



EXECUTIVE SUMMARY

Customer Name

Children's Cancer Hospital Egypt 57357 (CCHE)

Industry

Healthcare

Location

Egypt

Number of Employees

1000

Challenge

- Meet international standards of healthcare for children with cancer
- Improve methods used for detection, diagnosis, treatment, and follow-up care
- Enable services to be provided free of charge

Solution

- Connected healthcare environment based on a Cisco® Medical-Grade Network architecture and delivered over a converged, wireless, intelligent IP infrastructure

Results

- Improved access to critical patient data—everytime, everywhere
- Ability to better identify trends and eliminate potential causes of cancer
- New standards in healthcare operational effectiveness

New Hospital Uses Network to Improve Patient Care

CCHE reduces the threat of childhood cancer with Egypt's first Digital Hospital.

Challenge

The birth of the dream to build one of the world's most advanced hospitals was born from human tragedy. Dr. Sherif Abu El-Naga, Vice President Academic Affairs, Research & Outreach Children's Cancer Hospital Egypt 57357, recalls: "The worst day in my whole life was when I lost 13 out of 15 children. I felt depressed and sat on the sidewalk crying, not only for losing those poor children, but also for being unable to help. There was a deficiency in all areas: surgical threads, syringes, and professional employees who recognized what cancer was and knew how to deal with it."

The tragedy made Dr. El-Naga determined to find a way to help ensure that the situation would never happen again. This led to the foundation of the Association of Friends of the Children's Cancer Hospital Egypt (CCHE). The CCHE is a nonprofit, nongovernmental organization. It consists of a group of NCI physicians, prominent businessmen, and women, dedicated to raising funds to advance the quality of cancer care in Egypt and help develop NCI services.

Following initial success and improvements at the NCI, the group started to develop an ambitious plan to build an innovative, new hospital: the first in Egypt to be devoted solely to the treatment of children with cancer. The project became known as the Children's Cancer Hospital Egypt (CCHE) 57357 after the bank account number used to manage its funding. It was founded on a vision for connected healthcare; using the power of technology to improve clinical efficiency and effectiveness, make better use of scarce resources, and remove the limitations presented by geographical boundaries. In addition, it is free of charge for all regardless of ability to pay.

“We were looking for a partner who shared our vision for connected healthcare and had the same passion to build a digital hospital. Cisco’s renowned expertise in IP networking, plus the fact that they had done this successfully many times before, provided us with added confidence—and that was extremely important.”

—Dr. Sherif Abu El-Naga, Vice President Academic Affairs, Research & Outreach Children’s Cancer Hospital Egypt 57357

Solution

Months of extensive preparation, including an in-depth study of best practice in Sweden, Germany, and the United States, led to the eventual selection of Cisco as the primary vendor. “We were looking for a partner who shared our vision for connected healthcare and had the same passion to build a digital hospital,” says Dr. El-Naga. “Cisco’s renowned expertise in IP networking, plus the fact that they had done this successfully many times before, provided us with added confidence, and that was extremely important.”

The results of the collaboration are equally impressive. Located in the Sayeda Zeinab district of Cairo, the new hospital has 185 permanent beds and can expand to 350 beds if required. It has been designed to facilitate family-centered care, while meeting the most stringent requirements for immuno-compromised patients and infection control.

This state-of-the-art facility includes diagnostics and laboratory support (including scans, nuclear medicine, blood bank, cytogenetics, virology, and stem cell collection and storage), a fully equipped radiotherapy department, and intensive care and bone marrow transplant units. Complicated tumor procedures, such as neuro, micro, and ophthalmic surgery, can all be carried out onsite. There is also a specialized clinical pharmacy and large outpatient facility that can accommodate up to 500 patients per day.

The new hospital infrastructure design embodies the core principles of a Cisco® Medical-Grade Network architecture. This sets out best practice in building the network foundation required by clinical applications, thereby securely connecting people, processes, information, and devices.



“The old NCI paging system required medical staff to call back the paging number,” says Mohamed Arafat, chief information officer for the CCHE. “This was slow and expensive. Now we use Cisco wireless IP phones for paging doctors, enabling them to move freely around the hospital and stay connected to medical data and healthcare applications.”

Another example of improved communications is the establishment of “toll-free” campus-wide IP telephony. In addition, an IP contact center solution helps ensure effective management of calls from citizens wishing to help the children by making financial donations, giving blood, registering as an organ donor, or volunteering their services in other ways.

