

Smart Building Smart Cabling

Customer:

Tencent

Country/Region:

China

Located in the Shenzhen Nanshan Science and Technology Park is a building known as the city's landmark for new science and technology—the Tencent Binhai Building (TBB). The building covers an area of 18,650 square meters and a floor area of about 350,000 square meters, with a total investment of more than RMB 1.8 billion. The building serves not only as Tencent's global headquarters, but also as its R&D base for animated games and mobile internet.

With its unique appearance, the TBB is a 248-meter 50-story tower in the south, a 194-meter 41-story tower in the north, and three "links" that offer indoor shared amenities between the two towers. The building symbolizes the connection between every distant corner of the internet, as well as the more efficient links between Tencent's employees. The building's ingenious structure corresponds to Tencent's vision of becoming a connector, as proposed by the CEO of Tencent, Ma Huateng.



But here's the problem. How can the network and cabling of this gigantic, complicated, and unique building be worked on, so as to fully present "Tencent's vision of becoming a connector" under the premise of fulfilling functions?

Focus on the present while looking toward the future

If the building's network and cabling are the only things that need to be completed, this is a relatively easy task; nevertheless, it becomes an unprecedented challenge to work on them while showing the "connector"

concept of the design. Reaching these two goals relies on the concerted efforts of the architectural design unit and the network cabling provider.

The "connector" concept, if applied to a real-life modern smart building, is an extension of the internet of things (IoT). All digital devices (including wired and wireless ones) can connect to each other in the TBB. In this project, planning and designing the network connectivity of these digital devices while actively considering the development of the connectivity technology and the growth of bandwidth are the main difficulties that must be overcome.

The perfect manifestation of the “connector” concept

CommScope has become the TBB’s network cabling provider because of its previous servicing of the Tencent Building and the company’s other office buildings—which were given safe, reliable, high-speed, and stable network connectivity.

CommScope worked on network cabling bit by bit from the ground up, developing it together with the design company, which had been unsure of any specific needs in this regard. At the beginning of the building’s construction, CommScope took the TBB’s designers to visit many large complexes to use as examples of CommScope’s practices. CommScope introduced every building in detail—in terms of the cabling plan and design, functions and features, and specific installation practices—and also shared the latest developments of networks and cabling, gave live demonstrations, and so on. Such rich examples provided the designers with a wide array of imaginative ideas and sufficient information. In the end, the designers and CommScope completed the design of the network cabling to achieve digitalization and intellectualization and perfectly present the “connector” concept.

As a leader in the network cabling industry, CommScope understands and plays a key role in the future direction of network connectivity. CommScope can not only meet the customers’ current digital devices’ connectivity needs, but can also make plans for seamless upgrades and expansions in the future. CommScope has complete smart building infrastructure solutions and creates flexible, scalable, and advanced infrastructures by providing the wireless or wired network connectivity needed in closed-circuit television, IP video surveillance, alarms and sensors, access control, HVAC, communications, energy, fires safety, elevators, lighting, and subsystems such as 24×7 monitoring.

For example, in this project, digital devices requiring power must use PoE wired connectivity instead of wireless connectivity, while heat and higher levels of fire-retardant standards must be considered for twisted-pair cables that transmit PoE. In addition, according to TIA162-A and ISO24704 standards, the wireless connectivity coverage is within a radius of 12 to 18 meters. UCG best practices enable the simple and direct movement, addition, or modification of connection points without much material or labor cost in order to minimize the disruption of production.

Fire safety is undoubtedly important for the skyscrapers. Therefore, CommScope’s supercharged and high-flame-retardant OFNP OS2 singlemode fiber-optic cables can achieve the highest fire-retardant rating in the building shaft, and meet a high-speed network transmission bandwidth of 10G/40G/100G. The OFNP high-flame-retardant sheath exceeds the GB31247’s B1 standard and satisfies the latest fire-retardant requirements for skyscrapers.

A green and environmentally-friendly philosophy has been implemented throughout the TBB’s entire construction process, earning it LEED Gold certification. The building’s cables provided by CommScope feature low-smoke and halogen-free sheaths, and all products used are RoHS compliant. As CommScope’s sheath shows high-level flame-retardant performance, the PoE twisted-pair cables remain safe and fire- and flame-resistant even when heated. CommScope has implemented the green and environmentally-friendly philosophy in the selection of cabling materials.

As an interconnected and smart building, the TBB requires stable, reliable, and safe network cabling as support for the smart elevators that can be called out via cell phones, the face recognition security system, the personnel precise positioning system, the QQ smart car location and navigation system, the holographic projection guide, and ubiquitous network connectivity. CommScope’s network cabling solution includes 2.54-million-meter-long category 6 copper cables, 80,000-meter-long ZWP singlemode fiber-optic cables, and 35,000 information outlets. The high-density information outlets are able to fulfill the abundant demand of wired and wireless connectivity for all digital devices in the building while maintaining high performance and high bandwidth.



Wired cabling meets high density requirements

The TBB's integration with the most advanced IoT and AI technology requires a lot from the network cabling. CommScope's successful implementation of a network cabling system in the TBB has made a good start and set an example in the fields of IoT and AI.

As this case shows, the arrival of fiber and copper cables, wireless networks, and wireless communications has not reduced the demand for wired cabling networks, but, instead, has greatly facilitated the laying of wired network information points. PoE, UCG, smart lighting, indoor wireless coverage, and the like must rely on high-quality wired networks to support an ultra-high density of nearly 400 wired network information outlets per floor in the TBB.

The smart TBB needs a smart network cabling solution as well as a smart provider like CommScope in order to meet current and future application needs with practical and forward-looking solutions based on actual customer demands. With the emergence of modern smart buildings like the TBB, comprehensive cabling services will continue to flourish and keep pace with the times—going as far as it persists.

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