process to process
It is responsible for moving the packets from source to the destination
Network
Data Link
It is used for error free transfer of data frames
It provides a physical medium through which bits are transmitted
Physical



FUNCTIONS OF TCP/IP

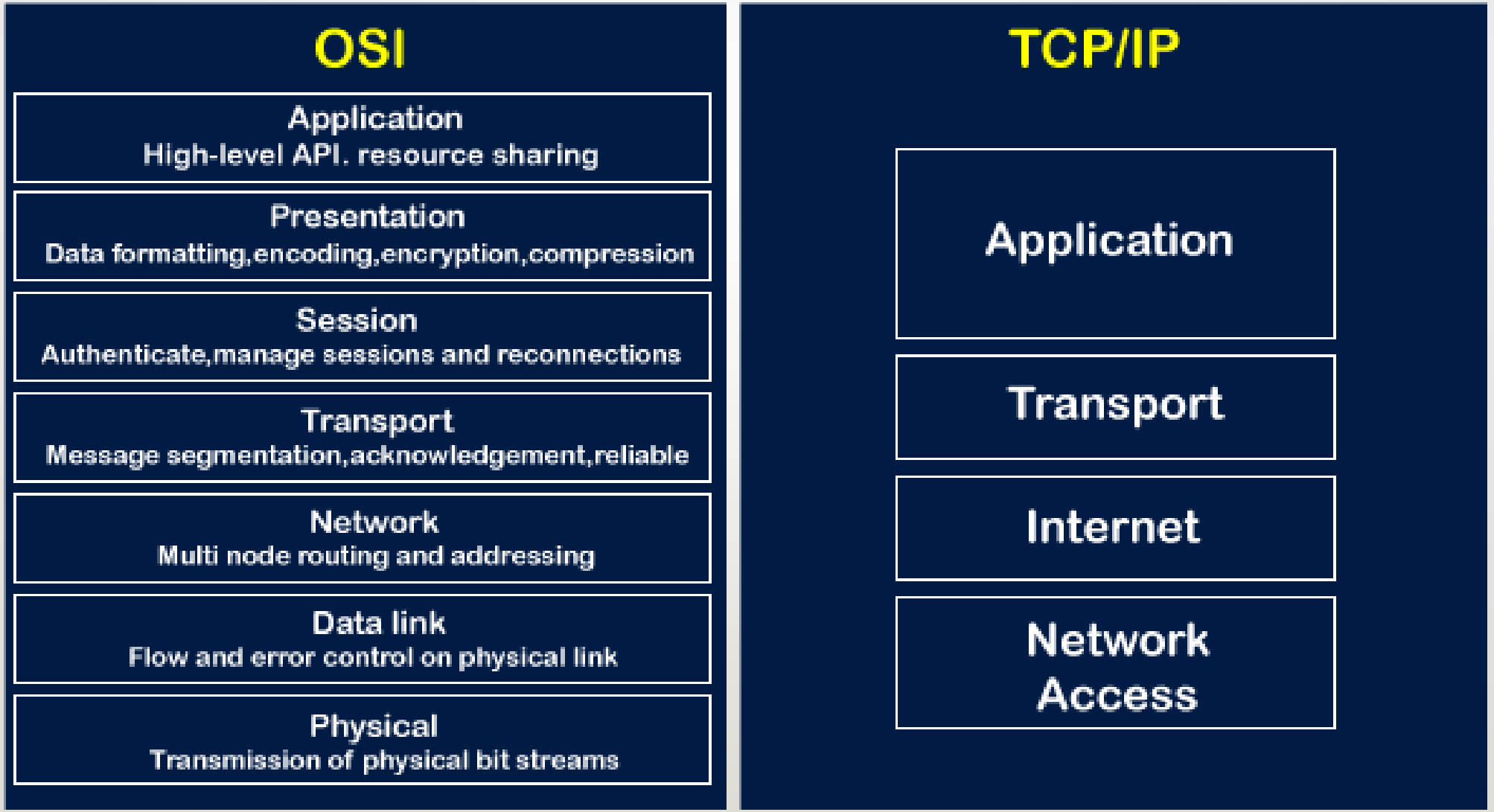
WHAT IS OSI MODEL?

- The OSI stands for Open System Interconnection, which was developed in 1980s. It is a conceptual model used for network communication. It is not implemented entirely, but it is still referenced today.
- This OSI model consists of seven layers, and each layer is connected to each other. The data moves down the OSI model, and each layer adds additional information. The data moves down until it reaches the last layer of the OSI model.
- When the data is received at the last layer of the OSI model, then the data is transmitted over the network. Once the data is reached on the other side, then the process will get reversed.

WHAT IS TCP/IP MODEL?

- The TCP model stands for Transmission Control Protocol, whereas IP stands for Internet Protocol. A number of protocols that make the internet possibly comes under the TCP/IP model.
- Nowadays, we do not hear the name of the TCP/IP model much, we generally hear the name of the IPv4 or IPv6, but it is still valid. This model consists of 4 layers. Now, we will look at the diagrammatic representation of the TCP/IP model.

OSI Model & TCP/IP



OSI Model	TCP/IP Model
It stands for **Open System Interconnection.**	It stands for **Transmission Control Protocol.**
OSI model has been developed by ISO (International Standard Organization).	It was developed by ARPANET (Advanced Research Project Agency Network).
It is an independent standard and generic protocol used as a communication gateway between the network and the end user.	It consists of standard protocols that lead to the development of an internet. It is a communication protocol that provides the connection among the hosts.
In the OSI model, the transport layer provides a guarantee for the delivery of the packets.	The transport layer does not provide the surety for the delivery of packets. But still, we can say that it is a reliable model.
This model is based on a vertical approach.	This model is based on a horizontal approach.

In this model, the session and presentation layers are separated, i.e., both the layers are different.	In this model, the session and presentation layer are not different layers. Both layers are included in the application layer.
It is also known as a reference model through which various networks are built. For example, the TCP/IP model is built from the OSI model. It is also referred to as a guidance tool.	It is an implemented model of an OSI model.
In this model, the network layer provides both connection-oriented and connectionless service.	The network layer provides only connectionless service.
Protocols in the OSI model are hidden and can be easily replaced when the technology changes.	In this model, the protocol cannot be easily replaced.
It consists of 7 layers.	It consists of 4 layers.
OSI model defines the services, protocols, and interfaces as well as provides a proper distinction between them. It is protocol independent.	In the TCP/IP model, services, protocols, and interfaces are not properly separated. It is protocol dependent.

The usage of this model is very low.	This model is highly used.
It provides standardization to the devices like router, motherboard, switches, and other hardware devices.	It does not provide the standardization to the devices. It provides a connection between various computers.

THANK YOU

Team – System Design & Introduction to Cloud