

A Case Study Overview of Japanese Hospital Networks



Case Study | Typical Hospital Network Configuration in Japan

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Typical Hospital Network Configuration in Japan

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Allied Telesis provides:

■ Non-stop networking

A redundant network created with duplicate devices, power sources, and cables.

■ Medical image data processing

High capacity networks meet the need for fast image transfer.

■ Electronic healthcare records system

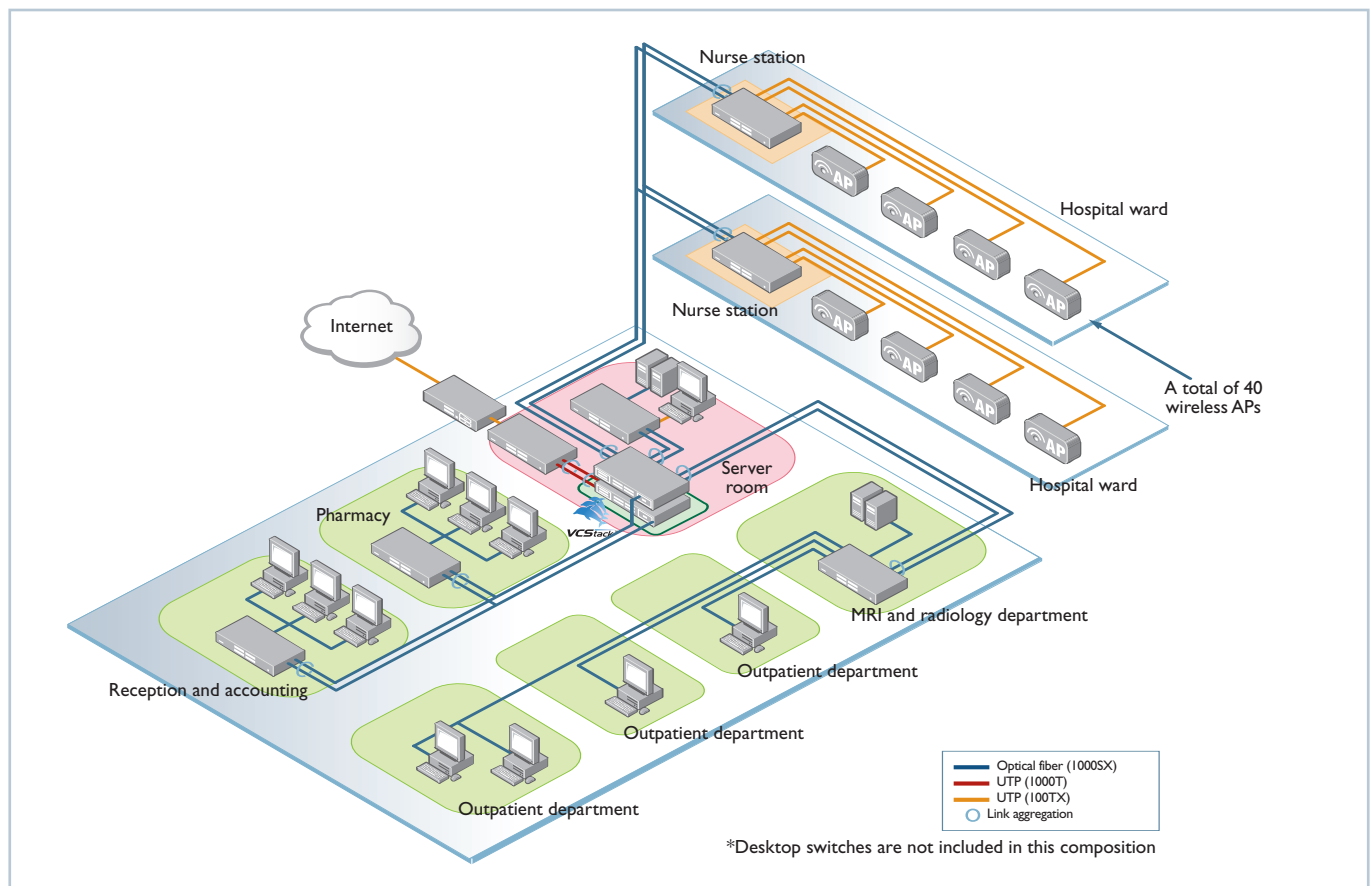
Wireless access to patient records from each patient's room.

■ Security

Protection against unauthorized access.

■ Stable operation

Integrated network management.



Yamanashi Hospital of Social Insurance

Overview:

- **Established:** May 1947
- **Number of beds:** 210
- **Staff:** 280
- Yamanashi Hospital of Social Insurance is a local general hospital accredited by the Japan Council for Quality Health Care, with a variety of medical treatment departments, such as Internal Medicine, Endocrinology/Digestive, Radiology, among others.