In an environment where every second counts, three-dimensional (3D) scans can be viewed, shared, and stored online. This makes it easier for doctors to consult together on each patient case, enabling faster and better group decision making and efficiency. It also releases valuable space that had been used to store X-rays and patient files to be re-used for better purposes. The network also provides ubiquitous access to the Hospital Information System, the central system for patient care management, as well as other business applications, such as Enterprise Resource Planning.

The foundation of the day-to-day healthcare given by the hospital is the network. High network availability is, therefore, absolutely critical. “In a digital hospital, where all medical equipment is network oriented, you have to architect for 100 percent uptime,” Arafat says. “For example, doctors can only monitor patients in intensive care through their medical reports that are stored on the network, so the system has to be up and running 24 hours a day. Our Cisco network allows us to carry out troubleshooting for any of the equipment online, with no need for physical interference.”

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—Eng. Mohamed Arafat Chief Information Officer, CCHE 57357

Results

The CCHE is the first example in Egypt of an end-to-end connected healthcare facility. It has set new standards for planning and operating hospitals, defining future best practice for healthcare-related institutions and providers. More importantly, this digitized hospital environment, based on a converged, wireless intelligent IP network, is already helping to make new breakthroughs and reduce the threat of cancer.

“It is far easier to spot trends now,” Dr. El-Naga says. “Having received three similar leukemia cases in one month, we quickly identified that the three patients were residents of the same street. With a little research, we were able to do an Epidemiology study there. Such information would most probably have gone undetected before.”

Wireless IP phones give doctors and nurses the ability to access critical patient data, everytime, everywhere. Easier communications enable medical staff to be more productive and respond to patient needs faster. Reduced call charges and centralized IT management have also helped to drive down costs. Overall IT skills are being improved by the establishment of a Cisco Networking Academy, which will also provide a welcome source of income from fee-paying IT students.

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Before the opening of the CCHE, many parents were frustrated by the lack of available information and often ended up seeing many doctors, going to many hospitals and having to deal with the long-term consequences of the treatment and disease on their own.

The hospital’s strong focus on family-centered care is making a big difference in helping to change this. It has also acted as a powerful catalyst that has galvanized the community. After the tragic loss of her two-year-old daughter Sara, it took Nadine Helmy one whole year to see a light at the end of a very dark tunnel. But Nadine eventually came to the conclusion that she would only begin to find meaning, happiness, and fulfillment in her life if her experience could be of use to other mothers with sick children. As soon as the CCHE opened, she joined the group of volunteers at the hospital, and started organizing cancer education workshops for patients’ families. Nadine and five other women subsequently set up Club 57357, whose mission is to create an atmosphere of hope and cheerfulness for the children, while giving them useful simple information about the disease and how to fight it. Educational workshops and support groups, for both patients and families, are helping to fulfill an extremely important role.

Next Steps

The next phase of the increasing collaboration in healthcare will focus on the implementation of video-based conferencing and education systems, so that doctors and consultants from around the world can more easily share research, knowledge, and ideas. Other opportunities being considered include the deployment of digital signage (for messaging and educational purposes), and the introduction of electronic prescriptions.

Technical Implementation

The hospital’s vision of connected healthcare sees the network as a platform, which uses an architectural framework that Cisco calls its Service-Oriented Network Architecture. This architectural approach delivers a foundation for enabling network-based services such as security, mobility, and identity to be connected with applications to enable healthcare solutions. This has enabled the hospital to:

- Increase agility by reusing existing network services
- Reduce costs by utilizing network services across multiple applications
- Minimize infrastructure disruption while simplifying deployment flexibility
- Increase productivity and efficiency

Cisco Unified Communications acts as an integration point for a wide variety of communications, helping the hospital to deliver information to people and devices efficiently, through the most appropriate medium. A core infrastructure comprising Cisco Catalyst® 3650 and 6500 Series Switches supports a campuswide Cisco wireless network and enables IP telephony, using Cisco Unified Communications Manager technology that provides call processing for Cisco Unified IP phones.

For More Information

To find out more about Cisco Unified Communications and Cisco Service-Oriented Network Architecture, go to www.cisco.com.

Product List

Cisco Unified Communications

- Cisco Unified Communications Manager
- Cisco Unified IP Phones 7900 Series (Models 7912, 7905, 7940 and 7960)

Routing and Switching

- Cisco Catalyst 3560 and 6500 Series Switches

Mobility

- Cisco Aironet Access Points
- Cisco Wireless LAN Controllers

Security

- Cisco Firewall Services Module

The Cisco Service Orientated Network Architecture (SONA) services include:

- Unified Communications
- Mobility
- Security
- Identity



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