

Resilio Connect WAN Optimization

Resilio Connect is a decentralized file transfer solution that provides fast data replication across any network. Unlike other WAN optimized point-to-point based solutions such as Aspera, Signiant, and UDT, Resilio Connect adds a true peer-to-peer layer that provides substantial benefits in data transfer speed and reliability. A key enabling feature is WAN Optimization.

WAN Optimization turns on Resilio's unique Zero Gravity Transport protocol (ZGT) to reach the maximum speed across any network. It works by minimizing the impact of packet loss and high latency that would otherwise slow traffic on network routes.

Resilio WAN Optimization Technology

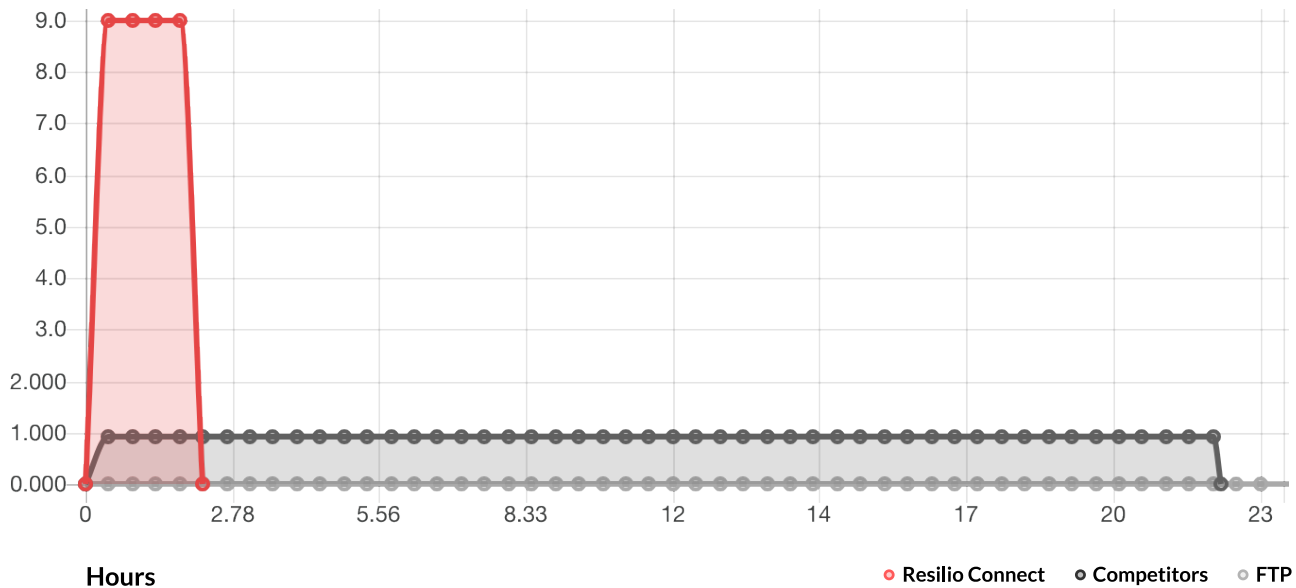
Resilio's ZGT protocol was designed to overcome the deficiencies of regular protocols such as TCP/IP over long distance connections, VPNs, mobile and satellite networks.

The ZGT protocol architecture is based on a bulk transfer strategy, where the sender sends packets periodically with a fixed packet delay to create a uniform packet distribution in time and uses a congestion control algorithm to calculate the ideal send rate.

There is no acknowledgment for every packet, instead, the protocol uses interval acknowledgment for a group of packets with additional information about lost packets. This acknowledgment combined with periodical RTT (Round Trip Time) probing informs the congestion control algorithm and keeps an optimal sending rate.

The protocol uses a delayed retransmission strategy - lost packets retransmit once per RTT to decrease unnecessary retransmissions. Resilio's ZGT protocol maximizes data transfers irrespective of the network conditions across WAN routes.

Mbps | 10GB file to 10 endpoints over 10 Mbps link (250ms latency, 2% packet loss)



How Resilio Connect Compares to Others?

Resilio Connect re-invents data transfer over WAN networks.

Other WAN optimized solutions (such as Aspera, Signiant, UDT, etc.) are designed for serial work. They optimize data transfer point to point as client and server. In contrast, Resilio Connect uniquely enables fast and secure parallel transport.

Resilio Connect combines WAN optimization and a peer-to-peer approach. This approach splits a file into several blocks that independently transfer to multiple destinations. The destinations can exchange blocks between themselves independently from the sender. This dramatically increases the speed of data delivery by leveraging internet channels across all locations.

Resilio Connect with WAN optimization provides these unique benefits: It works non-stop over any network, when other solutions fail. And it is the world's fastest solution for distributing data and meeting operational deadlines.

Why WAN Optimization?

The TCP/IP protocol was created for ideal networking conditions on Local Area Networks. On WAN networks the protocol can amplify delays by causing packet retransmissions and effectively slowing down data transfer. This happens when any of the conditions on the WAN Optimization Checklist (see attached) occur. Usually within a local network packet drop is equal to 0%, while over the WAN it could vary from 0.01% to 2% or even more.

The combination of the high packet transmission time and the probability of packet drop reduces TCP/IP speed. This leads to the situation that you have data transfer speed significantly lower than the available bandwidth of your internet channel.

What Is WAN Optimization Add-on?

WAN Optimization is an optional add-on feature in Resilio Connect that can be added to any Agent to improve networking between Agents for greater speed and reliability.

WAN Optimization turns on Resilio's unique Zero Gravity Transport protocol (ZGT) to reach the maximum speed across any network.

Agent name	Status	WAN optimization	OS	Space free	Memory usage
k mbp	🟢	On	mac	59.5%	12.8 MB
Management Server ip-172-26	🟢	On	linux	42.1%	25.5 MB
us-client-1	🟢	On	linux	42.1%	38.6 MB
us-client-5	🟢	On	linux	42.1%	52.4 MB
us-client-2	🟢	On	linux	42.1%	41.7 MB
us-client-4	🟢	On	linux	42.1%	60.0 MB

Checklist: When Do I Need WAN Optimization?

Check every box that might be true. **Note: A network route is any part of any network between machines.** You will want to license WAN Optimization if any of the following items are checked:

- Is any network route over a mobile network?
- Is any network route over a microwave link?
- Is any network route over a satellite link?
- Is any network route over the public switched telephone network?
- Does any network route include a VPN?
- Does any network route drop packets at 0.01% or greater?
- Does any network route have latency greater than 20ms?
- On any network route, Is the distance between any two machines, including all remote or branch locations from headquarters, ever greater than 1,000 miles (1,610 kilometers)?
- On any network route, have any users ever reported changes in network speed related to weather?

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