

PayPal supports massive transaction volume growth with Virtana Platform



ABOUT

Industry

Digital payments

Location

San Jose, California



OBJECTIVE

Fix downtime of mission-critical applications can cost millions, which is exacerbated by vendor finger-pointing



RESULTS

Reduced MTTR to 15 minutes or less, even with massive growth

ABOUT:

PayPal is a leading financial services organization that is committed to democratizing financial services and empowering people and businesses to thrive in the global economy. Their mission-critical digital payments platform gives their 270+ million active account holders the confidence to connect and transact in new and powerful ways, whether they are online, on a mobile device, in an app, or in person.

THE CHALLENGE:

Finding and fixing slowdowns and outages took too long amid vendor finger-pointing

The digital payments division runs a multitude of mission-critical applications that they classify as Platinum, Gold, Silver, or Bronze. The company deploys a very large quantity of Dell, HP, Lenovo, and Oracle/Sun servers, mostly running Oracle RAC-based applications connected to both NetApp and Hitachi enterprise storage interconnected by Brocade director-class switches. The Platinum and Gold applications require sub-second infrastructure monitoring visibility whereas the Silver and Bronze ones require granularity at the minute level.



Before the Virtana Platform deployment, during major incidents vendors pointed fingers at each other. Troubleshooting many of our infrastructure performance and physical layer issues would take days to detect with lost revenues during payment impacting issues. The inability to see end to end within our server and SAN infrastructure created a bad experience for our user community.



Caleb Torres
System Engineer at PayPal



The financial impact of Platinum and Gold applications going down or even slowing down can be measured in the millions of dollars per incident—any amount of downtime is simply unacceptable.

When there was a problem, the team would immediately open tickets with every partner in the stack because it took so long to get actionable log data back. “Before the Virtana Platform deployment, during major incidents vendors pointed fingers at each other,” said Caleb Torres, Systems Engineer at PayPal. “Troubleshooting many of our infrastructure performance and physical layer issues would take days to detect with lost revenues during payment-impacting issues. The inability to see end to end within our server and SAN infrastructure created a bad experience for our user community.”

THE SOLUTION:

Virtana Platform to troubleshoot issues in mere minutes

Virtana Platform was brought in to help PayPal determine root causes of infrastructure issues. They needed to understand where latency problems were coming from—the hosts, the switch fabric, improperly set queue depths, or within the storage arrays. The Virtana Platform has since become an integral part of their monitoring and reporting ecosystem; the payments business relies on finding critical issues in the infrastructure within seconds to prevent them from impacting the business.

“The Virtana Platform has given us the ability through their end-to-end dashboards to detect, troubleshoot, and correct payment-impacting issues within minutes,” said Slade Weaver, PayPal’s Senior Manager, Core Data Platform. “Their ability to maintain the infrastructure in a healthy state and proactively identify any significant issues has brought incredible value to PayPal and it’s and its customers.”

A specific example of how Virtana was instrumental was when one of PayPal’s customers was experiencing long wait times processing their nightly batch runs. They asked the operations team to investigate the issue, and using Virtana Platform, they were able to quickly determine that the customer was pushing a massive amount of data in a very short period. They saw that the customer’s workload had significantly changed during the times of the excess latency and were able to prove this with the solution’s long-term trending and AI-powered analytics capabilities. The customer was able to adjust their workload and the problem was resolved.

In addition to the Virtana Platform, PayPal leverages Virtana’s Storage Load Testing to test vendor platforms before deployment to validate their storage performance and capabilities. Before every significant infrastructure upgrade, PayPal tests firmware updates and conducts vendor bake-offs to determine the optimal technology and product for each application workload. Most recently, PayPal has used Virtana’s Storage Load Testing to evaluate new protocols and designs for object storage.

PayPal has a dedicated Virtana professional services engineer on site who works hand-in-hand with and is fully integrated into the operations team to ensure successful deployments and optimal benefits from Virtana products.

Additionally, Virtana supports the cross-functional remote team for additional backup, support, and project management. The Virtana services resident has also provided detailed on-site product training for the operations team, usually with live data in the production environment.

New team members are continually trained in one of their three primary production centers in Scottsdale, San Jose, and Chennai.



“This individual plays a huge role in our success,” stated Bob Lembo, PayPal’s Director of IT Systems. “Virtana is a trusted partner that helps us ensure the superior performance and uptime of the infrastructure that underpins our payment platforms,” said Lembo.

THE RESULTS:

Dramatic reduction in MTTI and ongoing assurance

The biggest benefits to PayPal have been the dramatic improvement in Mean Time to Identify (MTTI) and Mean Time to Resolve (MTTR). They are able to identify where latency exists quickly and easily with customized reports and have adopted the MTTI slogan “15 minutes or less” in the Fibre Channel environment. They also leverage the application workload analysis and trending features to assess architectural changes and upgrade decisions in production.

Additionally, Virtana has enabled PayPal to:

- Significantly improve performance across the environment by understanding and balancing workloads appropriately. The Virtana Platform keeps track of application workload changes and then alerts the team accordingly. With this evidence, they can notify the teams that manage the workloads to adjust and recalibrate as needed.
- Practically eliminate unplanned downtime by proactively attacking issues before they become critical. And when coordinated efforts are still required to correct the problem, the downtime—and risk of lost revenue—is reduced two- to three-fold.
- Shift workloads from Gold and Platinum to Silver and Bronze based on latency sensitivity analysis, saving the company millions by using lower-cost products.
- Reduce the over-provisioning of switch ports and links by monitoring bandwidth over time.

- More intelligently plan infrastructure capacity based on trends and forecasting features.
- Eliminate the use of NetApp OnCommand, saving millions in support and maintenance fees.

THE FUTURE:

Continued growth without overtaxing the team

PayPal has experienced massive growth—measured in payments per minute, active user accounts, and the SAN—over the 8 years since the company deployed the Virtana Platform to ensure the performance, availability, and utilization of the infrastructure that supports their mission-critical applications. And in that time, despite 7x growth, the head count has never had to expand.

Today, when they open tickets, the data from the Virtana Platform accelerates the process, with SAN vendors coming back in half the time it used to take. In fact, many will even ask, “What does Virtana Platform see?”

Virtana Platform has become an intrinsic component of PayPal’s Fibre Channel SAN environment. It’s embedded within the ops team that manages the SAN and is part of their daily standard operating procedures. Even new hardware and software installs for applications, hosts, and storage all include line items to verify that the Virtana Platform is configured to monitor those links, and Virtana’s Storage Load Testing is continually used around the country to test and confirm storage performance of potential storage vendors.

The Virtana Platform was and still is the only real-time monitoring and analytics platform that meets PayPal’s needs. They subsequently added Virtana’s Storage Load Testing infrastructure performance validation solution to ensure upgrades went smoothly and to eliminate over-provisioning.

With the help of Virtana products and professional services, PayPal has set the bar for service availability for payment platforms and is more responsive to their customers.