Automotive Group Reduces Servers and Boosts Performance

Executive Summary

- **Customer Name:** Hendrick Automotive Group
- **Industry:** Car sales and service
- **Location:** Headquartered in Charlotte, NC, with 85 dealerships in the United States
- **Number of Employees:** 8000+

Challenge
- Providing always-on availability and responsiveness to staff and customers
- Delivering high-performance resources
- Reducing infrastructure and operating costs

Solution
- Built two virtualized, collocated data centers with Cisco UCS, VMware, and NetApp architecture

Results
- Accelerated new application deployment times from weeks to day
- Boost IT staff productivity by more than 30 percent
- Helped transform data center from cost center to revenue center

Cisco UCS solutions reduce capex and opex and improve business agility at Hendrick Automotive Group.

Challenge

In today's market for new and used cars, customers are often in the driver's seat, actively communicating with dealers about what they need at all hours and through multiple channels, from mobile devices, tablets, and online, as well as in person at dealerships. For dealerships, this consumer behavior requires responding to ever-changing customer demands or run the risk of losing out to competitors.

"We need to have our IT systems up and ready to close a sale or book a service at any time, or we could lose the business," says Robert Taylor, vice president of IT at Hendrick Automotive Group. Fortunately, Hendrick has built its success in large part on outstanding service and business innovation. The North Carolina-based company continues to grow its business year-over-year and is the second-largest privately owned and the sixth-largest automotive dealership group in the United States. Hendrick's comprehensive services include sales of new and pre-owned vehicles with financing, warranties, automobile parts, accessories, service, and repair, virtually everything motorists could need.

Only 10 years ago, the company had fewer than 300 desktop computers. In the beginning, things such as system maintenance or upgrades had little effect on its business. Now, with close to 6000 systems in use across dealerships nationwide, sales staff needs reliable access to internal and external systems to qualify buyers, marketing groups need to conduct direct mail campaigns and orchestrate online assets, and service departments, which now run three shifts at many locations, need immediate access to web-based systems to order the right parts and program cars correctly. "The reality is that if our IT systems go down, our business can't function," says Taylor.

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> Vice President of Information Technology, Hendrick Automotive Group

As Hendrick's computing infrastructure grew more sophisticated, the team moved it to a colocation facility 20 miles away to help ensure better environmental controls and support disaster recovery efforts. To eliminate the need to maintain servers at far-flung sites, the team also pulled servers from the dealerships into the colocation facility. But with growth and expansion, Hendrick experienced server sprawl, expanding from 13 to well over 150 physical servers in the across the organization. With the company's data center expanding and operating and management costs on the rise, the IT team's staff members tried to plan visits carefully, minimizing trips to the data center, but still, they spent too much time maintaining the servers.

The team made its first step towards its current solution when it embraced virtualization, leveraging VMware to condense the 70 servers to just five physical hosts in their primary Charlotte data center. But as a result of those changes, Hendrick found itself with 15 network interfaces into those servers and facing bandwidth issues. Backup windows grew longer and system performance suffered, causing delays in response at dealerships and corporate offices.

The Hendrick team decided to rethink the entire data center infrastructure and create a more integrated solution: one that supported the need for virtualization, switching capacity, and disaster recovery. Its goals were to improve business continuity while reducing infrastructure costs, cut application deployment time, improve application performance, and better allocate IT staff resources.

Based on previous experience using Cisco as a trusted vendor for routers and switches, the company saw an opportunity to unify its IT infrastructure leveraging Cisco® Unified Data Center solutions. "Initially, we thought the choices were only to patch together a home-grown solution from multiple companies, or purchase complete solutions from one vendor and having to accept that not every component would be best-of-breed," says Taylor. "But when we looked closely at Cisco UCS, we saw that Cisco offered an integrated, unmatched solution. Equally appealing, if any challenges arose, we'd only have to work with one vendor to get the solution working perfectly. It was an easy choice."

