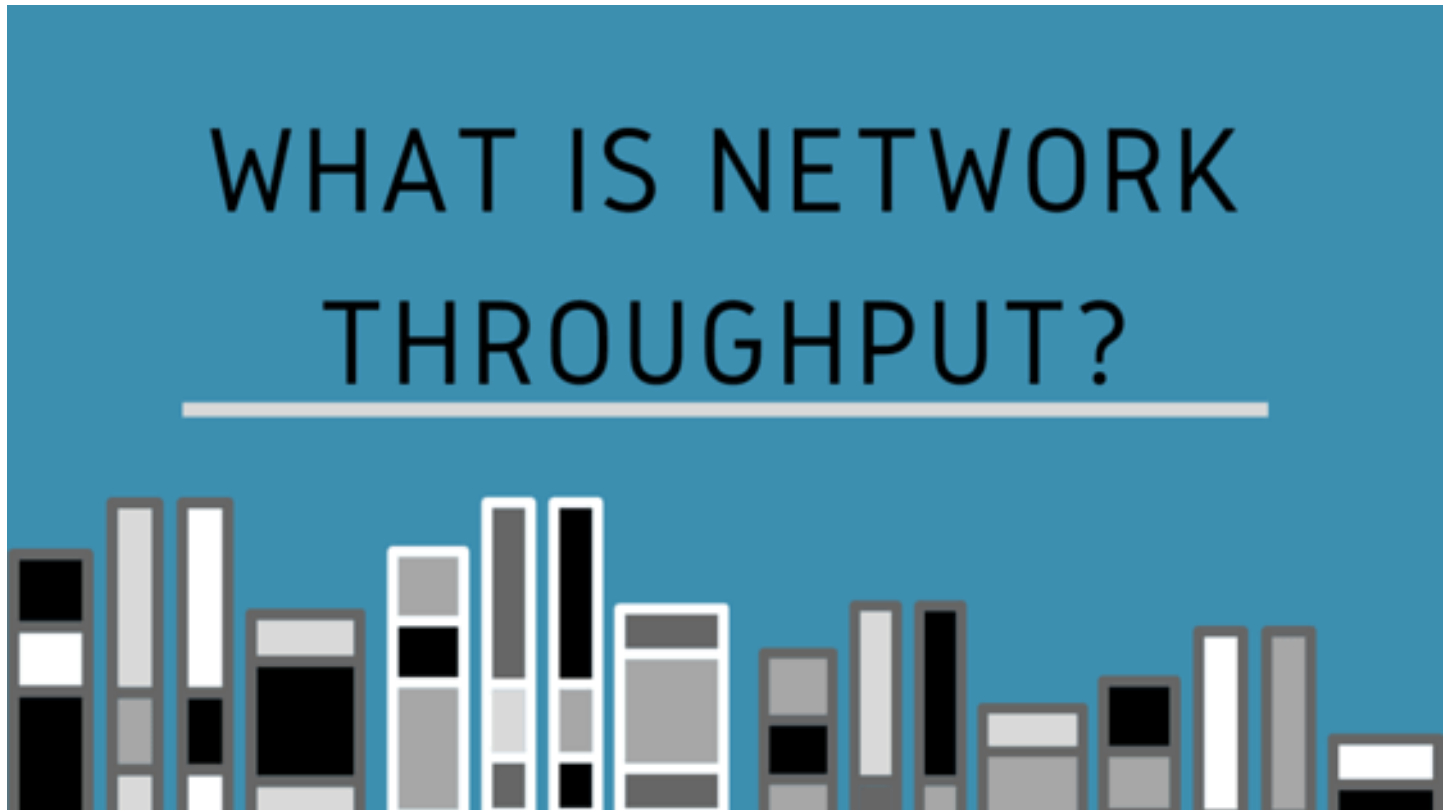


What is Network Throughput?

🕒 2016-07-26 👤 Logan Rivenes



Throughput refers to the number of information units a system can process within a specified amount of time. In the context of communication networks like the internet, throughput is the rate at which messages are delivered successfully.

What is Network Throughput?

Network throughput is usually represented as an average and measured in bits per second (bps), or in some cases as **data packets** per second. Throughput is an important indicator of the performance and quality of a network connection. A high ratio of unsuccessful message delivery will ultimately lead to lower throughput and degraded performance.

Network devices communicate by exchanging data packets. Throughput indicates the level of successful packet delivery from one point on the network to another. Dropping packets along the way lowers the throughput and the quality of network connections. Throughput has very real consequences for web services. Low

throughput or high **packet loss** during **online gaming** sessions can lead to entire sections of gameplay being skipped. **VoIP** calls suffer from low quality and skips.