As a regional medical institution, Yamanashi Hospital contributes to community-based healthcare and the promotion of good health.

Challenge:

- The hospital recognized a need to update its original network system when they looked to deploy an ordering system to improve the overall quality of patient-care, which included reducing patient wait time.
- Yamanashi Hospital's original network often provided long response times when transferring large amounts of data, which minimized productivity and lowered patient satisfaction.

Solution:

- Along with construction of its new Gigabit network system, the hospital deployed Allied Telesis' advanced Layer 3 9900 series switch at its core and in each department.
- From the viewpoint of developing an electronic health records system, Allied Telesis' products met several requirements set forth by the hospital, including:
 - 1) scalability, which ensured flexible response to an increase in traffic, 2) stability, which was essential for its mission-critical internal network, and 3) cost-effectiveness.



"We selected products from Allied Telesis because of its scalability and high-processing capabilities, which are both essential core switch functions. In addition, we're very satisfied with the cost-effective Allied Telesis Layer 3 switches."

"Our Gigabit backbone LAN with Allied Telesis products enabled us to operate a more stable network against large volumes of traffic."

"With Allied Telesis, we can now unify and more easily operate the access control via a core switch to each department switch."

Ohtawara Red Cross Hospital

Overview:

- **Established:** July 1949
- **Number of beds:** 556
- Ohtawara Red Cross Hospital, part of a community-based healthcare system, is a major regional hospital in the northern Tochigi region. The hospital is accredited by the Japan Council for Quality Health Care (Dec, 2005.Ver: 5.0), as well as designated as a 3rd* emergency medical care center, regional medical support hospital and cancer medical-examination cooperation.

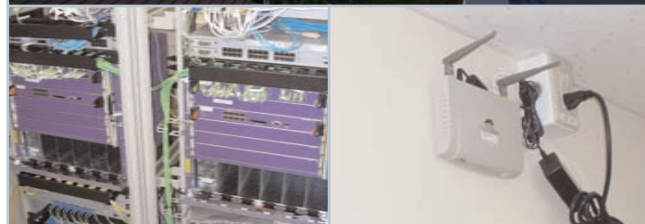
3rd*: Highly-advanced

Challenge:

- Ohtawara Red Cross Hospital required a redundant network to offer greater system-level reliability and availability. This was critical as the existing network links between edge-switches and its ordering system server would often go down.
- Under the 'Private Information Protection Law' policy, Ohtawara Red Cross Hospital needed to enhance its security and availability of data healthcare records.

Solution:

- By deploying switches from Allied Telesis, Ohtawara Red Cross Hospital enhanced its network linkages, ensuring cooperation among other local area hospitals. Additionally, it established an ordering system based on the digitization of electronic health records for the future.
- Specifically, the Hospital deployed Allied Telesis' advanced Layer 3 8700 series switches covered by IEEE 802.1x standard authentication and AT-WR540APS wireless access points. This ensured fast response-times with higher-levels of bandwidth, and improved network reliability with added redundancy and enhanced security.



"Since adopting Allied Telesis' high-performance solutions, we can now meet greater network capacity needs. This in turn enables us to respond to medical situations much faster."

"We have increased our security systems with Allied Telesis by leveraging IEEE 802.1x standards authentication, as well as MAC (Media Access Control) address terminal authentication to block unauthorized access to our internal network."

Hiroshima City Hospital: Radiology Department

Overview:

- **Established:** August 1952
- **Number of beds:** 758
- Prior to its current stature, Hiroshima City Hospital was first established as Hiroshima Social Insurance Hospital, managed by Hiroshima City on consignment from the Social Insurance Agency. In March 2003, as its consignment contract ended, the hospital became known as 'Hiroshima City Hospital,' which it assumed as its permanent name in April 2003. As a major healthcare institution, Hiroshima City Hospital contributes community-based healthcare and offers 25 different types of medical services in Hiroshima city.

Challenge:

- Recent medical care reform required Hiroshima City Hospital's Radiology Department to innovate its network and computer systems to enable large volumes of digital images (without using film) to be transported/processed.
- The Radiology Department adopted a radiology batch control system to transport CT images and diagnostic reports, and allow other departments to gain access to its radiology network from individual doctors' computers. With sensitive patient data at-hand, it became essential to have 'uninterrupted network service' ensuring positive healthcare communication and long-term patient care.

Solution:

- To enable the digital image (filmless) processing system to transmit large amounts of data, the department selected Allied Telesis' highly reliable Layer 3 Gigabit Ethernet core switches – 9800 series – to create a redundant network.
- In addition, the department selected Allied Telesis' SwitchBlade® series to ensure network consistency and establish high-resiliency of network elements.



