

StubHub's Instant Scalability Plan

The Intel-powered Bare Metal Solution on Google Cloud Platform accelerated StubHub's cloud journey



StubHub

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—Todd Northcutt, senior director of product and technology at StubHub

Want to see the big game? Need last-minute theater tickets? For millions around the globe, the number one place to buy or sell tickets is StubHub, the world's largest ticket marketplace. StubHub has been an innovator for two decades, introducing mobile ticketing applications, virtual views of the stage or field from chosen seats, and interactive seat maps. More than a simple ticket marketplace, StubHub's platform enables experiences, gives season ticket holders the ability to pick and choose games or performances they wish to attend and opens up a world of events to an audience who may not have had access before.

Challenge

Since new events are announced with increasing frequency, StubHub often needs to scale capacity to meet the demand when tickets first go on sale or as a sporting event nears. In the past, that meant that StubHub needed to overprovision all their on-premises equipment—especially the servers powering their Oracle database and data management system—to meet unanticipated demand if an artist added a new show or if a playoff series went to seven games.

Since overprovisioning can be a very expensive proposition, StubHub began a journey to move all their applications to the cloud and to eventually retire their on-premises data center altogether. This also gave the development team the ability to modernize many of the application workloads to take advantage of cloud-native platforms, such as containers and microservices. This migration plus modernization would decrease the time to market for new features and eliminate the need for overprovisioning by relying on the inherent scalability of the cloud. StubHub chose Google Cloud Platform (GCP) as their cloud partner and began modernizing and moving applications to GCP. However, the legacy Oracle database continued to run on Solaris servers at the StubHub data center.

Solution

The StubHub team evaluated many options and after some experimentation decided on GCP, choosing their Intel-powered bare metal server (BMS) offering. Why bare metal? "For enterprises transitioning to cloud-native applications, there is a gap that needs to be filled during migrations," says Shachar Bobrovsky, customer engineer at Google. "While StubHub's long-term plan includes migration from Oracle to Cloud Spanner and other data management platforms, we needed to provide an immediate solution, and BMS was a great fit for that," he added.

Why Google BMS? "Moving to GCP gave us the time we needed to make sure all of our applications and the Oracle RDBMS could operate seamlessly and smoothly while we continued to modernize our application portfolio," said StubHub's Northcutt. "Since all our apps were running well on Intel in the data center, we knew that we could operate them seamlessly in the cloud as well. Intel is Intel, no matter where we go," he added. "When you migrate from an on-premises platform to bare metal in the cloud, there are a lot of dependencies on CPU architecture to move—even if they are both x86 architecture—so GCP choosing Intel makes our customers' lives easier," Bobrovskye added.

Moving to an all-Intel environment had other benefits. Now DevOps engineers take advantage of out-of-the-box monitoring provided by Intel and GCP, where previously engineers had to use VMware or Solaris logs and integrate them with GCP data. "It saves lots of time and energy by not having to rebuild old tooling," said Northcutt. Thanks to the single platform, the StubHub team spends much less time on scaling and managing than they did on-premises.



Replatforming Oracle

When eBay sold StubHub in 2020, the StubHub Product and Technology team decided to accelerate the migration of their Oracle database from the on-premises Solaris servers to Intel® platforms in the Google Cloud. However, since many

of their applications still had not been modernized, the need to support legacy applications and databases meant that StubHub had to find a suitable bare metal solution in the cloud to support the lift and shift of Oracle and other legacy applications.

"The eBay sale was an accelerator, but in reality, we knew it would be easier to scale in the cloud. When live sports or music events had a strong demand for ticket resales, we would be able to scale up as needed," said Todd Northcutt, senior director of product and technology at StubHub.

Result

The results have exceeded StubHub's expectations. Their number one goal—to be out of their on-premises environment and fully into the cloud—was met in August 2021, well ahead of schedule. "We were in the cloud early. It was a huge success," said Northcutt. Cost and performance were two other key metrics that saw improvement. "Our platform availability metrics are higher than they used to be, page load times are faster, and the cost of running the platform is less than it was prior to the GCP migration," he added.

The scalability of the GCP offering made a huge impact as the COVID pandemic unfolded. Roughly half of the StubHub development team was locked down in March 2020, working from home. As live events began to shut down, StubHub knew what to do. "We turned the dial down in 2020, reducing our Google footprint, and when events started coming back in 2021, especially live baseball—which was a real success story for the events business—we saw a huge spike in customer demand in a very short time," said Northcutt.

"Because of GCP, we have very seamlessly scaled back up to meet demand, no matter what comes, thanks to our cloud migration," he added. Had StubHub not migrated to the cloud, they would have had to pay maintenance for infrastructure that was sitting idle and hope that they could get more servers and storage as events started coming back online. Those issues are in the past for StubHub now.

Even the Oracle deployment has become more economical for StubHub. "We're seeing some of our costs go down right away because we are able to do more with less," said Northcutt. "We can now run Oracle on a smaller hardware footprint because of the better, faster, cheaper Intel® Xeon® Scalable processors, resulting in an overall lower licensing cost of Oracle database," he added. Oracle performance also jumped after the migration. "We saw a 64 percent improvement¹ when we ran Oracle workloads on Google Cloud's Bare Metal Solution, as compared to our prior Sun Solaris setup," noted Northcutt.



Solution summary

As of August 2021, StubHub has migrated 100 percent to GCP using a combination of bare metal and modernized workload platforms. "Before we cut over, we had been modernizing for native GCP functions, and roughly half of our platform has been modernized so far," said Northcutt. "We still have some applications that were lifted and shifted, but overall, the scalability and on-the-fly provisioning of hardware has given us higher performance that comes at a lower cost," he added. Now, StubHub is turning its attention to finishing their modernization and eliminating the lift-and-shift applications and databases, which is expected to yield even more cost reductions and performance improvements.

"We encountered a few glitches, and Google's Intel team helped us solve our challenges. Google's global reach with GCP on Intel® processors made the difference for this migration," said Northcutt. "Our goal is continuous deployment, and on GCP it's smoother and easier than before. Checking code and having it flow into production quickly lets StubHub get value to its customers faster. We can add new features or fix bugs instantly—GCP enables that for our entire environment," he added.

Get more information

StubHub

stubhub.com

Google Bare Metal Solution

cloud.google.com/bare-metal

Solution ingredients

Intel® solutions include:

2nd Gen Intel® Xeon® Scalable processors
Intel® Virtualization Technology (Intel® VT)

Partner software solutions include:

VMware (virtualization) and Oracle (database)



1. Source: StubHub internal measurements.

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