CASE STUDY

WAN Optimization for Latency Reduction and Back-Up Efficiency

Rhode Island Army National Guard

Customer Overview

The Rhode Island Army National Guard (RI ARNG) strives to provide assistance to the State of Rhode Island for use during local and statewide disasters or emergencies; by protecting life and property, by preserving peace, order and public safety. The Rhode Island Army National Guard traces its history from the first colonial defensive force established in the town of Portsmouth, Rhode Island in 1638. From this humble beginning the State's military grew, providing forces in many conflicts during the pre-revolutionary period, the Revolutionary War, the War of 1812, the Civil War, the Spanish American War, the Mexican Border, World War I, World War II, Korea, Vietnam, Desert Storm, Stabilization Forces (SFOR) in the Balkans, and most recently, the War on Terrorism.

Today, the Rhode Island Army National Guard consists of a force of over 2,500 dedicated men and women, who are prepared to serve our State and Nation in a variety of military specialties. Rhode Island has citizen soldiers qualified in military occupational specialties which include Artillery, Infantry, Signal, Engineer, Aviation, and Military Police.

Technical Problem Area

The Rhode Island Army National Guard (Guard) was experiencing debilitating latency over a 2MB circuit which they were employing to replicate data to their COOP site across the WAN. This being their primary link the Guard ideally wanted the data transfer to be completed before business hours the following morning however, the nightly replication of 160GB to 1.2TB of data took up to 48 hours to complete. As a byproduct of this network saturation the personnel located at the COOP site were unable to perform daily tasks making even a Video Teleconference impossible. Because of this issue the Guard was forced to manually stop the replication daily in order to accomplish tasks. This inefficiency and unreliable nature of the replication process put the Guard's data integrity at risk. This inefficiency created a major security concern. To mitigate this risk and alleviate the pain points, on occasion, the Guard physically moved their storage appliance from their COOP site (some 40 miles away) to their data center to perform a local data transfer. This quick fix was neither cost nor time effective and defeats the purpose of COOP entirely.

The Guard had first attempted to address the poor network performance of their WAN by installing a data replication software called Data Domain which provides compression and de-duplication during replication. However this software is not intended to be a network optimization/acceleration tool. While Data Domain did improve efficiency in part, it was quickly overwhelmed by the large volume of data flowing between the Guard's data center and the COOP site.

"LTI DataComm provided a turnkey solution that surpassed our expectations with a very knowledgeable and versatile staff. I would recommend the Riverbed Steelhead product line to anyone experiencing network latency."

-SFC Shayne Chapman
Computer Specialist, USPFO-RI, DPI

Furthermore, this solution couldn't address WAN latency alone. Without a complete optimization/acceleration tool the Data Domain solution had no room to scale.

LTI DataComm & Riverbed Solution

Engineers at LTI DataComm (LTI) gained an understanding of the problem by evaluating the volume of traffic between the data center and its COOP site along with analyzing their network infrastructure to interpret how the data was

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LTI DataComm & Riverbed Solution (Continued)

traversing the WAN. The information gathered by the engineers gave LTI the necessary details to select the right solution for the problem. LTI installed two of Riverbed's Steelhead 3520's, one at the data center and another at the COOP site. Working closely with members of the Guard, LTI engineers were able to successfully tailor the appliances for optimal performance. The combination of Riverbed's core optimization modules addressing; TCP Acceleration, Data De-Duplication and Pre-Fetch provided a 75% data reduction. By achieving the maximum amount of WAN optimization the network showed dramatic improvements of live data transfers.

Measured Results

Following the installation and implementation of the Riverbed Steelheads the replication cycle fell from 48 hours to 12 hours the first night. Using bit level comparisons, the data center Steelhead applied its scalable data referencing technology to send only new data across the WAN to the COOP site. After only a handful of days the Steelheads dramatically reduced the nightly replication time to 6-8 hours on average. These results were achieved using the same 2MB circuit that was originally experiencing the latency, proving that upgrading the bandwidth is not always the answer. In addition to the massive reduction in latency the Riverbed Steelhead appliances complimented the Data Domain software which provided better than expected results. The Guard now completes nightly back-ups to their COOP site relieving the data integrity threat, the personnel located at the COOP site were now able to conduct daily activities and in the event of a disaster the Rhode Island Army National Guard will have a well maintained collection of electronic assets to seamlessly continue operations.

The Rhode Island Guard was so impressed by the LTI/Riverbed WAN optimization/acceleration results that an additional Steelhead 3520 was installed at their headquarters to accelerate their database and email traffic amongst these three core sites.

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