

Dallas Cowboys Generate 30% More Revenue with New Stadium and HP Solutions

Hailed as a technology paradise, the new stadium powered by services run on an HP converged infrastructure helped draw an all-time NFL record crowd to its opening game.

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**Bill Haggard, director of enterprise infrastructure,
Dallas Cowboys**



Objective

Run more than 30 businesses in over 90 locations and accommodate growth for 15 to 20 years

Approach

Centralize IT services in one location to support stadium operations, customer experience, and business services for multiple parts of the Dallas Cowboys organization

IT improvements

- Migration on time—months sooner because of virtualization and HP tools
- Faster time to value on new servers (deployment in minutes vs. days)
- 75% reduction in cabling due to HP Virtual Connect and HP BladeSystem
- Enhanced resilience due to virtualization of data across 200+ disks using HP EVA storage
- Projected site and storage recovery in minutes to hours vs. days to weeks

Business benefits

- Projected annual server TCO savings of up to \$1 million USD or more
- Enhanced ability to innovate (IT staff focus of 30% on innovation/70% on operations transformed to 80% innovation/20% operations)
- Real-time business intelligence
- Estimated five-figure savings in reclaimed primary disk through HP storage tiering
- Estimated 30% increase in annual stadium revenue



Minutes to kickoff

Step into the new Cowboys Stadium and look up. At three million square feet, it is the largest single-span dome in the world. Huge panels at the top and at the ends open to the sky when conditions are right, or close for better climate control.

Listen to the roar of 100,000 fans. They're watching a team that has amassed, in its 50 years, one of the most successful records in pro football history. *Forbes* magazine also rated the Cowboys [the most profitable and valuable team](#) in the NFL.

HP customer case study:
converged infrastructure

Industry: sports and
entertainment



Look up at the 60-yard long, 70-foot tall high-definition video screens running along the sidelines—they are the largest HD monitors in the world. With other large screens in the end zone, they make sure everyone is close to the action. There are no bad seats in the house.

Walk anywhere and see more on one of 3000 additional monitors. Each has its own IP address so that it can carry content—and ads—customized by section or even by individual monitor.

Step up to a concession stand and see computer-generated menus that can be changed on the fly throughout the game. Real-time business intelligence gives management a picture of what inventory is moving and what is needed where. Orders and credit cards are scanned wirelessly so that fans can get what they want and have more time for the game.

“At our previous home, 30-year old Texas Stadium, all you really did was turn on the lights and bring out the football,” says Bill Haggard, director of enterprise infrastructure for the Dallas Cowboys. “This is different.”

According to fans and the media, a visit to the new stadium produces exactly the impression that designers and team owner Jerry Jones intended: “Wow!”

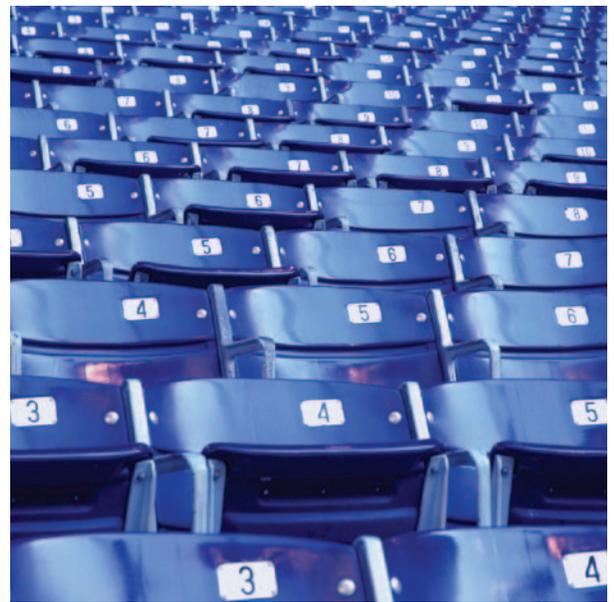
“With HP Insight Dynamics, physical servers can be managed the same way as virtual servers. We have created templates that enable us to deploy servers within 25 to 30 minutes compared to two days if we deployed the traditional way.”

Bill Haggard, director of enterprise infrastructure, Dallas Cowboys

What fans don't see

Another “wow” is behind the scenes, beyond the eyes of the crowd. The IT infrastructure driving all these services—as well as supporting Jones's 30-plus other businesses in more than 90 locations—is centralized at the stadium and run by an IT staff consisting of CIO Pete Walsh and just 11 internal IT staff. With mirrored 100-terabyte SANs at the stadium and a remote location, it's designed to support growth for the next 15 to 20 years.

What strategies make that kind of efficiency possible? The first step was transforming the data center.



