Case Study

Gaziantep Avukat Cengiz Gokcek Government Hospital, selects Allied Telesis products to provide a powerful controlled access network in a medical environment

Case Study | **Gaziantep Avukat Cengiz Gokcek Government Hospital**

The Customer

Gaziantep Avukat Cengiz Gokcek Government Hospital entered into operation as the first and biggest hospital in Gaziantep city. Its modern building composed of two blocks, located at Hürriyet Caddesi in fiahinbey. Gaziantep Avukat Cengiz Gokcek Government Hospital provides services in all specialties with its inpatient and outpatient, diagnosis, treatment and emergency service facilities and fully-equipped polyclinics. The hospital provides effective treatment for diseases that affect people from all ages and cause loss of function and labour. Satellite TV, phone, private bathroom, nurse call system and room services are among the advantages offered to patients during the treatment process.

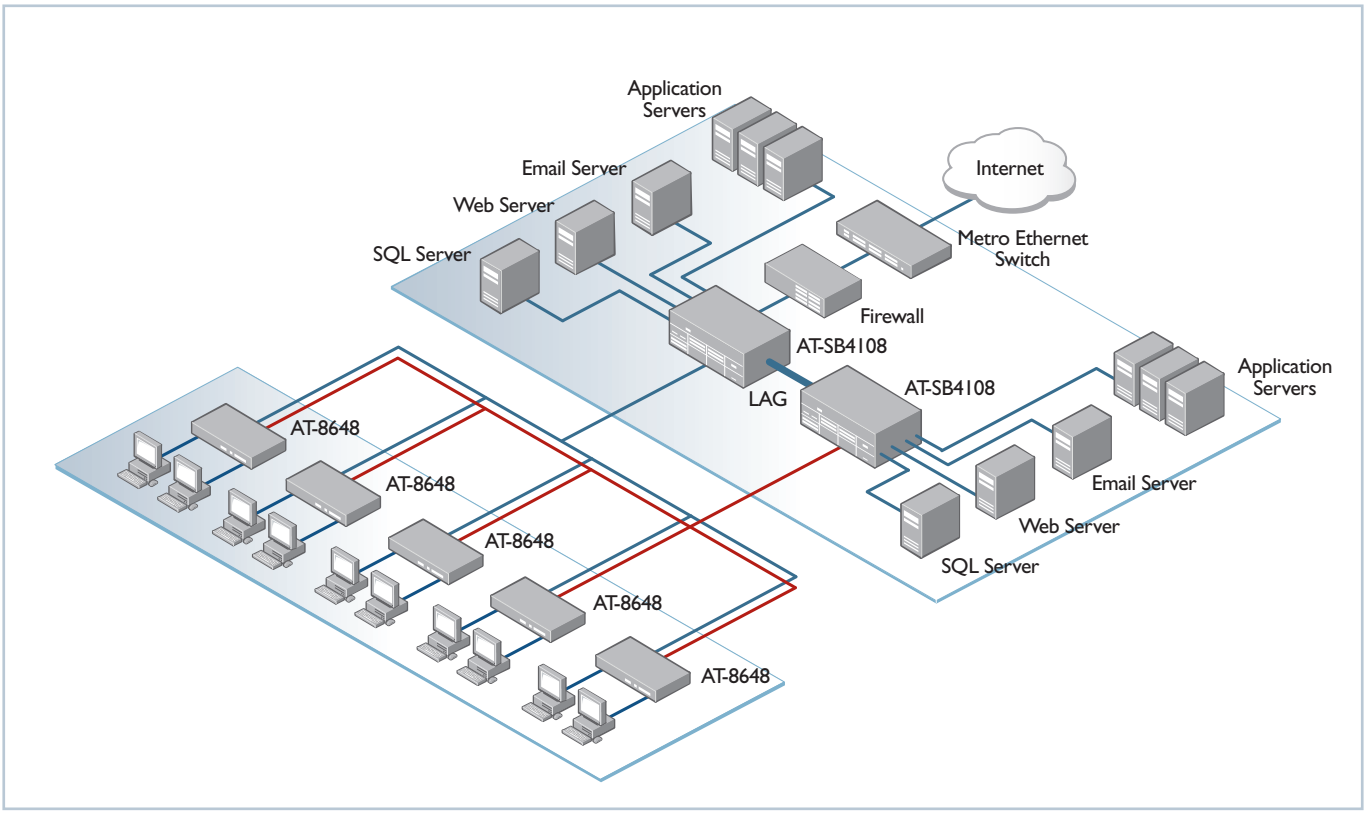
The Emergency Service of this hospital, which is at an easily accessible location, provides services seven days a week, 24 hours a day with its specialized personnel and advanced technical equipment. This hospital provides successful services to nearly 10,000 of people per year in Gaziantep. They provide as follows:

