There are many different types of networks out there and when you look at those networks most of the time you don’t really see any specific topology. That is because large networks tend to blend a lot of different network topologies together. There are 5 main network topology types bus, star, tree, token ring, and mesh. In this short write up I will be briefly touching on each one of them.

The Bus topology has all its devices connected to each other through a single central cable or “backbone”. The data is transmitted to the devices on the network via an electrical signal that runs along the central cable. Bus networks are very easy to install but they have the disadvantage of being susceptible to cable failure and the network performance gets worse the more people are on the network, a decent example of this would be broadband cable internet.

The Star topology has all devices connected to a central switch, the devices on the network share data with each other through switch and never directly with each other. This topology is easy to manage and troubleshoot but it is completely reliant on that central switch, so it has a single point of failure. Most home networks are examples of this topology.

The Tree topology. This topology can be thought of as multiple star topologies connected to each other through a central backbone. This topology is easily scalable and provides hierarchal controls, so you will see it in larger organizations. The major issue with this topology is they are expensive to implement and tend to take time to design correctly. A corporate network would be an example of a tree topology.

Token Ring topology can be thought of as a closed loop, the data only flows in one direction and a token is used to give devices permission to transmit on the network. This network has the advantage of providing fair access to the network for all the devices attached to it but disadvantages such as failure of one device or cable in the loop will take the entire network down, might outweigh the advantages.

Mesh Topology. This is a topology where every component is connected to every other component. This topology is king when it comes to redundancy and that can be a major advantage, but they can also be very expensive to implement and maintain due to the sheer number of connections. On a very large scale the World Wide Web could be an example of a mesh network.

Topology choice all comes down to the need of the organization, how much it needs to be able to scale up and down, and budget.

References: Gibson, D. (2019). SSCP Systems Security Certified Practitioner Exam Guide, Third Edition. McGraw-Hill Education.

I paired the output down just so I did not hand in a 14 page document. There were 114 connections, mostly established and listening, with some time waits spread through out. The state Listening means exactly that the service is listening for traffic. Established means that there is an active connection and Time\_Wait means that the service no longer needs that connection and is closing it but is waiting for any trailing packets to make it through before it closes

TCP 0.0.0.0:135 0.0.0.0:0 LISTENING 488 - Svchost.exe

TCP 0.0.0.0:445 0.0.0.0:0 LISTENING 4 - System

TCP 192.168.252.105:3389 192.168.4.13:62628 ESTABLISHED 1092 - Svchost.exe

TCP 192.168.252.105:53491 192.168.252.100:445 ESTABLISHED 4 - System

TCP 192.168.252.105:53492 40.83.240.146:443 ESTABLISHED 3668 - Opera.exe

TCP 192.168.252.105:53755 52.112.86.198:443 ESTABLISHED 9544 - Teams.exe

TCP 192.168.252.105:63856 3.163.165.38:443 TIME\_WAIT 0 - System Idle Process