THE EDGE IN ASIA

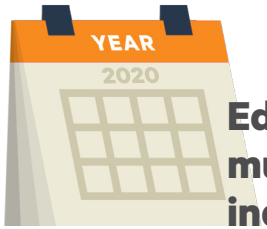
A Playbook on Edge Computing and Micro Data Centers

VERTIV™

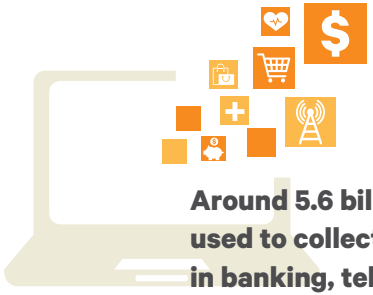
VERTIV.

This playbook serves as guide to companies and organizations who are thinking of bringing their digital services closer to their market through edge computing. It contains information on edge computing and its benefits, and how to implement an effective edge strategy.

The Potential of the Edge



Edge will be a multibillion dollar industry by 2020



Around 5.6 billion IoT devices that will be used to collect and process data, particularly in banking, teleco, retail and healthcare.

Edge computing can impact businesses in a lot of ways. By moving computing and storage away from the core, there is greater speed and flexibility, ultimately giving more value to you and your data. While we envision a future of smart cars and smart cities, edge computing will be the driving force that will support these initiatives, enabling enterprises to deploy faster technology-based services to customers.[1]

[1] BI Intelligence (2016, October 18). Edge Computing in the IoT. Retrieved June 2, 2017 from http://www.businessinsider.com/edge-computing-in-the-iot-forecasts-key-benefits-and-top-industries-adopting-an-analytics-model-that-improves-processing-and-cuts-costs-2016-7

VERTIV.

Why an Edge Strategy is Important

Many remain unaware of the benefits an edge strategy could bring to their organization. The key advantages of a well-placed edge strategy include:

Speed of delivery

It reduces the need to transport information to a core data centre, which can lead to delays in data being received and processed. By placing computing resources at the edge, apps that process payments, display retail catalogues or deliver content can operate in real-time.

Availability

Many organizations operate multiple sites across different countries or cities. By enabling computing resources at the edge, it is possible to keep these remote sites functioning irrespective of failings at the core.

VERTIV.

Why an Edge Strategy is Important

Storage

At a time when storage volumes, database optimization and big data interrogation are hot topics, organizations are struggling to convert technology investments into customer (and business) value. Edge computing can help businesses deliver better customer services.

Data Analytics

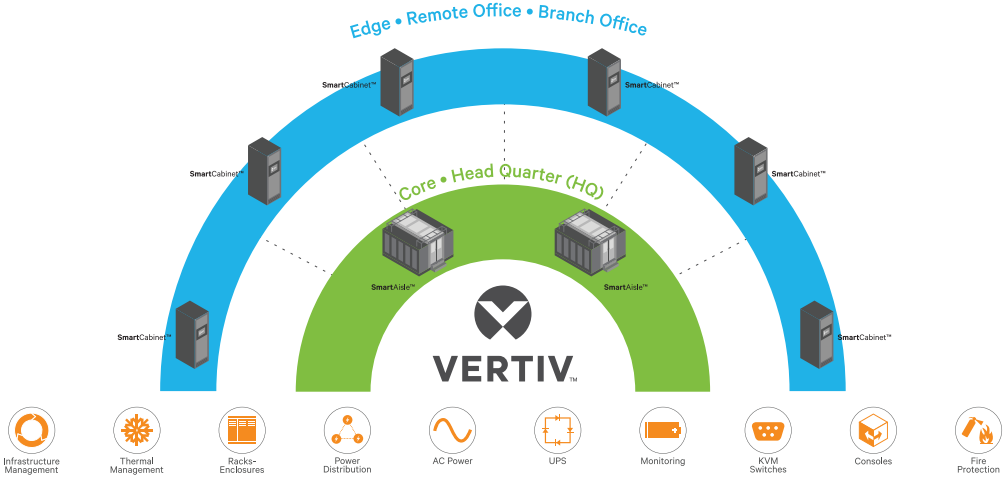
Data is the lifeblood of many digital businesses, helping them to derive insight into customer behavior and market trends. By placing analytics at the edge, businesses can derive actionable insight faster, helping them to stay ahead of competitors and customer expectations.

VERTIV.

The Micro Data Center: The Backbone of Edge Computing

A key part of an edge strategy is the right infrastructure to support your computing and storage requirements. Micro data centers are the ideal infrastructure for edge computing. Small in footprint but powerful in compute capacity, micro data centers combine power, cooling, monitoring and racks – but can be deployed faster and scaled depending on business needs.

Markets and Markets expect that in 2020, the micro data center market will be worth $6.3 billion.[2]

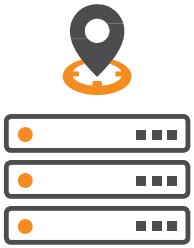


[2] *Markets and Markets (n.d.). Micro Mobile Data Center Market. Retrieved June 2, 2017 from http://www.marketsandmarkets.com/PressReleases/micro-datacenters.asp*

VERTIV.

