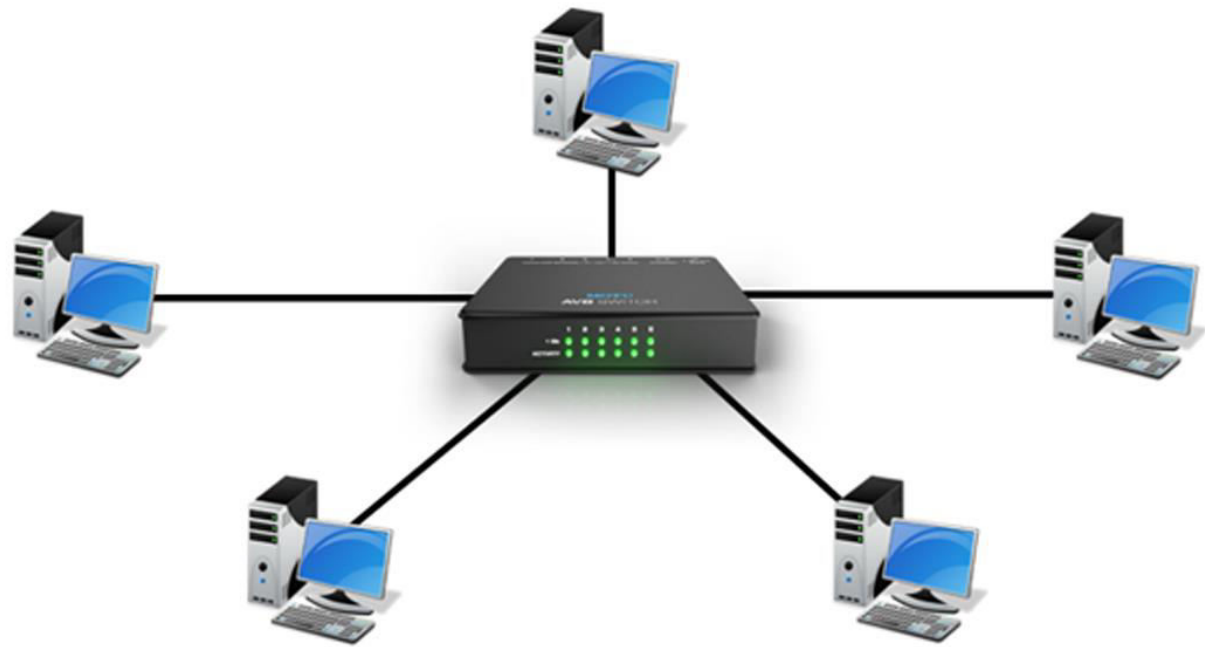


Hub (Network Device)

Elementrix Classes

What is a Hub?

- ❑ A hub is a simple, relatively inexpensive networking device that operates at the physical layer (Layer 1) of the OSI model.
- ❑ It serves as a central connection point for multiple devices in a star topology network.
- ❑ Hubs are considered "dumb" devices because they lack the intelligence to understand or filter network traffic.



How Does a Hub Work?

- ❑ **Data Reception:** A hub receives data packets (electrical signals) from a connected device on one of its ports.
- ❑ **Broadcast:** The hub simply broadcasts the data packet out to all other connected devices, regardless of whether the data is intended for them or not.
- ❑ **Collision Potential:** Since all devices share the same bandwidth, if two devices send data simultaneously, a collision can occur, causing data loss and the need for retransmission.

Why were Hubs Used?

- ❑ **Cost-effective:** Hubs were a cheap way to connect multiple devices in earlier networks.
- ❑ **Simple setup:** Easy to install and configure in basic network environments.

Why are Hubs Largely Obsolete?

- ❑ **Inefficiency:** Due to the broadcast nature of hubs, a lot of unnecessary traffic is generated on the network, leading to congestion and slowing down communication.
- ❑ **Collision domains:** All devices connected to a hub share the same collision domain, meaning collisions are more likely, especially in larger networks.
- ❑ **Security:** Since data is broadcasted to every device, hubs offer very poor network security.

पढ़िए और पढ़ाइये

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