"We have found Allied Telesis' products maintain stable network operations which has allowed us to experience its high-speed capabilities, as large volumes of data appear instantly on our computer screens. Allied Telesis has helped us bring our filmless project to fruition, bringing about significant healthcare benefits."

"We can now load data directly onto each doctor's computer from the image server. This has resulted in saving time to convert film to digital data; allowing us to better concentrate on medical research."

Nagoya Ekisaikai Hospital

Overview:

- **Established:** November 1948
- **Number of beds:** 662
- Nagoya Ekisaikai Hospital is fully equipped with 29 medical care services, such as Internal Medicine, Pediatrics, ED, and Industrial Insurance, as well as an Emergency Medical Care Center; Palliative Care Unit, Chemotherapy Care Center; and Cardiovascular Center. As a major regional hospital, Nagoya Ekisaikai Hospital contributes to the improvement of overall community healthcare.

Challenge:

- Nagoya Ekisaikai Hospital was looking to deploy an electronic healthcare record system for both its general medical care services, and a new emergency medical care facility. An electronic record system was vital to the hospital as it would allow information sharing; especially during times of a disaster.
- Additionally, the hospital wanted to ensure its medical care structure closely linked to its record system, and looked to deploy a mission-critical Gigabit network to maintain this critical care system. As a result, the hospital sought to modernize its core network, just in time to establish a new emergency medical care center.

Solution:

- The hospital deployed an all Gigabit solution of Layer 2 9400 series switches and advanced Layer 3 9900 series switches to create a high-resiliency network.
- With the use of Layer 2+ switches, the hospital was able to create a high-speed switched LAN backbone in each segment and leveraged Layer 3 switches to manage routing between segments, for high-speed interconnects with the server farm.



"After a comparative review including overseas vendor products, we realized products from Allied Telesis would ensure higher-reliability and excel in key performance areas."

"Our network is closely linked with an electronic health record system – making system failures a serious problem; especially in the emergency medical care center. Allied Telesis' products keep our network and operation, stable."

Japanese Red Cross Kitami Hospital

Overview:

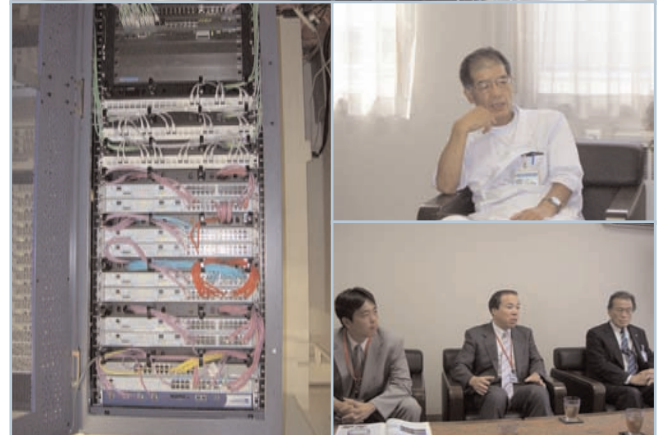
- **Established:** November 1935
- **Number of beds:** 695
- **Staff:** 1,000
- Japanese Red Cross Kitami Hospital is known as a main regional hospital with 16 medical services and an emergency medical care center in Hokkaido Okhotsk area. In 2005, the hospital was designated a regional cancer medical-examination center and regional medical support hospital. The hospital promotes cooperation among regional medical institutions.

Challenge:

- In order for the Japanese Red Cross Kitami Hospital to strengthen the cooperation among the regional institutions in the vast Hokkaido Okhotsk region, there needed to be an effective use and layout of network systems and IT.
- Additionally, the hospital engaged in shared medical information systems to make it possible for distant doctors - registered in the hospital network - to view patient information, such as radiological images and inspection results.
- To ensure electronic health records could be shared among the regional institutions, Japanese Red Cross Kitami Hospital had to ensure internal networks were replaced with high-speed, high-broadband backbone.

Solution:

- Japanese Red Cross Kitami Hospital adopted an Allied Telesis-provided SSL-VPL appliance as a way to register/monitor remote access of shared medical information systems. This enabled the Hospital to ensure the security of critical information through close access control.
- The hospital created its network with the SwitchBlade series at its core, alongside other Allied Telesis Gigabit Ethernet gear. This deployment configuration ensured a highly-reliable, scalable, and secure network.



"With Allied Telesis deployed, we now have an opportunity to share image data with each department, enabling more effective communication with patients."

"We fully understood that Allied Telesis' products offer high-reliability capabilities, enabling us to entrust Allied Telesis with our network construction."

"IT will continue to make remarkable progress over the next few years. We will continue to look to Allied Telesis' team to help us modernize our network to be most effective in patient-care."

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