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Network Congestion

In order to understand this phenomenon of network congestion, it important to emphasize that the behavior of the packet-switched subnet as a queue subnet. In each node, associated with each input or output channel there will be an input or output queue respectively. If the speed of arrival of the packets to the node exceeds the speed with which they can be transmitted, the queue associated with the outgoing channel begins to grow and the packets will experience an increasing delay, which could tend to be infinite. Therefore, Network Congestion is defined as an excessive number of packets stored in the buffers of various nodes waiting to be transmitted. Congestion is undesirable because it increases packet travel times and delays communication between users. As well as this problem can be presented in different ways in our network, solutions are available to solve this kind of problem.

There are many ways in which the Congestion of networks can be presented, such as, Too many devices connected in the network, poor network design, bandwidth overload, and outdated hardware. Firstly, too many devices in a network can cause congestion, due to the fact that every network has a specific level of capacity, If there are too many devices connected to the network, then the network will be overloaded with requests for data and creating Network congestion. Secondly, a poor network design can also affect the transmission of data, due to the fact that the network layout needs to be optimized in order to work efficiently and maximize performance across every area of the network, the best way to do this is using subnets for each kind of devices in the network. Thirdly, the bandwidth overload consists of a user consuming much more data than the rest of the devices in the network, depending on the user average data usage. Lastly, Outdated hardware can also cause network congestions, it is always good to update switches, servers, routers, etc.

Since the different ways that Network congestion have been mentioned, it is important to emphasize how we can prevent them. One of the ways to prevent Network congestion is by diving the network into sub-networks so that the network will be grouped into specific areas of devices. Another way to prevent this problem is by using Network Redundancy where it checks if one router or network is congested, a second router will be used to replace the first one, so no packets are lost or timed out because of congestion. Lastly, reconfiguring the TCP/IP settings, where the settings are adjusted to slow the request of packed, in a way where it can be useful because more computers can make more requests on a network.

In conclusion, when working some problems can be faced, one of them is Network Congestion. It can affect the network by excessing the number of packets stored in the buffers and can be presented for many different reasons, such as too many devices connected in the network, poor network design, bandwidth overload, and outdated hardware. However, these problems can be prevented by using different network congestions solutions, such as diving the network into sub-networks, using Network Redundancy, and lastly reconfiguring the TCP/IP settings.