Network Surgery for Tauranga Hospital

CASE STUDY

CHALLENGE

"Basically we were faced with a campus upgrade, which meant replacing all the cable in a 346-bed hospital," explained Bay of Plenty District Health Board ICT Systems Manager Grant Ardern. The upgrade would need to cover the hospital's communications infrastructure requirements well into the future, accommodating new technologies as they become available. Additionally, the infrastructure needed to be reliable and high performing.

STRATEGY

The health board tested cable from a number of Category 6 cable providers before finding that ADC KRONE's Category 6 cable provided the most headroom and was therefore most suitable to their needs. They combined this with ADC KRONE's dynamically angled patch panels.

RESULTS

ADC KRONE's Category 6 cabling has provided the headroom required, along with reliability and high performance. It has also been able to serve multiple purposes, including providing television to the bed head while providing future-proofing for when patient entertainment systems are IP-based. It is also more cost effective than using different types of cable (e.g. coaxial) for different purposes.

ADC KRONE

CUSTOMER PROFILE

BAY OF PLENTY DISTRICT HEALTH BOARD TAURANGA HOSPITAL

- The Bay of Plenty District Health Board was established by the New Zealand government, funded from general taxation, and is responsible for the health and independence of a population of 200,000 on the east coast of New Zealand's North Island. It has the second fastest population growth rate of all New Zealand's district health boards.
- The health board's activities range from delivering health and disability services through its public provider arm at hospitals in Tauranga (346 beds) and Whakatane (119 beds), community health and disability services, and mental health services, through to support functions such as the clinical directorate, corporate services, and information management services, as well as planning health service development, funding and purchasing both public and non-government organisation health services for the region, and Maori health.
- The Bay of Plenty District Health Board has a staff of 2,700 full-time and part-time staff, including 1,230 nurses and nurse care assistants and 210 specialists and doctors.

Above: Simon Christian, Tauranga Hospital, Peter Kaad, ADC KRONE and Kendall Dons, ATL.

Campus refurbishment includes network

Due to the rapidly increasing size of the population it serves, Tauranga Hospital is undergoing a construction and refurbishment program estimated to cost approximately NZD$135 million. Dubbed Project LEO (Leading Edge Organisation), the project includes a major upgrade of the hospital's communications infrastructure.

"Basically we were faced with a campus upgrade, which meant replacing all the cable in a 346-bed hospital," explained Bay of Plenty District Health Board ICT Systems Manager Grant Ardern.

The health board needed to ensure that the new upgrade would cover the hospital's communications infrastructure requirements well into the future, accommodating new technologies as they become available. Additionally, given the critical nature of the information that would be carried by the new network, it was essential that the infrastructure be reliable and high performing.

Multi-purpose cable required

The district health board began working with their construction partner, Fletcher Construction, to find a cabling provider with an optimum cabling solution. It was clear from the outset that Category 6 cable would be required, as it is the cabling standard that would allow the new infrastructure to meet the hospital's network requirements both now and in the future.

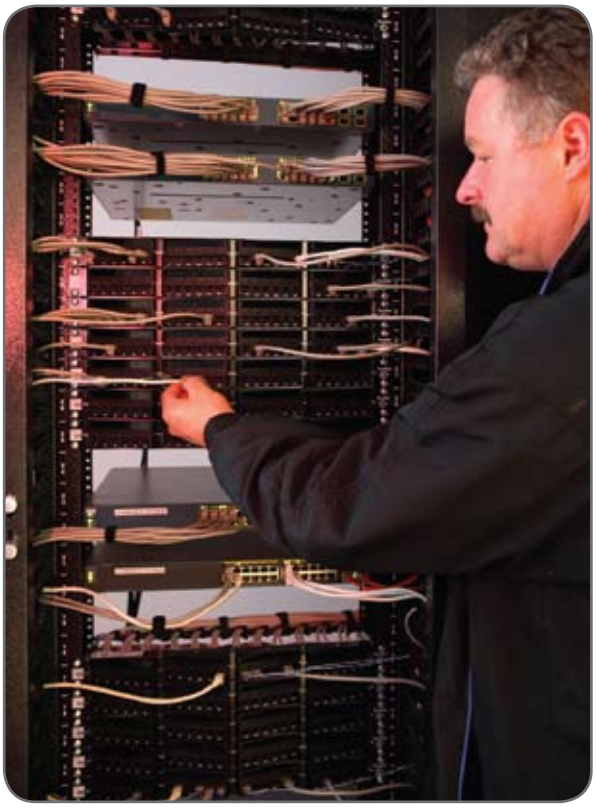
The hospital required data access within the operating theatres and at the bed heads. In the operating theatres cabling had to be installed within the Trumpf pendants so that data access could be achieved right at the operating table. The other challenge was to provide data access at the bed head along with all the other bed head services like medical gases, nurse call, lighting and power.

