MAKING A VISIONARY HEART HOSPITAL AND ITS AMBITIOUS TELEMEDICINE INITIATIVE IN INDIA, TICK

The Asia Heart Foundation is a non-profit organization, which had a mission to build four major Cardiac Hospitals spanning Asia for Specialist care. One of them is located on the outskirts of Bangalore, which is touted as one of the future healthcare hubs of Asia. Called Narayana Hrudayalaya, the hospital was built to specification for The Shankara Narayana Construction Company (SNC) by the Asia Heart Foundation, which accepted the challenge to build the world's largest heart hospital with the state-of-the-art-technology and with the know-how to perform every conceivable surgical procedure on the heart. Narayana Hrudayalaya is also a one of its kind hospital in Asia, which is networked entirely to reach information technology at very remote places with lowest cost. Most of the latest equipment that includes medical equipment has standard network connectivity and hence networking for the entire hospital was essential for optimum productivity to be realized. It became clearly evident that existing network capacities were inadequate the moment the institution started implementing the telemedicine project.

Commenting on the initial groundwork, Satish Irde, General Manager, TVSnet says, “Even before the roofing of the hospital was completed, we had all the material ready. We also with the agreement of the client kept the stock ready earlier itself as we had an inkling that the material costs might get higher shortly.

Implementation commenced in August 2000 on a turnkey basis. The entire networking was designed looking at following key issues; Connectivity and bandwidth, Future proofing, Scaleability and Criticality. Currently, the network deployed across four floors provides access to over 450 users for General Hospital Administration and Hospital Information Management. Each floor is connected to the central ground floor where the server room is located on 4 core Multimode R&M Freenet fiber cable.

All user points are connected using future proof, multi-Gigabit ready Connectivity Category 6 (250 MHz) R&M Freenet UTP cables and Enhanced Category 5 (200Mhz) ready 19" Rack mountable Global patch panels which support both copper and fiber in the same panel, information outlets, and Enhanced category 5 patch cords.

The user nodes are provided in areas starting from consulting rooms, Billing section and registration counter on the ground floor to all Operation Theatres, ICUs, Laboratories, Nuclear Cardiology, Stores and even maintenance. This cabling installation is warranted for 20 years by R&M, Switzerland against all manufacturing defects and Compliance to ISO/IEC and EIA/TIA standards.

Hardware - An 8 port Gigabit (fiber) switch is used as the backbone and all individual floor connectivity is provided through 24 port stackable and manageable switches, which in turn are connected to the central switch through Gigabit (fiber) modules. The main SERVER is connected on Gigabit to the same central switch.

Commenting on the technology used for networking the whole of Narayana Hrudayalaya, Rajendra Simha, Technical Manager - TVSnet, said, " The entire network which is CAT6 is designed to support gigabit and future multi-gigabit technology on the backbone and to the desktop. Currently, for backbone full duplex Gigabit and to the desktop full duplex 100 Mbps has been deployed." Adding," Since this was the first time that we were doing the entire project ourselves, it was a good challenge and an immensely satisfying experience from the learning and installation perspective."

The Network supports all existing software platforms. The Narayana Hrudayalaya Network is designed and implemented to run the sophisticated Hospital Information Management System (HIMS) that the institution has. The software has various modules and applications, which are run from different locations and data is collected and updated on the central server. The accounts, administration and purchase departments, which are also on the same network, run their own applications. Data is collected from the various departments on-line and is used for diagnostic and future analysis besides patient record management.

One of the unique and distinctive breakthroughs or progress made possible is telemedicine system which consists of customized medical software integrated with computer hardware, along with diagnostic instruments connected to the VSAT (Very Small Aperture Terminal) at each location.

Generally, the medical record/history of the patient is sent to the Specialist Doctors, who will in-turn study and provide diagnosis and treatment during a videoconference with the patient's end. Tele-medicine enables transmission of patient's medical records including images, besides providing live two-way audio and video link. The turnaround time is pretty good and it takes a good amount of payload, hence there is positive traffic. The current response to the system has also been very good. Spread across an area of 2-lakh sq.ft. with 480 nodes, the networking done has since received an enthusiastic response.