P4, M2 & D1 - The Functions of Network & Fault Management

Network Management is made up of several functions that contribute to the backbone of a network. Having concurrent management is crucial to a stable and reliable network. Without management and fault protection, the consequences of network downtime depending on the situation can be dire.

Here are some examples of Network Management functions:

Network Setup

Depending on the scale, setting up your network can be super simple or otherwise extremely complex. Depending on the number of clients on your network, as well as considering how they will be connected, whether it’d be over a wired connection via a switch, hub, central server etc, or simply just plugged straight into the router. Otherwise over a wireless connection from a wireless or repeater. It is usually better to have as many clients as possible on a wired connection to ensure both a more reliable and secure connection on the network. For devices such as smartphones, this obviously isn’t an option.

Network Troubleshooting

Troubleshooting a network depending on the severity of the issue can either be painless or a complete hassle depending on the specific fault. For example, a failing network driver on a client machine could either prove an easy “one-click” fix or could require a reinstallation of the driver or in severe cases even the entire operating system. Physical hardware faults can often result in the loss of the entire network such as a network switch turning defective.

Adding to/upgrading the network

Depending on your network layout, adding clients to your network and upgrading infrastructure can be either a breeze or an utter hassle. Adding clients to a ring network for example can result as network downtime for any and all current clients on the network. Addition of a new client for this example requires the network to be entirely reconfigured to be able to support any new additional clients on the network.

Performance & Network Traffic

Optimization of network performance as well as incoming and outgoing traffic allows for a much more stable network then that compared to an un-optimized network that may prove to seem slow due to packet congestion from multiple users that haven’t been correctly allocated bandwidth. Controlling and optimizing network traffic and available bandwidth for network clients is crucial to keep faults such as limited bandwidth and potential packet loss due to congestion at a minimum.

Network Fault Management

Network fault management should be included when dealing with the management of a network as being able to correct network faults is critical to the end stability, reliability and security of your network

It’s necessary to have fault management in place as without it, being able to troubleshoot any kind of network disruption or fault becomes a much more difficult and tedious process to fix and/or recover from.

The end aim of fault management to ensure that your network remains stable and operates normally, and is capable of recovering quickly in the event of a fault in order to ensure minimal consequence on any fault on the network.

Without any fault management in place, the consequences can be dire depending on the scale of your network. For example, a bank’s server network for processing payments could cause loss of money for customers as well as compromise their personal and financial data in the case of a security fault.