Interesting Challenges, Fulfilling Results

IT serves as the nervous system for Antelope Valley Hospital

Healthcare is not for the faint of heart. This includes healthcare IT. The realities of life and death dictate technology requirements paralleled in few other industries. Add that it is one of the most regulated industries and is under constant cost and resource constraints, and the picture becomes even more daunting.

It is thus understandable that some IT leaders would favor other industries over healthcare. But not Humberto Quintanar, the chief information officer at Antelope Valley Hospital. "I've had a chance to work in a number of industry settings and have spent a lot of time running consulting practices at PriceWaterhouseCoopers, IBM, KPMG Peat Marwick, and Day Software that touched a myriad of industries," he says. "But after my time at Antelope Valley Hospital, I would not consider anything but healthcare. The challenges aren't as interesting and the results aren't as fulfilling as they are in healthcare IT."

Quintanar's diverse background provides him with a unique perspective in his current role. "I am able to take a step back and look at things differently than those who have spent all of their lives in healthcare," he reflects.

Edward Mirzabegian, the chief executive officer at Antelope Valley Hospital, who has worked with Quintanar for the past seven years, comments on this observation: "He often challenges assumptions that might not be the correct course of action. In particular, he's very creative and helps stimulate thinking outside of..."
the box by bringing new, innovative ideas to the table."

Mirzabegian continues: "But it is more than just having the right strategy. We’re also a doer organization. We analyze ideas and decisions very quickly and then move forward. Healthcare is rapidly evolving and we don’t have time to sit and analyze everything to death. Quintanar fits this mold perfectly."

Here to stay
Quintanar came to Antelope Valley Hospital under adverse circumstances in 2003. His predecessor had left, and he had been hired as the interim chief information officer. "After getting an initial taste of healthcare IT, I decided that I enjoyed the challenges," he says. "I applied for the full-time position and the selection team decided they wanted me to stay."

The first year was difficult. "The hospital was under a lot of financial pressure," Quintanar remembers. "I was charged with reducing costs while finding a way to keep everything up and running. It wasn’t so much elimination of people but consolidation of contracts and standardization of hardware and tool sets."

In 2005, Antelope Valley Hospital, seeking to overhaul its financial and operational systems, recruited Edward Mirzabegian as chief operating officer. One of his first requests was to have Quintanar report directly to him. "He came to me and told me that ‘we’re going to do great things at this hospital, and IT is going to be the lynchpin,’" Quintanar explains. With the support of Mirzabegian, Quintanar embarked on an infrastructure upgrade. The objective was to drive down costs and reduce complexity while providing a highly reliable, flexible foundation on which to build for the future.

Fast and furious
Two years later, Mirzabegian was named chief executive officer when the previous CEO left the company. This simply accelerated the transformation on the IT side of the house. "The projects came fast and furious," Quintanar recalls. Network infrastructure was one of the initial projects Quintanar and his team tackled. "We were one of the first healthcare organizations to go with a campus-wide wireless network," he says. One of the projects Quintanar undertook was a move towards virtualization. "We were an early healthcare adopter of virtualization in 2008," he states. The Antelope Valley Hospital team selected VMware vSphere and has virtualized more than 80 percent of the data center environment to date. Most of the servers in the data center run Microsoft Windows, though Quintanar’s team began introducing Red Hat Enterprise Linux for select applications a couple years ago.

The benefits of virtualization have been realized on several different fronts. First, Antelope Valley Hospital has been able to control the growth of its data center. "The cost of server per application is dramatically less for virtual versus physical," Quintanar says. "Because of virtualization, we have a couple hundred physical servers today instead of 500 or 600." In the case of the virtualized environment, Quintanar’s team runs 189 virtual servers on 12 VMware hosts. Second, since less hardware is running, Antelope Valley Hospital uses less power. This translates into lower energy costs. Finally, virtualization gives Quintanar’s team much greater flexibility. He explains: "Instead of days or weeks with our physical environment, we can provision and deploy a new or rebuilt server in a matter of a few hours to our virtual environment."

“My broad industry background allows me to take a step back and look at things differently than those who have spent all of their lives in healthcare."

