

Portfolio Exercise 2a: Network Topologies and Devices**Objectives**

- Use diagrams to illustrate a bus, star and extended star, ring and mesh topologies
- Use diagrams to illustrate the difference between physical and logical topologies
- Illustrate network devices
- *Collect portfolio evidence for part of Grading Criteria P5 – Document Simple Networks*

Task1: Illustrate Different Physical Topologies

Carry out the following tasks using a pencil and a separate piece of paper for each diagram.

A novice network technician needs to connect the following devices together to create a new network segment.

- 3 workstations
- a server
- a printer
- a hub (**for a star topology only**)

He is unsure how to proceed and has asked you to draw the devices arranged in different topologies.

a. Physical Bus Topology

Draw a diagram showing the devices arranged in a physical bus topology. Ensure you show all devices and terminators on the ends of the cables. Label and annotate your diagram appropriately.

b. Physical Star Topology

Draw a diagram showing the devices arranged in a physical star topology. Ensure you show all devices. Label and annotate your diagram appropriately. *Leave a space at the bottom of the diagram for task 2a.*

c. Physical Ring Topology

Draw a diagram showing the devices arranged in a physical ring topology similar to an FDDI network. Ensure you show all devices. Label and annotate your diagram appropriately.

d. Physical Mesh Topology

Draw a diagram showing the devices arranged in a physical mesh topology. Ensure you show all devices. Label and annotate your diagram appropriately.

e. Extended Star Topology

Suppose you needed to extend your star topology of task 2b by, adding the following devices...

- 4 workstations
- a hub

Draw a diagram showing all the original devices plus the new devices arranged in an **extended** physical star topology. Ensure you show all devices. Label and annotate your diagram appropriately.

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Task2: Explain Physical / Logical Topologies

In order to enhance the network technician knowledge you have decided to explain the difference between physical and logical topologies.

a. Physical Star - Logical Bus

Suppose you have a network where all devices are attached to a central hub in a star topology.

What is the logical topology? _____

Annotate your star topology diagram from task 1b or draw a new diagram, explaining the logical topology.

b. Physical Star - Logical Ring

FDDI uses a physical ring arrangement. What is the logical topology? _____

Token ring uses a physical star arrangement. What is the logical topology? _____

Create a new diagram illustrating the physical and logical topology of token ring. Label and annotate your diagram appropriately, explaining both the physical and logical topology.

Task3: Network Devices

A network has been arranged in two segments, with the following devices in each segment:-

Segment 1	Segment 2
<ul style="list-style-type: none"> • 3 workstations • a server • a printer • a hub 	<ul style="list-style-type: none"> • 2 workstations • a server • a printer • a switch

A bridge connects the two LAN segments together.

a. Illustrate Network Devices

Illustrate this network by drawing a diagram. Ensure you show all devices. Label and annotate your diagram appropriately and explain the function of the hub, switch and bridge.

Evidence

Please supply the following evidence to support your implementation of this task

- Task 1a: physical bus topology diagram.
- Task 1b: physical star topology diagram.
- Task 1c: physical ring topology diagram.
- Task 1d: physical mesh topology diagram.
- Task 1e: extended physical star topology diagram.
- Task 2a: physical star / logical bus diagram and explanation.
- Task 2b: physical star / logical ring diagram and explanation.
- Task 3a: network devices diagram.

Please annotate, sign, date, put the portfolio exercise number and task number on all evidence pages