- *Emergency Service*
- *Oral, Dental and Maxillofacial Diseases*
- *Angiography*
- *Asthma Diagnosis and Treatment*
- *Nutrition and Diet*
- *Neurosurgery*
- *Biochemistry*
- *Check-Up*
- *Dermatologic and Skin Diseases*
- *Pediatrics*
- *Endocrinology*
- *Infection Diseases and Clinical Microbiology*
- *Physical Therapy and Rehabilitation*
- *Gastroenterology*
- *General Surgery*
- *Pulmonary Diseases*
- *Breast Surgery*
- *Ophthalmology*
- *Internal Diseases*
- *Gynecology and Obstetrics*
- *Cardiovascular Surgery*
- *Cardiology*
- *Otorhinolaryngology (ear-nose-throat)*
- *Nephrology*
- *Neurology*
- *Nuclear Medicine*
- *Audiology*
- *Oncology*
- *Orthopedics and Traumatology*
- *Pathology*
- *Plastic and Reconstructive Surgery*
- *Radiology*
- *Urology*
- *New-Born Intensive Care Unit*

PROFILE	**Gaziantep Avukat Cengiz Gokcek Government Hospital** Turkey
Project	Installing disaster recovery and data surveillance system in Gaziantep Avukat Cengiz Gokcek Government Hospital.
Scope	Connection across seven floors and 70 consulting rooms in two physical locations.
Challenge	Satisfy diverse needs in a single global project.
Critical Objectives	The solution had to be scalable, resilient, secure and perform at LAN speeds with a redundant network topology..

Customer Requirements

The environment surrounding medical care and technology has evolved rapidly over the past years. In order to keep at the forefront of this changing environment, Gaziantep Avukat Cengiz Gokcek Government Hospital had to put in place a comprehensive and redundant network upgrade plan. The hospital's original network ran at 10Mbps, and included hubs, meeting the initial requirements for simple data transfer. It was primarily used for giving appointment services to the patient, accounting and the exchange of medical test information. Traffic was initially low, but vastly increased as the number of PCs were connected and thus the demand for e-mail and Internet capabilities grew. A new patient automation software was developed by Fonet Yazilim company and it was installed on the hospital network. This software was causing performance issues and it needed high-speed network equipment and redundant network topologies. With staff and patients, the number of people needing to exchange information had increased beyond what the hospital's network was capable of supporting in terms of bandwidth, and the system had become unreliable (one fault could take out the whole network). These expansions meant that the network capabilities required by the hospital went well beyond increased bandwidth - the hospital now required a highly reliable, resilient and scalable network infrastructure that would enable them to add future capabilities as and when they were required. To achieve their objectives, Gaziantep Avukat Cengiz Gokcek Government Hospital turned to Allied Telesis, on the basis of their proven history of delivering highly reliable and feature-rich advanced network solutions. Allied Telesis were also able to meet the requirements for a resilient and scalable solution within the hospital's budget. The major reason for selecting Allied Telesis was the SwitchBlade® 4108 (multi-layer modular switch). This met all of the requirements for the core of the new LAN, such as the ability to forward high capacity graphical content, high reliability, flexible scalability, and its ability to incorporate the potential future expansion requirements.



The hospital supplies remote booking services to their patient s using kiosk machines, the Internet and SMS. Patients can check and get their test results online. There are nearly 750 PCs and 20 kiosk machines on the network at the moment. The patient can book their appointment by themselves. The hospital is using an automated software program created by Fonet Yazilim. Fonet Company is also providing support and services to this hospital.

