

aCelera™
WAN Optimization —
Extreme Scalability for
Application Acceleration

*50% More Accelerated Connections at
60% Less Cost than Competitive Solutions*

October 2009



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Summary

Certeon, the leading vendor of virtual appliances for WAN optimization and application acceleration, is also the most scalable and cost-efficient solution on the market today, enabling more than 50% more sustained accelerated network connections at 60% less the cost of proprietary hardware appliances. According to a recent Tolly Test Report (#209129, October 2009), Certeon's aCelera Virtual Appliance (VA) software sustained 3,500 concurrent accelerated connections while reducing file transfer times by up to 99% over a high latency WAN. This level of scalability exceeds the published number of network connections supported by Riverbed's Steelhead 1050H hardware appliance in the same configuration as the aCelera software running on an industry-standard server.

The independent Tolly test also demonstrated that there was plenty of headroom for aCelera to scale the number of concurrent connections given its minimal server CPU and memory utilization, opening the way for supporting more connections during peak traffic times. During the test, the aCelera VA was measured to be utilizing only 30% of the available memory and CPU resources of the underlying server. This level of efficiency leaves enough headroom on the server to support additional VAs and many more accelerated connections. aCelera software also optimizes bandwidth utilization by more than 95%, saving enterprises on costly network bandwidth expenditures and enabling them to reallocate underutilized bandwidth where needed.

The Tolly test proved that Certeon's aCelera virtual appliance *"can be implemented as a high performance application acceleration solution that can be scaled as needed, rather than a purpose built hardware appliance that could have limited scalability due to its fixed resources."*

Certeon compared the cost of aCelera software configured on an industry-standard server against like Riverbed Steelhead configurations based on the number of connections achieved and found a savings of more than 60% when deploying aCelera at the data center and in remote branch offices. aCelera software gives distributed enterprises 50% more connections for more than 60% less than the cost of a Riverbed Steelhead appliance.

Why Connections Count

Network scalability in WAN optimization and application acceleration is critical to maintaining an efficient, dynamic, and agile infrastructure that can support today's cost- and space-conscious enterprises. Organizations need the flexibility to grow the number of connections/users supported over optimized WANs without having to perform "forklift" upgrades to hardware that is larger, more costly, and often partially underutilized.

The Tolly tests showed aCelera software supporting 3,500 concurrent accelerated TCP connections running on an industry-standard server configuration over a simulated T1 WAN link with 200ms round-trip latency. When compared to Riverbed's Steelhead 1050H appliance, with the same hardware configuration (CPU, memory, storage) supporting 2,300 connections, aCelera out scales the Steelhead appliance by 52%.

The Riverbed approach of licensing a specific number of accelerated connections for each Steelhead appliance model forces customers into limiting their WAN optimization scalability options. A Riverbed Steelhead 1050H supports a maximum of 2,300 accelerated connections as per Riverbed's specifications. To achieve equal scalability to the number of connections achieved by aCelera, Riverbed would need to push users into the next level of appliances, the Steelhead

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2050M, with a maximum 4,000 connections and so on — moving users into the next level of appliance as they require more connectivity. As more and more enterprises are consolidating hardware resources at data centers and branch offices, the Riverbed approach of pushing larger boxes to support more users is counterintuitive.

The Certeon *aCelera* software approach enables IT managers to turn an industry-standard server into a highly scalable WAN optimization and application acceleration appliance, without the need of special-purpose closed-hardware appliances. IT managers can deploy *aCelera* software on existing data center and branch office servers via the network, without worrying about on-site hardware installation complexity and cost. *aCelera* also enables IT managers to achieve greater scalability (more connections/supporting more users) on a less-expensive hardware platform.

aCelera works alongside and optimizes applications that also can reside on the same server. As demonstrated in the Tolly Report, *aCelera* software accelerates file access over the WAN by more than 99% with less than 30% CPU and memory utilization, enabling plenty of system resources for additional applications. *aCelera* also optimizes available network bandwidth by more than 95%. *aCelera*'s extreme scalability and network bandwidth optimization enables IT managers to support many more accelerated connections during peak network times and eliminates the expense of acquiring more bandwidth. Also, during low network utilization times, *aCelera* can still support many more connections with less bandwidth, enabling IT managers to allocate the unused network bandwidth to other areas of the business.

