

DUBAI INTERNATIONAL AIRPORT

About Dubai International Airport

- Dubai is the second largest emirate of the United Arab Emirates, located on the Arabian Peninsula. A land with a population of 737 000 on the shores of the Persian Gulf, oil has been crucial to its economic development. However, the non-petroleum commercial sector now makes up almost 80 percent of Dubai's total gross domestic product, a number which continues to grow.
- Dubai's strong entrepreneurial tradition earned it a reputation as the "Commercial Mecca" of the Middle East, a distinction that captured the attention of foreign companies looking for opportunities in the region. So, from a small, obscure, oil-dependent emirate, Dubai has become the business hub of the region and a gateway between East and West. To develop further, it needed to accommodate the business needs of the 21st century. It needed a bigger airport.
- Dubai had been serviced by a relatively small airport. In 1997, ticket agents working behind just 32 check-in counters were having trouble processing the nearly 9 million passengers who passed through the terminals that year. Buses were used to shuttle passengers between departure lounges and aircraft. A government study projected passenger traffic to grow to nearly 12 million by the next year. Dubai needed increased airport capacity, it needed to improve customer service, and it needed to maintain a high level of airport security - and it needed all of this as fast as possible.
- Plans were made to refurbish the airport, expand the existing terminal and add a second terminal. Key to the project was new airport infrastructure: a control tower, a huge concourse, a main fire station, a fuel depot, a police helicopter facility and a VIP pavilion.

- To efficiently process the projected increase in passenger flow, plans also called for 221 additional check-in counters and a nine-kilometre-long automated baggage handling system. Buses were retired in favor of 27 gates that would allow simultaneous boarding of 56 aircraft directly from climate-controlled passenger lounges.

- Knowing it is easy to be wise after the fact, an essential part of Dubai's decision-making process was to select proven industry leaders capable of delivering high performance, world-class products.

- The ambitious US\$540 million dollar project presented NORDX/CDT with an excellent opportunity to demonstrate its superior network products and showcase its "best of breed" network cabling solution. With expert help from Alpha Data - a Certified System Vendor, NORDX/CDT IBDN systems installer and NORDX/CDT business partner - the Dubai Airport expansion project was poised to take flight.



IBDN *Success Stories*

The Network Challenge

• The NORDX/CDT and Alpha Data teams had a formidable task ahead: clearly understand the overall needs of this futuristic airport complex, then design a network that would meet the specific needs of each communications element in the system. To complicate matters, ensuring the greatest operating efficiency of the airport's diverse services - baggage handling, flight information, security, medical, general administration - required a unified system. Without constant, reliable communications between the various services, a successful, safe operation would not be realized.

•The design team determined the base network infrastructure of the airport required a cabling system that would support 1.2 Gb/s to the desktop, and a horizontal cable that would exceed standards requirements. •

The Design Objective

• Dubai's new airport needed a cabling system that would not only meet current application needs but also have the expansion capability to support future applications. The design team determined the base network infrastructure of the airport required a cabling system that would support 1.2 Gb/s to the desktop, and a horizontal cable that would exceed standards requirements. They also had to address separate installation approaches for the interior and exterior cabling requirements. Each needed a different solution.

• Other vital system requirements included a backbone cable with the flexibility to adapt to future growth and a network suited to an open environment. Coupled with these demands was a need for path and cable redundancy. Also, given the lifecycle and overall cost of the project, the Dubai airport authority specified a cabling system that would support applications for a lifetime and warrant product integrity for a minimum of 25 years.



IBDN *Success Stories*

Installation

- NORDX/CDT provided the perfect end-to-end solution for this project with the IBDN 1200 system. It would give Dubai's airport a network capable of producing a bandwidth far beyond that of traditional cabling systems. Furthermore, using NORDX/CDT IBDN certified components ensured a reliable, flexible network that facilitated the installation process and allowed Alpha Data to easily meet the installation schedule.

