

High expectations...

Airports are more than places where planes take off and land. They have increasingly become ambassadors of nations and their peoples, welcoming travellers through vibrant architecture, comfortable interiors, and efficient, well-planned operations that subtly convey heartfelt greetings. And lately, they've become a testament to a country's technological prowess. Two of Asia's newest and largest air terminals illustrate this aspect, with Nexans Cabling Solutions playing a crucial role in meeting each one's high expectations.



AN 'INTELLIGENT BUILDING'

Showcasing the region's latest airport technology, the new Terminal 2 at Korea's Incheon International Airport (IIA) outside Seoul is considered an intelligent building in that much of its operation, from lighting, heating, cooling, security, customs as well as communications is computer controlled for greater speed and efficiency.

IIA has recently been recognised as the 'Best in Service in Class' by the International Air Transport Association (IATA), and ranked 'Best Airport Worldwide' by the Airport Council International (ACI). IIA holds several other awards and accolades that are equally impressive.

Terminal 2 is specifically designed to handle huge passenger volumes, particularly those associated with the new Airbus A380 double-decked jumbo jet that in some configurations can seat 900 passengers.

The terminal opened in June this year in time to be a key gateway for the Summer Olympic Games, a short hop away in Beijing. All communications infrastructure including local area network (LAN) backbones focus heavily on fibre optic cabling to support massive voice, video and data interactions throughout the building.

For example, extensive security functions include fixed line and wireless Internet protocol

(IP) telephony and video cameras. The network also supports all multi-media display systems detailing flight arrival, departure and tracking information, baggage, customs directives and other functions.

WINNING CONSORTIUM SECURES CONTRACT

Prior to groundbreaking, the airport's managing organisation issued a request for proposal (RFP) to regional telecommunications and cabling firms to supply the network infrastructure for all Terminal 2 communications. Of the three companies responding, the review committee selected a consortium of the regional telecommunications provider, installation specialist Daesun E&C Co., Ltd., and Nexans.

Nexans in particular was cited for its wide experience in designing both highly sophisticated and basic communications solutions in airports, as well as the reliability of the Nexans brand and its overall experience with integrated communications systems. Other key criteria were the finished network's ability to be easily upgraded as technology and needs evolve, and in particular, the high-quality, plenum jacketed copper cabling that's now standard in the U.S. and meets Korea's stringent safety criteria for fire resistance. This unique solution was crafted and delivered by BerkTek, Nexans' daughter company based in America.

A critical component in winning the tender was the performance attributes and technology behind Nexans Cabling Solutions' LANsense intelligent network management software.

The LANsense system gives IIA managers the ability to oversee the complete Terminal 2 network, automatically mapping, locating, reporting and alerting authorities to any network event, such as a device connection/disconnection, or similar change anywhere within the infrastructure. Through real-time connectivity, LANsense discovers what devices are connected where, and raises alerts on unauthorised activity.

It also manages and maintains a database of moves, additions and changes (MACs), even preparing work orders for such requests. The security implications of this component are enormous, because intelligent monitoring through LANsense reduces the possibility of breaches and tampering going unnoticed until it's too late.

NUMBERS CONVEY AN ENORMOUS EFFORT

Finally, the numbers associated with the completed Terminal 2 project are impressive:

- Installation of LANmark fibre optic cabling with LANsense intelligent network management software – 22,100 nodes.
- Standard fibre optic – 8,700 nodes installed.

- LANmark Category 6 copper cabling with LANsense intelligent network management software – 22,000 nodes.
- Standard Category 6 cabling – 1,250 nodes.

In all, more than 351 kilometres of cabling support the entire infrastructure with exceptional room for growth. And significant growth is expected. For example, IIA envisions:

- A nearly two-fold increase in flight services annually, from the current 240,000 to 410,000.
- Increased freight handling, from an annual tonnage of 2,700,000 to 4,500,000.
- Increased passenger traffic, from today's 30,000,000 to 44,000,000

KEY AIRPORT GROWS IN SINGAPORE

Singapore Changi Airport's new Terminal 3 opened on January 9th 2008. It today helps the airport handle 70 million passengers per year whilst maintaining the facility's strong reputation for service excellence.

When the airport's managing organisation, the Civil Aviation Authority of Singapore (CAAS), wanted the latest network infrastructure for its new terminal, Nexans LANmark-6 and LANsense solutions were proposed and selected for a complete, enterprise-wide installation.

