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Japan Ryoden Hospital
Baicells Case Study

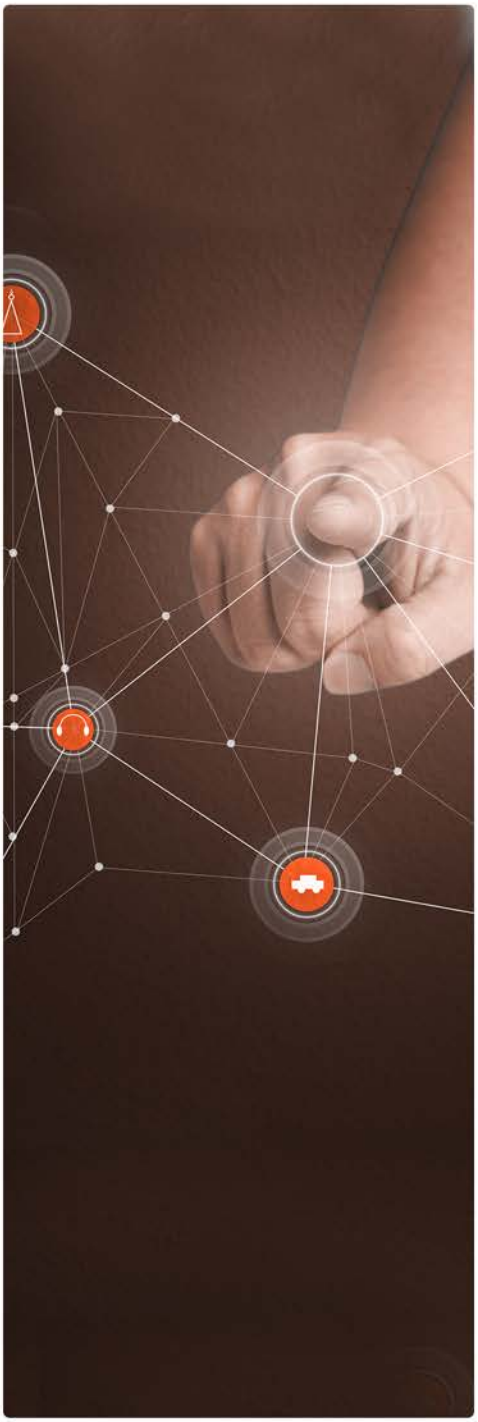
Overview

In April of 2022, Ryoden announced a partnership which Baicells to build a new network for a hospital which planned to relocate to a new location and begin accepting patients starting already on May 9th, 2022. This made for a very fast transition from the old to new facility.

To accept new patients, the new facility included having a modern wireless network throughout the healthcare campus. This new network needed to be able to provide for a growing need for telehealth visits, increased IoT implementation across medical machines, sharing of patient health records, and a growing need for general internet access to departments.

Overview - Cont.

Reliable, secure networks are a critical platform required for these modern healthcare facilities to operate today. These networks and all the benefits they bring have a direct impact on the patient experience and delivering positive outcomes.



Since 2020 the world has seen an explosive increase in the need for telehealth services. The U.S. Department of Health and Human Services found there was a massive, 63x increase in telehealth visits – with 840,000 virtual visits in 2019 and 52.7 million virtual visits in 2020. IoT services tied to the telehealth market have grown as well, with hospitals issuing devices that make it easier to monitor, collect, and analyze a patient's data.

To meet these growing needs and anticipate the incoming connectivity requirements of new medical devices, the hospital needed a capable and affordable network that would continue to evolve as requirements changed. Securely sharing information across staff helps to deliver better patient care.

The Problem

Hospitals require reliable connectivity to support all kinds of internal operational procedures like admitting patients, intra-staff communications, sharing all kinds of patient data in real time, and even tracking high cost shared diagnostic systems across the property. In Japan, many hospitals are using a Personal Handyphone System (PHS) to facilitate basic communications across the organization. The PHS system is a legacy solution from the mid-1990s, highly voice-centric, and was rapidly approaching its end of life.

The Problem - Cont.

This dated PHS system is unable to meet the broad variety of connectivity needs of today's medical facilities and so the hospital needed a much more capable and scalable platform that could be quickly deployed as they transitioned to a new campus. The new system needed to serve the facility well into the future, provide both reliable voice and data coverage - securely, and be scalable to effectively cover four large hospital buildings.

