

Red Hawk Casino Delivers Exceptional Customer Experiences

The stakes were high at Red Hawk Casino as its aging IT infrastructure threatened to impact the casino's award-winning customer experience. To meet its customers' high expectations, Red Hawk implemented an all-flash storage solution from Pure Storage in combination with the Evergreen Storage model to ensure the casino's storage technology always stayed modern. Leveraging the inherent performance and cost advantages of Pure Storage, Red Hawk achieved net benefits of nearly \$1 million per year and an estimated ROI of 50% over five years — all while seamlessly upgrading to new generations of the Pure Storage all-flash storage platform.



BUSINESS TRANSFORMATION

With its high-performance, “evergreen” storage platform, the casino can guarantee its guests unimpeded access to all services and benefits for years to come. IT staff productivity has increased, enabling them to implement new business initiatives without delay. In addition, the company saved nearly \$1 million in operating costs over five years.

GEO

North America

INDUSTRY

Gaming

“With FlashArray, we’ll never have to re-buy another storage unit again.”

Matthew Morgan, *Vice President of Information Technology*

RED HAWK CASINO IS A BIG WINNER WITH PURE STORAGE FLASHARRAY AND EVERGREEN STORAGE

Operated by the Shingle Springs Band of Miwok Indians, Red Hawk Casino was designed to showcase the beautiful scenery of the surrounding Sierra Nevada mountains. With its world-class gaming floor offering more than 2,400 slot machines, a variety of popular table games, a high-stakes area, and live poker tournaments, it's no wonder that Red Hawk Casino has become a premier entertainment destination in Northern California.

Technology is transforming the gaming industry. Gone are the days of trading cash for a stack of poker chips. Instead, guests at Red Hawk Casino use rewards club cards to track play, earn points, and achieve gold, platinum and elite status levels. Guests can redeem points for various rewards, like free play, meals in the casino restaurants, merchandise, and guest services.

Given the casino's award-winning¹ reputation for great service, customers expect fast response from Red Hawk's guest-facing automated services and applications — putting pressure on IT to deliver. “Our casino's IT infrastructure plays a major role in ensuring guest satisfaction,” said Matt Morgan, vice president of IT at Red Hawk. “When it delivers a personalized, highly responsive experience, it can make a guest feel welcome and entice them to keep playing. On the other hand, slow response times at the game tables or slot machines can frustrate guests and cause them to abandon play.”

For this reason, Red Hawk was determined to correct latency and performance issues that emerged after the casino opened its doors in late 2008. “We traced the performance issues back to our original storage device from Xiotech,” Morgan said. “The array we owned had IO limitations that were hampering our operation. We upgraded to a NetApp system in 2011, but still couldn't keep pace with the demand for data storage.”

HIGH COST FOR UPGRADES POINTS RED HAWK IN NEW DIRECTION

As Red Hawk's NetApp solution neared the end of its life, the casino's IT team considered several options. With a NetApp upgrade, the company would need new controllers and six additional shelves of storage hardware to supplement its existing three shelves.

Estimated costs included:

- More than \$175,000 for hardware and controllers
- \$30,000 per year for support
- Additional software costs
- Secondary device for back-ups

1 <https://www.redhawkcasino.com/about-us/casino-awards/>

COMPANY:

Red Hawk Casino
www.redhawkcasino.com

USE CASE:

- VDI – VMware® Horizon
- Database – Microsoft® SQL Server
- VSI – VMware vSphere®

CHALLENGES:

- Storage array controllers were maxing out after only 1-1.5 years.
- Slow response times from SQL server queries.
- Extreme complexity of NetApp solution.
- High price tag for a forklift storage upgrade.
- Extensive effort to deploy the upgraded solution.
- Excessive electricity and HVAC costs.

IT TRANSFORMATION:

- Storage-related power costs have been reduced by 87%.
- Reports can be run and maintenance performed without disrupting casino operations.
- Response times for database queries have been slashed from 30-60 ms to <1 ms.
- Evergreen Storage model guarantees the ability to accommodate future growth without forklift upgrades or hidden costs.
- Total savings in operating costs over five years estimated at \$986,720.

“I can create a new LUN in about 10 seconds with Pure. Just creating a new LUN with NetApp was a very time-consuming process.”

Matthew Morgan, *Vice President of Information Technology*

Although this high-priced solution would allow the casino to meet its basic I/O requirements, it wouldn't allow Red Hawk to gain the new capacity and performance it needed to accommodate expected business growth or new competitive initiatives. In addition, one of the casino's major initiatives was to deploy a Virtual Desktop Infrastructure (VDI) using VMware Horizon, which adds significant performance, complexity and capacity demands on traditional storage systems. The casino IT team looked at low-end controllers with bulk storage capacity for replication targets, an option that would require an additional \$18,000 in support costs over 36 months. However, its existing production system was already costing \$25,000 per year for support.

