DELL EMC

HANDOUT

EFFICIENT VIDEO TRANSPORT (EVT) ACCELERATION PROTOCOL USING UDP

EVT versus TCP

TCP

- TCP cannot use all the available bandwidth to send data because it must wait continuously for acknowledgments 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.

EVT

- Application-controlled dynamic window-sizing that is 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 acknowledgment.
- Acceleration Protocol employs positive and negative acknowledgment. If data is lost, only data that has not been received is resent to the target, which increases throughput.

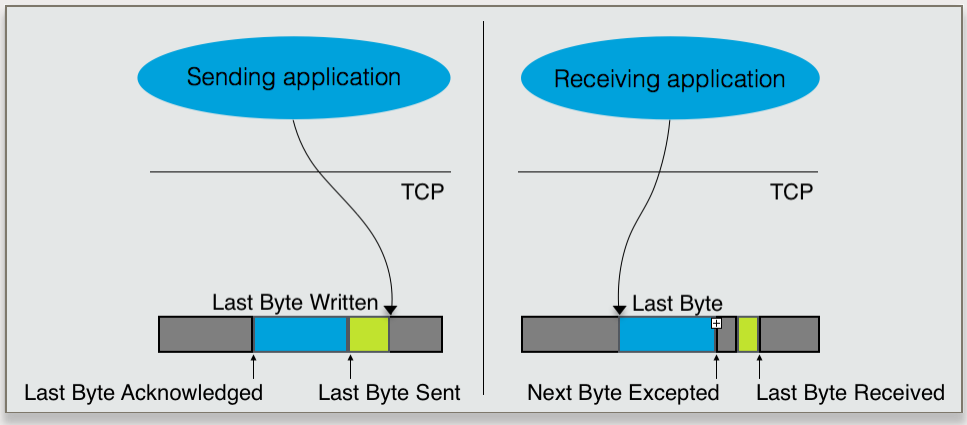
Many utilities and applications use the Transport Control Protocol (TCP) to communicate reliably over LANs and WANs, such as FTP, Rsync, Telnet, CIFS, NFS, DropBox, and Box. So, why would EVT choose to use the User Datagram Protocol (UDP) as the basis for the EVT Acceleration Protocol? The answer, of 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. The mechanism that it uses causes delays in transfer, inefficient use of the available bandwidth, which reduces throughput, especially when there is significant distance between the source and the target.

- TCP cannot use all the available bandwidth to send data because it must wait continuously for acknowledgments before sending new data over the network.
- TCP resends data that may already have been received.

When TCP 'times out' because of lack of acknowledgment, it resends data from the point of last acknowledgment, although some data after that point may have been received correctly. TCP is not able to communicate gaps in the received data.



TCP send and receive

EVT Acceleration Protocol is significantly faster in the presence of latency and packet loss

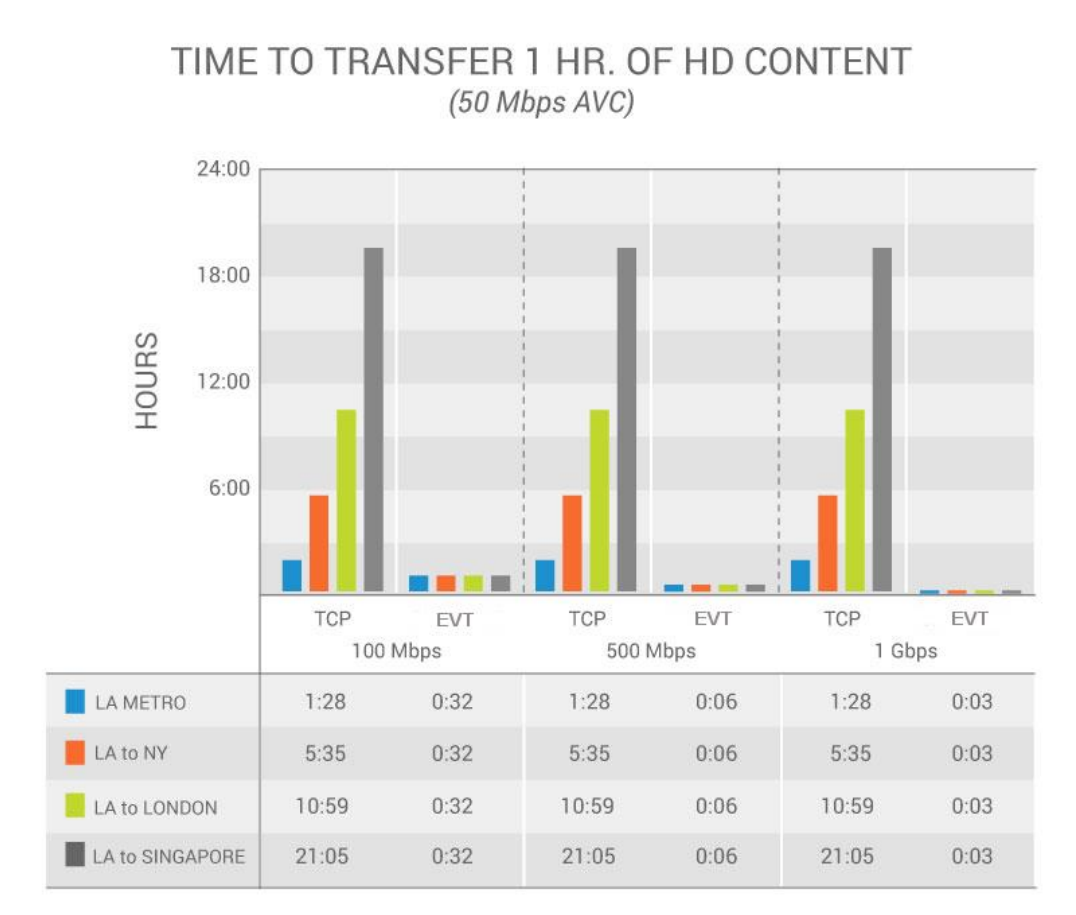
EVT Acceleration Protocol uses the available bandwidth by eliminating the stop and start behavior of TCP. This enables throughput to approach line speed for the effective use of available bandwidth.

Application-controlled dynamic window-sizing that is 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 acknowledgment.

By employing positive and negative acknowledgment, only data that has not been received is resent to the target, which increases throughput.

EVT versus TCP

The following diagram compares the EVT Acceleration Protocol with TCP when sending 1 hour of HD content. Note the difference that EVT makes under high bandwidth, high latency (long distance) conditions. EVT uses all available bandwidth, where TCP remains slow, even with higher network speeds. EVT is especially impactful for longer distance transfers compared to TCP-based protocols.



Time to transfer for EVT and TCP

Conclusion

EVT Acceleration Protocol using UDP moves large files at speeds up to 200 times faster than TCP without being impeded by network latency or packet loss. Assured delivery is achieved with rich flow and error correction protocols. Contact Dell EMC to find out how our on-premises and Software as a Service acceleration solutions can benefit your business.