Nexans and two of Asia's newest and largest air terminals

Challenges

- Multiple network applications requiring state-of-art solutions
- Critical terminal functions heavily rely on dependable, fast communications
- Must meet rigid government specifications
- Ability to coordinate multiple design and installation projects at same time

Solutions

- Numerous Nexans products including copper, fibre, backbones, panels, networking:
 - » LANmark-6 copper solutions
 - » LANmark-OF fibre solutions
 - » LANsense intelligent infrastructure management

Benefits

- Dependable, fast communications infrastructure at key locations
- Improved efficiency and security through continuous network monitoring
- Alerts generated on network events for real time corrective action and security
- Automated change management
- Keeps terminals running smoothly – departures, arrivals, baggage, customs, security, flight information, even hotel accommodations
- Future-ready with extra bandwidth to move data quickly



► Their choice led to other unique opportunities for Nexans.

FUTURE-READY POLICY

The CAAS has long had a policy of building years ahead to avoid congestion common at most key airports in the world. This emphasis led its information technology (IT) professionals to embrace an Internet Protocol (IP) platform for the new terminal. As part of implementing a communications infrastructure



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ANDY CHIN,
ENGINEER, SPECIALIZED AIRPORT SYSTEMS, CAAS



for the 21st Century, the CAAS issued a public RFP to regional telecommunications networking and cabling firms.

Nexans’ Certified Systems Partner, Commercial Industrial Supplies & Services (CISS) Pte Ltd., won the CAAS tender in 2005 to provide an enterprise-wide cabling and support-equipment infrastructure for Terminal 3.

Involving no less than 5000 nodes of LANmark-6 cabling systems, Nexans LANsense solutions and structural hardware were integrated in response to CAAS’s stringent specifications to accommodate Intelligent Cabling Management Systems. More than 250km of 25-Pairs Category 5E (Cat.5E) cabling were installed, forming the backbone highway to support the enormous amount of voice communications in this terminal.

Like at the new Korean terminal, all copper and fibre optic cables supplied by this contract were jacketed with low-smoke, halogen-free, flame-retardant (LSHF-FR) sheaths to address public health and safety concerns. Other technical components of the solution include Nexans’ ability to offer a comprehensive suite of intelligent-ready patch panels, high-performance Cat.6 cables and components, and multi-pair Cat.5E voice trunk cables.

Once the enterprise-wide cabling infrastructure solutions from Nexans were selected by the CAAS, various other Terminal 3 cabling projects put to tender by commercial and government organisations were awarded to Nexans and its business partners. These include:

- **Immigration Checkpoint Authority (ICA)** – Complete Nexans solutions were selected that included shielded Cat.6 FTP cabling systems. Nexans’ Certified Systems Partner, Pericomp Solutions, undertook the installation that involved massive LANmark-6 horizontal cabling and LANmark-OF-sm UC LSZH fibre optic cabling networks.

- **Singapore Airlines (SIA)** – The tender for SIA’s Terminal 3 network was awarded to SingTel (Singapore Telecommunications Limited).

Did You Know?

- A five storey wall of tropical foliage with four waterfalls soothes travellers at Changi Airport’s Terminal 3.
- The main passenger terminal at Incheon International Airport is the largest in area in Korea, and the world’s fourth largest passenger terminal.
- The upper deck of the Airbus A380 runs the entire length of the fuselage, allowing for a cabin with 50% more floor space than the next largest airliner, the Boeing 747-400.
- Nexans’ products are extensively used in the Airbus A380, and in more unusual capacities like powering airport runway lights, radar and weather beacons, and managing control tower electricity use.

Designed by Nexans’ key distribution business partner, NCS Communications Engineering, the structured cabling networks for SIA involve close to 100km of LANmark-OF UC LSZH fibre optic cabling (4 to 24 cores), complete with LANmark-OF zone fibre solutions.

Other airport installations won by Nexans’ partners include critical locations like all baggage handling and flight information displays within the new terminal. Infrastructure for a nearby terminal for the growing budget airline market was also awarded to Nexans, as well as an adjacent, 350-room Crowne Plaza Hotel and meeting complex.

A STRONG COMMUNICATIONS NETWORK

“Terminal 3 adheres to our planning policy of adding capacity in time to avoid congestion,” says Mr. KOH Ming Sue, Deputy Director, Engineering & Real Estate Development, CAAS. “From an IT standpoint, this means selecting an optimal infrastructure that not only meets today’s needs, but eliminates future communication bottlenecks so that Changi Airport can remain competitive.”

Mr. Andy Chin, Engineer, Specialized Airport Systems, CAAS, adds: “In all, this region’s newest air terminal has a very strong, flexible and future-ready communications infrastructure put in place by Nexans and the various contractor.” •