

Modernized Data Center Helps Asia-Pacific Bank Meet Customer Demand for Digital Services



A Vertiv Case Study



Background

Few industries have experienced as high a level of digital transformation in recent years as banking. For one mid-sized bank in the Asia-Pacific region, consumer preferences across multiple countries have gravitated towards higher digital adoption and engagement. For example, instead of living in a world where anonymous one-time transactions between customers and businesses is the norm, [Microsoft research](#) reveals that 72% of customers expect businesses, like banks, to keep track of their transaction history and to create a unique personalized relationship. If such requirements are not addressed, the business may encounter high customer churn. This mindset has resulted in a need for the bank to track more online transactions and to increase its data storage.

In addition to generating more profits, digitalization of operations has enabled the bank to lift up the financial well-being of individuals and businesses, while enhancing financial solutions to the unserved and underserved segments of the population.

One of the bank's important goals is to identify opportunities and mitigate business risks by investing in technology and channel improvements. The bank is also accelerating its delivery of innovative products and services, in order to encourage digital consumption among customers.

However, maintaining such a digital presence requires investments in infrastructure that can support a banking environment with 24-hour availability. This includes hardware and software investments for branches offices and data centers in support of the bank's services for customers.

Challenge

Data center consolidation prompts need for power distribution flexibility

As a provider of highly available financial IT services, the most pressing challenge the bank faced was monitoring and managing its mission-critical data center. The big data generated through digital transactions meant that the physical design of the bank's data center needed more power and cooling.

Challenge:

Modernize centralized data center to better support digital banking growth.

Solution:

- Vertiv™ DCIM software
- Vertiv™ Liebert® SPM power distribution units (PDUs)
- Vertiv™ Geist™ rack PDUs
- Vertiv™ rack enclosures
- Vertiv™ SmartRow™ solutions for branch offices
- Vertiv™ Cell Check battery monitoring and testing equipment

Results:

- Lower energy consumption and power usage effectiveness (PUE)
- Enhanced systems uptime due to improved remote monitoring
- Comprehensive view of data center power resources
- Future-proof modular solution for easy expansion and maintenance

In addition, the bank decided to consolidate, moving equipment from a third-party colocation facility to the main data center. This drove demand for higher density compute and storage, and the existing lower density data center power scheme had to change. Closer collaboration between IT staff and application portfolio owners was required for a new, more efficient data center design to emerge. Issues such as thermal management with containment, more power, and the flexibility to move power around had to be addressed.

The support infrastructure technologies selected had to be designed to ensure long-term energy efficiency and easy manageability. For this reason, both rack standardization and monitoring were identified as critical success factors. The monitoring systems were key as it empowered data center operators, allowing them to track equipment moves, additions, and changes, as well as manage the entire data center lifecycle.

Solution

Newer technologies drive energy efficiency while enhancing performance

In order to optimize the 750 square meter (8,000 square foot) consolidated data center's performance, the bank turned to some key partners to provide the needed critical infrastructure solutions. One of those partners, Vertiv, had worked with the bank over a period of seven years, initially providing secure IT equipment racks and enclosures. The bank was particularly impressed with Vertiv's ability to consistently deliver quality products on time.

After reviewing the bank's white space expansion plan and its power distribution and energy requirements, Vertiv proposed a number of solutions that would help maintain uptime while lowering energy consumption. The bank decided to roll out the following Vertiv solutions in phases in order to mirror the bank's online transaction growth.

Data center infrastructure management (DCIM) software

In order to overcome the challenge of little to no visibility into data center infrastructure assets (like UPS, generator set, and fire alarm systems), the bank invested in enterprise DCIM software. This solution provided the bank's data center administrators with a comprehensive view of power resources and utilization for the complete data center power system from incoming utility power down to rack power distribution. The administrators gained insight into the active power path and the status of all devices in that power chain using a dynamic, updatable one-line diagram. This allowed the bank's team to easily visualize the dependencies within the power system which enabled better maintenance planning, lowering the risk of unanticipated downtime.

Administrators can also use current and historical trends to make more accurate capacity forecasts and to plan server deployments

in a more efficient manner. Business continuity is improved through much better documentation of power system assets and connections. Three-dimensional, graphical displays give data center administrators realistic system visuals without having to be physically present on site. That visibility extends to the individual rack level, where power utilization and consumption can be measured to avoid power overloads and trips.