Avoiding \$1 million a year in TCO

Texas Stadium—the team's previous home—was completed in 1971, before the computer age. Until recently, IT was based on another vendor's rack-mounted servers in a one-application-per-server model.

The result was a drain on IT resources. “About 70% of IT team time was spent on break-fix maintenance and 30% was on new projects and innovation,” reports Haggard. To make the new stadium a success, that ratio had to be reversed.

After evaluating the technology, roadmaps, and support capabilities of major vendors, the Cowboys began a strategic partnership with HP and turned to virtualization on the HP BladeSystem. “If we had gone all physical with the servers, if HP BladeSystem was not what it is today, we would have in the neighborhood of 500 physical servers,” Haggard observes. “We will end up with ~130 HP ProLiant c-Class server blades running what would have taken 500 physical servers to host.”

One virtualized application is the Cowboys' point-of-sale terminal application, Radiant POS. Each of the 212 concession stands needs its own Radiant server. All 212 Radiant servers are virtualized on just 16 HP ProLiant BL460c server blades.

TCO analysis

The HP Rack-Mounted to BladeSystem TCO Analysis Calculator compares the cost of ownership for traditional rack-mounted server operations to an HP BladeSystem environment in order to assess the total cost of ownership of the two solutions.

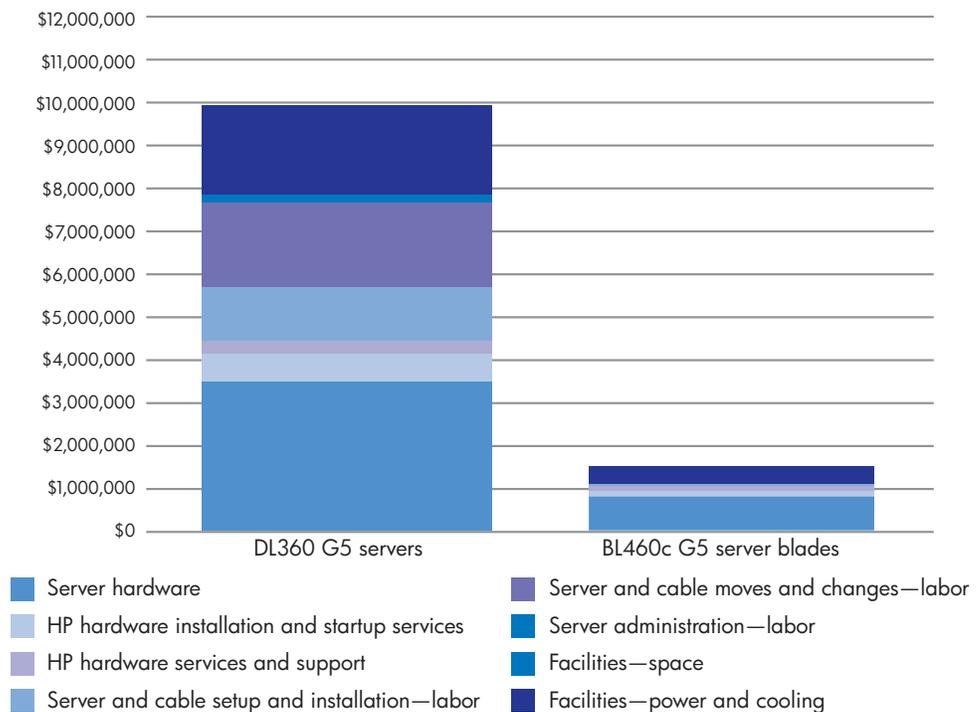
Cost of ownership analysis (cumulative over 5 years)	HP BladeSystem DL360 G5	HP BladeSystem BL460 G5	Savings	
Number of systems	500	130		
Direct costs (USD)				
Server hardware	\$3,466,000	\$842,127	\$2,623,873	75.7%
Facilities—space	\$40,540	\$10,135	\$30,405	75.0%
Facilities—power and cooling	\$2,194,920	\$365,405	\$1,892,515	83.4%
Other direct costs (USD)	\$4,241,250	\$455,088	\$3,786,162	89.3%
Total direct costs (USD)	\$9,942,710	\$1,672,755	\$8,269,955	83.2%
Total cost of ownership (cumulative over 5-year analysis period) (USD)	\$9,942,710	\$1,672,755	\$8,269,955	83.2%

In addition, 25 rack-mounted HP ProLiant DL380 Servers run applications that couldn't be virtualized, such as IP security cameras and door and badge readers.

