8x IOPS
IMPROVEMENT

+

5X REDUCTION
IN STORAGE RACK SPACE

=

FUTURE PROOF
STORAGE
ARCHITECTURE

REDHAWK™
— CASINO —

COMPANY:
Red Hawk Casino
www.redhawkcasino.com

CHALLENGE:
- Ensure fast system response times for guests and employees
- Eliminate storage as a problem center for IT

SOLUTION HIGHLIGHTS:
- 20:1 data reduction in virtual desktop storage
- 4x response time improvement for MS SQL Server report queries
- 90% reduction in storage-related power consumption

BUSINESS VALUE ACHIEVED:
- Improved guest experience and satisfaction
- 30-40% storage CAPEX avoidance for dev/test
- 87% reduction in electricity costs
- Deferred data center expansion costs

USE CASE

VDI

GEO

North America

INDUSTRY

Gaming

RED HAWK CASINO PLACES A WINNING BET ON PURE STORAGE

Red Hawk Casino does not take chances with guest satisfaction. Its number one priority is delivering the best possible guest experience while minimizing annoying wait times. The casino's IT department plays a vital role in ensuring that any guest-facing application or service – such as Players' Club activity, account creation, incentive redemptions, slot machine credit management, and self-serve kiosk transactions – perform optimally.

Matthew Morgan, Vice President of Information Technology for Red Hawk, knows that the casino's IT infrastructure can play a big role in making guests feel welcome. And a recent decision to adopt Pure Storage is generating big returns.

FLASH STORAGE SUPPORTS NEW BUSINESS INITIATIVES

When Morgan joined Red Hawk in 2011, he inherited a hard-disk based network attached array that was only two years old but according to Morgan, was already hitting the limits of its performance, frequently seeing slow response times of 15-50ms or more for transactions involving guests on the casino floor, leading to frustrated guests and the potential for shortened visits. In addition, one of the casino's major initiatives for 2013 was to deploy a virtual desktop infrastructure (VDI), which adds significant performance, complexity and capacity demands on storage systems.

Looking at the various options, including systems from its traditional storage supplier, Pure Storage stood out from the rest with the significant performance benefits of flash. Red Hawk started with a beta test of the Pure Storage FlashArray to see how it would perform in a VDI enterprise environment. Within days, says Morgan, "we were blown away by the performance statistics we were seeing."

Keeping systems running 24/7 is essential for Red Hawk, Morgan says, so when Pure demonstrated that its array could be upgraded without any negative impact to either performance or uptime, "it really wasn't much of a leap for us to put it into full production. We ended up moving all of our virtual servers over to Pure after a month or two." The positive impact on Red Hawk's business has been striking in several respects.

NO DELAYS MEANS HAPPY CUSTOMERS

Response times have been cut dramatically- from 15ms of latency to sub-milliseconds on average, even under heavy loads. And fast response times mean happy guests. "From a user perspective, it means no more slowdowns. As for general user complaints about sluggish response, you just don't see that with Pure," Morgan notes.

" Pure has pretty much removed storage as a concern for us. We know the Pure platform is going to take anything we can throw at it."

Matthew Morgan, *Vice President of Information Technology*

"We were capped at about 20,000 IOPS out of our NetApp system, which was about a half rack of spinning disk. Now, we have the overhead for 150,000 to 160,000 IOPS out of one Pure FlashArray 420, and that is just amazing."

"There are a fair amount of database lookups that occur in a customer transaction," he adds, "and the few extra milliseconds it can take per I/O request at the storage layer with a legacy product can really delay a customer experience. Since installing Pure, our customer service reps are able to do their jobs without the excessive screen wait times they've had in the past."

Off the casino floor, the benefits of flash storage are also evident in back-end systems, including all the production applications running on Microsoft SQL Server. Morgan notes "We used to see report response times of two minutes-plus. That's been reduced dramatically. We now see results coming back for the same report in about 30 seconds."

The need to support a VDI rollout, which prompted the original inquiry into flash, has also been met. "Obviously, storage capacity and performance are key concerns when you're planning for VDI, and that's where Pure really shines," Morgan says. For example, Red Hawk has avoided storage-related problems typically encountered with VDI deployments, like boot storms on weekday mornings when employees log in simultaneously. "Pure's flash array delivers exceptional IOPS performance that retrieves data as quickly as possible at peak times with little disruption to the user."

MOVE TO PURE SLASHES ELECTRICITY COSTS 87%

Equally important are the savings in space and operating costs made possible by flash storage. Whereas Red Hawk used to need 105 rack units (around 2 ½ standard racks) for storage equipment, it now runs its entire operation on a Pure FlashArray that takes up just 10 rack units — a 10:1 savings in data center space.

This has a substantial impact on operating costs as well. Compared to the annual electricity bill for the first-generation storage system installed when the casino opened in 2008, the Pure array uses 87% less electricity, and demands one-sixth the cooling.

Other benefits from the Pure system are evident. "One of the major elements, especially in the case of a virtual desktop deployment, was deduplication at the storage layer," Morgan says. "The nature of

virtual desktops is that you're going to have multiple images of the same data across the organization. We work to standardize our desktop images so they can be shared, but in a traditional storage environment, you'd still have to maintain space to house multiple copies of the base OS loads. With the Pure platform, we get solid data-reduction ratios — 10:1 with our servers and 20:1 with our desktops, so we have additional flexibility for platform variability and opportunities to deploy persistent virtual desktops. This capability ultimately enhances the user experience by allowing us to provide desktops better tailored to our users' needs."

In addition, Morgan notes, "data reduction allows us to create test and development environments with little additional storage capacity. Instead of purchasing probably 30-40% more very expensive storage on our production array, we moved our test environment to cheaper storage with a different performance profile." With VMware integration, clones occur in a matter of seconds, giving them a true picture of how their applications will perform in the production environment.

PURE GROWS EASILY WITH BUSINESS

After expanding storage systems every two to three years, Morgan sees reductions and stability in his budget going forward. "I don't think we're going to have to add more raw storage capacity, at our current usable storage growth rate, for three to five years. That's unheard of in my experience. The Pure platform is expandable to the point where it can grow easily with our business. And with Pure's Forever Flash program, you're never going to be looking at a forklift upgrade."

Add it all up, and Morgan likes what he sees — or perhaps more accurately, what he doesn't see and hear. Storage was the first place the IT department would discuss when there was a performance issue. "Now, we're not inclined to focus on the array as the initial trouble source, because 1) we aren't seeing the generalized data retrieval performance impacts that are visible to the user anymore; and 2) the Pure platform is so stable it's not top of mind. We can spend time on other, more pressing issues."

Bottom line, "it has removed storage as a concern for us in general," Morgan says. And that's just like hitting the jackpot.

PURESTORAGE

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