

CASE STUDY



OVERVIEW

Since its founding in 1937, the Tokyo-based ITO Hospital has specialized exclusively in the diagnosis, care and treatment of patients with thyroid disease, with the mission to provide the best care through cutting-edge medical technology.

REQUIREMENTS

- To establish a stable and high-performance wireless network for staff and patients, in a high-density location with significant channel interference
- Improve overall wireless network security
- Reliable network infrastructure that is able to scale according to current and future needs of the hospital

SOLUTION

- Ruckus 802.11ac indoor access points (APs)
- Ruckus ZoneDirector controllers

BENEFITS

- Supports increasing demand and reliable mobile access requirements for PDA devices used by staff
- Delivers an uninterrupted and high-performance network experience
- Improved user experience in a demanding and high-density environment, thanks to better anti-interference features

RELIABLE AND HIGH-PERFORMANCE WI-FI POWERED BY ENTERPRISE-GRADE TECHNOLOGY INDISPENSABLE FOR QUALITY NURSING CARE

ITO Hospital located in Tokyo, a healthcare center specializing in treating thyroid disease, believes that quality IT services play an essential role in improving the standards and safety of the healthcare services that they provide.

In 2012, ITO Hospital began the process of upgrading their wireless network, which served as a critical support infrastructure for nursing care in their hospital wards. At the time, network users were faced with numerous issues: Connected devices were unable to seamlessly roam between different floors, there were places throughout the hospital where it was difficult to connect to the network, users experienced frequent network interference, and most importantly, security was a major concern for the IT administrators as well as hospital management.

In addition, the hospital also underwent digitization under the leadership of director Koichi Ito, president of ITO Hospital, who believed that IT was essential for improving the quality and safety of healthcare services. From electronic medical records and medical accounting, to clinical examinations and the management of radiology information management, several IT systems were introduced to help raise the quality and safety of healthcare while optimizing staff productivity, as well as reducing patient waiting time.

RELIABLE WI-FI IS INDISPENSABLE FOR SEAMLESS NURSING CARE

Tatsunori Fukuda, who heads the System Administration Office at ITO Hospital, notes that the need to upgrade ITO Hospital's Wi-Fi infrastructure started getting serious consideration when the nursing staff began facing issues with their hospital-issued personal digital assistants (PDAs) losing Wi-Fi connectivity when moving between different ward floors, which also made it necessary for nurses to have to re-login to the hospital patient management systems multiple times a day.

"PDAs are carried by nursing staff when attending to patients in their beds, as well as for other nursing-related tasks in wards. For example, the PDAs can read patients' wristbands and the bar codes on medication, ensuring that the right medicines and dosages are given to the right patients," explains Fukuda.

Besides issues with Wi-Fi roaming, it was also hard to connect to Wi-Fi in several hospital rooms. What's more, IT administrators had serious concerns regarding security, as the original Wi-Fi network was secured by the outdated WEP encryption method.

The location of ITO Hospital also impacted Wi-Fi performance. Located within the Omotesando district, there are numerous other businesses in the vicinity, ranging from fashion retail stores, hair salons, and more. As more of these businesses deployed wireless networks of their own, channel interference is a real challenge, especially in such a high-density area.

A SUCCESSFUL TRIAL OF RUCKUS' UNINTERRUPTED STABILITY

"We could not install single-channel equipment as the risk of channel overlap would impact the optimal operation of advanced medical equipment. Our Wi-Fi network needs to be robust, and able to handle hardware failure with minimal delay. That ruled out APs with built-in controller functionality, as replacing failed units would have taken time. Other



"Testing results showed that Ruckus' solutions had the best performance, with a high-performance wireless network, especially with roaming connections between floors. Ruckus also proved its mettle by providing stable connections and high-speed throughput in a manner head and shoulders above the rest of the competitors trialed. As such, going with Ruckus was an easy choice."

TATSUNORI FUKUDA

Head, System Administration Office, ITO Hospital

solutions tested had inadequate roaming performance, or high maintenance costs. None of these came close to solving ITO Hospital's challenges," said Fukuda.

Fukuda evaluated the performance of products from three companies, including Ruckus. This test consisted of setting up the APs of all companies with the help of a systems integrator, as well as measuring the strength of the signal at five locations for comparison. The results showed that Ruckus APs had the best and more reliable performance, with network throughput head and shoulders above the competition. Ruckus was an obvious choice.

The high-performance Ruckus APs include Ruckus' patented BeamFlex+™ adaptive antenna technology that directs the antenna to point in the direction of client devices, expanding coverage and mitigating interference, while providing better indoor user experience in high-density environments. This perfectly solved their challenges with maintaining Wi-Fi connectivity, even when moving between floors.

It's important to note that the IT administrators of ITO Hospital also conducted independent assessments both before and after the Ruckus solution was installed. The result: "Good" scores through signal testing from various locations inside the hospital showed an increase from 21 to 35 incidences, while the incidences of "Bad" scores plummeted from 23 to 8.

Post-installation, the nursing staff had no further complaints. Fukuda notes, "I used to think that only a wired network can guarantee speed. But after switching to Ruckus, I am much more enthusiastic about going wireless, and am convinced that they can have the same performance as wired networks."

Fukuda's decision to update the hospital's Wi-Fi infrastructure has paid dividends. From the reduction in network service issues, to better staff productivity, IT administrators also benefited from the high availability of the hospital Wi-Fi network.

LOOKING AHEAD

In 2018, ITO Hospital refreshed the Ruckus equipment installed in their network to be able to support the newer BeamFlex + standard, which features the ability to further reduce noise thanks to its smart adaptive antennas that focus electromagnetic signals.

Ruckus solutions have also been installed in two treatment centers affiliated to ITO Hospital: the Kojin Kai Nagoya Thyroid Clinic (formerly Osu Clinic) and the Kojin Kai Sapporo Thyroid Clinic. At the former, a hybrid network was created by adding a wireless network to the existing wired one. At the latter, a wireless network was implemented throughout, reducing the installation costs associated with wired networks.