SUPERIOR ESSEX

CASE STUDY

It's not often that cabling is a matter of crisis. But in the case of Mennonite General Hospital in Puerto Rico, where doctors regularly perform invasive, high-risk surgeries into the heart and brain, just a second of latency or downtime could be the difference between success and failure.

SISTEMA DE SALUD MENONITA
SSM 1944
Sirviendo con Amor Cristiano

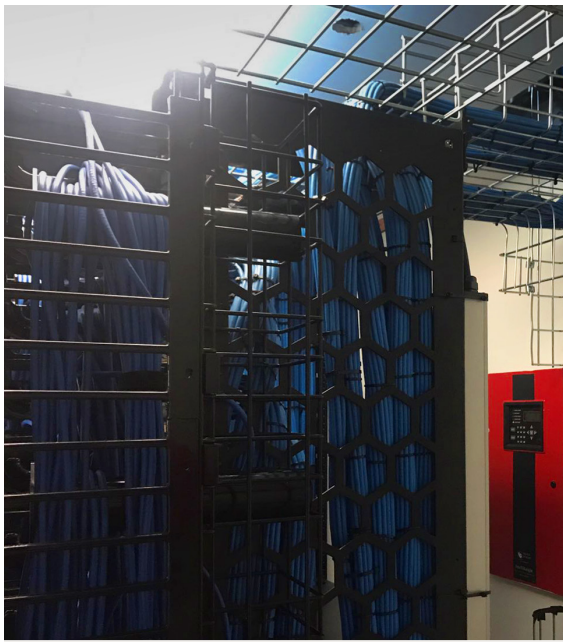
nCompass™
Enabled by Legrand® and Superior Essex®

SETTING THE STANDARD FOR PATIENT CARE / MAKING PATIENT CARE THE PRIORITY

Mennonite General Hospital is a nonprofit institution that provides medical services throughout Puerto Rico. Established in 1944 by a group of Mennonite missionaries, the humble dispensary has grown into one of the Puerto Rico's leading healthcare providers, with multiple locations set across the island that collectively serve thousands of patients every year.

Mennonite General Hospital is unique in its constant modernizing of equipment, facilities and services. As a nonprofit organization, it is constantly reinvesting in its business in order to improve its facilities and bolster its patient care with the best physicians and the latest medical technologies.

Presently, its Cardiovascular Center maintains the top cardiovascular surgeons in Puerto Rico, and its Bariatric Center is the only recognized Center of Excellence on the island. It also manages several operations and facilities spread across the island, including its Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU), Intensive Care Unit (ICU), Cardiovascular Intensive Care Unit, Birth in Bed, Pediatric Emergency Rooms and uniquely designed bariatric private rooms with specialized bathrooms. From these facilities, it offers tertiary services to its patients as well, specializing in heart surgery, valve replacements, neuro surgery, bariatrics, urology, orthopedics such as knee and hip replacement.



This server room features Might Mo cabinets and Cablofil cable management that help to organize and maintain airflow between bundles of 10Gain CAT 6A cables.

Mennonite Hospital continues to lead Puerto Rico in patient care with a variety of medical services and top-quality patient facilities and amenities.

"It is our job to ensure that they receive the best care available. To do this, we make sure that our facilities have the latest network technologies in place to support our physicians and administrators, and to make all of our patients' experience more comfortable."

// Jose Rivera, IT Manager
for Mennonite General Hospital

While its services are robust and widespread, what truly distinguishes Mennonite General Hospital is the way in which they treat and care for their patients. "We see patients come to us from all across the island with many different conditions, and they trust that we have the expertise and the resources to help them through every stage of their diagnosis and their treatment," says Jose Rivera, Manager of IT Services for Mennonite General Hospital. "It is our job to ensure that they receive the best care available. To do this, we make sure that our facilities have the latest network technologies in place to support our physicians and administrators, and to make all of our patients' experience more comfortable."

RELIABLE NETWORKS MAKE THE DIFFERENCE IN CRITICAL PATIENT CARE

Communications networks are the foundation of many of Mennonite General Hospital's daily operations, and play a vital role in its patient care. From diagnostic and monitoring equipment to building systems and amenities, MGH relies on its networks to support the myriad of healthcare services they provide. Every employee of the Mennonite General Hospital system relies on the ability to communicate in real time, whether it's sending patient records to another facility, uploading test results to share with other physicians, or monitoring the myriad of medical equipment staged throughout a building. "Hospitals today are in need of a robust network infrastructure," says Rivera. "The need for electronic medical records (EMR), picture archiving and communication systems (PACS), IP telephony, security, etc., is critical to our patient care. Everything has to be IP ready!"

The bandwidth requirements of these operations are tremendous, and these requirements are expected to increase over time. New medical technologies and BYOD (bring-your-own-device) policies are inevitably making their way onto MGH's campuses, and placing increasing demands on its local networks.

"That's why we upgraded our infrastructure — the demand for more bandwidth," says Rivera. "Our previous cabling infrastructure would not stand up to the challenge of the next 15 to 25 years with everything being connected to the network."