“We didn't actually get to final quotes for this alternative because we could tell the price was going to be too high,” Morgan noted. “We went into this project thinking we would just upgrade our NetApp system, but we realized the pricing just wasn't going to work.” Shifting gears, the IT team began to look at a new generation of data storage solutions that were easier to manage and designed specifically to allow for routine, low-cost upgrades to innovative new storage technologies as they emerged.

RED HAWK TURNS TO PURE STORAGE FLASHARRAY

Attracted to the benefits of flash storage, Red Hawk, working with its partner Big Green IT, contacted Pure Storage to learn more about its FlashArray product — an all-flash storage solution designed to accommodate virtually any workload and scale to keep pace with growth. Although the Pure Storage FlashArray was still in beta testing, the vendor drop-shipped a device for testing in Red Hawk's environment. “Within days, we were blown away by the performance we were seeing,” Morgan said.

Since the casino needed a data storage solution that could be upgraded without hurting performance and uptime — or action on the gaming floor — Red Hawk's IT team specifically tested this scenario. The Pure Storage FlashArray easily passed the non-disruptive testing. “At that point, it really wasn't much of a leap for us to put it into full production. Within a month or two, we had moved all of our virtual servers over to Pure Storage using VMware vSphere,” Morgan explained.

STAYING MODERN WITH EVERGREEN STORAGE

Since moving to Pure Storage FlashArray in 2013, Red Hawk has progressively modernized its storage platform, implementing two subsequent generations of flash technology from Pure that is enabling the casino to keep up with the steadily increasing demand for capacity and performance. Because the Pure Storage software-defined architecture is specifically built to handle modernization cycles with zero disruption, Red Hawk avoids costly, time-consuming fork-lift upgrades along with potentially risky data migrations.

The casino invested in the Pure Storage Evergreen Storage, a new business model for storage procurement and upgrades that complements the Pure Storage FlashArray products. Today Red Hawk runs the most advanced storage platform from Pure Storage, the FlashArray//m series, which incorporates the latest generation of controllers and solid state disks, and provides significantly more capacity and performance innovations in a smaller physical package.

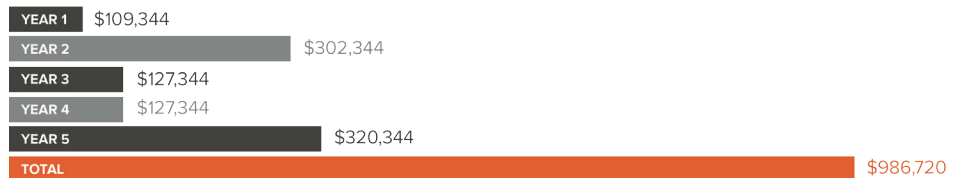
The Evergreen model helps preserve Red Hawk's initial investment by enabling the company to upgrade to next-generation technology without re-purchasing hardware or re-licensing storage software products. Support costs remain flat and predictable. In an era when Moore's law continues to push the envelope of storage technology at a rapid rate, Red Hawk is now positioned to “stay modern” with routine, low-cost, non-disruptive upgrades, eliminating the three- to five-year rip-and-replace storage lifecycle that has impaired IT efficiency for decades.

RED HAWK REAPS SIGNIFICANT RETURNS

According to an ROI study conducted in June 2016 by independent industry consultant Mainstay, Red Hawk's investment in Pure Storage data management products will generate \$986,720 in total operational benefits over five years, with a cumulative net cost reduction of \$491,960 over five years.

As described below, key benefits from Red Hawk's Pure Storage investment range from dramatically better data storage performance and scalability to simpler and easier system administration. As a result, the casino is able to avoid a range of costs, including recurring capital expenditures for upgraded storage equipment and greater data center capacity, as well as ever-increasing costs for system support and energy consumption.

Figure 1. Cumulative Operational Benefits



Performance and Scalability Enhancements

Among other key improvements, the casino's new data storage solution has provided 100% uptime, even during system upgrades. The casino's IT team can now perform upgrades, run reports, and conduct maintenance without causing database freezes or disrupting the gaming floor. System speed also increased, with SQL server query response times improving by a factor of four—from 30-60 milliseconds previously to less than one millisecond, even on heavy loads. For customers, this translates into less wait time to validate and begin play or check account balances, improving their gaming experience and customer satisfaction. "This means no more slowdowns," Morgan said. "Now that we are using Pure, we no longer hear any complaints about sluggish response."

Unlike traditional systems, the Pure Storage Evergreen model doesn't require a major upgrade every three years. Instead, Red Hawk can keep the same system it has in place and get new, upgraded controllers simply by continuing to pay its support costs. "You continually get increased performance every three years," Morgan said. "And the performance of the Pure Storage base model is wildly better than any traditional data storage system I've ever worked with."

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 Storage really shines," Morgan said. 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. "The Pure Storage FlashArray delivers exceptional IOPs performance that retrieves data as quickly as possible at peak times with little disruption to the user."

