

Keio University Hospital



Customer

- Keio University Hospital

Challenges

- To build a new hospital building to serve as a new core facility for advanced medical treatment. The network that connects together the various medical devices in the building must have High availability and reliability.
- Since there are separate existing networks for medical treatment and for research, the research network cannot be accessed from treatment facilities, which is a problem. There was a desire to provide doctors who are involved in both medical treatment and research a more powerful and convenient work environment.
- To expand or modify networks it has been necessary to rely on vendors, and including the time to purchase equipment the whole process can take several months in some cases.

Solution

- The data communications of some of the hospital's medical equipment sometimes operated unpredictably. So the fact that NEC's SDN solution has operated reliably at other medical institutions is very reassuring.
- It creates multiple, logically independent virtual networks on a physically integrated network, which helps to prevent and limit potentially devastating security incidents.
- Taking advantage of this feature allows secure access to a desired network at any time, from anywhere, to achieve a much stronger link between treatment and research.

Results

- The NEC SDN solution adopted for the new hospital building boasts excellent availability and reliability. This technology has a solid track record in medical institutions, so it can be selected with confidence.
- SDN physically consolidates networks and enables the configuration of multiple virtual networks for different applications. By simply plugging a computing device into a data outlet, it is possible to access any desired network, whether for treatment, research, or some other purpose, at any time, from any place.
- No equipment or installation is necessary for adding a new network. Using a GUI-based management tool, the hospital can do the job itself. This really helps to respond faster to the needs of the workplace. It took only a few hours for the hospital to add its first additional network.

New core facility for advanced medical treatment adopts SDN to link research more closely to medical care

Introduction

Keio University Hospital serves some 3,000 outpatients every day. As an "advanced treatment hospital," it provides sophisticated medical services and also pursues leading-edge medical research. Keio University Hospital Director General Dr. Tsutomu Takeuchi says, "We are committed to both clinical treatment and fundamental research. Our medical science and treatment integrates fundamentals with clinical experience, to contribute to the advancement of medicine."

In order to offer advanced medical services under the most optimal environment, the hospital is constructing a new building, which is planned to be finished in March 2018.

Challenges

For its new hospital building with state-of-the-art technologies, Keio University Hospital wanted a network with excellent "availability"—24 hours a day, 365 days a year, without outages. Today's medical institutions rely heavily on electronic patient records, so any drop in the network can bring treatment to a rapid halt.

Security is also important, explains Satoru Wada of the hospital's Information Systems Department. "Medical data is very private, so we need to be sure that no personal data gets compromised."

Linking clinical care with fundamental research is also essential to Keio University Hospital. The previous networks did not allow convenient connection between the two fields.

"Treatment and research deal with different kinds of information, so they demand different levels of security. That's why we had separate networks for each, but this meant doctors had to connect to the networks with different devices at different places."

The hospital also wanted to flexibly modify its networks on its own. The hospital sought a network solution to satisfy all these requirements.

Solution

In order to meet the requirements, the hospital has adopted SDN (Software-Defined Networking) Solutions proposed by NEC and NEC Fielding. Firstly, in terms of availability, SDN offers high fault-tolerance as well as an excellent track record of stable operation. Mr. Wada stresses, “The fact that the NEC SDN solution was proven at other medical institutions gave us confidence. Unlike IP-based computer servers, communications functions have been incorporated into medical equipment only quite recently. We still have equipment that tends to communicate in unexpected ways, so when we learned that these kinds of devices had been running reliably on NEC SDN networks we felt very reassured.”

Next, in terms of security, the decisive factor was the ability to set up multiple, logically independent virtual networks connected on a physically integrated network. Keeping individual networks independent of each other greatly limits the potential damage of security incidents. Toshiyuki Nishizawa, of Keio University Hospital’s Information Systems Department says, “We’re also able to change the security level of each virtual network separately, which means we can integrate out networks with peace of mind.”

Keio University Hospital reasoned that by taking advantage of these features, it could allow doctors to securely access different networks for specific purposes, to greatly enhance the connection between treatment and research. “When we were deciding, we did a comparison with another vendor’s SDN solution, but we found that it was geared more to data centers and didn’t really match our needs here,” says Mr. Nishizawa.

Results

The NEC SDN, which works nicely with Keio University Hospital’s existing networks, is deployed in stages as construction progresses of the new building. Phase 1 has completed and the SDN-based network is already operating productively.

Dr. Takeuchi explains that doctors use the network to conduct statistical analyses of treatment data to explore how improvements in diseases vary with drugs, age, gender, and pre-existing disease. Previously, they had to go all the way to the hospital zone to read electronic medical records, then back to the research zone to work on the data. Now, they just plug a cable into a data outlet to access any information they want, at any time, from any place, and with appropriate security.

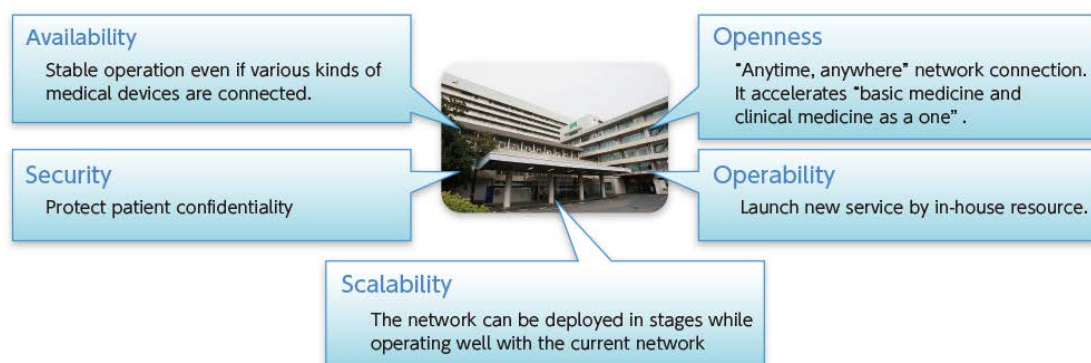
In addition to that, they reduced time and cost for the network expansion and modification. Mr. Nishiza explains that the power to flexibly create and modify networks within a few hours by themselves without outside specialists, using a GUI tool—to set up an Intranet for teaching staff, for example—is another great asset. It is a dramatic change since it sometimes took several months if we start from the procurement of the devices from the vender. Since Keio University Hospital can now expand and modify its networks efficiently, they plan to offer new services like Wi-Fi for patients and IP telephony for nurse calls. “The network was the key to benefiting fully from the state-of-the-art medical equipment in the new building. KUH also hopes that NEC’s support will help the hospital grow and advance in the years ahead”, Mr. Wada explains.

Dr. Takeuchi is very faithful to NEC for tailoring an effective solution from Keio University Hospital’s requirements and looks forward to a continued and fruitful partnership with NEC.

About

The philosophy of Keio University Hospital is to contribute to the welfare of humanity, through development of patient-centered, advanced medical treatment, delivery of high-quality, safe medical care, training of intelligent, richly human physicians, and medical science and medical care that respects human rights.

●SDN benefits for Keio University Hospital



They acquired high availability and reliability which is required for medical institution, in addition to acceleration of “basic medicine and clinical medicine as a one” philosophy.

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