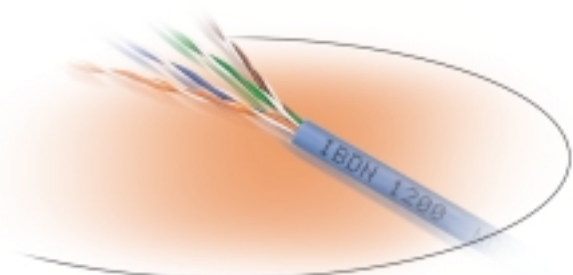
- To meet all of the objectives, the NORDX/CDT team also used a composite cable of 12 multi-mode and 4 single-mode fibers that ran through from the Main Equipment Room (MER) and Intermediate Equipment Room (IER) to each telecommunications room. The path redundancy was achieved by inter-linking neighboring cross-connects in the telecommunications rooms. Merging 102 telecommunications rooms and horizontal cross-connects required over 1 million metres of fiber and over 4000 terminations and links.

- The original airport building needed updated communications rooms. This building's network called for high-density low space terminal blocks for voice and data, and it needed to be modular to facilitate moves, adds and changes.

- NORDX/CDT provided just the right fit with MDVO Patch Panels capable of handling data up to 1.2 gigabits with BIX high-density connectors for voice. In addition to the fiber system which could be flexible and capable of supporting both single-mode and multi-mode connectors NORDX/CDT provided just the right fit with MDVO Patch Panels. Using a mix of FiberExpress Patch Panels and Optimax Connectors eliminated the need for epoxy and oven curing on the field terminated connectors.

- The design structure for interconnecting the buildings was complex. The structured cabling system had to be able to adapt to future application needs and have the flexibility to link new buildings as they came on-line. Meanwhile, the existing airport links had to remain undisturbed. The first step was to link 27 buildings and to pre-install the fiber that would be used for future connections.

- The cabling system was designed to pass through 120 kilometers of ducts and 243 manholes. To provide a secure environment for the cabling structure, extreme temperature variations and day-to-day airport operations had to be given careful consideration. Two runs of 72 composite cable, which included 60 single-mode and 12 multi-mode fibers, were placed around the perimeter of the airport. These cables were installed in special protective enclosures developed by Corning Inc.



IBDN *Success Stories*

Installation

• From these enclosures, two cables, one 12-fiber multi-mode and the other 12-fiber single-mode with a LSOH (Low Smoke Zero Halogen) sheath, were carried to the IER's of the buildings. All were sealed with a high temperature, water-resistant gel to prevent water ingress and minimize the effect of temperature on the glass fiber.

• To provide efficient and defect-free future additions to the network, the cable was made with a special HDPE (High-Density Polyethylene) sheath with a Kevlar binder. This ensured that the external sheath could be opened later without damaging the internal structure.

• The total bill of materials for NORDX/CDT components used in this project includes 102 cross-connects, 6 million meters of IBDN 1200 copper cable for horizontal cabling, 44,000 UTP terminations, 4 million meters of optical fiber and 8000 fiber terminations.

• This will ensure that the network will be properly maintained and will continue to perform at optimum capacity. •



Future Network Communications

Outlook for the Dubai Airport

• Our unique and extensively customized network solution has provided a wide range of benefits to the Dubai Airport complex. It can now enjoy the operational and performance enhancements provided by a state-of-the-art cabling system.

• The transmission capabilities of this new network are impressive. The system exceeds Category 5e requirements per ANSI/TIA/EIA-568-A-5. This ensures that it will be able to evolve and adapt to the ever-changing needs of this modern airport complex.

• An integral part of this project was providing complete on-site technical training for the engineering and maintenance staff of Dubai's Department of Civil Aviation. This will ensure that the network will be properly maintained and will continue to perform at optimum capacity.

• The system has our standard 25-year IBDN product warranty and lifetime application performance assurance. The Airport administration is secure in the knowledge that their new end-to-end structured cabling system will perform to their exacting requirements now and in future.

• Moreover, the network structure is highly adaptable to change. As airport additions are made and new buildings are added, the system allows for backward compatibility. In short, the network provides sufficient headroom to be scalable for years to come.

IBDN *Success Stories*



Conclusion

• Dubai now has an airport complex capable of keeping pace with the emirate's rapidly growing environment. The Dubai Department of Civil Aviation is justly proud of having created one of the world's top 20 airports; NORDX/CDT and Alpha Data are proud to have been selected as key participants in this exciting mega-project.

Organization

Dubai Department of Civil Aviation

Location

United Arab Emirates

Vertical Market

Transportation Industry

Number of Sites/Buildings

Airport and surrounding buildings

Cabling System

IBDN 1200 Structured Cabling System

For more information about NORDX/CDT Structured Cabling Systems visit us on the web at www.nordx.com or contact the NORDX/CDT office in your area.