



# The Children's Hospital

CASE STUDY

## The Children's Hospital builds for the future with a converged IP infrastructure from GTRI and Johnson Controls, Inc.

### The Challenge

The construction of a new state-of-the-art facility presented The Children's Hospital with an opportunity to overhaul its existing communications infrastructure. With 12 locations in its Network of Care, the hospital sought a scalable solution that would enable caregivers to communicate more efficiently, support a "silent hospital" model, and, ultimately, enhance bedside delivery of care.

### The Solution

GTRI designed a Cisco Unified Communications solution for the hospital, converging voice, data, video, imaging, and wireless on a single IP backbone. One of the largest single-location IP implementations in the world, the new infrastructure supports more than 5,500 active VoIP phones and enables the hospital to deploy a range of personal communications devices.

### The Results

The hospital's new communications infrastructure allows caregivers to communicate with each other silently and efficiently across floors, buildings, and geographic locations. Built on IP technology, the architecture can keep scaling to support new applications as the hospital continues to expand its technology footprint.

### About The Children's Hospital

Founded in 1908, The Children's Hospital treated many of its earliest patients in a 30-bed facility established in a former Denver residence. Today, Children's employs more than 1,000 pediatric specialists and delivers care from a network of 12 locations across Colorado's Front Range. Over the last century, the hospital has demonstrated an unwavering commitment to providing children with the



### The Children's Hospital

- » **Customer Profile:** Founded in 1908 in Denver, Colorado, The Children's Hospital is one of the top 10 children's hospitals in the nation.
- » **Goals:** Replace its existing communications infrastructure to ensure a scalable solution that will enable caregivers efficient communicative abilities.
- » **Solution:** GTRI designed Cisco solution integrating voice, data, imaging and wireless on a single IP network.
- » **Deployment:** GTRI provided simultaneous rollout of communication infrastructure to ensure a smooth transition into a new facility with existing staff.
- » **Alternatives:** Platform that decentralized the communications into a cluster of IP servers hosted at a co-locaton
- » **Benefits:** Simplification, scalability and internal monitoring with onsite staff



**GTRI**

GLOBAL TECHNOLOGY RESOURCES INC.

best healthcare available, earning a consistent ranking as one of the nation's finest pediatric hospitals.

To continue delivering the very best in patient care, Children's needed to expand and relocate its main campus. The hospital wanted to house its vast care, research, and education expertise within a single 1.4 million-square-foot facility and gain proximity to resources for greater research collaboration. The expansion project presented an invaluable opportunity to start from the ground up and create a facility specially designed to meet the needs of sick children, today and in the future. The hospital hoped to design each open space, clinic, and corridor in the new 270-bed facility to offer the most effective and healing care possible to patients and their families.

Children's knew that, along with the physical design of the new structure, Information Technology (IT) could play a vital role in providing optimal patient care. The hospital wanted to outfit its newest facility with a single communications architecture capable of supporting the converged delivery of data, voice, and video. An upgrade to the hospital's existing infrastructure would improve operational efficiency, allow caregivers to access information more quickly, and enhance bedside delivery of care. And by adopting a "silent hospital" model for its new communications infrastructure, the hospital would eliminate the overhead paging and emergency notifications that small patients often find frightening.

## Looking for an Expert IT Partner

To meet its ambitious goals, Children's needed an expert IT partner to plan, design, and implement a communications architecture with scalability for future additions and modifications. The project demanded a solution provider capable of integrating the hospital's new state-of-the-art facility with its remote locations over a single network—all while keeping communications up and running with minimal interruption.

The hospital awarded its technology contracting package to Johnson Controls, Inc. (JCI), a global leader in building efficiency and power solutions. In turn, JCI reviewed top Internet Protocol (IP) networking vendors and resellers, ultimately selecting Global Technology Resources, Inc. (GTRI) to implement a Cisco technology

solution. JCI Superintendent Stan Byers commented that, "GTRI was the only integrator that JCI felt could handle both the telephony and data side of the IP network and be responsible for integrating all of the features and functionality on one true IP backbone."

## Planning for Success

GTRI's expertise in completing large, complex projects was a key qualification for taking on The Children's Hospital project. Each of the sites within the hospital's Network of Care presented its own user requirements, logistical challenges, and real estate limitations. Plus, each department within the organization had its own technical demands. GTRI knew that painstaking planning and design work would be essential to the success of the hospital's initiative.

*"GTRI provided the installation and implementation of the network equipment (LAN, WAN and VoIP systems), exceeding The Children's Hospital's and Johnson Controls Inc.'s high expectations. Your team overcame many obstacles to complete the project on time and in a very professional manner."*

Greg Sonju, Project Director  
Johnson Controls, Inc.

Over the course of eight months, GTRI worked closely with each department to clearly define requirements and develop plans for deployment. By listening carefully to individual needs and leading the design effort, GTRI was able to create a customized solution for each department. In addition to keeping the project on schedule, this thorough planning phase allowed GTRI to deliver more technology than originally estimated without adding to the budget.

## Working overtime to launch a new communications infrastructure

GTRI successfully designed a robust Cisco Unified Communications solution for the hospital, converging voice, data, video, imaging, and wireless on a single IP backbone. One of the largest single-location IP implementations

in the world, the new infrastructure supports more than 5,500 active Voice over Internet Protocol (VoIP) phones and enables the hospital to deploy a range of personal communications devices. These include 921 Nurse Call Devices (NCD), which support Children's "silent hospital" strategy by interfacing soundlessly with the IP network and providing immediate access to personnel, therefore eliminating the need for an overhead paging system.