At the outset of the project, Hendrick worked hand-in-hand with its implementation partner, Internetwork Engineering (IE), to assess the needs of the organization through consultations with key stakeholders. From there, IE helped to design a tailored solution to overcome multiple business challenges as well as deploy the integrated solution in a highly available architecture at both the primary and disaster recovery sites. "Hendrick was running its IT operations on aging, nonredundant data center infrastructure with limited disaster recovery capabilities," said Doug Barnes, director, IE Data Center Solutions and the project's lead consultant. "The Cisco/NetApp FlexPod solution has addressed our goals and will also provide Hendrick with the operational flexibility to meet business demands well into the future."

Network Solution

At its primary data center, the company's production environment now runs on 168 virtual machines, all on only four Cisco UCS B230 servers. "Our entire data center sits in one and a half racks," says Taylor. But that's only half the story. To help ensure business continuity, Hendrick has two virtually identical Cisco UCS-based data centers, each running approximately 170 virtual machines on two Cisco 5108 chassis with four B230 blade servers. To maximize the value of that investment, Hendrick treats the secondary data center as a "hot and cold site," switching processing from Charlotte to Raleigh and vice versa when needed.

At the core of each of Hendrick's UCS data centers is a Cisco Nexus® 7000 switch, which Taylor describes as "a backplane that can scale to always support the business, no matter what we're doing." Through the backplane and Cisco 6120 Fabric Interconnects, Hendrick can now deliver bandwidth of up to 10 GB to dispersed locations and high-availability throughput for its servers and connected devices. Cisco 3845 routers connect to the company's 73 dealerships nationwide. For over 50 of the company's dealerships, the Charlotte data center also provides a unified communications platform supported by Cisco C-series servers. Hendrick also adds security to its data centers by using Cisco ASA for firewalls.

At each data center, every server has its own OS, local connection to a NetApp SAN, and 10 GB Ethernet. With the exception of Hendrick's point-of-sale application, every application that this US$4.9 billion company needs (Microsoft Exchange, SharePoint, SQL Server, Oracle Hyperion Financial Management, and Solomon for internal accounting and taxes) now runs on fully virtualized VMware systems through the Cisco Unified Computing System™ (UCS®) data center.

Hendrick has also started making forays into virtual desktop infrastructure (VDI). When Hendrick University trainers go out to dealerships, they can now set up remote classrooms in just the time that it takes to unbox the Wyse terminals. Hendrick also uses VDI for its Oracle implementation, so Hendrick can continue its upgrade path for desktop devices without risking having those upgrades create problems for the Oracle applications. Instead, users launch a VDI client from the desktop that accesses Oracle on the back end, running in a special "sanitized" environment on one of the virtual machines in the data center.

Business Results

Reliability, performance, and value

Business continuity was an important issue for Hendrick senior management because of the business impact of any delay in responding to customers. The new system virtually guarantees no downtime for any customers or stores; it can back up valuable data every few hours to help ensure against data loss. Hendrick mirrors all data from Charlotte to Raleigh on a regular basis, and can switch processing from one to another as needed for optimal use of resources. "Having hot and cold sites supports our operations and helps us achieve several critical IT goals," says Taylor. "It has seamlessly married our disaster recovery strategies with daily operations, enabled us to better utilize our data center and staff resources, and significantly simplified IT management."

With its two data centers each needing only one and a half racks in colocation facilities, and with the power of the Cisco components still leaving room for higher utilization, Hendrick no longer has to make significant capital expenditures in acquiring new servers or data center facilities. In turn, the IT team estimates that it saves more than $100,000 annually by being able to consolidate over 60 percent more resources and applications on a single UCS blade server compared to using other data center solutions. IT staff can also quickly spin up new virtual servers to accommodate sudden changes to the business.

In Hendrick's previous environment, deploying a new application could take weeks. Whenever the company wanted to enhance application functionality or add web apps, middleware apps, new database services, or other resources, it took days, if not weeks, to acquire new servers, and have them delivered to the data center. Once received, an IT staff member would have to drive out to a facility and install an operating system and the same templates as on the other servers.

"We've reduced visits to our collocation facility by more than 75 percent and can fully manage the disaster recovery site without even visiting it," says Taylor. "By reducing travel and administrative time, we can reallocate our staff to manage higher-value business activities, better support our helpdesk, and focus on improving experiences for our end users."