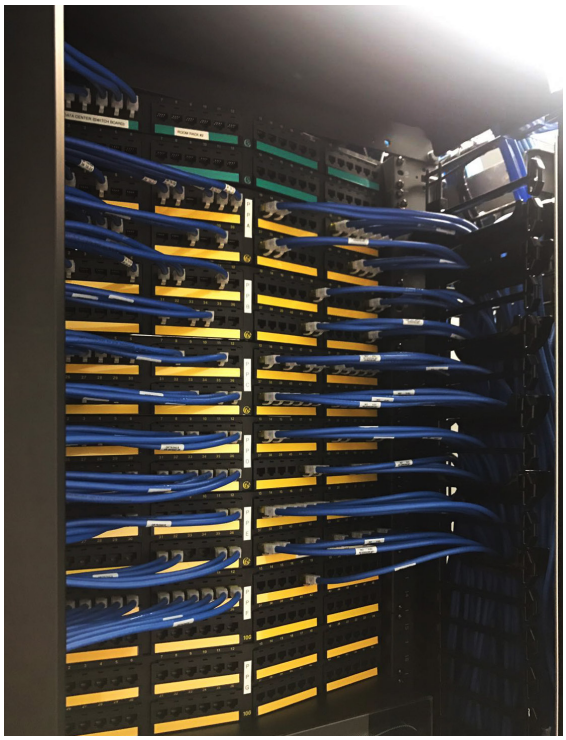
Realizing that its network infrastructure was out of date and ill equipped to handle the increasing demands of healthcare IT, Mennonite General Hospital chose to retrofit several of its medical facilities with nCompass Systems structured cabling solution. The nCompass Systems robust, flexible, and reliable copper and fiber structured cabling set gives MGH assurance that it can to continue to provide the most advanced treatments and the best care for their patients across the island.

THE SOLUTION

"When this project began, it was important to us to adopt the TIA-1179 standard for healthcare," says Rivera. "It was the right foundation for us to build on, one that would allow us to modernize our structured cabling so that we could not only handle our current network demands, but would be flexible enough to grow with them."

To achieve this, Mennonite General Hospital chose an nCompass System, a suite of high-performance copper and optical fiber structured cabling co-engineered by Legrand and Superior Essex. The installation included over 150,000 ft. of 10Gain® Category 6A cabling, over 15,000 ft. of OM3 fiber, and 10,000 ft. of single-mode fiber from Superior Essex, as well as MightMo® and Cabofil cable management, and Clarity® connectivity components from Legrand.

Each facility was designed with an end-to-end nCompass System, using a star topology with 10G interfaces across all of its network backbones. Currently, around 90 percent of its data network is wired. This includes VoIP and Ethernet communications, building automation and security, as well as PC's, printers, and other tethered devices. The other 10 percent of the network is wireless, which supports medication carts and laptops for medical documentation, as well as personal devices such as smart phones allowed under its BYOD policy. Other medical devices such as fetal monitors, glucometers, and medical telemetry — all of which broadcast in real time — are supported by the network, as well as software, cloud, and web-based applications used for medical and administrative operations.



This Mighty Mo cabinet in the server room neatly houses small diameter 10 Gain® CAT 6A cabling connected to Clarity® patch panels.

~90%

of Mennonite General Hospital's data network is wired and runs on Superior Essex copper and optical fiber cabling.

"Diagnostic and recording devices have to be ready for our physicians when and whenever they are needed. So our networks must be designed to handle that level of flexibility.

In addition to supporting a collage of devices, operations and services, the nCompass System also helped to alleviate MGH's concerns of limited space in its facilities, and how that would affect the lifetime performance of the system. "We had a good idea of how much space would be required for the structured cabling, but we were surprised by how much space we saved using the small diameter CAT 6A cabling and the low profile cable trays in the nCompass System, and how those savings start to make a difference when you look at the system in terms of heat dissipation."

nCompass Systems ensures that network-enabled devices such as laptops, diagnostic and recording devices are ready for physicians when and wherever they are needed, whether that's the operating room or the waiting room.

Higher temperatures can negatively affect the performance of a system. When cables are bundled together in a plenum space, or inside a cabinet with hundreds of ports, that quickly becomes an issue. As current passes through a cable, its internal temperature rises, and this effect compounds when cables are placed close together. Small diameter cables and cable management systems can help to solve this problem. By allowing for more air flow to the cabling and connectivity components, the temperatures in and around those components do not experience the same degree of temperature rise. This not only makes the system perform more reliably in the short and long-term, and extends the overall lifetime of the system by reducing the heat degradation of its components. It can also have a positive impact on other operating expenses, such as the cooling and ventilation of a telecommunications closet or data center.

Mennonite General Hospital also took advantage of the nCompass Systems Limited Lifetime Warranty.

> "The most enjoyable part of this project is knowing that all the effort that we put into this pays off with the ability to provide excellent service for our patients. Having a state of the art infrastructure, and avoiding downtimes, is critical to that success."
>
> // Jose Rivera, IT Manager for Mennonite General Hospital.

"The [nCompass Systems] solution not only met that standard, but exceeded it in terms of performance. It has provided us with a more robust, reliable network that we are confident will handle our current data requirements but perform well into the future."

"The most enjoyable part of this project is knowing that all the effort that we put into this pays off with the ability to provide excellent service for our patients. Avoiding downtimes and having a state of the art infrastructure."