

Telecom Equipment Provider Speeds 5G Prep with Integrated Enclosure Solution



A Vertiv Case Study



Background

The rate at which the next generation of wireless technology is permeating the cellular communication networks is accelerating. 5G communications promise to be between 10 to 100 times faster than current 4G LTE technology. That's fast enough to download a two-hour movie in less than 10 seconds. In addition to faster data speeds, dramatic reductions in latency for data transfer-intensive applications are now possible. These capabilities will serve as building blocks for important societal trends like autonomous driving, connected smart cities, and remote healthcare.

One large global telecommunications (telecom) giant that offers a complete range of mobile, landline, and IP/optical fiber networks, is rapidly expanding its business in the services and enterprise areas. The company is finding itself at the center of the 5G revolution and is currently engaged in phase one of its network technology upgrade rollout.

Experienced partner ensures project efficiency and success

The company's long-term plan is to upgrade and equip tens of thousands of networked base stations with the transmission and electronic hardware and communications software needed to handle wide-bandwidth 5G traffic. With many millions of dollars of investment at stake, the telecom equipment provider has to be very selective in the partners it chooses to help make the rollout both quick and efficient.

Needing to update its network quickly with highly reliable power and cooling infrastructure that could scale to handle the data-intensive applications associated with 5G, this original equipment manufacturer (OEM) relied on Vertiv's solutions and support which ensured project deadlines and performance goals were met.

Upgrading a telecommunication network in preparation for 5G is part of this OEM's long-term plan, yet the company has been able to remove project complexity and deploy equipment enclosures with speed by relying on an experienced technology partner that tailored its solutions to the telecom equipment provider's exact needs.

Challenge

Low latency and high uptime emerge as key goals

In developing its technical requirements for the global network of access base stations, the telecom equipment provider chose to keep the specifications general, hoping that the technology suppliers interested in bidding could add value and know-how beyond providing standard hardware and software solutions. The telecom equipment provider was looking for guidance that would establish a solid framework capable of guaranteeing high resilience and predictable performance of the 5G network.

The company was challenged with both swapping out older networks and installing the new 5G network quickly and cost effectively. An important goal was to limit the number of interventions needed on site because of the remote nature of most of the base stations. In order to limit the number of people required on site and the time spent at these locations, the telecom equipment provider opted to work with partners in designing an all-encompassing, enclosure-based solution.

The solution needed to accomplish two critical performance goals: high uptime and low latency. Since reliability was such a high priority, the accompanying power systems and batteries had to be highly available and be protected in such a way that the risk of overheated components would be low.

Key communications technology and power, cooling, and physical security infrastructure were to be integrated as base units, pre-installed in the factory, and ready to operate once delivered to the field. On the physical infrastructure side, the telecom equipment provider wanted a supplier that could integrate a subrack with the communications equipment of its main enclosure. They wanted a complete end-to-end solution from core to edge to access.

Solutions

Trust and reliability highlight Vertiv's value

Early in the solution design process, the company decided to involve Vertiv as the key power and cooling technology partner, resulting in a number of advantages.

High-trust, low-risk option

Over the past five years, the telecom equipment provider had developed a close relationship with Vertiv, deploying joint projects across a wide variety of global geographies. Vertiv brought both power and cooling product knowledge, as well as telecommunication network expertise. As a result, Vertiv was in a strong position to help the telecom equipment provider define the overall requirements for the enclosure, and to ensure its design included the appropriate power and climate control solution in a secure form factor.

Speed of deployment

In order to meet aggressive technology rollout deadlines, the telecom equipment provider felt that Vertiv was capable of delivering a quickly-deployable, fully-bundled solution that would be operational upon delivery.

Vertiv was able to pre-configure the enclosure solution in its global factories and ship directly to the sites in order to meet required project deployment dates.

Global presence and local maintenance support

Mirroring the geographical rollout needs of the telecom equipment provider, Vertiv offered a global support network. Global manufacturing capabilities of key Vertiv™ components and enclosure-based cooling systems gave the company assurance that products would be available when needed.

Local technical support in every region close to the telecom equipment provider's customers also helped to raise the company's level of confidence.

State-of-the-art technology

With a well-established reputation for developing and delivering high quality, field-tested products, Vertiv emerged as the vendor with the greatest value when comparing cost and performance.

Since the telecom equipment provider's communications equipment supported -48 volt DC operation, the total solution required transformation of the incoming energy from 230 volt AC to -48 volt DC.

State-of-the-art rectifiers and the Vertiv™ NetSure™ power systems supplied the company with the equipment they needed to ensure safe and reliable operation.

Scalability and flexibility of solutions

Depending on the needed capacities of the base station, Vertiv developed four different enclosure models which could easily be configured based on the telecom equipment provider's customer requests.

The number of rectifiers, battery types (valve-regulated lead-acid or lithium-ion) and circuit breakers, for example, could also be adjusted based on power supply requirements.



Vertiv™ NetSure™ 7100 outdoor system

Results

Collaborating to help shape the future

To date, several hundred of the enclosure systems have been rolled out across parts of Europe, South America and Africa. As the telecom equipment provider's 5G network continues to expand across the globe, Vertiv is being asked to support more and more sites using a modular approach.

Technology deployments will evolve from the larger macro sites to the smaller micro sites in the more remote areas, and corresponding solutions will be required that accommodate a variety of both outdoor and indoor conditions.

The telecom equipment provider will continue to rely on Vertiv as a trusted advisor, working in collaboration to help revolutionize the way the connected world communicates.

Benefits

- Optimal total cost of ownership with 96.3% efficient eSure™ rectifiers
- Reduced dependency on outdoor climates due to wide operating temperature range
- Optimal battery capacity with up to two low voltage disconnect (LVD) levels
- Significant energy savings through ECO Mode of operation even with low loads
- Easy identification of backup power problems due to automatic battery testing
- Improved visibility and control with remote access options

See more on how Vertiv™ 5G solutions can address your telecommunication network challenges.

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