Department of Defense Cyber Range Relies on Tintri VMstore™

VMstore

The United States Department of Defense (DoD) Cyber Range is a realistic simulation and modeling network environment, used to safely test capabilities and train military personnel on how to prevent and defend against network intrusions. The DoD Cyber Range has been operating in Stafford, Virginia since October 2009. ManTech International is the civilian contractor agency that designed, engineered, built, and operates the DoD Cyber Range. Last year, the ManTech team managed over 125 separate customer events (IT projects) at the Cyber Range.

The Challenges: Existing Storage Lacks Scalability

The Cyber Range facility had been relying on standard infrastructure for many years. The LUN and volume approach to provisioning storage was adequate for managing event data, but not for scaling quickly. The Cyber Range needed the ability to provision hundreds or even thousands of VMs quickly, then spin them down just as fast when the exercises were completed.

Due to a very dynamic operating environment, Cyber Range customers can't always predict the number of machines they'll need for their exercises in advance. They will design a test based on customer requirements, but frequently end up scaling the project on short notice. This used to be a significant challenge for the Cyber Range because It took days to roll out extra capacity using the old storage systems. Once the storage and the VMs were provisioned, system performance deteriorated, significantly impacting the customer events.

The ManTech IT team started looking for a new storage solution that would enable them to rapidly provision new environments for multiple, simultaneous customer events. They also wanted to reduce physical footprint, cooling requirements, and power consumption at the Cyber Security Research (CSR) data center. In addition to finding a solution that would enable rapid provisioning, they also needed a better way to track, monitor, and provide statistical data at the end of each exercise. Finally, the IT team needed a way to safely and efficiently back up all customer event data during the exercises.

The Solution: Tintri VMstore T540 and T650

The ManTech team evaluated a number of options, from converged Google-like file systems to brand-new 100% flash-based solutions, and finally decided to select VMstore intelligent infrastructure because nothing came close to the flexibility, visibility, performance, and ease of use that VMstore offers.

After deciding to standardize on VMstore for their virtual environment, the ManTech team has been able to satisfy another goal of reducing storage footprint as well as heat and power consumption. Due to VMstore's compact form factor, the ManTech team has been able to reduce the CSR data center storage footprint from three full racks to one and a half, cutting power consumption by a factor of 25 to 1.

The Cyber Range is also using VMstore ReplicateVM™ for disaster recovery as well as Tintri Global Center™ to view multiple VMstores in a single pane of glass. This allows them to quickly and easily view the end-to-end compute/network/storage performance for every single VM in their environment on a per-VM basis. The VMstore solution is so easy to use, it has eliminated the need for specialized training to manage and operate the VMstore systems.

The Results: Faster Scaling and Improved Backup Capabilities

The VMstore solution has enabled the ManTech IT team to rapidly provision pre-configured VMs for all customer events. It used to take as long as two weeks to roll out hundreds of VMs for new customer events. With VMstore, it now takes only minutes. Additionally, the additional VMs don't strain the system's ability to deliver high performance once provisioned.

Challenges

- Provisioning new customer environments took weeks
- Existing storage was difficult to manage
- Wanted to reduce physical footprint, cooling, and power consumption
- Needed to enhance backup/replication of VMs

Solution

- Tintri VMstore T540 and T650

Results

- Simplified storage management and reduced training overhead
- Reduced time to deploy new VMs from two weeks to just minutes
- Increased storage performance
- Achieved reduction in heat output and power consumption
- Increased backup functionality

Tintri
Intelligent Infrastructure

The speed of VMstore provisioning still surprises the operation and admin team. For example, during a recent exercise, one of the lead system admins was asked to roll out sixty devices for an exercise. The admin went to his computer, ran the command, and before he could give a full report of the command being executed, the operation was complete. This occurred so quickly, he assumed the command had failed, since that process would have taken approximately eight hours to complete on the previous storage platform. With VMstore, the function had finished in just a few seconds.

While using standard infrastructure, the IT team constantly took on an immense management burden, planning to run ten or more different functions at the same time because each task took so long to complete. With intelligent infrastructure, the admins now experience an unparalleled amount of flexibility as they can run one big task, wait for it to complete, and then quickly move along to the next one. In just ten seconds, VMstore can do what standard infrastructure did in eight hours.

The ManTech team is using replication between the VMstore system at the production site and the VMstore as a backup repository at the DR site. Replication is very quick—it takes just minutes, compared to a full day or longer to back up an entire site on the previous platform.

Another benefit of VMstore is the non-disruptive replication. With VMstore, backups can be done behind the scenes without impacting the production environment. Previously, the IT team had to stop all other functions—including rolling out other customer event areas—because it would effectively lock up the entire system and use all available resources for the backup.

Experience Different! For more information on how Tintri VMstore can turbo-charge your business success through a simple, Intelligent Infrastructure, visit tintri.com/vmstore.

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