– Humberto Quintanar, CIO, Antelope Valley Hospital

Another project Quintanar and his team tackled was migration to a new electronic medical records (EMR) system based on McKesson. The project was a big undertaking for Antelope Valley Hospital. "We added about 50 new servers to our environment," Quintanar says. "We elected to keep some of the Oracle databases on physical servers but deployed the remainder in our virtualized environment. As a result, the Antelope Valley Hospital team saw significant capital expenditure cost avoidance.

Data explosion
When Quintanar first arrived at Antelope Valley Hospital, the

PODCAST
Portions of the interviews with Edward Mirzabegian and Humberto Quintanar are available in an Executive Spotlight Podcast at go.symantec.com/antelope-podcast.
healthcare organization had about 10 terabytes of data. Today, the data store has grown to more than 100 terabytes—and it continues to expand at a rate of approximately 30 percent annually. Quintanar explains: “The data simply compounded and then compounded again. We doubled the size of our radiology department, implemented a new EMR, opened an outpatient radiology center, bought a 64-slice CT scan machine, and implemented a PACS system that stores images on disk. Suddenly, we had a data store that is 25 times the size of what we originally had.”

The exponential data growth and addition of new IT systems brought various data protection challenges. “Our backup windows became a real pain point,” Quintanar says. “Backups for several applications and systems took so long they were bumping into operating hours, and we often ended up with partial backups. As a result, we had to configure a tedious work around using virtual tape libraries that would run during business hours.” However, this incurred substantial time to manage and was an unreliable, inefficient recovery point.

Exacerbating the situation was the addition of a new picture archiving and communications system (PACS) solution running Carestream Vue PACS. This was one of the infrastructure projects Quintanar oversaw following Mirzabegian’s appointment as CEO. But due to data scattered across different storage systems, Antelope Valley Hospital wasn’t able to complete full backups of the PACS system. “This was unacceptable, but a full backup literally would have taken weeks to complete,” Quintanar says. “Something needed to be done, and we looked at some solution alternatives but determined that Symantec NetBackup was the best fit and opted to remain with it.”

**Infrastructure update and redesign**

In early 2012, Quintanar engaged Symantec Platinum Partner Sirius Computer Solutions to conduct an assessment of Antelope Valley Hospital’s data protection architecture and processes. Sirius was quite familiar with the hospital’s IT environment, having worked with Quintanar and his team on configuring and implementing the organization’s SAN and NAS storage infrastructure residing on IBM TotalStorage systems.

The consultants from Sirius made a number of recommendations. “From an architectural standpoint, we changed how our master and media servers are configured,” Quintanar says. “They also worked with us to upgrade the environment to NetBackup 7.5. Virtualization was at the top of our list of priorities, as the latest release provides us even closer integration with our VMware installation. With NetBackup, we can back up our physical and virtual servers using one console and have a transparent view across all of our systems.”

The upgrade to NetBackup 7.5 also included activation of deduplication and a move to a disk-to-tape backup strategy. Deduplication takes place at the source, which has a cascade effect. “The sheer volume of tapes is driving us crazy,” Quintanar observes. “In addition to helping reduce our backup windows, to less than an eight-hour timeframe, we will be able to save on storage consumption.”

For Antelope Valley Hospital’s PACS system, Sirius worked with Quintanar’s team to conduct a full backup over a period of a couple weeks and then instituted daily incremental backups. “For the first time, we have a daily recovery point of all PACS data,” he says. “NetBackup Accelerator is playing an important role here.”

Ultimately, every backup is only as good as the recovery point. Before the infrastructure refresh and architecture redesign, it would normally take hours or even days to restore applications or informa-
Exchange challenges
Restoring Microsoft Exchange had also become a pressing concern for Antelope Valley Hospital. “It took days to restore Exchange data—brick by brick,” Quintanar says. “It was a very painful process.” At the same time, email quotas incurred substantial time on the part of end users, who had to spend up to 30 minutes per week filing and deleting email to remain below their quota limits. “I frequently received messages from users requesting additional email storage,” Quintanar says. “Cost withstanding, we simply couldn’t accommodate the request for many of them, as they had hit a threshold of 250 megabytes—a point from which it becomes very difficult to restore mailboxes.”

One solution to email quotas was PST files. “But this created a completely new problem,” Quintanar points out. “Exchange data—scattered across 2,000-plus desktops and laptops—simply proliferated. It had become extremely difficult to back up, let alone restore Exchange mailboxes in their entirety.”

