Cambium Networks™

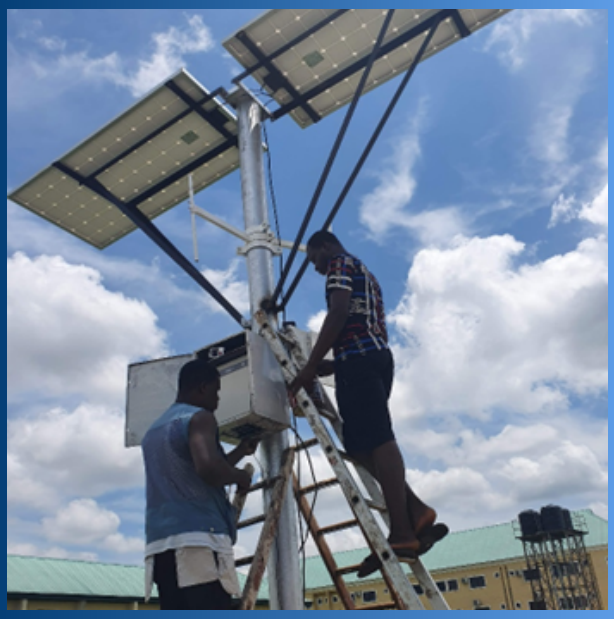
Telcroft Technologies deploys managed solar-powered Wi-Fi network for 28,000 students at Delta State University, Abraka.

Installation complete in 28 days and reduces cost by 50%

"Cambium Networks has been our preferred choice due to its innovative portfolio that enables us to deploy Wi-Fi, switching and fixed wireless backhaul as a single network that is cost-effective without compromising on performance.

The network configuration and maintenance are simplified through the cnMaestro™ management system, allowing for easy installation and providing comprehensive insights into network performance. Additionally, the project benefited from exceptional Cambium local support as well as responsive remote support throughout its lifecycle".

AUGUSTINE AKPOME, NETWORK ADMINISTRATOR, TELCROFT TECHNOLOGIES



Overview

Reliable access to Wi-Fi is crucial for ensuring optimal educational outcomes for students through online learning. However, in Nigeria, where the average daily provision is less than 10 hours and often suffers from poor voltage, the availability of consistent electricity supply poses a challenge. Delta State University sought an affordable, well-managed, and scalable connectivity solution to overcome their power limitations while ensuring equal access to learning materials for students with diverse backgrounds and learning styles.

Telcroft Technologies responded by providing a solar-powered base station that operates entirely on solar power and lithium-ion batteries. This setup has not only powered all the Wi-Fi access points and subscriber modules, but it has also reduced the overall cost of ownership. A dependable Wi-Fi connection now serves a student population of 28,000, facilitating online education, collaborative learning through IoT devices, and centralized cloud-based management for efficient network performance optimization. This comprehensive setup empowers students to engage in online studying, complete assignments, communicate with teachers, and collaborate with peers.

The network has been designed to provide uninterrupted connectivity for students across classrooms, libraries, dormitories, and common areas. It is capable of handling increased bandwidth requirements while simultaneously enhancing the Quality of Service (QoS) to prioritize critical applications. This comprehensive network infrastructure ensures an exceptional campus life experience for residents, enabling them to seamlessly access online resources and enjoy a smooth and reliable internet connection throughout the campus.

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The Challenge

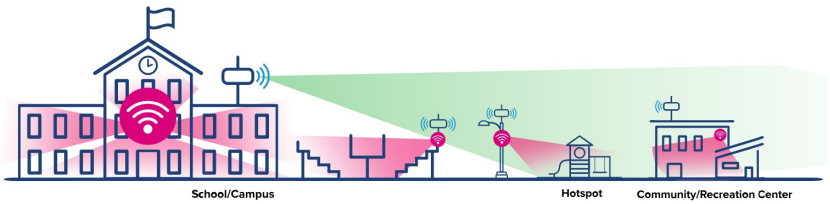
Situated in the Niger-Delta region, **Delta State University** faced the need for comprehensive campus-wide Wi-Fi connectivity. Unfortunately, no internet service provider or fixed wireless operator extended their services to the area. As a result, students had to rely on inadequate and limited 3G mobile internet, leading to an unreliable and subpar online experience. To address this issue, Telcroft Technologies entered into a 15-year agreement with Delta State University. They provided a comprehensive solution by delivering turnkey campus-wide Wi-Fi connectivity, accompanied by 24/7 NOC (Network Operations Center) and support services. Recognizing the necessity of providing unrestricted internet access and a comprehensive managed campus-wide Wi-Fi solution, Delta State University in Abraka sought to establish reliable connectivity throughout the academic premises. This solution aimed to offer unlimited Wi-Fi internet access in both indoor and outdoor areas, including academic spaces and student hostels. The objective was to provide students with fast, reliable, and cost-effective internet connectivity that is managed and available 24/7. This became particularly crucial during the Covid pandemic when students had to study remotely, and lecturers required robust connectivity for online teaching. The solution catered to the connectivity needs of students using their phones, tablets, and computers.

