

# University's Edge Computing Solution Fuels Growth in a Developing Country



A Vertiv Case Study



## Background

The country of Papua New Guinea (PNG) lies in the southwestern Pacific, east of Indonesia and north of Australia. As a newly developing country, PNG is transforming at an ever-increasing pace. Growth in its infrastructure includes power and water networks, public transportation, telecommunications, roads, and schools. In order to support this growth, companies like Vertiv and its local partner, Connected PNG, are enabling access to the world's leading data center technologies.

Approximately 7 million of the nation's citizens live in rural areas. As such, it only makes sense for there to be a strong emphasis placed on agriculture. Agricultural education encourages farmers to specialize in growing certain types of crops and raising cattle, and over time, this sparks economic growth. Such is the role of a small university in the eastern portion of this island nation. It is dedicated to promoting and developing the sustainable utilization of the nation's natural resources.

To achieve this goal, the university strives to provide students with the skills and knowledge required to help lead the nation's agricultural, fishing, forestry, and tourism industries. It carries out research designed to address the real-life challenges faced by the people of PNG.

Over the last two years, the university has doubled its number of degree programs and has increased student enrollment by more than 25%. In order to accommodate this growth, the university decided to invest in a new, more resilient data center infrastructure — one that could support the new IP phone system the university needed to deploy.

### Challenge:

Maintain the uptime of an IP phone system used at a rural university in Papua New Guinea.

### Solution:

Pre-configured and pre-assembled Vertiv™ SmartCabinet™ micro data center.

### Results:

- Off-site commissioning for savings in time and money
- Expected payback within six months of purchase
- No IT expertise needed on site to manage the system
- Far fewer instances of unplanned downtime

## Challenge

### High reliability and quality infrastructure required to maintain systems uptime

Connected PNG, Vertiv's partner in the island nation, offers businesses, government agencies, and schools data center infrastructure technologies that help unlock the country's intelligence and fuel innovation needed to address some of its most pressing challenges.

As a key solutions partner for the enterprise that owns and operates the telecommunications network in Papua New Guinea, Connected PNG aims to bring the world's leading information technology and power products to clients at an affordable price. The company is the only provider of Vertiv™ data center products and solutions across PNG and the Pacific Islands. Therefore, when the university requested a more robust infrastructure solution to support its edge computing, Connected PNG supplied the Vertiv™ SmartCabinet™ micro data center to meet the school's requirements.

When configuring solutions for data center environments in PNG, there are some unique variables that must be taken into consideration. Power grids are often unstable, yet the population needs reliable IT solutions to operate schools and businesses.

Electricity in PNG is very expensive, so any data center solution implemented needs to be highly efficient. Systems downtime can have a devastating effect on the operation of a PNG business, school, hospital, or other critical facility. For example, downtime of one data center rack in a country like the United States or Australia, although it represents an expense, is often rectified through backup systems that can quickly assume the load.

In PNG, no such luxury exists. An incident of prolonged downtime can wipe out a business or bring the education system to a standstill. That's why end user stakeholders want to make sure their infrastructure solutions are of the best quality.

## Solution

### Vertiv SmartCabinet micro data center provides pre-commissioned solution

Connected PNG recognizes Vertiv as a manufacturer of high-quality power and thermal management systems, and as an organization that has both the products and expertise to provide the university with a true edge computing solution.

Since edge systems are often located in remote environments where little or no IT expertise is available, end users require solutions that can be delivered as units that are integrated and tested prior to deployment. This means that IT support or technical staff are not required on site when systems are delivered.

*"The collaborative work at the Vertiv factory site in Australia avoided the issue of having to commission the system in Papua New Guinea where it would be difficult and costly to fly in and assemble the team of experts needed."*

- Steven Bowling  
Technical Sales Supervisor  
Vertiv

Since the process of installation and startup is relatively simple, time and costs are minimized.

Upon reviewing the university's technology requirements with Connected PNG, the [Vertiv SmartCabinet](#) micro data center for edge computing was the proposed solution. It reduces the planning and building effort required and simplifies the operation of complex network and server rooms made up of separate, individual components.

Vertiv SmartCabinet is a data center-in-a-box solution that includes a rack, power, cooling, security, and monitoring in one integrated package. The solution was assembled, integrated, and tested in Australia by a joint team of Vertiv and Connected PNG experts to ensure proper functionality which saved all stakeholders time and money.

Some of the technical benefits experienced by the university staff included remote monitoring via cell phone for system control, alarm management, and reporting.

Sensors pre-installed into the rack provided smoke detection, as well as data on temperature, humidity and security. The rack itself is designed for simple and safe cable management.

Intelligent rack power distribution units (rPDUs), a 6 kilovolt-ampere (kVA) uninterruptible power supply (UPS), card access control for security, and a highly efficient split cooling system with a backup fan for redundancy provide the physical infrastructure needed to maximize availability of the IT systems housed in the rack.

Alarm information is sent to both campus and Connected PNG personnel via the network, SMS, or e-mail, depending upon the user preferences.

## Results

### Benefits include fast payback and improved uptime

With the deployment of its new Vertiv™ SmartCabinet™ edge computing system, school officials can now rest assured that students, teachers, and staff can access the information they need, when they need it, without the disruptions they had experienced in the past. In fact, implementing the solution has resulted in a number of additional benefits:

- **Energy savings for fast payback** – Given the high cost of electricity in PNG and the energy savings generated by the Vertiv™ SmartCabinet™ solution, the university predicts a full return on its infrastructure investment within the first six months of operation.
- **Ease of use** – End users found the Vertiv SmartCabinet solution was quick to deploy, easy to manage, and thanks to the enhanced power stability, runs much smoother than previous systems.
- **Reduced downtime** – As part of remote monitoring capabilities that provide visibility to environmental conditions and power capacities, the Vertiv SmartCabinet solution automatically generates alarms should anomalies occur and require attention.

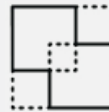


Vertiv™ SmartCabinet™ micro data center

The system also automatically stabilizes voltages and frequencies so that IT equipment is spared excessive wear and tear that can shorten its service life. As a result, instances of unanticipated downtime have been drastically reduced.

- **Spacing flexibility** – Able to run in any room as a self-contained unit, the Vertiv SmartCabinet system doesn't require raised floors or outside sources of air conditioning and takes up minimal floor space.
- **Improved security** – The physical security of IT equipment is often an issue in PNG. The Vertiv SmartCabinet system drastically reduces the risk of component theft by offering options that include steel doors, card key systems, IP cameras, and door sensors. Administrators automatically receive alarms whenever any breach is detected.
- **Optimal use of human resources** – Technical staff are not required on site when a pre-configured Vertiv SmartCabinet system is delivered, allowing already time-strapped IT staff to be allocated for other business needs.

## Vertiv™ Micro Data Center Solutions



- Build with self-contained, pre-tested and integrated infrastructure



- Create an all-in-one enclosure for optimized IT services and next-generation networks



- Deploy inside a building or as a standalone structure

**Go online to learn more about how Vertiv solutions address your edge challenges or to connect with Connected PNG.**

Vertiv.com | Vertiv Headquarters, 1050 Dearborn Drive, Columbus, OH, 43085, USA

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