Description

Unit 1 - Introduction to Networks, Protocols and Network reference models (Weeks 1 & 2)

Learn about the importance and concepts of networks from the different chapters of this book on Unit 1.

Outline

This unit will help in understanding the importance and concepts of networks. Main devices needed to implement a network will be discussed along with the common types of networks and networking terminologies. We will then proceed further to understand the importance of protocols in network communications. The two main network reference models will be explored along with the concepts of encapsulation and de-encapsulation.

Learning outcomes

- Evaluate how networks affect our daily lives.
- Explain the concept of networks and how host and network devices are used for successful communication.
- Describe the different network representations and how they are used in network topologies.
- Compare the characteristics of common types of networks.
- Describe how LANs and WANs interconnect to the internet.
- Explain why protocols are necessary in network communication.
- Explain how the TCP/IP model and the OSI model are used to facilitate standardization in the communication process.
- Describe how data encapsulation and de-encapsulation allows data to be transported across the network.
- Analyze how the OSI model work using Packet Tracer software.

Table of contents

1. Week 1 In-class Activity - Install Cisco Packet Tracer Software and get started

- Go to Cisco Networking Academy: https://www.netacad.com/
- Register using your university email account.
- Download latest version of Cisco Packet Tracer Software.
- Use your login credentials to use the software once installed.

First Activity

Open Packet Tracer software and connect two end devices (PC0 and PC1) via an intermediary device (Switch0) and configure their IPv4 addresses within the same network.

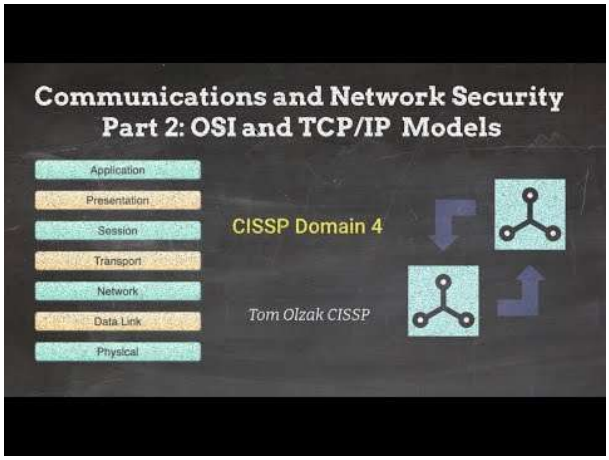
Test for connectivity between the two PCs by using the ping command the simple PDU tool.

Save your file for future reference and use.

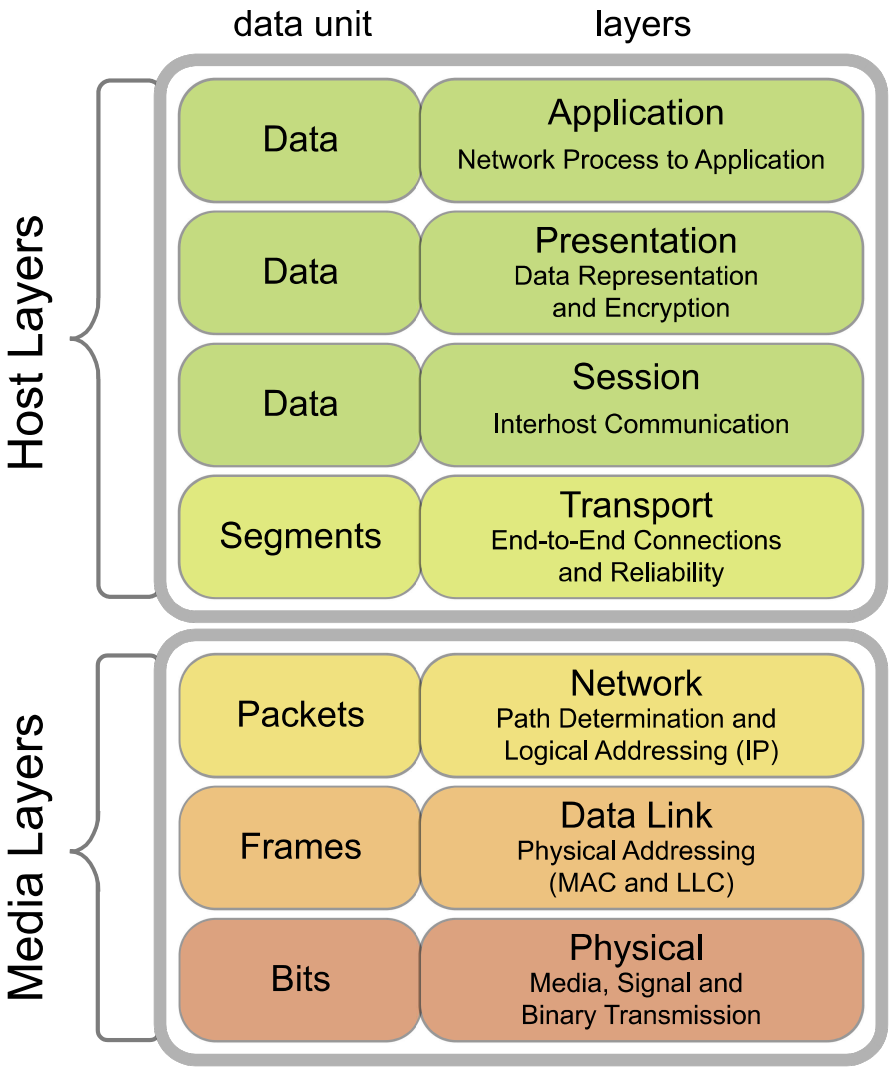
2. Week 2: Pre-class activity on Introduction to Protocols and Network Reference Models

Make sure to watch full video available at the below link before coming to class:

https://youtu.be/vxHrJmCI_nk?feature=shared



3. OSI model and Protocol Data Units (PDUs)



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4. Week 2: In-class Packet Tracer activity on OSI model

Use the same file as in chapter 1 and switch to simulation mode.

Initiate a ping from PC0 to PC1 and observe the different events.

Click on each event and analyze the OSI model tab, Inbound and Outbound PDU details.