TERACAI®

Healthcare System Improves Efficiencies with VoIP and Unified Communications Solutions

> **"We knew that we had a partner that we could rely on** *that had been there and done that before. That was a real comfort for us to know that [TERACAI] had the experience... We know we can't be the pros at everything and we need to bring in trusted consultants and integrators to help us with moving forward."*
>
> **- Peter Capelli, Catholic Health**
> *Chief Information Security Officer and Vice President for Networking Infrastructure*

≋ CHALLENGES

Catholic Health is a nonprofit healthcare system that provides primary, long-term and acute care services in Western New York. The healthcare system consists of four main hospitals and more than 60 remote facilities, including primary care centers, imaging centers, and several other community ministries. Based out of Buffalo, N.Y., Catholic Health employs approximately 8,500.

Prior to working with TERACAI, Catholic Health's phone networks consisted of several models of older PBX systems, which were split across the four main hospital campuses. These antiquated systems were no longer supported by the manufacturers, so they were difficult to maintain on a day-to-day basis and lacked proper backups in the event of a system crash. In order to maintain functionality, Catholic Health needed to reboot its phone systems up to four times daily to keep them stable, causing a significant outage and impact to its end users.

"As you can understand, [in] a hospital its lifeline is its phone systems," says Peter Capelli, Chief Information Security Officer and Vice President for Networking Infrastructure at Catholic Health. "People call the hospital all the time; they call the emergency department, and they call the labs for their lab services. We had to really make sure our telecommunication services were spot on and 100 percent available."

Knowing the need for increased stability and effectiveness in its phone systems, Catholic Health embarked on a demanding RFP process to select a vendor that would help with the implementation, as well as the configuration, design and architecture of the solution. As part of this RFP process, Catholic Health demanded a "five nines" implementation, meaning the proposed system needed to have availability and uptime 99.999 percent of the time.

"The stability of the system was our number one concern," says Capelli. "That was the main reason, the impetus behind us making this change. The changing technology landscape also was very big... The new functionality... that TERACAI helped us implement is very important."

≋ ORGANIZATION

Name:	**Catholic Health**
Location:	**Buffalo, NY**
Industry:	**Healthcare**
Founded:	**1998**
Employees:	**8,500**
Website:	**www.chsbuffalo.org**

≋ CHALLENGES

- Antiquated phone systems difficult to support, causing inefficiencies and an unstable telecommunications environment
- Daily rebooting of phone systems causing outages and impacting end users
- IT staff spending significant time maintaining and repairing phone systems

≋ SOLUTION

- Cisco IP Phones
- Cisco UCS C-Series Servers
- Cisco 2900 Series Gateways and VG224 Analog Gateways
- Cisco Catalyst 2960S PoE Switches
- VMware vSphere Hypervisor
- Cisco Unified Communications Manager (CallManager)
- Cisco Jabber Desktop, WebEx Meetings Server, Unity Connection

≋ OUTCOMES

- New functionality of phone system allowing clinicians to spend more time with patients at the bedside
- Increased flexibility of moves, adds, and changes with phones across all locations
- Improved operational efficiencies and communications between hospital stakeholders
- Redundancy across data centers and in hospitals to ensure uptime
- Reduced telephony costs due to streamlined systems and decreased need for external support
- Minimized need for day-to-day maintenance, enabling IT staff to spend time on new projects

≋ SOLUTION

Catholic Health worked with TERACAI's team of engineers to develop a plan for implementation to ensure a seamless cutover of the new phone systems across the hospital network.

"We chose TERACAI because of the strength of their technical support, the strength of their sales support, and the overall organizational posture that we detected through [the RFP] process," says Capelli. "TERACAI helped us with the initial design architecture of the solution. They also helped us with the installation of the solution, training, and overall project management for the implementation."

TERACAI's solution included a full voice over internet protocol (VoIP) implementation, including configuration and installation of Cisco IP and wireless phones across Catholic Health's main hospitals. A majority of the software applications included within the VoIP and unified communications solution were set up to share physical servers, each running a VMware vSphere operating system. Previously, each application operated on its own physical server. The new solution enabled the phone network to be centrally managed across all sites, as opposed to the previous model which required independent management at each individual site location.

