MasterTel USA
Technology Solutions for Business, Healthcare and Finance

NETWORK PERFORMANCE SOLUTIONS

Network performance is a measure of service quality in the telecommunications industry as experienced by the customer. While there are many ways to measure a network's performance, each is designed to meet specific customer needs. The following measures are most often considered important:

Bandwidth - commonly measured in bits/second is the maximum rate that information can be transferred.
Throughput - the actual rate that information is transferred.
Latency - the delay between the sender and the receiver decoding it.
Jitter - variation in the time of arrival at the receiver of the information.
Error rate - the number of corrupted bits expressed as a percentage or fraction of the total sent.

Network Performance Monitoring

These are monitoring systems which measure your computer's processor (CPU) for the speed and reliability of it's operation. The monitoring software will send messages through a system to detect the responsiveness of that system and alert network administrators when it detects unexpected behavior or slow response times.

Network Performance Monitoring also refers to the oversight of a computer network using specialized management software tools. Network monitoring systems are used to ensure availability and overall performance of computers (hosts) and network services. These systems are typically employed on larger scale networks.

From the straight forward to the most complex, these systems help you ensure the quality of your system's response, both for security and the ease of use experienced by the end user.

MasterTel USA partners with the industries best network performance appliance manufacturers and service organizations.

WAN Optimization and Application Acceleration

A WAN or wide area network is one way to categorize network designs by their scope or scale. Others include LAN or local area networks and WLAN for wireless local area network, among many such specialized networks which have evolved with technology.

Optimization refers to manual or software created adjustments to enhance the performance of your Wide Area Network connections. These optimization tools seeks to increase the efficiency of data transfers.

- **De-duplication** – Eliminates the transfer of redundant data across the WAN by sending references instead of the actual data. By working at the byte level, benefits are achieved across IP applications.
- **Compression** – Relies on data patterns that can be represented more efficiently. Essentially compression techniques similar to ZIP, RAR, ARJ etc. are applied on-the-fly to data passing through hardware (or virtual machine) based WAN acceleration appliances.

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- **Latency optimization** – Can include TCP refinements such as window-size scaling, selective Acknowledgements, Layer 3 congestion control algorithms, and even co-location strategies in which the application is placed in near proximity to the endpoint to reduce latency.[6] In some implementations, the local WAN optimizer will answer the requests of the client locally instead of forwarding the request to the remote server in order to leverage write-behind and read-ahead mechanisms to reduce WAN latency.
- **Caching/proxy** – Staging data in local caches; Relies on human behavior, accessing the same data over and over.
- Forward Error Correction – mitigates packet loss by adding an additional loss-recovery packet for every "N" packets that are sent, and this would reduce the need for retransmissions in error-prone and congested WAN links.
- **Protocol Spoofing**– Bundles multiple requests from chatty applications into one. May also include stream-lining protocols such as CIFS.
- **Traffic Shaping**– Controls data flow for specific applications. Giving flexibility to network operators/network admins to decide which applications take precedence over the WAN. A common use case of traffic shaping would be to prevent one protocol or application from hogging or flooding a link over other protocols deemed more important by the business/administrator. Some WAN acceleration devices are able to traffic shape with granularity far beyond traditional network devices. Such as shaping traffic on a per user AND per application basis simultaneously.
- **Equalizing** – Makes assumptions on what needs immediate priority based on the data usage. Usage examples for equalizing may include wide open unregulated Internet connections and clogged VPN tunnels.
- **Connection limits** – Prevents access gridlock in routers and access points due to denial of service or peer to peer. Best suited for wide open Internet access links, can also be used on WAN links.
- **Simple rate limits** – Prevents one user from getting more than a fixed amount of data. Best suited as a stop gap first effort for remediating a congested Internet connection or WAN link.

The speed of our connections and downloads has always been critical to meeting business needs, as well as, enhancing the customer's experience. However, in today's business world we are experiencing a growth of mobile devices used by workers spread all over the world. There is also a demand for larger data files. This has created the need to not just enhance speed but to enable reliable business connectivity, creating more complex challenges requiring more sophisticated solutions.

Solutions to these emerging issues can result in a clear ROI and benefits that employees and company leaders will notice immediately. Examples of these solutions include systems that eliminate duplicative data, compress files, while performing caching and latency optimization techniques. Additional configuration of a system's error corrections, protocol, equalizing and shaping of data traffic seek to maximize speed and reliability.

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The use of these solutions for optimization and acceleration can create the foundation of a globally connected business, with enhanced ease of communicating, while increasing productivity and reducing risk.

MasterTel USA offers an abundance of appliance and hosted WAN Optimization products and services through our global partners.

SOME OF OUR NETWORK PERFORMANCE MONITORING, WAN & APPLICATION OPTIMIZATION PARTNERS:

ARYAKA NETWORKS
ARRAY NETWORKS
SHUNRA
SEVONE
CISCO – MERAKI
NIKSUN
NETSCOUT
WILDPACKETS - OmniPeek
FLUKE NETWORKS – TruView
SONICWALL
RIVERBED
…and more!

Speak to a Network Performance Consultant