

# RackTop Improves Performance Validation and Accelerates its CI/CD Pipeline with Virtana



## ABOUT

**Industry**  
Cyber-secure enterprise storage

**Headquarters**  
Fulton, Maryland, USA



## OBJECTIVE

Enable the QA lab to baseline performance and ensure compatibility with the latest NFS and SMB protocols



## RESULTS

Improved release quality, reduced rollbacks, and accelerated the overall continuous integration/continuous delivery (CI/CD) pipeline

## ABOUT RackTop

RackTop believes every organization has the right to protect their data as if it were a national secret. RackTop is the pioneer of CyberConverged storage, which combines cybersecurity and software-defined storage to create a data storage solution for unstructured data that can defend against sophisticated nation-state-level threats. The BrickStor Security Platform is deployed by organizations of all sizes to provide secure file-sharing capabilities. The solution is scalable and can run as a virtual machine on customer-owned hardware or in the cloud, and can also be deployed as a network attached storage (NAS) appliance.

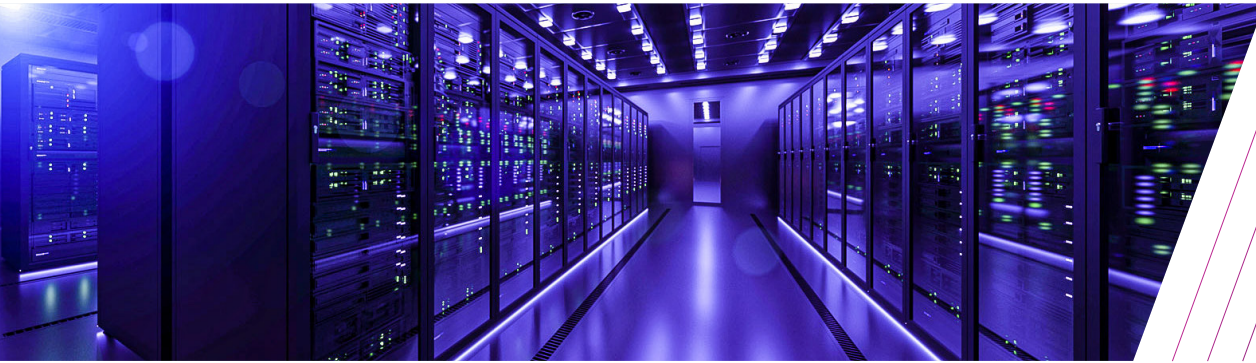


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Director of Engineering at RackTop



**THE CHALLENGE:**

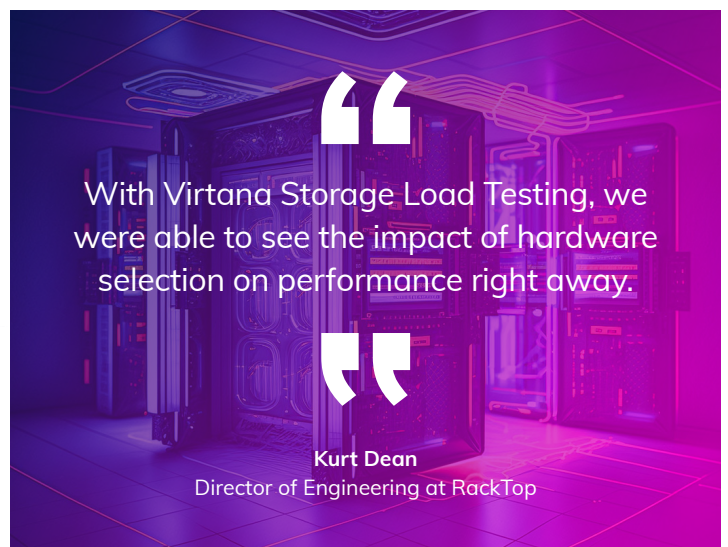
## You have to simulate real-world conditions to assure real-world quality and performance

The RackTop QA team is responsible for continuous integration testing of BrickStor SP to ensure its software is compatible with and optimizes the latest NFS and SMB file-sharing protocols. Updated software is released on a quarterly basis and protocols are updated approximately twice a year, keeping the team busy.

An important part of the QA process is to run high-speed tests from multiple clients simultaneously to put the product through its paces in real-world conditions—i.e., with a large number of clients and various workload characteristics. The company was using home-grown tools that weren't meeting the team's needs. The tools couldn't iterate tests and store the results in a database. Nor were they able to simulate workloads large enough to detect certain performance problems. This resulted in a number of regressions that slowed the release cycle.