Liebert® SPM PDUs

It became very important for the bank's IT staff to have a data center power distribution system that could match the dynamic needs of the bank's retail and commercial customers. The ability to plan for downtime when performing power upgrades and maintenance over recent years had become much tougher due to the criticality of the data center. Fortunately, the new Liebert SPM units help to minimize disruption as they are configured in the factory, enabling fast deployment.

To date, 16 Liebert SPM PDUs have been installed, each acting as a distribution center for power. They monitor the power flow within each cluster of existing racks and can easily be reconfigured as new racks are integrated. In addition, the Liebert SPM PDUs, which can scale from 20-200 kVA, have the ability to perform power quality monitoring, tracking both power factor and harmonics. This monitoring helps ensure reliability and optimal power usage, which contributes to a low total cost of ownership.

Rack enclosures

The bank has installed more than 250 Knürr® DCM aluminum-framed server racks. The innovate design of these 19-inch racks support equipment weighing up to 1500 kilograms. They enable easy configuration and made it simple for the bank's team to install add-on components and accessories. The enclosures are extremely light, streamlining transport and set up while minimizing the load on the raised floor of the bank's data center.

Geist™ rack PDUs

Administrators have also incorporated more than 300 rack PDUs (a combination of both Vertiv™ switched and basic rack PDUs). The switched units, which come equipped with ports for an environmental sensor and ethernet connections, allow for administrators to avoid accidental overloads by remotely turning off outlets and rebooting unresponsive equipment.

Battery monitoring and testing equipment

For battery banks that are housed in a separate room but are connected to the central UPS, Vertiv provided the Albér™ battery monitoring system. In order to achieve availability goals, it was important for the bank's data center administrators to be able to observe changes in battery quality over time. After all, a deteriorated battery could result in a case of thermal runaway, which left unchecked, could lead to catastrophic downtime.

Vertiv™ SmartRow™ solutions for branch offices

In the case of some of its smaller edge data centers in remote branch offices, the bank decided to install Vertiv SmartRow solutions. These self-contained, modular data centers are designed to simplify IT deployments in indoor spaces. With capacities up to 10 racks, and with integrated cooling, UPS, power distribution, fire suppression, and backup ventilation, the Vertiv SmartRow enabled standardization across multiple locations. The high degree of factory integration of these self-contained units also helped the bank maximize installation speed while minimizing cost.

These remote systems link back to the home office to support wire trades and processing of other data that needs to be shared with the headquarters. The Vertiv SmartRow solutions are also equipped with DCIM monitoring software for precise management of both power and cooling with built-in redundancies. For instance, if one of the precision cooling units fail, the other automatically takes over with no loss in uptime. In addition, these units operate variable speed fans, which offers the bank significant energy savings by precisely matching cooling capacity to changing load requirements.



Results

Benefitting from low-risk, high-return investments

Together, the deployment of each of these solutions has resulted in higher uptime and lower energy consumption for the bank. The modular/scalable nature of the Vertiv™ solutions has allowed the bank's IT team to right-size data center equipment, to manage cooling and power distribution more efficiently, to gain much higher visibility into their operations, and to achieve an impressive PUE of 1.7. As a result, the bank accrues hundreds of thousands of dollars in energy cost savings each year.

The bank also has access to more than 30 Vertiv™ service and support centers available near the bank's headquarters and data center location. These teams of factory-trained data center technicians are equipped to respond quickly should the need arise.

Looking to the future, the bank would like to continue and evolve its relationship with Vertiv, in part, by educating bank IT staff on new Vertiv innovations. In this way, the local Vertiv teams will be helping the bank to better accommodate the new and changing demands of digital banking customers.

Key Vertiv™ SmartRow™ Features

1. Server and network racks
2. Dedicated cooling
3. Fire suppression and detection
4. Load distribution and local emergency power off (EPO) or remote EPO tie-ins
5. Air-flow management
6. Integrated cable management solution
7. Emergency ventilation

Go online to see more about how Vertiv helps financial service organizations scale with confidence.

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