Executive summary

# Handle transaction workloads and data mart loads with better performance

## The Dell EMC Unity 400F All-Flash storage array offered solid performance compared to the HPE 3PAR 8400

When your company's work demands a new storage array, you have the opportunity to invest in a solution that can support demanding workloads simultaneously—such as online transaction processing (OLTP) and data mart loading.

At Principled Technologies, we compared Dell EMC PowerEdge™ R930 servers[1] with the Dell EMC Unity 400F All-Flash storage array to HPE ProLiant DL580 Gen9 servers with the HPE 3PAR 8400 array in three hands-on tests to determine how well each solution could serve a company during these storage-intensive tasks.

When we ran an OLTP workload and data mart load in tandem, the Unity array attended to more customer requests than the HPE 3PAR. In our data mart load test, the Unity array allowed us to import a large set of data in less time than with the 3PAR—an ability that could help companies gather data for analysis in less time. Finally, in our online transaction processing test, the Unity array offered comparable database performance to the 3PAR array, enabling database applications to process a similar volume of customer orders.

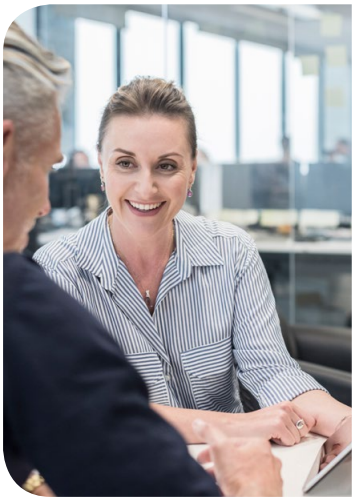

**Dell EMC Unity 400F All-Flash storage**

**Keep work moving during large data writes**

Up to 29% more orders per minute while also loading data

**Save time on data imports**

Load files into a data mart up to 22% faster



## The value of compression

Both the Unity and the 3PAR arrays employ a variety of techniques to save space so you can fit more data on your hardware. One of these techniques is compression. Compression algorithms reduce the number of bits needed to represent a set of data—the higher the compression ratio, the more space this particular data reduction technique saves.

During our OLTP test, the Unity array achieved a compression ratio of 3.2-to-1 on the database volumes, whereas the 3PAR array averaged a 1.3-to-1 ratio. In our data mart loading test, the 3PAR achieved a ratio of 1.4-to-1 on the database volumes, whereas the Unity array got 1.3 to 1.

## Keep work going through intensive data mart loads

Writing files to a data mart database is a task usually left to the late hours of the night, or one that involves separate hardware. But what happens if your company needs to run both online transaction and data mart workloads from the same storage environment? With such heavy stress on a system, you might expect a large dip in performance here—large enough to force you to purchase completely separate systems in order to get your work done in a reasonable time. However, in our dual workload test, the Unity array was better able to handle the added stress.

We measured how long it took for each array to put data from many large text files into a single database while simultaneously fulfilling customer orders as part of an OLTP workload. The Unity array enabled the PowerEdge R930 server to process an average of 96,976 orders per minute (OPM)—29 percent more than the 74,977 OPM the ProLiant DL580 Gen9 processed with the 3PAR array.

## Save time during large data mart writes

While it's good to know how much stress your system can handle, you may also choose to run your data mart and OLTP workloads separately. Loading data from various sources into a data mart database is a critical step in gathering and organizing data for analysis, and this process often involves loading from flat files.

The Dell EMC Unity loaded three terabytes' worth of data into a data mart in 1 hour, 2 minutes—22 percent faster than the 1 hour, 16 minutes it took for the HPE array. Saving time here can speed up the time it takes to start analyzing your data, so you can get business insights sooner.

## Handle demanding online transaction processing (OLTP) work

Even without the added stress of a simultaneous data mart workload, OLTP work is one of the most stressful types for a storage array to handle—especially if it has to satisfy a large volume of users simultaneously.

We used DVD Store 2 to test how well the Dell EMC and HPE storage arrays could handle many simulated users completing tasks such as browsing an online catalog and making final purchases.

The solutions handled a comparable number of OPM; the Dell EMC Unity array enabled the PowerEdge R930 server to process 112,725 OPM, whereas the HPE ProLiant DL580 Gen9 fulfilled 111,761 OPM with the 3PAR array. Being able to process a large volume of customer requests in a timely manner can result in a better experience for the end user.

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