**“Our customers expect compatibility and consistent performance when accessing files on BrickStor SP via SMB or NFS,”** said Kurt Dean, Director of Engineering at RackTop. “But our tools weren't able to generate the types of workloads we needed, which kept us from being able to find some of the performance deficiencies we were looking for in the product. The problems would end up occurring in the field—which is exactly what we were trying to avoid.”

With customer deployments increasing in size, RackTop needed better tools to simulate those environments and address problems in its lab to ensure they did not make it into production software.



**THE SOLUTION:**

## Virtana Storage Load Testing for performance at scale

RackTop evaluated several vendors but found that most of the third-party solutions were on par with what it had already developed in-house. Virtana Storage Load Testing was different. Two things in particular stood out:

- Virtana was able to simulate a large number of clients with very heavy workloads without requiring a lot of equipment.
- With Storage Load Testing, RackTop could easily set up a battery of tests to be run frequently against the latest builds of its software.





The dedicated performance engineers on the QA team employ Virtana Storage Load Testing to run consistent tests on new software builds to ensure performance meets or exceeds requirements. The team compiles the results and delivers them back to the development engineers who make any necessary changes, and the process iterates as needed. Sometimes the Sales Engineering team also leverages the output as quantitative results to demonstrate expected performance as part of the RFQ process.

**RESULTS:**

**Performance assurance, faster and with higher confidence**

“With Virtana Storage Load Testing, we were able to see the impact of hardware selection on performance right away,” said Dean. RackTop can uncover performance bottlenecks within different hardware and protocol configurations. Plus, the team can now test builds under realistic end-user conditions, setting the tests up in advance and repeating them quickly and consistently, with the flexibility to adjust on the fly. For example, the team was able to find new ways to tune the Adaptive Replacement Cache (ARC) parameters to optimize storage performance under workloads with high numbers of large files and simultaneous connections. **“We easily configured and ran a custom workload, which could be repeated until we found the ‘sweet spot’ for each use case,”** said Dean. This has improved the quality of releases, reduced the number of rollbacks, and accelerated the overall CI/CD pipeline. It has also helped steer hardware selection strategy and enables RackTop to provide guidance to its customers about expected performance.

**IMPLEMENTATION:**

**Fast time-to-value**

The onboarding process was smooth and Virtana delivered on-site training to get the performance and engineering team up to speed quickly on how to use Virtana Storage Load Testing in their lab environment. “It was one of the better training programs we’ve had,” said Dean. **“We were able to start deriving value from our investment right away. In fact, we were running meaningful tests within just one week.”**

RackTop continues to benefit from ongoing support from the Virtana Professional Services team. Dean noted, “They are very helpful and flexible in meeting our needs. They’ve been phenomenal about providing configuration support along the way. The team is fantastic—they’re always willing to help with anything.”

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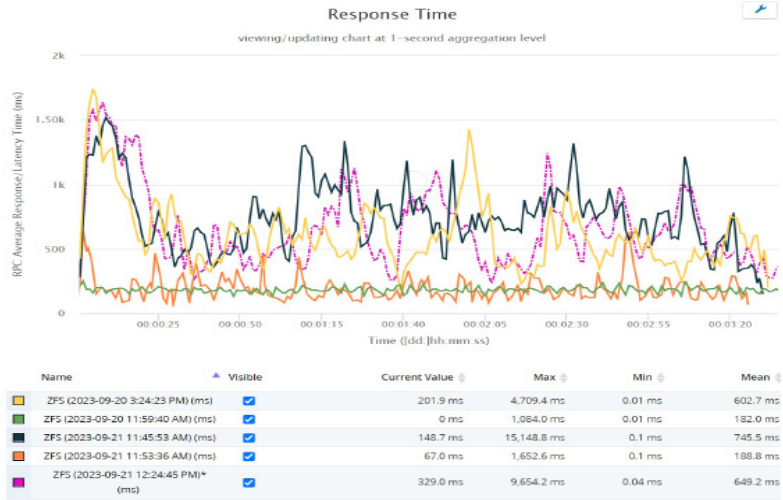
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**Virtana Storage Load Testing collects thousands of metrics every second, analyzes relevant workload data, and offers extensive charting and reporting capabilities.**

**THE FUTURE:**

**Expanding value throughout DevOps**

Virtana Storage Load Testing will continue to be an essential component of RackTop’s BrickStor SP development and testing lab environment, and the team envisions additional benefits. **“We intend to use Virtana in more ways within the DevOps process to ensure we are detecting changes in behavior as soon as possible,”** concluded Dean.

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