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Differences between VPN, NAT, and DHCP

Since the user have been using the internet, the names of VPN, NAT, and DHCP has come to an interest in order to know what they stand for and their similarities. One thing that can be mentioned about these three is that each has its own way of processing data, depending on how the network is designed in order to get benefits from it. It can go from changing IP address to a place where the user is not actually located, or also these can decide how the data travels whether is strict, moderate, or open. Therefore, it is important to emphasize the concepts and the differences between these connection configurations.

Firstly, The VPN or Virtual Private Network is a network technology used to connect one or more computers to a private network using the Internet. A VPN is used for companies to use these networks so that their employees, from their homes, hotels, etc., can access corporate resources that they could not otherwise. However, connecting an employee's computer to corporate resources is only one of the functions of a VPN. Through the VPN, it passes private and confidential information that in the wrong hands, could be harmful to any company. This is further compounded if the employee in question connects using unprotected public Wi-Fi. Fortunately, this problem can be mitigated by encrypting the data that is sent and received.

Secondly, NAT is the technology most used by firewalls and routers to allow multiple devices on LAN IP addresses to share a single public IP address. Thus, An IP address is a private address, which can only be addressed from within the LAN, but not from the Internet outside of it. Then, for a device with a private IP address to communicate with other devices on the Internet, there needs to be a translation between private and public IP addresses at the point where the LAN connects to the Internet, which is inside the firewall/router connecting the local network to the Internet.

Thirdly, the DHCP or Dynamic Host Configuration Protocol is a network protocol used in IP networks where a server automatically assigns an IP address and other information to each host on the network so that they can communicate efficiently with other endpoints. The main reason DHCP is needed is to simplify the management of IP addresses on networks. Two hosts cannot have the same IP address, and configuring them manually can lead to errors, even in small networks, the manual assignment of IP addresses can be confusing, especially with mobile devices that require IP addresses non-permanently. Also, most users are not technically competent enough to locate IP address information on a computer and assign it.