The Solution

C-RAN and sXGP

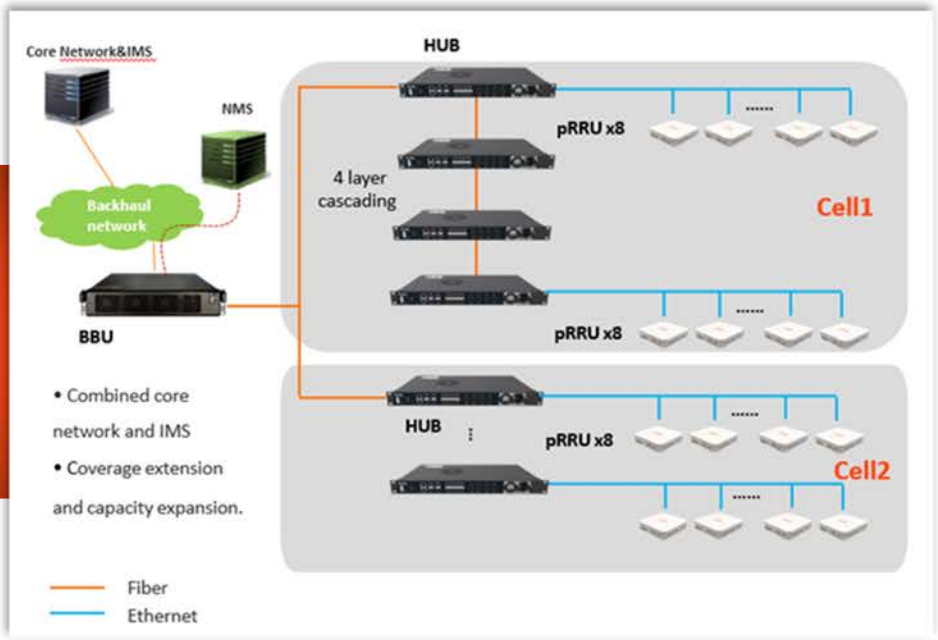
The new hospital campus required comprehensive voice and data services across the four main buildings and even a large parking lot that served the campus. Each building contains 12 floors and the network solution needed to be installed in a short two-week time frame. Lastly, the network needed to provide reliable coverage for over 1000 smartphones that the hospital staff would be using to routinely communicate with each other across the large campus.

To meet each of these requirements, the hospital installed a private LTE network using Baicells network components, leveraging the unlicensed sXGP spectrum (LTE Band 39). Recently, the Japanese Ministry of Internal Affairs and Communications made it possible for enterprise users to migrate existing PHS systems to the unlicensed sXGP LTE service, so the hospital took advantage of this opportunity.

The entire network was successfully installed and in-service within the two-week window – from backhaul to the end-user devices. A big benefit to meeting the aggressive schedule was Baicells proven plug-and-play capabilities and compact easy to deploy small cells.

The Solution - Cont.

A network backhaul link to the public carrier was used to connect the campus to the public network. The backhaul link was routed to a local server room on site that contained the hospital's PLTE network core and baseband units which connected to the distributed hubs to provide access to the sXGP access points.



These small access points would then offer the wireless connectivity to the 1000 smartphones used by staff as well as other authorized end points. Since the network is private, they have full control over who and what gets connected and the ability to apply specific policies.

By installing the venue's PLTE network using this cascading, cloud-RAN architecture, the hospital was able to take full advantage of the sXGP unlicensed spectrum and build a robust wireless network that would easily accommodate the staff's communication needs while keeping operating expenses very manageable.

The high-capacity small cells could provide connectivity to up to hundreds of users per cell, and since they were installed as a distributed system, it eliminated any network interference within the hospital itself. Eliminating the network interference is incredibly important for the healthcare facilities since lives are on the line and any dropped signals can result in terrible consequences.

Today, the hospital continues to serve its citizens while providing its staff with a reliable wireless network to allow them to provide a best-in-class healthcare environment for their patients. The scalable wireless network will guarantee to evolve with the hospital as the technology advances and thanks to the upgrade capabilities of the network, the hospital is now ready to include 5G wireless coverage in the future when the facility is ready.