

Riverbed® Steelhead® Appliances Accelerate Exchange

Microsoft Exchange has become the corporate standard in email, calendaring, and workforce productivity. As a result, significant time and IT resources go into creating a robust, reliable, high-performance Exchange environment. IT departments regularly consider deploying additional exchange servers, moving servers to branch offices, and even adding more bandwidth in order to improve Exchange performance.

Microsoft also has a “cached mode” to improve the perceived performance of Exchange email and the associated MAPI protocol. This mode enables email to store messages locally for quicker access. Cached mode also attempts to perform key transactions in the background, synchronizing changes while allowing users to continue to work. Cached mode manages bandwidth use by only downloading headers on slow connections.

Steelhead Appliances Enhance Microsoft Exchange

Riverbed Steelhead appliances can significantly improve Exchange operations by utilizing the Riverbed Optimization System (RiOS), which simultaneously addresses bandwidth constraints and the combined effects of latency and protocol inefficiencies. RiOS combines fine grain data reduction and compression to perform data streamlining, reducing bandwidth utilization by 60 percent to 99 percent. Transport streamlining and application streamlining minimize protocol chattiness, eliminating 65 percent to 98 percent of packet round trips across the WAN. The RiOS application streamlining module for MAPI is unique in the market for its ability to directly address the specific MAPI protocol inefficiencies. RiOS can reduce the time needed to send and receive emails across the WAN, calendaring, and other common actions. Additionally, RiOS can reduce the bandwidth requirements of e-mail and attachments.

Even with all the benefits of local message caching, intelligent bandwidth use, reduced server and network load, the Steelhead appliance still provides significant performance improvements due to its MAPI Exchange application streamlining optimizations. Riverbed can also operate in secure customer environments where email encryption is used (often by default) between the client and host servers, without impacting security. Performance is now improved as much as for unencrypted email.

TESTING PARAMETERS

To show the effectiveness of the Steelhead Appliance, we performed a “send file attachment” operation with Outlook 2010 – Exchange 2010 (cached mode). The send time is defined by when the send button is clicked to when the message disappears from the client’s outbox.

- Outlook 2010 and Exchange 2010
- Encryption was disabled (default)
- 1544 Kbit/sec and 100ms RTT. SH 2020 CFE and SFE.
- VM Windows 7 client, VM Windows 2008 R2 64-bit server
- Data pulled from Network Nightmare using netstat
- 6.2 MB PPT file attachment

TEST RESULTS

- More than 8 times faster email transmissions to multiple recipients in a branch
- More than 34 times faster transmission for a sender and recipient in the same branch
- Up to 99% reduction in bandwidth utilization for encrypted and unencrypted MAPI

Performance Improvements for Email

Test results show that Riverbed Steelhead appliances dramatically accelerate email operations typically used in an organization, and significantly reduce WAN bandwidth utilization. Steelhead appliances can increase email speed by as much as 34 times, depending on the use case. In this brief we focus on two use cases: the “flood” and the “boomerang” email.



Fig 1: Send mail with 6.3MB attachment to single recipient



Fig 2: Send mail with 6.3MB attachment to multiple recipients (email flood)

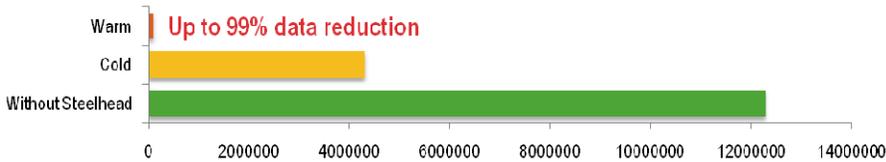
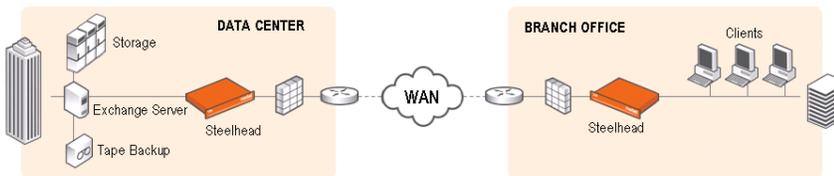


Fig 3: Encrypted MAPI - Send mail with 6.3MB attachment

Typical Deployment Architecture



DEPLOYMENT BENEFITS

Deploying Riverbed for Microsoft Exchange deployments provides multiple benefits, including:

- **Improved productivity.** By accelerating email performance, users spend less time sending and receiving email. Collaboration via email requires less waiting. IT managers receive fewer complaints regarding email performance.
- **Reduced WAN impact and costs.** Other network applications perform better when the WAN is no longer congested by redundant email traffic. By dramatically reducing redundant email traffic, IT managers can also avoid bandwidth upgrades or even reduce bandwidth costs to branch offices.
- **Consolidate Exchange servers.** Improved email performance means that IT managers can consolidate exchange servers, dramatically reducing infrastructure complexity and reducing both the capital and operational expenses associated with Exchange.

About Riverbed

Riverbed is the IT performance company. WAN optimization solutions from Riverbed liberate businesses from common IT constraints by increasing application performance, enabling consolidation, and providing enterprise-wide network and application visibility – all while eliminating the need to increase bandwidth, storage or servers.



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