Network throughput is affected by a number of factors. These include attributes like processing power of physical hardware including cables and routers. **Network congestion** and packet loss can also have an effect on throughput.

Bandwidth and Throughput

Bandwidth and throughput can, at first glance, seem to be similar. There are, however a couple of important distinctions between the two.

Bandwidth refers to the size of an internet pipe. Internet communications usually happen in the shape of chunks of data called data packets. Bandwidth refers to the size of these data packets as well as the number that can travel through an internet pipe simultaneously.

An important distinction with throughput is that the fact that bandwidth refers to the theoretical size or capacity of the internet pipe. Throughput on the other hand refers to the actual number of data packets that get transmitted.

Using the analogy of a highway, bandwidth would be the total number of cars that can travel along that highway over a period of time.

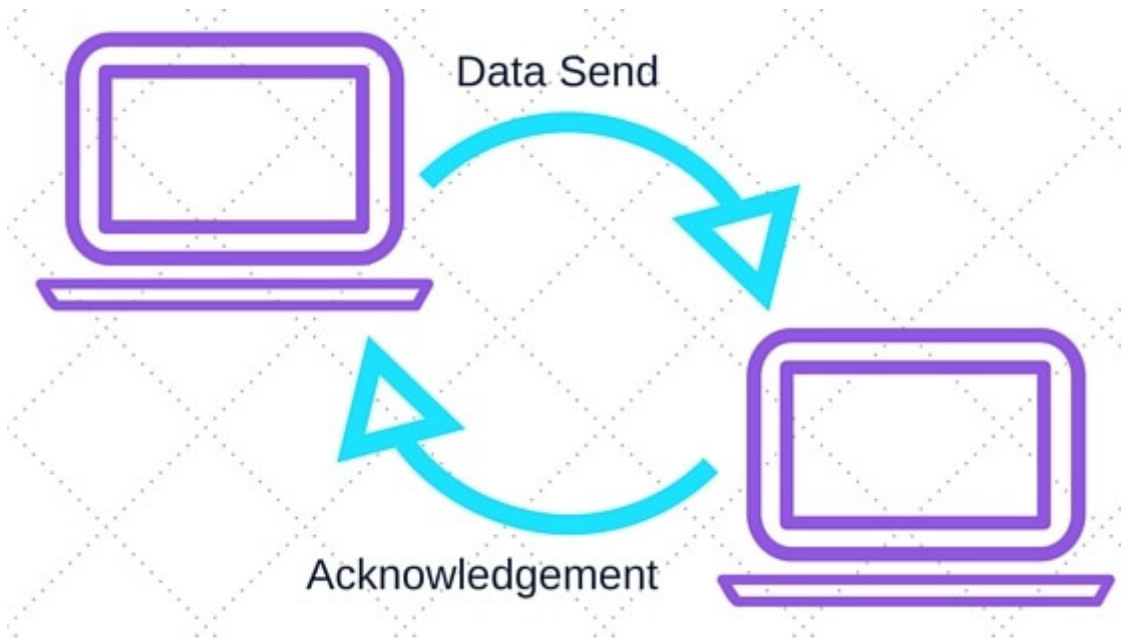


Throughput would be the number of cars that actually get through the length of the highway, after accidents and road closures.



Throughput and Internet Speed

Internet speed is an obscure quantity and can mean a lot of things to a lot of people. Most people think of it as the time it takes to download or upload a file. Speed can also refer to the “rated speed” of hardware devices or internet connections.



For example, one regularly hears about super-fast 100 Mbps internet connections. These speeds are by default taken to mean the throughput of that particular internet connection. In fact, these internet connection speeds can be more accurately described as the theoretical bandwidth of the connections. The real world data transfer capacity, or throughput, might be much less.

Tools to Test Network Throughput

Testing network throughput is important to ensure performance benchmarks are being met. Any deviations to expected throughput levels should be investigated and resolved. Below we take a look at a couple of free tools to test throughput.

TamoSoft Throughput Test

The throughput test tool from TamoSoft is a useful utility to test the throughput levels of both User Datagram Protocol (UDP) and Transmission Control Protocol (TCP). Tamosoft measures and reports both upstream and downstream throughput values. It also supports both **IPv4 and IPv6** and has a simple setup process.

NetStress



Netstress is another free throughput testing tool which can test both UDP and TCP. In contrast to Tamosoft however, it is limited to only IPv4 and requires running separate tests for upstream or downstream.

Download the DevOps Network Guide eBook to learn more.

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