According to the Tolly report:

“These results showed that the aCelera software can dramatically reduce the data transferred over the wire for frequently accessed data, reducing the response time for remote users. The reduction of data transmitted over the network also reduces the amount of bandwidth required, allowing more customers to utilize bandwidth more effectively and potentially avoiding expensive bandwidth upgrades.”

More Connections for Less Cost

As compelling as supporting more connections while utilizing less network bandwidth is, *aCelera* also can achieve extreme scalability with greater than 60% less cost when compared to Riverbed's Steelhead appliances. Two scenarios were analyzed comparing the cost of *aCelera* software and Steelhead proprietary hardware appliances, one with 50 branch locations and 10,000 users and another with 100 branch locations and 30,000 users.

Scenario One: 50 Remote Locations, 10,000 Users

In this configuration, there is a single data center with 50 remote locations and 10,000 users (200 per location) with 10 connections per user (total of 2,000 connections). The *aCelera* VA is running on a single industry-standard server in each branch location, as is the Riverbed Steelhead 1050H. In this example, both Certeon *aCelera* and Riverbed Steelhead appliances are not over capacity. Riverbed is running at 90% capacity, while the *aCelera* VA has additional capacity for more connections and the server has enough capacity to run three more *aCelera* VAs.

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The cost comparison¹, including both data center and branch office appliances, is \$537,500 for the aCelera VA versus \$1,399,738 for the Riverbed Steelhead 1050H — a 62% savings.

Branch locations	50
Number of users	10,000
Users per location	200
Connections per user	10
Connections per location	2,000

Cost Comparison (Cost based on one appliance per remote location, including data center)	
Steelhead 1050H	\$1,399,738
aCelera with server HW	\$537,500
Savings with aCelera	62%

As a side note to this scenario, in order to support as many concurrent accelerated connections as an aCelera VA (more than 3,500), one would need to upgrade to a Riverbed Steelhead 2050M appliance in the branch offices. The Steelhead 1050H would be running at 130% capacity, requiring an upgrade to a Steelhead 2050M to achieve more than 3,500 concurrent accelerated connections.

Scenario Two: 100 Remote Locations, 30,000 Users

In Scenario Two, the number of remote locations is increased to 100 with 30,000 users (10 connections per user). To support the 3,000 concurrent accelerated connections in this scenario, the Steelhead 2050M is used for the cost comparison against the same aCelera configuration used in the first scenario. In both scenarios, aCelera is running a single VA with 3,500 concurrent accelerated connections, using only 30% of the system CPU and memory, allowing for more connections per VA as well as room on the server for three more aCelera VAs.

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In Scenario Two, the cost of the aCelera VA running on a less-expensive server, when compared to the Steelhead 2050M appliance, resulted in a 68% savings.

Branch locations	100
Number of users	30,000
Users per location	300
Connections per user	10
Connections per location	3,000

Cost Comparison (Cost based on one appliance per remote location, including data center)	
Steelhead 2050M	\$4,399,463
aCelera with server HW	\$1,525,000
Savings with aCelera	68%

Conclusion

The Tolly test analysis of Certeon’s aCelera VA-supported connections, when compared against Riverbed’s published results of Steelhead hardware appliance-supported connections, demonstrates the superior scalability of the aCelera software on industry-standard servers when deploying WAN optimization and application solutions. Certeon’s aCelera software achieved more than 52% more concurrent accelerated connections while reducing file transfer times by 99% over a high-latency WAN.

Certeon’s comparative analysis of the aCelera and Steelhead costs demonstrates that Certeon software on industry-standard servers delivers more than 60% savings versus the equivalent configuration from Riverbed. It also demonstrates that the same aCelera configuration has the capability to scale to meet the needs of both the 50 and 100 branch office enterprises, whereas the Riverbed boxes would require a “forklift” upgrade between the Steelhead 1050 and the Steelhead 2050 to achieve the required number of supported connections.

The bottom line: Certeon’s aCelera virtual appliance software scales 50% better than competitive hardware appliances when accelerating applications to remote users at 60% less cost.



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