

IBM Lotus Notes

Riverbed Steelhead® Mobile Accelerate Lotus Notes®

Most enterprises operate Notes across wide area networks to deliver critical services such as email, calendaring, and collaborative applications. However, once outside organizations carefully architected IT environment mobile workers face the additional challenge of variable connection location, inconsistent links, and high latency that significantly degrade Notes performance. If the enterprise wishes to improve the productivity of Notes users, it must ensure that performance is acceptable in all locations, including those with little bandwidth and/or high latency.

Riverbed Performance Features for Lotus Notes

Riverbed Steelhead Mobile accelerate the network traffic associated with many common Lotus activities. Riverbed offers unique application layer optimizations for Lotus Notes, developed cooperatively with IBM, to improve the performance with both the Steelhead Appliance and Steelhead Mobile. Sending email attachments as well as interactive applications such as calendaring, messaging and remote access all benefit from Riverbed's TCP optimizations.

Document-based transactions, such as file sharing, benefit from TCP optimizations as well, but also experience dramatic acceleration from Scalable Data Referencing (SDR). SDR eliminates massive amounts of redundant data from the wire, ensuring faster transfers and lower bandwidth utilization. Email attachments get these same advantages plus also benefit from latency avoiding optimizations.

Performance Improvements

Tests of Lotus Notes 8.0.2 have shown that Steelhead Mobile significantly improves the performance over the wide area network for activities such as sending and opening large email attachments. Cold run file transfers are approximately four times faster, while warm runs show results that are a dramatic nineteen times faster. Simultaneously, bandwidth utilization is reduced by up to 91%. In collaborative environments, warm runs are the most critical, particularly for mobile workers, as they are representative of the bulk of information traversing the network. For the testing of Riverbed optimization, encryption and compression features in Lotus Notes were disabled and replaced by corresponding functionality of the Steelhead Mobile, but performance comparisons were made using runs with these features on. This gives the best comparison of like to like performance. Note that port compression does not have to be switched off as it was in these tests.

TEST RESULTS

- Steelhead Mobile accelerate network traffic associated with all common Lotus activities
- File transfers are more than 19 times faster
- Bandwidth utilization is reduced by up to 91%

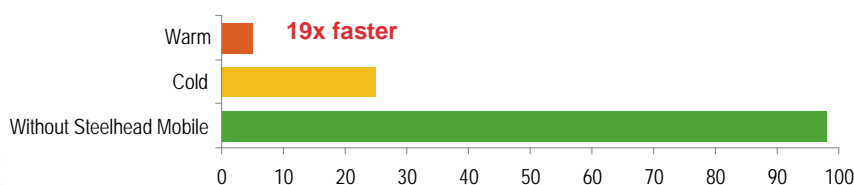
TESTING PARAMETERS

Notes R8 was tested in a simulated WAN environment using 100 millisecond latency across T1 speed, representative of a Los Angeles to New York WAN connection.

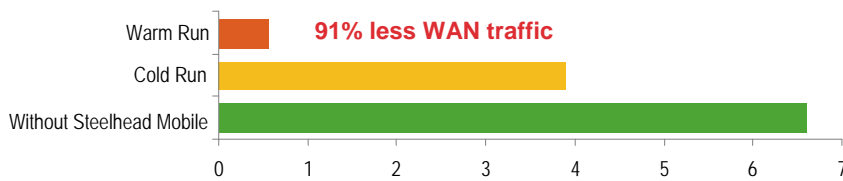
The Domino Server and Lotus Notes client were in their default configuration (port-level encryption and compression were not enabled). A wide array of functions were tested, including:

- Login
- Email
- Calendaring
- Saving attachments

Large File Transfer (6.4 MB) – Time to Complete (in seconds)



Bandwidth Utilization (in megabytes)



DEPLOYMENT BENEFITS

Deploying Riverbed in conjunction with Lotus Notes provides multiple benefits, including:

- o **Higher Productivity.** Users spend less time downloading and sharing information through standard Notes applications. Collaboration becomes easier and more effective. Mobile users have less incentive to avoid using company-standard applications.
- o **Lower Bandwidth Utilization.** Mobile users can work regardless of their location, type of link, or network latency

Steelhead Mobile Powered by Riverbed Optimization System (RiOS)

Steelhead Mobile relies on the same patent-pending Riverbed Optimization System (RiOS) used in the Steelhead Appliance and was designed from the ground up to provide enterprises with an easy to manage solution that can accelerate all key applications where ever their users are.

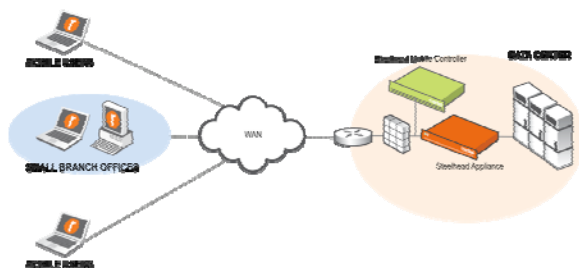
Data Streamlining — Data streamlining works across all TCP applications to reduce bandwidth consumption by 60% to 95%. Data Streamlining works across Windows file sharing (including MS Office), Email (including MS Exchange and Lotus Notes), CAD, ERP, databases, and all other applications that use TCP, to ensure the same data is never sent more than once over the network.

Transport Streamlining — Transport streamlining reduces the number of TCP packets required to transfer data by 65% to 98%. Transport Streamlining overcomes TCP limitations by adapting transmission characteristics such as window scale, loss handling, congestion notification, and more.

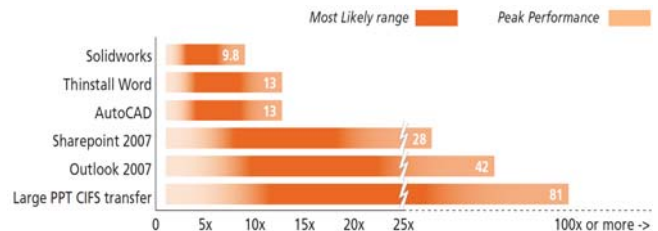
Application Streamlining — Application streamlining provides additional order-of-magnitude application performance improvements by reducing application protocol chattiness up to 98% and minimizing application overhead. By minimizing application demands on the network such as application protocol round trips and required network connections, Steelhead Mobile can provide massive throughput increases to applications including Windows file sharing (CIFS), and Exchange (MAPI).

Management Streamlining — Steelhead Mobile simplifies the deployment and management of mobile clients by employing concurrent user support, link-based licensing, and Steelhead autodetection. Ongoing management is made more effortless by providing simple but powerful Web based and command line interfaces and reporting.

Typical Steelhead Mobile Deployment Architecture



Steelhead Mobile Accelerates a Broad Range of Applications



About Riverbed

Riverbed Technology is the IT infrastructure performance company. The Riverbed family of wide area network (WAN) optimization solutions liberates 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. Thousands of companies with distributed operations use Riverbed to make their IT infrastructure faster, less expensive and more responsive. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com



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