Utilizing six different IP phone models, varying based on the required needs of Catholic Health's end users, the solution allowed the healthcare system to streamline its telecommunications maintenance and support and improve overall communications. The IP phones provided enhanced functionality, including five-digit dialing across all facilities, on-phone notifications, and notifications to the nurse call system.

"Our first cutover at Buffalo Mercy Hospital for voice over IP went extremely smoothly; we did it in one night," says Capelli. "We don't feel that we could have done that and had that minimal impact to our end users unless we had used TERACAI's services to assist us with training of end users, with the deployment of the phones, and with the overall project management that we received from them… We were very impressed with the lack of impact on our end users and we actually got great feedback from our end users saying that it was a very comfortable cutover for such a big change."

TERACAI's team helped Catholic Health's IT staff before, during, and after implementation to ensure that they had proper training and were able to support and maintain the new phone infrastructure.

> *"We are very reliant on TERACAI's expertise to bring in the level of support that we need for a complicated environment like ours," continues Capelli. "We do have staff on board that understand the VoIP system, but they don't have the experience with the installations that TERACAI's engineers have so it was very vital to us to be able to leverage that as part of our implementation and ongoing support."*

In addition to the new IP phones, TERACAI implemented Cisco Unified Communications Manager (CallManager), Cisco Jabber Desktop (Jabber), and Cisco WebEx Meetings Server (WebEx) to improve collaboration and allow Catholic Health's end users to communicate more effectively. These software applications, in addition to several others, including Cisco Unity Connection, Cisco Unified Attendant Consoles (UACs), Cisco Unified Contact Center Express (Unified CCX), Cisco Emergency Responder, and Cisco IM and Presence, provided a number of additional features for Catholic Health.

Cisco Unified Communications Manager is an integral part of the overall solution, as it provides for phone registration, call control, and call flows to other applications. Cisco Unity Connection further improves accessibility by enabling anytime, anywhere access to voice messaging, while maintaining high security of critical information.

With the implementation of Cisco UACs and Cisco Unified CCX, Catholic Health is able to route and manage incoming call traffic more effectively, improving worker productivity and caller satisfaction. Cisco UACs allow operators to manage incoming calls on-screen, placing them on hold or transferring to an extension, working with a synchronized corporate directory to show availability and presence. Cisco Unified CCX provides call routing and contact management capabilities, including call in-queue and expected wait-time messages.

TERACAI also deployed Cisco Emergency Responder to allow the healthcare system to identify the location of 911 callers more efficiently, building on the existing E9-1-1 functionality of Cisco CallManager. Cisco Emergency Responder automatically searches switches in the network to find the location of the phone and the user, then updates this information in the database so the caller's location is easily identified when an E9-1-1 call is placed. This enhanced functionality, in addition to emergency call routing and real-time location information, allows for more effective emergency response.

Another key element of Catholic Health's solution is the redundancy of its new phone system. To ensure maximum uptime, it was necessary to implement appropriate backup and redundant services to effectively prepare for system outages.

"We've split up our voice over IP servers across our data centers so that we have redundancy in the event of an outage," says Capelli. "We also have site redundant services in all of our main hospitals in case of a long-term fiber outage... We've swapped out a majority of our horizontal network and we'll continue to do that over the next three to five years to make sure that all of our horizontal network gear is at the most modern level."

⟳ OUTCOMES

With a VoIP and unified communications solution from TERACAI, Catholic Health has been able to achieve the following:

- New functionality of phone system allowing clinicians to spend more time with patients at the bedside
- Increased flexibility of moves, adds, and changes with phones across all locations
- Improved operational efficiencies and communications between hospital stakeholders
- Redundancy across data centers and in hospitals to ensure uptime
- Reduced telephony costs due to streamlined systems and decreased need for external support
- Minimized need for day-to-day maintenance, enabling IT staff to spend time on new projects

A significant benefit of Catholic Health's new VoIP system is the increased functionality that allows its clinical teams to spend more time with patients, providing an improved level of bedside care.

> *"Collaboration is enabling the IT department to let our clinicians do what they need to do without getting bogged down by technology that doesn't work in their benefit," says Capelli.*

Catholic Health uses Cisco wireless phones in its Buffalo Mercy Hospital emergency department that are integrated with the nurse call system, enabling clinicians to be paged with the press of a button and providing increased accessibility between patients and staff.