SOLUTION TECHNOLOGY

12 ePMP 3000 Fixed Wireless Access Points (AP)
6 ePMP Fixed Wireless Force 425 Subscriber Modules (SM)
73 e501s Wi-Fi 5 Outdoor AP
37 e410 Wi-Fi 5 Indoor AP
30 ePMP Force 300-16 Fixed Wireless SM
12 cnMatrix™ Switches

The Solution

From the initial planning phase to onboarding, installation, and testing, the entire process took 30 days. Remarkably, the network went live on the 28th day. Airtel Nigeria, the service provider, delivered the necessary capacity via a licensed microwave radio link, which was terminated on a tower situated on the Delta State University campus. To distribute the bandwidth effectively, a three-sectored ePMP™ 3000 system was deployed on the tower in the campus. This system facilitated the connection of ePMP Force 300 subscriber modules and Wi-Fi 5 access points, which were mounted on poles throughout the campus. The deployment of 12 ePMP 3000 fixed wireless base stations was carried out across the five campuses of Delta State University in Abraka. These base stations were strategically distributed in a point-to-multipoint architecture, with each station connecting to Force 300 subscriber modules. In addition, e505 outdoor access points were scattered throughout the campus, ensuring widespread coverage and connectivity.
To meet the requirements of the physical planning department at Delta State University in Abraka, Nigeria, three units of e501s (120-degree sector) and a Force 300-16 were installed on each pole for outdoor coverage. This approach minimized the number of poles needed for installation while ensuring compliance with the university's regulations.



"The network currently has a bandwidth capacity of 3 STM1, which is approximately 465 Mbps and will be upgraded next year, increasing the capacity to 4 STM1, 622 Mbps. It exhibits a stable performance with reliable Wi-Fi connectivity speed, supported by robust hardware, even in challenging environments."

OLAYEMI ABIFARIN, Chief Executive Officer, Telcroft Technologies

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The Result

By partnering with Telcroft Technologies, Delta State University has experienced a significant reduction of 50% in Total Cost of Ownership (TCO). Also, through a 15-year agreement, Telcroft handles the management and 24/7 support of the network, allowing the university to allocate its resources towards its core educational objectives. This arrangement eliminates the need for the university to make upfront capital expenditures for building the network infrastructure. As a result of implementing a campus-wide Wi-Fi network, Delta State University has witnessed a notable increase in student enrollment, leading to a rise in revenue generation for the institution. Over a span of two years, the number of students residing in the school hostels has surged by 70%.

"Delta State University, Abraka has faced challenges in providing reliable and fast internet services due to limited resources and previous vendor investments falling short. The network experienced frequent downtime and insufficient download/upload speeds, hindering research, learning management, and virtual meetings. However, the introduction of Telcroft Technologies' Campus Connect initiative has brought significant improvements. Wireless internet services are now available, offering flexibility for staff and students to connect from various locations on campus. The data transmission has become faster, more reliable, and secured. The collaboration between Delta State University, Abraka and Telcroft Technologies in providing affordable, accessible, and authentic internet services is highly appreciated. The university's demands for increased bandwidth and connectivity are expanding, indicating the success and positive impact of this collaboration".

Prof Andy Egwunyenga, Vice Chancellor, Delta University

And Now...

In anticipation of a significant rise in student admissions at Delta State University in Abraka, a comprehensive network upgrade plan has been developed for the third year. This upgrade initiative encompasses various improvements, such as the integration of surveillance systems and the transition to Wi-Fi 6 technology for enhanced access points. Additionally, there are plans to introduce a Software-Defined Wide Area Network (SD-WAN) alongside a new network service edge solution. These enhancements will result in improved network performance, heightened security measures, and increased flexibility to effectively cater to the growing demands of the university and its expanding student population.

ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We deliver connectivity that just works.

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