According to the [HP Rack to c-Class Blade System TCO Analysis Calculator](#) developed by Alinean, consolidating 500 rack-mounted servers equivalent to the HP ProLiant DL360 onto 130 HP server

blades (such as the HP ProLiant BL460c) can save \$1 million USD a year and more in total cost of ownership (TCO). See the accompanying charts: cumulative TCO savings over five years could be as much as a projected \$8.3 million USD.

Total cost of ownership



This chart shows the total cost of ownership for both the rack-mounted solution and HP BladeSystem solution.

How to migrate faster than expected

Migration to the new stadium looked challenging. Just eight months separated the date when the process could start and the stadium's first event. Technology needed to be in place to operate everything from ticket scanning to concessions to giant video screens. And there could be no disruption during migration.

"HP Technology Services helped the Cowboys plan the migration and rack and stack the new physical infrastructure," Haggard says. The Cowboys also turned to HP experts for assistance with installation and support of VMware and HP Insight Dynamics across the new infrastructure, assuring a rapid, trouble-free deployment that kept the transition on schedule.

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Virtualization of servers and storage made the move successful. "We have the ability to take a snapshot of a server back at Texas Stadium while it's running," notes Haggard. "We can bring the server into a virtual world and stand it back up. And then we just mirror or sync the server images and data on storage systems between the two locations. We could turn off the servers at Texas Stadium and have the same server name, same data, same everything in place at Cowboys Stadium. And users never knew a change had been made."

The team is currently migrating base infrastructure from Jerry Jones's 30-plus other companies. "Without VMware and HP rapid deployment technology," Haggard says, "deployment would have taken months longer."

Added blocking and tackling from HP Services

With so much business riding on the performance and availability of the infrastructure, Haggard looked to HP to tailor a support plan to match the Cowboys' unique requirements. An HP Critical Watch Remote Management contract provides around-the-clock remote monitoring and technical support, plus 4-hour onsite response for hardware repair. On event days, when the stakes are high, two dedicated HP engineers work alongside Haggard's team to help ensure smooth operation of the entire infrastructure.

The added help makes a key difference. As Haggard explains: "Mission Critical Support gives the Cowboys an advantage we did not have in the past: we can focus on other parts of our business and not worry so much about the day-to-day break/fix that takes place in an environment of this size."

There are multiple benefits, Haggard points out: "We get the time needed to plan for our future and not worry about the day-to-day support tasks as much. The account support consultants dedicated to our account have become almost an extension of our existing staff. They are always there to help us resolve any issues that come up and participate in our long-term goals. They always have a forward look at the technology we are using and would like to use, as well as helping us on a strategic level."

Manage 250 servers and 100 TB with only 11 internal IT staff?

HP Insight Dynamics is key in simplifying management for the Cowboys. It's an integrated infrastructure that automates activation of servers, storage, and networking, offering built-in capacity planning and rebalancing tools as well as automating disaster recovery and failover capabilities.

The Cowboys gain in several ways.

One is faster provisioning. Says Haggard: "With HP Insight Dynamics, physical servers can be managed the same way as virtual servers. We have created templates for the different server environments and platforms that enable us to deploy servers within 25 to 30 minutes, compared to two days if we deployed a physical server the traditional way."

Additional time is saved because of HP Virtual Connect, a network module in the HP BladeSystem enclosure that ties LAN and SAN information to the server bay instead of the server. This allows the Cowboys to add, remove, or change servers in minutes, saving hours of delay that would be spent on LAN and SAN coordination. Says Haggard: "HP Virtual Connect also reduces cabling by 75%, from 16 cables per enclosure down to four."

The long pass: remote management

The Cowboys can streamline their infrastructure and manage it more easily from a remote location. "Because of HP Insight Dynamics, we can do just about everything remotely that we could do if we were standing in front of the server," Haggard says.

There's greater flexibility because HP Insight Dynamics captures key data points like power draw, CPU, and network utilization every five minutes and uses the data to generate best-fit consolidation scenarios. When combined with built-in re-balancing tools, this can eliminate weeks or months of tedious planning and implementation.

Explains Haggard: "With VMotion and HP Insight Dynamics, we have the ability to set thresholds and monitors. If one set of blades becomes taxed for whatever reason, we can choose to add CPU or have the workload moved to another part of the environment either manually or automatically. The end result is better performance and a reduction in maintenance and break-fix time."

The game must go on: recovery in minutes

Boosting uptime is critical, and HP Insight Dynamics and other HP solutions play important roles. “We designed redundancy into the data center,” Haggard told [BizTech Magazine](#). “We can’t lose connectivity or have downtime because 3,000 screens could go blank and could result in no advertising, no menus, and no concession sales.”

