COMMSCOPE®

Intelligent "Network" of Daxing International Airport

Client

Beijing Daxing
International Airport

Country/Region

China

According to the public data from Civil Aviation Administration of China, Beijing Daxing International Airport has maintained a good overall operation since it was officially put into operation on September 25, 2019. Facilities and equipment have operated as expected, and flight departures and arrivals have maintained high levels. As the most modern, automated and intelligent airport in China, the vast majority of passengers enjoy convenient customs clearance services that have no need for queuing, baggage handling, security check or waiting. The basis of a these exceptional travel experiences is the stable and smooth communication network.

For flight safety and great traveler experiences

Beijing Daxing International Airport is a huge, comprehensive international transportation hub, with a total investment of 79.98 billion yuan and seven runways planned to meet the demands of 100 million passengers annually. The first-stage project is designed according to the target of

handling 72 million passengers, two million tons of cargo and mail, and 620,000 aircraft takeoffs and landings by 2025. Four runways and 700,000 square meters of terminal buildings will be built for the project, as well as connected facilities such as freight transportation, air traffic control, aviation fuel storage, municipal facilities and ground transportation hub connections. Such a huge scale and vast number of passengers have posed an unprecedented challenge to the construction of the airport's communication network.

The role and expectation of the network

The deployment of a communication network is of great importance for airport

operations. The network must support airport business and key operating systems, which provide timely data to support critical decision-making. In recent years, with the rapid growth of the number of network applications in the aviation industry, demand now far exceeds traditional data and voice services to include these new systems. Therefore, the structured cabling used in the network has become a key component in the airport's architectural design.

The design and deployment of integrated cabling system at the airport must be able to meet these many challenges:

- Long-distance cabling (e.g., course lighting, airside concourse communication)

- Mission-critical systems (e.g., radar, air traffic control)

- Hazardous environments (e.g., aviation fuel)

- High-bandwidth requirements (e.g., digital signage, streaming video, multi-user wireless applications)

- Tenants changing frequently (e.g., retail businesses moving in, out and changing locations)

Intelligence and efficiency improve traveler experiences

From the perspective of application experience, today's airports are becoming more and more intelligent. Passengers have gradually become accustomed to self-check-in, electronic boarding, intelligent course lighting, biometric security/entry checks and more. From booking their tickets to boarding and taking off, and from retail stores to luggage transfer, all these experience-driving systems rely on advanced and reliable network technology, particularly on the quality and performance of the network cabling.

For flight safety and the good passenger experiences, the airport network infrastructure must also be safe and stable. Beijing Daxing International Airport, must manage the integrated cabling system—the nerves system of the information network—with extreme precision to ensure passengers can move easily through the airport, even with the unique network challenges as the large number of distributed information points and the complex intelligent systems they support.

Prioritizing the links between terminal building and data center

As a global leader in communication network infrastructure solutions, CommScope solutions were chosen for the deployment of the network cabling system at Beijing Daxing International Airport. The project encompassed the new airport terminal building and field communication optical cabling, as well as the Information Technology Center (ITC) of the new airport.

CommScope solutions employed in the deployment included indoor Cat 6 and Cat 6A (supporting wireless access points and video surveillance) unshielded copper cable; LazrSPEED 550 OM4 Bend-Insensitive multimode fiber; and TeraSPEED® OS2 singlemode Zero Water Peak indoor/outdoor common and outdoor dry armored cable solution.

Both indoor copper cable and optical cable use low-smoke, halogen-free flame-retardant designs that meet of IEC61034-2, IEC60754-2 and IEC60332-3 requirements.

The complex environment of airport application has an extraordinarily strict requirement for the technology. Since airport tenants are constantly changing locations, the distances between the data center infrastructure and cable termination points may be very long, requiring long-distance cabling. In addition, hazardous liquids (such as aviation fuel) are a clear challenge for traditional PVC-sheathed cable and may pose fire risks. For these and other reasons, experience with airport environment is extremely valuable in a solutions partner.

CommScope has developed solutions specifically for the airport's network cabling challenges, such as SYSTIMAX® Airport Dedicated indoor/outdoor universal cable, which can ensure secure, optimized connectivity; the GigaSPEED® X10D Cat 6A unshielded copper cable system for high-grade PoE equipment; and the TeraSPEED OS2 singlemode fiber system which far exceeds international standards including TIA, ISO and CENELEC specifications.

Secondly, the ITC data center of the new airport employed CommScope solutions, including LazrSPEED 550 multimode OM4 ultra-low loss preterminated cable; the FiberGuide® optical raceway solution, OFNP high-flame-retardant copper cable; Cat 6A 10G copper cable jumpers; and CommScope's ultra-high density fiber distribution frame solution.

In the design of ITC data center, the complexity in the connection of each core application network in the airport is a key challenge. To ensure the safe operation of the airport, it is important to consider how ITC data center can flexibly and securely realize high-speed network transmission. Therefore, it is necessary to plan the physical layer network architecture with a keen eye to the reliability of multi-connection preterminated

fiber systems, high flame retardant communication systems, high density fiber distribution systems, and optical raceway systems for fiber routing, management and protection.

CommScope technology and expertise combine to produce a reliable, proven solution

CommScope solutions are developed and produced to meet industry-wide high-quality standards for our optical cable, copper cable, intelligent management, wireless access, optical raceway and other comprehensive cabling system solutions, and independent research consistently demonstrates this level of solutions quality.

CommScope's end-to-end solutions include everything required for high-performance wired and wireless networks. In order to meet the current demand for physical layer network connectivity, CommScope's comprehensive approach focuses on the construction needs of future network infrastructure, including the physical layer construction of big data network, to smooth migration to 40G/100G or even 200G/400G high-speed transmission network, intelligent management of physical layer networks, and other emerging standards and technologies.

At Beijing Daxing International Airport, the implementation of the entire network cabling system was the responsibility of a certified CommScope PartnerPRO network provider. In addition to exceptional familiarity and training in CommScope solutions, the partner also had rich experience working in the airport industry.

According to the characteristics of the network application requirements of Beijing Daxing International Airport and CommScope's products, a more optimized in-depth design has fully met the complex application requirements of the airport.

Double guarantee of product and industry experience

CommScope has a number of application cases in the airport industry and large and huge data centers and has accumulated rich project implementation experience. In addition, the diversity and integrity of CommScope products and solutions are also important guarantees for the stability and reliability of the network.

CommScope (NASDAQ: COMM) helps design, build and manage wired and wireless networks around the world. As a communications infrastructure leader, we shape the always-on networks of tomorrow. For more than 40 years, our global team of greater than 20,000 employees, innovators and technologists has empowered customers in all regions of the world to anticipate what's next and push the boundaries of what's possible. Discover more at commscope.com.