The Category 6 cable would need to service the entire field wiring, including cabling to PCs and IP telephones, as well as running between closets

where Category 3 voice ties would normally run. Grant and his team also wanted to provide things like closed circuit television (CCTV) and master antenna television (MATV) using the same cable.

During the tender process Fletcher Construction initiated an onsite test of Category 6 cables from several providers. Each cable was installed by their certified installers along the same designated 90-metre route and all were subjected to the latest rigorous testing standards.

"We wanted the cable to be as multi-purpose as possible to avoid having to install lots of different cable for lots of different purposes," Grant said. "Therefore we needed to find the Category 6 cable that would have the most db headroom above the Category 6 specification once installed. We initially selected another vendor's bonded pair Category 6 cable, but Fletcher Construction suggested we test ADC KRONE's Category 6 cable, so we did. The ADC KRONE cable gave us even more headroom above the specification than the other vendor, which had managed to beat everything else so far."



Above: Kendall Dons, ATC, examines the new solution.

ATL Chosen as Installers

Advanced Telecommunications Limited (ATL), an ADC KRONE TrueNet-certified integrator based in Tauranga, had contacted Fletcher Construction to offer their services. Working closely with ADC KRONE, they developed a tender submission that would include more than 2,200 ADC KRONE Category 6 outlets plus ADC KRONE dynamic angled 24-port Category 6 patch panels, TrueNet Category 6 copper cable, ADC KRONE 12-core multimode and singlemode fibre cable. The dynamic angled patch panels are very flexible, allowing the user to dynamically angle the ports either right or left.

Kendall Dons, director of ATL, explained further: "The fibre cables would link the communications rooms that are located on each of the hospital's four floors, and Podium plant room, with the existing PABX and server room. Redundant copper and fibre cables were also required to link each location with the Podium plant room, to allow for backup failure. We also needed to provide angled patch panels and new data racks. For these we worked with ModemPak, a NZ cabinet-making company."

Complications are overcome

Installation was complicated slightly by the Theatre Pendant system and bed heads, as the pathways were very tight spaces with numerous bends. This was potentially an issue, as cable performance can be compromised if it is bent too sharply. ATL installed and tested the first few cables to make sure they would still achieve true Category 6 performance.

Because this was the largest installation of its type in the Bay of Plenty area, ATL worked closely with Fletcher Construction to ensure that the project was on schedule and that any construction interface issues were being actioned early in the process.

"We also relied on ADC KRONE for advice and to inspect any work and testing to make sure we were maintaining a high quality installation, and to ensure that it would meet the ADC KRONE certification requirements," said Kendall Dons. "This was particularly important for

some pathways, as they were going to be closed in, which would mean that future access would be very difficult if not impossible. It needed to be done right the first time."

Timing

ATL began the installation in November 2006. The hospital's North Wing and Podium data cabling was completed in phases from May 2007 through to September 2007, the Medical Assessment and Planning Unit and West Wing refurbishment began in April 2007 and finished in May 2008, while Emergency extensions was commenced in December 2007 and will be completed in August 2008.

"By the time this part of the project has been completed, more than 3,500 ADC KRONE Category 6 outlets and associated cable and panels will have been installed on the hospital campus, plus approximately 200km of copper cable and 10km of fibre optic cable," Kendall said.

Cable is multi-purpose and cost effective

Although the installation is not completely finished yet, Grant Ardern and the team can see that the solution is performing well. ADC KRONE's Category 6 cabling has provided the headroom required, along with reliability and high performance. It has also been able to serve multiple purposes, as Grant explained:

"We've managed to patch TVs up to 90 metres on ADC KRONE Category 6 cable with balun leads, getting a similar result to what we would have expected from coaxial cable. Standardising on a single product for the cabling infrastructure has given us cost savings. Category 6 cable is more cost effective than coax, so we've managed to get TV signals to the bed head without having to run all the coax. And we've retained a certain level of future-proofing for when patient entertainment systems are IP-based," he said.

24-port Dynamic Angle Patch Panels direct the patch cords toward cable management on the sides of the rack.

CASE STUDY

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