GTRI began implementing the solution during construction of the hospital's new facility, allowing for plenty of time for testing as the building progressed. Employees and patients, who were relocated to the hospital as floors were completed, arrived to fully-functioning, fully-tested technology. Greg Sonju of JCI noted, "We can't say enough about the service and responsiveness of the GTRI team. They worked overtime to determine what each department needed and to deliver a system that met their needs and met the move-in dates. To implement a system this large, with a complex architecture like converged IP networking,

*"The Children's Hospital has taken a very innovative approach in its network architecture by building a communications capability for the future; one that will translate into a superior patient care and caregiver efficiency."*

Greg Byles, Vice President of Business Development, GTRI.

within the timeframe, takes a company that has the expertise and the experience to do it right."

GTRI needed to get all of the hospital's locations up and running on the new VoIP system and ensure wireless coverage at all sites. Using a service methodology built upon the Cisco Prepare, Plan, Design, Implement, Operate, Optimize (PPDIOO) model, GTRI developed a standardized, repeatable implementation process for each site. Key steps included conducting "lessons learned" sessions to streamline processes, performing careful operations planning to ensure smooth project handoffs, and executing optimization planning to make continual improvements

and enhancements. Employing the PPDIOO methodology allowed GTRI to cut a six-week implementation process down to a speedy two-week engagement at each site. It also enabled GTRI to make the transition to the new system virtually seamless, with little interruption of day-to-day business at the hospital's various locations.

### **Supporting superior patient care with scalable IP technology**

On September 29, 2007, The Children's Hospital opened its new world-class medical facility, with every element—from kid-level reception counters to family-friendly lounges with kitchenettes and laundry facilities—carefully designed to meet the unique needs of pediatric patients and their families. Less visible, but just as vital, the hospital's new IP infrastructure enables caregivers to communicate with each other silently and efficiently across floors, buildings, and sites.

By enhancing and streamlining communications across disparate locations, the new infrastructure enables The Children's Hospital to operate as a single, interconnected entity. Medical staff can schedule appointments, place orders and access records in the same electronic system, regardless of location. A five-digit dialing plan places all of the hospital's branches within a single directory, ensuring speed and efficiency for fixed-line phone calls. Reliable, flexible wireless coverage keeps teams in constant contact throughout the busy work day.

Family members visiting young patients can also enjoy the benefits of the hospital's extended communications capabilities. In addition to standard phone service, the newly-constructed facility's sleeping rooms for visiting families are equipped with wireless access, making communication during overnight stays more convenient.

The infrastructure's stable, robust new network backbone delivers greatly-enhanced uptime and boosts productivity across the organization. Previously prone to network outages that slowed efficiency, the hospital can now rely on virtually uninterrupted communications and access to critical electronic records to keep staff members focused and productive. Plus, the new network supports advanced monitoring capabilities that further enhance organizational efficiency. The hospital's medicine administration centers

are now networked and configured to automatically place orders for supplies after they have been dispensed. Networked monitoring functionality also extends to the hospital's refrigeration units and its mobile medicine delivery carts. The enhanced communication capabilities, greater productivity, increased efficiency and organizational synergy delivered by the new unified communications solution all add up to one thing: better patient care. "The Children's Hospital has taken a very innovative approach in its network architecture by building a communications capability for the future; one that will translate into a superior patient care and caregiver efficiency," said Greg Byles, Vice President of Business Development at GTRI. "GTRI is honored to be involved in such a monumental project that will have such a significant effect on generations to come."

Built on IP technology, the hospital's unified communications architecture can keep scaling to support new applications as the hospital continues to expand its technical footprint. Future plans include implementing a Radio Frequency Identification (RFID) system to track the hospital's high-value mobile assets.

## About GTRI

Founded in 1998, GTRI has quickly become one of the leading high-end solutions providers and technology consulting firms in the United States. GTRI delivers integrated IT solutions that help clients develop their technical infrastructures, organizations, and core business processes for competitiveness, profitability, and growth. The firm's end-to-end consulting solutions address needs in IT strategy and planning, infrastructure, convergence, security, data storage and transport, network architecture, systems management, and project management.

## Solution Technologies Implemented

### Unified communications

- Cisco Unified Communications Manager Version 5.0 (formerly CallManager)
- Cisco Unity
- Unified Contact Center Premium (UCCX)
- Cisco Unified MeetingPlace
- 5,500 Cisco VoIP Phones
- Mobility Manager
- IPcelerate for Voice

### Wireless

- 750 Cisco Unified Wireless IP Phones 7921Gs
- Cisco Secure Access Control Server (ACS)
- 900 1131 and 1242 Lightweight Access Points (LAP)
- Cisco WiSM Controller Modules
- Cisco Wireless Control System (WCS)

### Security

- Cisco ASA Adaptive Security Appliances
- Cisco Firewall Services Module (FWSM)
- Cisco Content Switching Module (CSM)

### Data Security

- Cisco Catalyst 6500 Series Switches
- 10G Uplinks
- Layer 3 to the Edge
- Standardized and Optimized 4 class QoS



To learn more about GTRI's services, visit [www.gtri.com](http://www.gtri.com) or contact us now:

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