

Customer Success

United States Army

Key Highlights

Business Profile

The world's largest corporate intranet with 1.8 million globally dispersed military users.

Industry

U.S. Military

Challenges

- > Tape media unusable in desert environment
- > Intercontinental satellite transfer of disaster recovery data posed inherent latency challenges
- > Mission critical level backup and recovery required

Solution

- > Two Data Domain DDX Arrays
- > Two Juniper Networks WX 60s
- > Data Domain Replicator software

Benefits

- > Efficient, instantaneous satellite network vaulting
- > High reliability in unique environmental conditions
- > Streamlined backup and disaster recovery
- > Established scalable multi-continent architecture
- > 30 TB of mission critical data protected

Technology Partner

Juniper Networks

Data Domain Protects U.S. Army Intercontinental Communications Portal

By partnering with Data Domain and Juniper Networks, the client successfully completed a very unusual and challenging data protection implementation. The protection of this military communications and collaboration portal system involved technical efficiencies that relegated what are traditionally viewed as "benefits" to core requirements for the actual feasibility of the system. High compression rates for data capacity reduction, for example, were direct enablers for the use of the bandwidth limited satellite network to be employed for intercontinental data replication. The challenging environmental conditions of the desert were addressed and mission critical backup reliability requirements were achieved. Data Domain's continuous integrity checking and instantaneous backup verification ensured the success of constant data transfer across the globe. The Juniper WXC 60 platforms, which implement TCP acceleration and forward error correction, were employed to overcome high latency and packet loss associated with the satellite link.

Customer Challenges

The client organization serves as the gateway to a major U.S. Army military intranet with 1.8 million globally dispersed users. The military, by nature, has a very transient client population, with soldiers changing locations every two to three years.

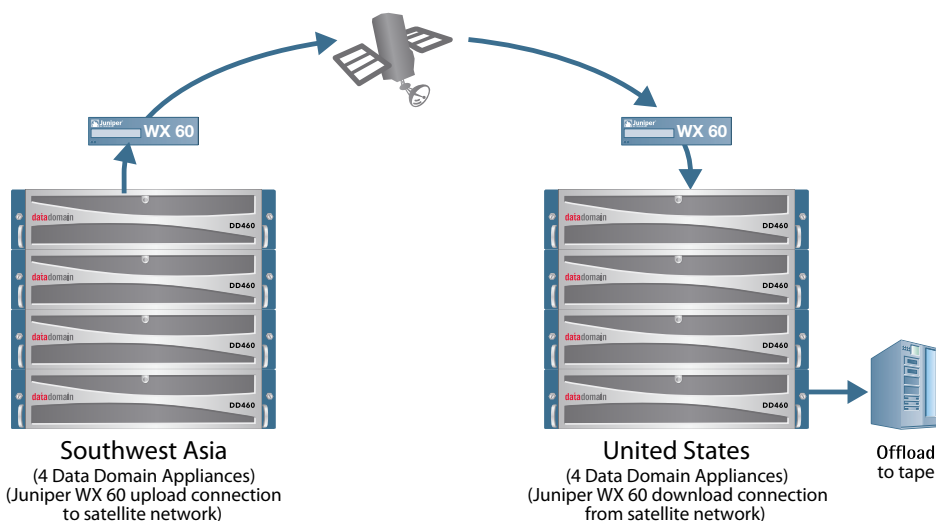
The client organization serves as the portal through which all email-based communications travel, supplying its 1.8 million members with a single domain to log into an email address that follows them around the world for the duration of their military career. The client's portal technologies enable a broad scope of communication and collaboration capabilities, including virtual teaming, community websites and remote file storage for all users.

The client supports more than 400,000 unique log-ins and 700,000 total log-ins

daily, supplying members with everything from email to instant messaging and chat. Storage of these communications is indefinite and the client is committed to making these communications readily available to users regardless of when they were created and stored.

The U.S. Army wished to put a new data center in Southwest Asia—close to deployed personnel—and replicate locally backed-up data to its main data center on the East coast in the United States. It faced numerous challenges, some of which brought them to Data Domain and Juniper Networks.

First, tape as a media for backup was out of the question, given the sandy desert environment of the new Southwest Asia data center. Latency of 1000 milliseconds in data transfer via satellite required special support and configuration skills from Data Domain



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Chief of Architecture
U.S. Army Client

and Juniper engineering and SE staffs during the pilot phase. The high latency of satellite links prevent TCP from effectively filling the satellite bandwidth, and the high error rates cause window retransmissions that further reduce throughput and drag out replication time.

Heavy data transfer rates on a "Spartan" satellite network required exceptional compression/deduplication prior to vaulting between sites. Finally, the mission critical nature and performance requirements associated with military communications required instantaneous validation capabilities and ultra-reliable restore capabilities for this disaster recover environment.

Data Domain Solution

Data Domain DDX Arrays and Data Domain Replicator software, working in combination with the Juniper Networks WX 60 platforms, enabled the Army to implement high-performance local backup of data and vault it over a satellite communications network back to its primary data center in the US. The data was backed up to another stack of Data Domain appliances and WX 60 platforms before being consolidated to tape at a third site.

The Juniper Networks support team was called upon to help address the high latency and packet loss associated with the satellite network connecting the distant sites. Data Domain's deduplication and replication technologies played a crucial role in the Army's ability to achieve the performance levels it required for its massive communications portal. Beyond the requirement for disk backup due to environmental factors, Data Domain's instantaneous verification of backup completion and availability eased the pilot process and gave globally disparate team members added confidence.

Business Benefits

The Chief of Architecture for the client, explains, "The U.S. Army has a very low tolerance for loss of data and we knew, given

the physical environment and the network type we were dealing with, that this project would not be an easy one. Data Domain's support was both exceptional and critical to the process, but at the same time no one needed to be sent to the Middle East during the proof-of concept phase."

The client evaluated two other disk-based back-up vendors, but ultimately chose Data Domain. As Chief of Architecture notes, "What made Data Domain stand out from the rest was its compression algorithms. We achieved a 24x compression rate—and that's after just two weeks of running the system. The verification of completion of backup...now that was nice. Our mission was to deliver more reliable and responsive communications services to soldiers in theatre on the other side of the world, who are in a very challenging environment. Data Domain helped us make it happen."

"Our future plans call for creation of a many-to-one configuration that spans the globe. Beyond this first implementation in Southwest Asia, we're planning additional remote data center sites, all backing up data to the 'mother ship' back here in the USA."

The project was an unusual implementation in an unusual environment that carries requirements for performance and hardened reliability that go well beyond the needs of most companies. Through its use of Data Domain DDX Arrays and Data Domain Replicator software in combination with Juniper Networks WX platforms, the U.S. Army's new Southwest Asia data center team implemented a highly reliable backup and remote data replication scenario to support communications for over 100,000 troops in the Middle East and can go on to expand their backup network globally. The total data backup capacity requirements are presently approaching 30 terabytes, with constant data transfer on a daily basis. "If all continues to go well, we may eventually investigate the elimination of tape altogether," adds the Chief of Architecture.

Data Domain

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