Redundancy is enhanced by HP StorageWorks 8100 Enterprise Virtual Arrays. “We looked at what other storage vendors had on the market, and we preferred the HP EVA8100’s expandability, ease of administration, and the data protection it brings the SAN,” Haggard says. “It virtualizes data not just across a normal shelf of 24 or 48 disks, but across all the 200 drives in the EVA as a whole. That resilience is important to us.”

Because the Cowboys’ HP StorageWorks EVA systems support storage tiering, the Cowboys have been able to move data off of primary storage disk to less expensive secondary FATA disk—reclaiming an estimated five figures worth of primary disk space for other uses.

The team will use HP Continuous Access to replicate data between HP EVA8100 systems in the Cowboys Stadium and at corporate offices 26 miles away. There is a 100-terabyte SAN at each location.

HP Insight Dynamics enables the team to create and test failover and recovery scenarios and perform virtual and physical server activation at the remote site at the touch of a button. “We project recovery time in the new environment to be minutes to hours, where before it could have been days to weeks,” Haggard says.

The team turned to HP solutions to enable faster recovery of files or email messages. “In our old environment, our disk-to-tape backup of Microsoft® Exchange took 50 to 60 hours,” Haggard says. “Now, disk-to-disk-to-tape backup with HP Data Protector and HP StorageWorks 9000 Virtual Library System is in less than an hour. And recoveries from disk are up to 10 times faster than from tape.”

The Cowboys plan to utilize HP BladeSystem Matrix when adding capacity. Matrix is the industry’s first converged software, server, storage, and networking platform that automates service delivery for the data center. Delivered as a pre-integrated solution, Matrix will further accelerate service delivery, simplify planning, and reduce costs.

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Bill Haggard, director of enterprise infrastructure, Dallas Cowboys

Company profile

About the Dallas Cowboys
Founded in 1960, the Dallas Cowboys have more Super Bowl appearances than any other team and are tied for second among all NFL franchises in Super Bowl victories. The Cowboys are the only NFL team to record 20 consecutive winning seasons (1966–1985), an NFL record that remains unbroken and unchallenged. It remains one of the longest winning streaks in all of professional sports history.

To learn more, visit www.dallascowboys.com

Boosting revenue as much as 30%

Technology is creating more sources of revenue, says Haggard. For instance, a wireless handheld ticket-scanning application, hosted on HP ProLiant DL380 Servers, is delivering an improved capability to check tickets. “We’ve gone from 65,000 spectators with no field level clubs in the old stadium to 100,000 spectators with two clubs on almost every level in the new stadium,” Haggard says. Tickets are scanned at each club. Being able to offer more types of premium experiences brings in more revenue per customer.

The updated technology at stadium concessions lets the Cowboys accept credit cards. In their old stadium, they could accept cash only.

Revenue enhancements add up. Estimates are that annual revenue in the new Cowboys Stadium is up to 30% greater than in Texas Stadium.

The game behind the game

An IT transformation was key. “HP expertise and technology have helped our IT staff switch its focus from 30% on innovation and 70% on operations to 80% on innovation and 20% on operations,” Haggard sums up. “That helped make this new stadium and its increased revenue possible.”

Fans like the new environment. At the first game in Cowboys Stadium, they set [an all-time NFL regular season attendance record](#) of 105,121.

All eyes were on the 11 Cowboys who took the field. Fans couldn’t see behind the scenes as another team of 11—the internal IT staff—delivered all IT services. But the game behind the game is appreciated by Haggard, CIO Pete Walsh, and others who follow IT operations.

Says Haggard: “I’ve been in the business over 20 years now, and this is by far the best staff, set of business partners, and technology that I’ve ever been associated with.” Summed up CIO Walsh: “HP has given us a tremendous amount of flexibility, and more speed than we’ve ever had in the past for the Dallas Cowboys.”

For more information

To learn more, visit: www.hp.com

Customer solution at a glance

Hardware

- HP ProLiant BL460c server blades
- HP BladeSystem c7000 Enclosures
- HP Virtual Connect Ethernet Modules
- HP ProLiant DL380 Servers
- HP StorageWorks 8100 Enterprise Virtual Arrays
- HP StorageWorks 9000 Virtual Library System

Software

- HP Insight Dynamics
- HP Virtual Connect Enterprise Manager
- HP Data Protector
- HP Business Copy EVA
- HP Continuous Access EVA
- VMware Virtual Infrastructure 3 version 3.5 (upgrade planned)

Operating system

- Microsoft Windows® Server 2003
- Microsoft Windows Server 2008

Network protocol

- Gigabit Ethernet

HP Services

- HP server planning and deployment services
- HP installation, support, and transition services for VMware and HP Insight Dynamics
- HP Critical Watch Remote Monitoring
- HP Enhanced Mission Critical Services for event days, with two onsite HP engineers

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