

Signiant Acceleration Protocol using UDP

Introduction

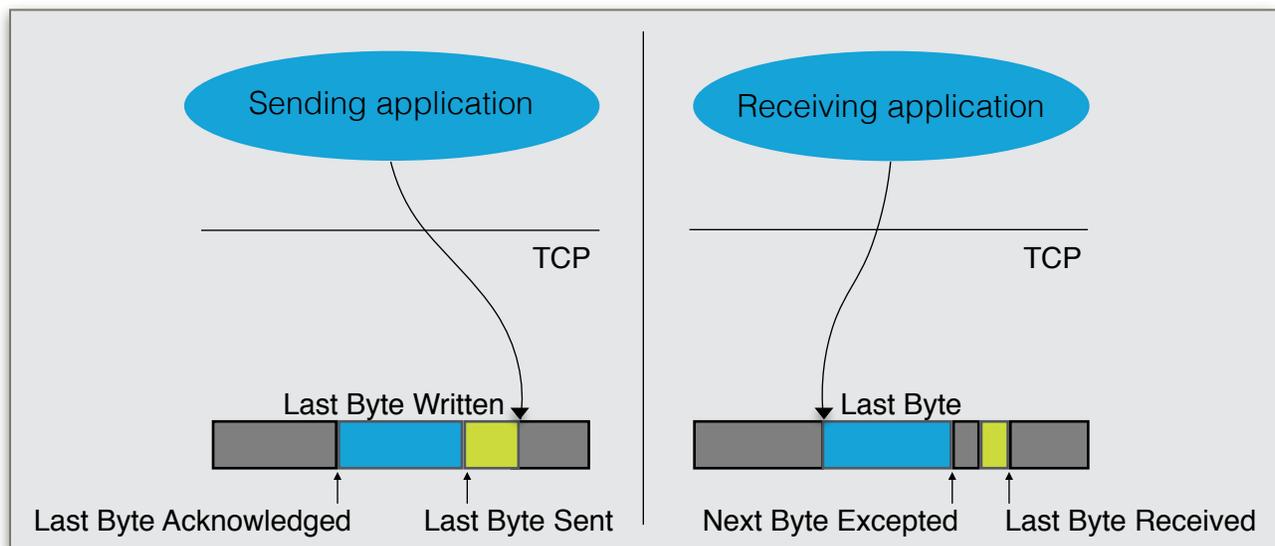
FTP, Rsync, Telnet, CIFS, NFS, DropBox, Box and many other utilities and applications use the Transport Control Protocol (TCP) to communicate reliably over LANs and WANs. Why would Signiant choose to use the User Datagram Protocol (UDP) as the basis for its Signiant Acceleration Protocol? The answer, of course, is speed and throughput.

TCP becomes slower in the presence of latency and packet loss

In many situations, TCP is not the best protocol for applications that transfer files, since the mechanism it uses causes delays in transfer and inefficient use of the available bandwidth, especially when there is significant distance between the source and the target.

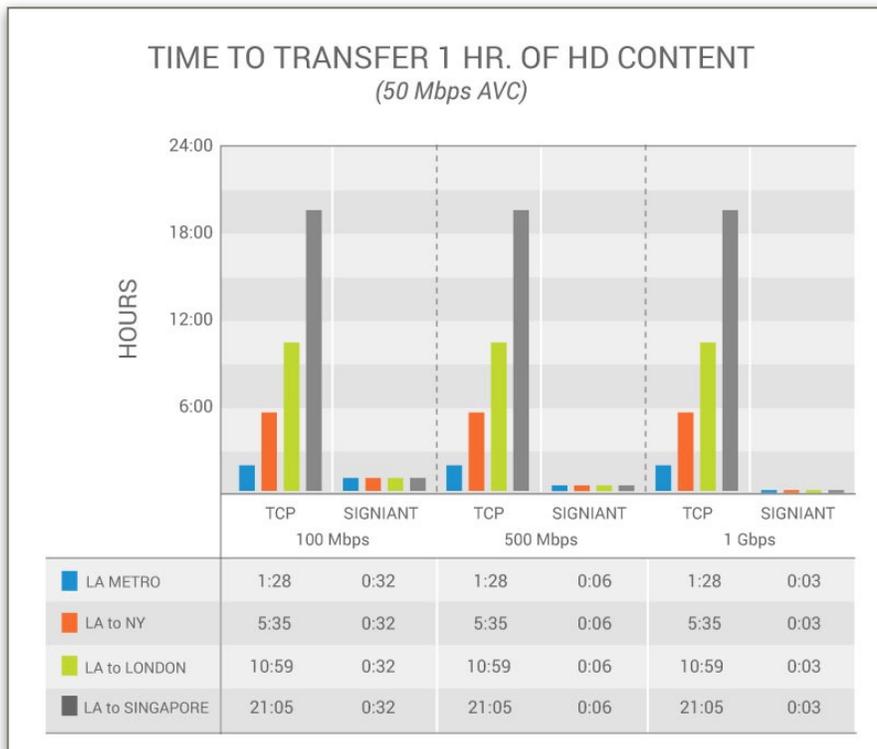
- **TCP can't use all of the available bandwidth** to send data because it has to continuously wait for acknowledgements before sending new data over the network. This waiting reduces throughput.
- **TCP resends data that may already have been received.** This resending also reduces throughput.

When TCP 'times out' because of lack of acknowledgement, it resends data from the point of last acknowledgement, even though some data after that point may have been received correctly. TCP doesn't have the ability to communicate gaps in the received data.



Signiant Acceleration Protocol is significantly faster than TCP in the presence of latency and packet loss

- **Signiant Acceleration Protocol uses the available bandwidth** by eliminating the stop & start behavior of TCP. This allows throughput to approach line speed for effective utilization of available bandwidth.
 - Application-controlled dynamic window-sizing based on the bandwidth and latency of the network at the time of transfer determines the optimum amount of data to send before requiring an acknowledgement.
- **Signiant Acceleration Protocol employs positive and negative acknowledgement.**
 - If data is lost, only data that has not been received is resent to the target, which increases throughput.



Signiant vs. TCP

This diagram compares Signiant's acceleration protocol with TCP when sending one hour of HD content. Note the difference Signiant makes under high bandwidth, high latency (long distance) conditions. Signiant utilizes all available bandwidth, where TCP remains slow, even with higher network speeds. And Signiant is especially impactful for longer distance transfers compared to TCP-based protocols.

Conclusion

Signiant's UDP-based acceleration technology moves large files at speeds up to 200X faster than TCP without being impeded by network latency or packet loss. Assured delivery is achieved with rich flow and error correction protocols. Contact Signiant to find out how our on-premises and SaaS acceleration solutions can benefit your business.