Before the hospital chose the Allied Telesis solution, they used some unmanaged switches without any backbone on the network. They only have a SQL and application server on the network and all the clients were connecting to these servers using the automation software. If there was an error on the network or server (loop, virus or any problem), the hospital network comes to a stop and patients can't enter the system.

After changes to the network topology, there are now two different system rooms on the network. We installed fully redundant backbones and edge switches on the network. 2 x AT-SB4108 chassis switches in the system rooms with these servers. Each backbone switch has fully redundant CPU and power supply modules. We installed 15 x AT-8648 Layer 3 switches and all the edge switches connected to core switches with redundant uplink ports. Each system room has the same servers (SQL, application, etc...) and all of them are working with active topology. All the kiosks and PCs are connecting to these servers at the same time. If any server, link or system rooms give fail, the system can still work redundantly without any problem.

Benefits of the New Solution

Scalability

The hospital is investing in the future and investing wisely. At the core, the SwitchBlade 4108 provides a solution that can scale as the hospital changes. It supplies feature rich, resilient switching technology capable of dealing with network control and security. The SwitchBlade 4108 also provides ultimate flexibility with four empty slots for each chassis so the switch can grow with the network and even provide 10Gigabit Ethernet for maximum possible bandwidth in the future.

Increased coverage

Gaziantep Avukat Cengiz Gokcek Government Hospital has expanded both in physical size and number of employees. Redundant Gigabit fiber links between the core and edge switches provide the maximum bandwidth to allow the various different facilities to communicate across a single network. Medical specialists, surgeons, doctors, nurses, and professionals are all assured of full access to network resources.

High availability

High availability in the core of the hospital's network is provided by the SwitchBlade's built-in redundancy in switching capacity, control and power supply, guaranteeing maximum uptime and throughput of network traffic.

Reliability

In the past the hospital had a lot of reliability issues with their LAN, for example a single fault was capable of bringing down the network. Since the new LAN was implemented using the SwitchBlade, no such problems have arisen.

Educational resources

Staff now have greater access to educational resources, both from the Internet and from the Clinical Laboratory Centre, which provides advanced online services across the Intranet. Furthermore these resources consist of the latest information in digital form.

Easy manageability

Advanced network monitoring allows accurate and up-to-date statistics to be gathered about network resources, ensuring a pro-active approach to network infrastructure maintenance and support.

Segmentation

Segmentation of the network has been achieved through the use of Virtual LANs (VLANs). The main advantage of using VLANs is that users can be grouped together according to their networking needs, regardless of their actual physical locations. Subdividing the LAN into smaller segments, or VLANs, increases overall reliability, security, and performance, and makes the network easier to maintain. The hospital now easily maintains separate VLANs for different areas, such as medical examination, office work, and patients.

Futureproofing

At the core, two units of the SwitchBlade 4108 provide a solution that can scale as the hospital changes. It incorporates feature rich, resilient switching technology. The availability of a 10GbE linecard means future high bandwidth applications will be easily handled.

Future plans

As part of the ongoing upgrade of Information Systems at the hospital, there are future plans to add additional functionality and keep the hospitals network at the leading infrastructure.

These include:

- *Adding new chassis switch and PoE edge switches to the network (fully separated network) - to put IP camera's around the hospital for their upcoming security project.*
- *Implementing full access control on the edge switches for security (IEEE 802.1x) and advanced management of resources by those within the main hospital campus.*
- *Multicast TV that could be created and broadcast across the network.*
- *An enhanced wireless network to allow patient and staff full access to Internet and network resources from wherever they are on the hospital campus.*

KEY PRODUCTS

2 x AT-SB4108

Layer 3 Advanced IPv4 Gigabit Switch

2 x AT-SB4108 chassis switch (each chassis has 2 x CPU card, 2 x 24 x SFP card and 2 x 24 x 10/100/1000T card and 30 x AT-SPSX GBIC module)

15 x AT-8648T

Layer 3 Fast Ethernet Switch

48 x 10/100TX ports

2 x 10/100/1000T / 1000X SFP combo ports

30 x AT-SPSX

GBIC Module

550m, 1000SX, SFP

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