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Scott Ragsdale  
EMC Account Executive



## Large U.S. Government Department Meets Cross-Country Data Replication Goals with Joint EMC and F5 Solution



### Industry

Government

### Challenge

Overcome latency and packet loss in data replication

### Solutions

- EMC® SRDF®/Asynchronous
- EMC® SRDF®/Data Mobility
- F5® WANJet®

### Benefits

- Compression ratios boosted as high as 16:1
- Immediate resolution of latency and packet loss
- Easy, fast procurement, due to EMC Select qualification process
- Fast, 15-minute configuration

### Overview

After Hurricane Katrina, EMC helped rebuild a mission-critical, U.S. government data center in New Orleans with its Symmetrix Remote Data Facility® (SRDF) solution. Data needed redundant replicating to a primary COOP (Continuity of Operations) site and to secondary COOP site, 500 miles and 1,800 miles away each. But the distances and network quality among the three public network service providers caused enough latency and packet loss to compromise the solution's performance. EMC called F5 Networks for a set of WANJet® optimization appliances. Once installed, the WANJet appliances quickly earned their stripes and helped the customer take full advantage of its EMC solution.

### Challenges

When Hurricane Katrina slammed the U.S. Gulf Coast in 2005, it destroyed a mission-critical New Orleans data center of a large U.S. government department (unnamed for security reasons). Fortunately the data center had replicated its multiple terabytes of data 500 miles away to a primary COOP site, using replication technology from EMC. Among the data at stake were the pay, operations, and performance records of more than 125,000 personnel.

In 2006, EMC helped protect the customer's data using its industry-leading SRDF solution. The goal was to replicate the data over two 45-MB DS-3 connections, this time

not only to the primary COOP site but also to a secondary COOP site—1,800 miles away—for additional redundancy.

But the distances between data centers took their toll: bandwidth was limited due to cost and network quality was not optimal due to the large distances. As a result, the EMC SRDF solution suffered performance impacts from network latency and packet loss. “The customer called the three network service providers to troubleshoot and fine-tune the circuits, and they all pointed the finger at each other,” says Scott Ragsdale, EMC Account Executive. “It was a classic runaround that got them nowhere; the project was stalled and the customer had already begun to prepare for the 2007 hurricane season.”

Clearly, he explains, the customer needed a way to accelerate its SRDF replication. Additional bandwidth was not an option—the customer was limited to its government-assigned DS-3 circuit—and even if it was, it wouldn't overcome the problem of distance, which is the number one cause of latency.

Despite the network being outside of EMC's control, the customer consulted with Ragsdale and the EMC account team on viable solutions to combat cost and network constraints without compromising distance.



## Solution

EMC specified a set of six WANJet<sup>®</sup> WAN optimization appliances from F5 to install with its SRDF platform. They used two SRDF modes for replication: first, SRDF/Asynchronous for the fastest top-tier data replication with a recovery point objective (RPO) of 30 seconds; and second, SRDF/Data Mobility for less time-critical data replication, requiring an RPO of just six to 24 hours.

F5 designed WANJet to accelerate performance over the wide area network (WAN), even satellite connections, with pass-through fault tolerance. EMC deployed the WANJet appliances in-line with the Symmetrix solution as symmetrical pairs, with WANJet appliances located at the New Orleans data center source as well as at their counterparts at the far ends in the primary and secondary COOP sites. Data security is provided by a 128-bit RC-4 commercial encryption package.

Ragsdale highlights three unique features of the F5 WANJet appliances as the keys to boosting the overall solution's performance and overcoming the distance and network obstacles:

**Transparent Data Reduction**, which puts traffic through bit-level pattern matching. It's a concept similar to data de-duplication that avoids sending the same data twice, but one that's much more efficient than typical file-level replication scenarios. In fact, it can reduce the amount of data transferred over the WAN by up to 95 percent.

**Adaptive Compression**, which applies different compression algorithms in different combinations depending on the data types and network conditions, in real time.

**Adaptive TCP Optimization**, which combines session-level application awareness, persistent tunnels, selective acknowledgements, error correction, and optimized TCP windows, all to take full advantage of the available bandwidth. This enables WANJet to adapt dynamically to latency, packet loss, and network congestion.

According to Ragsdale, the WANJet procurement process was greatly simplified relative to normal government qualification cycles, which could have taken months. "Our EMC E-Lab had already tested and approved WANJet's interoperability through a rigorous battery of tests. It's also in our EMC Select portfolio of third-party 'solution-completer' products," he says. "So when I told my customer WANJet was already EMC E-Lab tested, and part of EMC Select, that was all they needed to give us the go-ahead."

## Benefits

As expected from the F5 product, the WANJet installation was simple. Each appliance took an F5 engineer just 15 minutes to configure. This, along with the significantly eased procurement process the EMC Select status enabled, resulted in a fast deployment and a very rapid performance improvement.

## Extraordinary Compression, Up to 16:1

Once installed, the WANJet appliances quickly earned their stripes with compression ratios averaging 8:1, and sometimes as high as 16:1 depending on the data type. These ratios might be unusually high for competitive solutions but not for WANJet, given its combination of bandwidth optimization features.

## Private Sector ROIs in 12-18 Months

As part of the U.S. government, EMC's customer does not measure return on investment (ROI) in monetary terms. In the private sector, however, WANJet shows ROIs of 12 to 18 months in bandwidth savings.

## Significant Time Savings

One real savings, Ragsdale says of his customer, was time. "The fact that the WANJets were already part of EMC Select saved enormous amounts of procurement time," he explains. "We were able to get them shipped, installed, and running very quickly. At that point, the performance problems disappeared almost immediately. Now my customer is getting even more acceleration than at the start of deployment, and they are thrilled."

## Trust Maintained

As for EMC, he says, their reputation as the customer's trusted advisor has been maintained and is shining brightly, so much so that EMC stands front and center for future business.

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