Computer Network Management and How Messages Travel Through Different Network Layers

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Abstract

The internet and its’s computer networks were built to withstand high amounts of user access information or products from individuals all over the world almost instantaneously, but great things always come with a price. Small size companies sometimes don’t realize potential threats, viruses, or added/stolen folders before it’s too late or when the organization begins experience slow network communication, failed applications, and lots of errors from cyber criminals. There are many reasons why a network can fail, or slow, when attempting to send a message or a response back to the client from a server request, and they all involve manual maintenance on the network. The various types of network layers offer extremely important communication resource services that enable a clear straightforward standardized path for data flow amongst multiple different networks around the world. Data travels through the internet while following specific organizational standards called the International Organization for Standardization (ISO), for proper computer-to-computer communication between different organizations to provide a strict process for all computers to follow when communicating.

**Computer Network Communication: How Networks Begin to Fail**

Everything changed when the internet was introduced along with its connecting computer networks. The  Internet as well as its computing networks were created to transmit large amounts of information very affectively and efferently from anywhere, and to provide individuals with widespread company access to applications, products, and other data from across the world. However, because this information is transmitting everywhere, cybercriminals may find an easy way of stealing computer contents, files or adding files containing viruses or malware.  Probably one of the most important aspects in managing threats is to understand how exactly communication is being performed and how it’s managed once its' received.

# Network Layers

There are several methods to describe how communication networks start their online journey. Each network can employ a different set of network hardware and software to fulfill these services, but all networks offer a variety of ways to convey messages to specific requestors. To effectively convey a message, all of these pieces of hardware and software must cooperate within different network layers to accomplish an almost instantaneous communication between all users. There are several methods to describe how communication networks start their online journey. Each network can employ a different set of network hardware and software to fulfill these services, but all networks offer a variety of ways to convey messages to specific requestors. To effectively convey a message, all of these pieces of hardware and software must cooperate within different network layers.

#### Network Management

##### Many people think network security is primarily a technical issue, and occasionally it may be. More security hazards, however, might be created by improper network management than by using outdated software and hardware. The majority of the time, antivirus software firms are unable to keep up with the volume of focused assaults from hackers. These dangers include phishing attacks which are fake emails that appear legitimate, and ransomware that impersonates beneficial programs to lock your computer and demand payment. Both people management and technology management are important aspects of network administration. Service communication.

##### **Secure Storage**

The need for safe storage, server space, and methods of data transport will increase as more users seek access to more network services and greater network capacity. New methods of securely storing information will be introduced as we figure out effective ways to store all the data we produce. For effective security measures and the rising need for storage, businesses now have thousands of servers that cost hundreds of dollars apiece. Through magical data-disappearing technologies like cloud computing, businesses today have introduced new techniques to reduce security and storage expenses. What's crucial is that cloud providers are turning more toward the security precautions that the government mandates for safe network service communication.

References

Team, Microsoft (2020). Microsoft. Microsoft Support. Retrieved August 1, 2022, from https://support.microsoft.com/en-us/windows/why-is-my-internet-connection-so-slow-c68cf021-c5cf-db6f-eade-7c9d8bd78aa1

Mailsamy, K. (2020, July 13). *5-layer network model made simplified!* Medium. Retrieved August 1, 2022, from https://medium.com/@karthikayanmailsamy/5-layer-network-model-made-simplified-e813da0913ba