**TCP/IP: Transmission from Applications Through Network and Transport Layers**

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If adequate transportation and transmission protocols and processes are not implemented, transmitting messages back and forth across a network might run into several difficulties. Although there are many different ways to send messages, in order for users to communicate with one another, a communication network is required. An HTTP response must have a body, a set of headers, and a status in order to satisfy a user's request for data. The modifications in how jpgs, gifs, and images from the web are sent to the receiver also result in a smaller file size. But there is no deterioration in quality. The messages' sizes will change as they are sent.

**Types of Messages That Can Be Sent**

Communication across a network from host-to-host can be done in, many and new ways, including Email, Paging, Short message service, enhanced message service, Multimedia messages service, Instant message, HDML notifications, and application-to-application messaging. Message transmission is done by the transport layer, which connects these messages from the application layer with the network. The application layer sends messages out to the data link layer, which strips them for transmission between routers. The message is then prepared to proceed to the next phase once the Ethernet frame has been stripped and given a new location.

**Message Transmission Through the Network**

A specific standardized protocol is needed for data to effectively communicate from one location to the next so that two or more users can transmit data from one another. Users can connect and send data using this protocol in a quick and structured fashion. Models for computer networks, also referred to as computer network models, are used to construct this path for all messages across the internet to follow. The establishment of a connection between the sender and receiver, as well as the efficient transmission of data, are both handled by these combined computer network models. The entire data communication process is based on two computer network models, namely the OSI Model and the TCP/IP Model.

The application layer acts as an interface for the program and the user to exchange data. Characters are translated from the host system's native format to the receiving system's format by the presentation layer. The session layer makes it possible to keep running sessions while browsing. In the OSI model, the transport layer, which is the fourth layer, is responsible for reliability, flow control, congestion control, multiplexing, and demultiplexing. Next, is the network layer, which makes it possible for various functions including address assignment, routing, and fragmentation. The Data Link Layer's primary duties are Flow Control, Error Control, Access Control, Framing, and the reading of physical addresses. The electrical, mechanical, functional, and procedural aspects of physical hardware constructed within the physical layer.

**Transmission from the Web Server**

The HTTP packet that a web server sends back in response to a client request is often represented as an HTTP response object. A body, a set of headers, and a status are all elements of an HTTP response required by a user’s request for data. The process in reading and validating a full response object, including the status, headers, and content, is an important process to authenticate the HTTP response status properly. As a result, checking each piece of the HTTP response independently is important in double checking the server sends a correct response without any unexpected status code errors. The size of the file is also reduced as a result of the changes in how the web's photos, photographs, gifs, and jpgs are transmitted to the recipient. However, there is no quality loss. The size of the messages will fluctuate as they are being sent.

**References**

C, L. (2020, August 13). Networking models - introductory guide. Section. Retrieved August 6, 2022, from <https://www.section.io/engineering-education/networking-models-introductory-guide/>

Kaushik, G. (2022, July 5). What is HTTP Response? Tools QA. Retrieved August 6, 2022, from <https://www.toolsqa.com/client-server/http-response/>

Nixon, M. S., &amp; Aguado, A. S. (2020). Image transmission. Image Transmission - an overview | ScienceDirect Topics. Retrieved August 7, 2022, from <https://www.sciencedirect.com/topics/computer-science/image-transmission>