Productivity Gains in System Administration

Since the FlashArray system requires virtually no administration or troubleshooting, the casino's IT staff has been able to spend more time addressing other critical organizational needs, like making business applications run more efficiently. Validating this finding, Jake Warren, Senior Systems Administrator observed: "I used to spend one or two hours per day monitoring the system and dealing with performance issues. Now, I can focus on optimizing queries and software to take advantage of the hardware."

Red Hawk IT managers noted that Pure Storage is significantly easier to deploy compared to its legacy NetApp system, which required two days of consulting support from the vendor and two to three more weeks of work by internal IT staff. By contrast, the

"With Pure, we set it and forget it. We very rarely have to check performance issues."

Matthew Morgan, *Vice President of Information Technology*

“With the traditional storage model, every three years, you’re doing a forklift upgrade to buy all new controllers and likely all new shelves with all new support costs on the hardware. You may never use the old equipment because the support costs go way up after three years, and they are even higher after five years. You’re better off trashing the old system and buying all new.”

Matthew Morgan, *Vice President of Information Technology*

Pure Storage FlashArray system can be prepared for data migration in 90 minutes to two hours. “Within two hours, we had the array racked, integrated, and our initial VMs migrated,” Morgan said.

Figure 2. Net Administrative Benefits

YEAR 1	\$55,000
YEAR 2	\$55,000
YEAR 3	\$55,000
YEAR 4	\$55,000
YEAR 5	\$55,000

BASED ON \$110,000 FULLY LOADED SALARY

Cost Avoidance

Because the Pure Storage FlashArray solution scales easily to keep pace with business growth and allows Red Hawk to avoid major infrastructure upgrades, the casino has been able to eliminate significant expenditures for hardware, support, and data center expansion. Specifically, Mainstay estimated the following savings in avoided costs:

- 30-40% in capital expenditures for storage upgrades. The company eliminated the need for investments in large-scale storage upgrades and hardware every three years.
- An estimated \$260,000 in data center expansion costs. Because Pure Storage provided Red Hawk with better performance with a smaller storage footprint, the casino doesn’t need to expand its data center.
- \$11,344 in electricity and HVAC costs. FlashArray requires significantly less power and cooling to operate. “The Pure Storage system isn’t costing us nearly as much for power and cooling,” noted Morgan, Red Hawk’s VP of IT. Specifically, Mainstay estimated a 90% reduction in storage-related power consumption, translating into 87% lower electricity costs.
- Nearly \$500,000 in upgrade and maintenance costs. With Pure Storage Evergreen Storage model, Red Hawk can predict its future support costs and bypass the cost spikes associated with traditional system upgrades.

Figure 3. Cumulative Cost Avoidance

YEAR 1	\$54,344	
YEAR 2		\$247,344
YEAR 3	\$72,344	
YEAR 4	\$72,344	
YEAR 5		\$265,344

FULL STORAGE UPGRADE AT YEAR 2 & 5 WITH ADDITIONAL SUPPORT

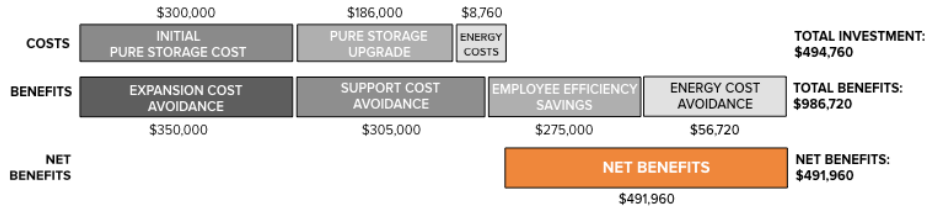
Total Cost and Benefits Summary

Mainstay estimated that Red Hawk is expected to achieve net returns of nearly \$1 million on its Pure Storage investment over five years. The company’s ability to avoid investments in expanded storage infrastructure represented the largest source of savings, followed by avoidance of ongoing support costs for this infrastructure. Employee efficiencies due to easier system deployment and administration also contributed significantly to cost savings, as did lower energy costs. Overall, total benefits exceeded total costs by a factor of two. Figure 4 below summarizes the projected costs and benefits of the company’s investment.

“Essentially when you buy into the Pure Storage model, you pay your predictable support cost, and you continually get increased performance every three years.”

Matthew Morgan, *Vice President of Information Technology*

Figure 4. Total Cost and Benefits by Category



Looking forward, Red Hawk will be able to leverage Pure’s cloud-like storage infrastructure to smoothly accommodate growing traffic on the gaming floor as well as new data-intensive business initiatives without running into capacity constraints or processing delays that frustrated customers in the old environment. Delivering a fast gaming floor experience will, in turn, help drive customer satisfaction and loyalty and bolster Red Hawk’s reputation as a go-to entertainment venue.



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