"Clinical lab values also go to these wireless phones and [clinicians] use them as they walk around the facility to make sure that they can be more available to the patients," continues Capelli. "As opposed to sitting at the nurse station, they're now out on the floor more often, closer to the patient... [which] provides the patient with much better service and communication with their caregivers... It's all about getting the clinicians right next to the bedside and not at the nurses' station, or not at a doctor's waiting room, but at the bedside with the patient."

TERACAI's solution has also helped Catholic Health improve the flexibility of its systems when moving, adding, and changing devices. The new VoIP system simplifies transitions for Catholic Health's staff, as users can now bring their phones with them to a new office or location without having to call the IT department to get their phones reprogrammed. This increased flexibility helps improve efficiency and allows end users and IT staff to spend time on critical business processes.

The implementation of unified communications solutions such as Cisco Jabber and Cisco WebEx has improved operational efficiencies, streamlined communications between various hospital employees, and helped connect Catholic Health's multiple remote locations.

Cisco Jabber, as well as Cisco IM and Presence, have enabled Catholic Health to utilize instant messaging to communicate in a way not previously possible. These function together to provide notifications based on phone and calendar status, and facilitate access to online voice messaging.

"…We use Jabber continuously to make sure that we stay on top of communicating with each other, no matter where we are across the system," says Capelli. "Even though we are just a regional system, it saves a lot of driving time and makes sure that we stay in contact with each other and are able to communicate in a way that maybe wasn't facilitated so easily by a telephone call or email message."

Catholic Health has also used Cisco WebEx to enhance communications and bridge the distance between remote locations.

"We monitor and manage our own WebEx server and that's changed the way that we've done training; it's changed the way that we've done communication…," continues Capelli. "The ability to integrate video, and voice, and sharing documents has really modified the way that we've done business as an organization."

Another outcome of the TERACAI solution is increased reliability of the overall system. With the addition of redundant services in Catholic Health's data centers and across the hospital campuses, the organization has been able to ensure five nines availability and minimize the risk of system downtime.

Catholic Health has also seen a significant cost savings since the VoIP and unified communications implementation, due to its streamlined phone systems. With its virtualized server environment, Catholic Health is now able to run multiple software applications on a single server minimizing resources dedicated to energy consumption, heat output, and maintenance contracts.

Furthermore, the VoIP solution has facilitated additional cost savings through a reduced need for maintenance and support. Prior to the installation of its new IP phones and consolidated servers, Catholic Health needed to make continuous support calls to maintain the legacy PBX systems. The organization has since been able to restructure its IT staffing, allowing its team to spend time on implementing new projects rather than providing maintenance on the older systems.

"As a function of having a strong horizontal network component and a strong voice over IP component with TERACAI, we're able to reach out and bring in all of our different lab systems, our lab environments, and our long-term care environments all in the same functionality from a phone perspective," says Capelli. "That allowed us to right-size our staffing so that we could put people on other, newer projects and take them off the support they were doing on the older phone systems that took a lot of maintenance and repair to keep going."

Catholic Health's VoIP and unified communications implementation has allowed the healthcare system to improve efficiency in multiple aspects of its operations, including patient care, effectiveness of clinical and non-clinical staff, enhanced communications among remote locations, and reduced costs. With the help of TERACAI's solutions, Catholic Health has increased effectiveness and flexibility, ensuring the stability of its current technology platforms and providing a solid framework for future growth of the healthcare system.

HOW IT WORKS }

HARDWARE

- Cisco IP Phones
- Cisco UCS C-Series Servers
- Cisco 2900 Series Gateways and VG224 Analog Gateways
- Cisco Catalyst 2960S PoE Switches

SOFTWARE

- VMware vSphere Hypervisor
- Cisco Unified Communications Manager (CallManager)
- Cisco Jabber Desktop
- Cisco WebEx Meetings Server
- Cisco Unity Connection
- Cisco Unified Attendant Console
- Cisco Unified Contact Center Express
- Cisco Emergency Responder
- Cisco IM and Presence

FEATURES

- Five-digit dialing across all facilities
- Instant messaging
- Visual voicemail and notifications in email client
- Presence notifications based on phone and calendar status
- Centrally managed with distributed connections to service providers
- Inbound call queuing for help desk trouble tickets
- Specific identification and location of phone requesting emergency assistance (E9-1-1)
- Drag and drop routing of inbound calls
- On-premise web conferencing for collaboration and discussion