



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

Status:

Laureate

Year:

2013

Organization Name:

Cook Children's Healthcare Network

Organization URL:

<https://www.cookchildrens.org>

Project Name:

Medical Grade Wireless Utility

Please select the category in which you are submitting your entry

Emerging Technology

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

The Medical Grade Wireless Utility (MGWU) project at Cook Children's Hospital encompassed an overhaul of its wireless network into a converged, future-ready hospital owned asset, leveraged by deploying multiple wireless services on a single infrastructure in a new 400,000 square foot building. The project was borne of frustration over a variety of problems related to legacy wireless communications including inadequate VOIP phone and cellular communications, co-channel interference in the 802.11 (WIFI) domain, and mediocre Computer on Wheels (COW) communications. Cook also sought to improve the patient/family experience in Neonatal Intensive Care Unit (NICU) through improvement of its wireless communications. Previously, wireless communications were established over a variety of stand-alone networks such as conventional wireless access points for 802.11, leaky coax for two-way radios and in-building antennas in subterranean areas for one cellular carrier. In addition to the service disruptions described above, these networks were mostly proprietary and costly to implement and maintain. The business case for MGWU was multi-fold: 1) provide a single hospital

owned infrastructure for transport of any wireless signal in the building, 2) Eliminate the need for additional wireless infrastructure by implementing the converged, future-ready infrastructure, 3) Provide improved reliability/capacity for guest and enterprise WIFI networks, 4) Provide decreased reliance on vendors, 5) Enable Cook to increase in-building cellular service from a single carrier to three carriers, and 6) Eliminate concern over infection control due to the possibility of above ceiling work related to wireless infrastructure. The implementation in both the new extension and existing hospital were challenging due to coordination with other above ceiling contractors, as well as scheduling and concerns over patient/family disruption.

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)

Initial project planning and design for the new 400,000 square foot North Extension started in 2009 with procurement and implementation beginning in late 2010. Go-live occurred in April 2012. Based on the success of the initial deployment, the balance of the campus (450,000 sf) was implemented and then completed in December 2012.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

Yes.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

After implementation, the newfound reliability of the VOIP phone deployment in the neonatal intensive care unit (NICU) dramatically improved the timeliness and quality of staff communications, and thereby improved the quality and speed of patient care for Cook Children's tiniest customers. A particular benefit of the more robust wireless communications was the ability to confidently integrate bedside physiological monitoring alarms and nurse call requests into the Vocera wireless VOIP devices in the neonatal intensive care unit. These technologies provide an efficient, reliable connection between patient/family and caregiver and in the new North Extension private room setting, the patient/family experience is vastly improved by this technology. Allowing the parents to stay in the room with the newborn patients 24x7 is a tremendous comfort to the entire family as compared to the ward style setting of the past with a few brief visits a day. These communications allow the nursing staff to be fully mobile yet constantly in contact with their patients. Two-way communications from wherever the caregiver may be for assistance calls and medical alarms create a boon in employee efficiency. This capability reduces the number of trips required by the nursing staff to patient rooms as well providing better emergency response when needed.



Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here. (In 300 words or less.)

To the extent that most hospital wireless infrastructure deployments differ from the Cook Children's model, this could be considered a remarkable innovation. Although the results are outstanding, this type of deployment is not a widely accepted practice due to its uniqueness and initial expense. Unlike other expected building services such as mechanical, electrical and plumbing, there are no standards or codes that govern installation of wireless infrastructure. Based on the success of the Cook Children's deployment however, they believe that the Medical Grade Wireless Utility infrastructure should be employed whenever possible to provide the order and assurance necessary for reliable in-building wireless communications and reduced long-term cost. The extraordinary results of this project are far reaching and benefit both the caregivers and their patients. Any project that benefits so many different aspects of the organization is truly an innovation. Not only has this project improved performance and reliability of wireless equipment, it also reduces future intrusions into ceiling spaces which can disturb patient care. By installing a single antenna system to support all current and future wireless communications, Cook Children's will avoid future expense and disturbance of the business. This also positions the organization to leverage their investment effectively without wasting money on competing and duplicative infrastructures from various proprietary vendor solutions.

If there are any other details that the judges should know about this project, please note them here. (In 300 words or less.)

Deployment of Medical Grade Wireless Utility (MGWU) in the new North Extension has changed the wireless thought paradigm of Cook Children's Healthcare System. Cook Children's now considers wireless as a base building utility (like mechanical, electrical, plumbing and Ethernet) to be embedded in all physical plant construction to support the growing wireless ecosystem and provide the basis for its platform for wireless health. In addition, MGWU has provided the momentum to develop a comprehensive wireless strategy enabling exploitation of the asset to the benefit of the medical center. Based on the success of the North Extension deployment, plans were developed, then implemented to upgrade the balance of the campus to MGWU, which included another 450,000 square feet of physical plant.