Now, with Cisco Unified Data Center solutions and Cisco UCS Manager, when the business requests new services, the IT team can respond within a day instead of weeks and fulfill requests for new IT services to support critical processes by more than 80 percent faster. Even if a request is so significant that Hendrick needs a new physical host, the IT team can quickly order a blade from Cisco, which drop-ships it to the data center. Data center staff slot it in to the chassis, boot it off an image of a clone in VMware, drop a service profile on the server, and have the new server up and running within minutes.

According to Taylor, one of the biggest benefits of the new infrastructure is the ability to upgrade software rapidly. "With this new environment, it can take just hours to deliver upgraded software, not weeks or months," he says. "This helps keep our users happy, and our business up to date." Taylor also notes that the new Cisco solution is keeping IT staff happy by eliminating days spent in the data center mounting equipment and slowly installing an OS, as well as traveling to the company's disaster recovery site to complete labor-intensive processes.

In addition, the Cisco UCS Manager helps enable Hendrick to optimize application performance. For example, as processing needs change throughout the day, the company can shift tasks from Charlotte to Raleigh to take advantage of unused computing cycles in that data center. "We previously couldn't do that," says Taylor. "We used to have to apologize that the systems were slow. Now, with UCM, we can easily move a high-utilization server to lower-utilized hardware and manage it better to provide better service."

With just 22 employees supporting 6000+ computers, ease of management is a priority. The week after the new data center infrastructure was deployed, one of the three fulltime employees in the systems group went on maternity leave for 12 weeks. The team did not miss a beat, even though during that 12-week window, the group was asked to work on another project, further reducing the number of hours available for management tasks. The Cisco UCS Manager capabilities in the data center simplify management and help enable staff to manage infrastructure remotely, even from an iPad and a VPN.

"For us, the data center upgrade was really just the beginning. In the future, we intend to continue to drive technology use in dealerships, and the Charlotte and Raleigh data centers will be the hub for that growth," says Taylor. "We now have a platform on which we can comfortably deploy technologies such as Microsoft SharePoint, Lync, and other collaboration tools, including Cisco TelePresence EX60 solutions. Having Cisco Unified Data Center technology will be critical to the success of IT at Hendrick Automotive Group."

Cost center to profit center
With the many advantages of the Cisco UCS infrastructure, Hendrick's IT department has come a long way from its days as a cost center. "Senior management views us as a business enabler," says Taylor. They have noticed that whenever the business requests a change, IT makes it happen faster than ever, enabling increased business agility. They also appreciate how the IT team has become such an efficient service provider that it now sells similar services to partner companies, making IT revenue-neutral to Hendrick, and potentially a profit center in the future.

Product List

Cisco Unified Computing System Servers
- Cisco UCS B230 Blade Servers
- Cisco UCS C200 Servers
- Cisco 5108 chassis

Fabric Interconnects
- Cisco 6120 Fabric Interconnects

Routing and Switching
- Cisco Nexus 7000 Switches
- Cisco 3845 Routers

Network Management
- Cisco Unified Computing System Manager

Security and VPN
- Cisco ASA Adaptive Security Appliance

Applications
- Microsoft Exchange
- Microsoft SharePoint
- Microsoft SQL Server
- Oracle Hyperion Financial Management
- Solomon

Storage
- NetApp Storage solutions

"In our evaluation stage, Cisco talked about service profiles, the ability to mix and match hardware, the speed with which employees can work, and the way the technology would put us on a path to a private cloud infrastructure," says Taylor. "I couldn't appreciate the value of Cisco Unified Data Center solutions until I saw them in action. In the time that it would ordinarily have taken just to mount a single server, we'd completed the entire configuration. Now there's no question that UCS was the right approach for our data center, and that Cisco was the right partner."

For More Information

To find out more about Cisco Unified Data Center solutions, please visit: www.cisco.com/go/dc.
To find out more about Cisco Unified Computing, please visit: www.cisco.com/go/ucs.