Comprehensive archiving
At the same time Antelope Valley Hospital reexamined its investment in NetBackup in late 2011, it also initiated research for an Exchange archiving and eDiscovery solution. “We looked at several different solutions but determined that Symantec Enterprise Vault was the best choice,” Quintanar reports.

Sirius began working with the Antelope Valley Hospital team to architect and implement Enterprise Vault. The deployment includes Enterprise Vault PST Migrator. “It is critical that we get the PST files from all of the individual desktops and laptops into our centralized archive,” Quintanar says. The PST Migrator feature automatically detects PST files on the network, identifies their owner, indexes their contents, and moves them to a centralized archive.

Once the PST files are fully ingested, the Exchange archive will double to nearly three terabytes. Without Enterprise Vault, this would consume additional storage space and incur more cost. However, with the deduplication and compression capabilities in Enterprise Vault, Quintanar predicts this will be cut in half. Antelope Valley Hospital will be able to save approximately $15,000 in storage costs as a result—a saving that will multiply each year going forward as a result of the 30 percent annual growth rate in Exchange storage.

Now that the Enterprise Vault rollout for the Exchange environment is complete, Quintanar is looking to extend Enterprise Vault to other areas. One is Microsoft SharePoint. “Over the past couple years, we migrated everyone over to SharePoint from file share folders,” he says. “They are more secure and available. We’ve even created an external-facing SharePoint site for our board of directors.”

But along with the successes, SharePoint data has grown exponentially. Quintanar comments: “We have nearly four terabytes of data in SharePoint, and it is grow-
ing at an annual rate of more than 35 percent. This creates issues
around backup windows and con-
sumes valuable storage space.”
Quintanar and his team didn’t
look very far for the solution to
these two challenges—Enterprise
Vault. Later this year, Quintanar
plans to add the Enterprise Vault
Microsoft Share-
Point and File
System Archiving
options. This will
enable Antelope
Valley Hospital to
centralize its archive
and eDiscovery for
Exchange, Share-
Point, and file and
print data. “The
benefits will be sub-
stantial,” Quintanar
notes. With nearly four terabytes of
SharePoint data and another three
terabytes of file and print data,
a 50 percent deduplication and
compression ratio will save between
three and four terabytes of data or
about $40,000 in storage. Quintanar
adds: “The results cascade to the
backup windows for SharePoint and
file and print servers.”
Enterprise Vault is streamlining
the discovery process for Quintanar’s
team, too. “Previously, we had to
pull tapes and send them off site
to our legal firm,” he explains. “This
was a very time-consuming and
expensive process. With six to eight
discovery requests per year, the
time and cost savings are considerable.”
On that note, Quintanar estimates
that his team spent upwards of 60
hours fulfilling each request; this
tallies to approximately 450 hours
saved annually. And the avoided ex-
 pense of legal fees could run as much
as $10,000 for each inquiry.

The one constant
The remainder of 2012 is going to
be just as fast and furious as the
first part of the year. In addition
to migrating its HR and financial
systems to Oracle PeopleSoft,
Antelope Valley Hospital is
preparing to implement a
mobility strategy.
“It is likely going to be a hybrid
approach where we provide some

staff with mobile devices
and allow others to use their
own,” Quintanar explains.
“In the case of the latter, it
becomes very important to
manage our applications and
data in a virtual container
separate from the employee’s
personal applications and
data. Further, it is critical
to have the right device man-
agement and application management
tools in place, and we are looking at
Symantec Mobile Management and
Symantec App Center.”

Since Mirzabegian’s arrival,
change has never stopped at Antelope
Valley Hospital—whether new patient
services and care via the opening of a
new cancer treatment center, imple-
mentation of systems that reduce cost
while improving productivity, or the
ability to deliver applications and data
to any device. The one constant to all
of this change is IT.

“IT is the nervous system of the
organization,” Mirzabegian sums up.
“Technology is really the foundation
for what we’re trying to do. Without
it, we cannot go anywhere. And
getting access to information is criti-
cal and IT plays a huge part in our
patient care and services.”

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Humberto Quintanar
explains how Antelope
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healthcare at go.symantec.
com/antelope-video.