Factors to Consider When Deploying Micro Data Centers

We have identified the following key considerations when procuring micro data centers and the manner of deploying them to your network:



LOCATION

About 30% of enterprises are concerned about where to set-up their micro data centers, based on Vertiv's survey. Gartner further explains the importance of a sound location strategy: *"The concept is to avoid issues of latency and congestion by placing compute resources and content closer to concentrations of users and sources of data. Rather than simply a technology, it's also a concept of topology."* [3]

Gartner posts the following questions to think about when considering the location strategy for your edge computing initiatives:

- Where are the concentrations of users?
- How can they be identified, stratified, ranked and prioritized?
- Can we differentiate among these users in terms of application types, latency sensitivity and volume? [4]

[3] *Gartner "The Edge Manifesto: Digital Business, Rich Media, Latency Sensitivity and the Use of Distributed Data Centers" Bob Gill, 31 July 2015, Gartner Foundational, 15 June 2017*
[4] *Gartner "The Edge Manifesto: Digital Business, Rich Media, Latency Sensitivity and the Use of Distributed Data Centers" Bob Gill, 31 July 2015, Gartner Foundational, 15 June 2017*

VERTIV.

Factors to Consider When Deploying Micro Data Centers

STANDARDIZATION

System compatibility is a primary concern for 50% of those who responded to Vertiv's survey. Businesses looking to deploy an edge strategy must strive to achieve consistency of all IT assets in a distributed IT environment. Gartner cited five factors in developing a standardized micro data center deployment strategy:

- **Consistency** — For organizations with a large number of distributed computing environments, consistency in the IT and networking architecture, consistency in the installation of said architecture, and consistency in the operational procedures to maintain, update and manage the environment will have the greatest impact on both cost and operational efficiency.
- **Cost** — By creating a consistent environment, the overall costs can be reduced through standardization of vendors, architecture, software and operational procedures. Implementation costs can also be reduced by creating a repeatable and easy-to-implement solution for local building managers.
- **Control** — Whether on manufacturing plant floors, or in retail outlets or professional office areas, control of remote IT assets is extremely complex. A micro data center implementation provides greater control of the assets through remote tools, while also allowing standardized methods for releasing new applications, software upgrades, maintenance patches and equipment upgrades. This control also takes away most of the localized support requirements from non-IT personnel, which, in turn, reduces the overall risks in the environment.

VERTIV.

Factors to Consider When Deploying Micro Data Centers

- **Continuity** — In distributed environments, one of the key operational criterion is that they be able to operate independently, regardless of what happens at the home office. If a primary data center goes down for any reason, remote sites still have a business to run, and the ability to provide continuous operations independently for short periods of time is a critical design criterion. Point-of-sale systems still need to operate, inventories still need to be updated (or drawn from), and security and access control systems must continue. Micro data center environments should be created with a "design for failure" viewpoint — essentially, they should be created to support systems and data that is critical to continuous operations of that site only. All other support systems can be remote, and could be offline for days without impacting local operations

- **Compliance** — Compliance adoption and reporting can be the Achilles' heel of remote sites if not done properly. A combination of Service Organization Control (SOC) 1, SOC 2, Health Insurance Portability and Accountability Act (HIPAA), Statement on Standards for Attestation Engagements (SSAE) 16, PCI Data Security Standard and/or U.S./EMEA Safe Harbor will be needed at many remote sites. In addition, the deployment of well-defined operations controls that can be effectively applied to support related compliance requirements is crucial. By creating a standardized, controlled environment at each site, you can increase the level of compliance, while decreasing the level of risk to the business.[5]

A standardized, consistent architecture both at the core and at the edge will greatly increase operational efficiency. Additionally, a standardized architecture will impact significantly on cost with a repeatable design.

[5] Gartner "Apply a Self-Contained Solution to Micro Data Centers" David J. Cappuccio, 26 January 2015, Gartner Foundational, 15 February 2016

VERTIV.

Factors to Consider When Deploying Micro Data Centers

SECURITY

Vertiv's survey revealed that about 40% of companies are concerned about security and compliance issues, since cyber-attacks are becoming more frequent in the digital age. Businesses must step up their security strategy to make sure all areas of their network – from the core to the edge – are protected. There are existing software and solutions that can help you protect both your hardware and software against attacks and data breaches. Additional considerations should include endpoint protection given the increased number of embedded devices on the network, and data back-up so that business data can be easily restored in the event of a breach.

REMOTE MANAGEMENT

Managing multiple, distributed IT assets requires a remote management strategy that would allow to monitoring infrastructure status and upgrading your equipment remotely. This would also greatly impact on cost as it would reduce localized support requirements from non-IT personnel.

In terms of delivering continuous business outcomes, a critical step will be to establish highly secure remote access and controlled desktop access. These steps can enhance the performance of your network, while reducing the risk of incurring a security breach.

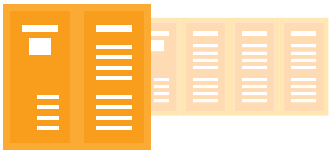
VERTIV.

But how much do enterprises in Asia really appreciate edge computing? How receptive are they when it comes to this new tech trend?

Vertiv Asia conducted a survey among businesses to know how well they understand edge computing. We also looked into how they have adopted this technology, and what issues and challenges they have faced in implementing an edge strategy.

What Businesses Know About Edge Computing

Based from 200 responses, we found out that two-fifths (40%) have a comprehensive understanding of what edge computing is, while around 30% have no knowledge of this technology. See more here:



41% MOVING COMPUTING POWER AWAY FROM THE CORE

8% RELATED TO INTERNET OF THINGS

30% NOT FULLY AWARE

1011011100
0101011101
10010101 0

6% COMPUTING SETUP

13% CLOSELY RELATED TO THE CLOUD

2% TECH BUZZWORD

VERTIV.

Edge Adoption in Asia

However, this does not automatically translate to infrastructure deployment or application at the edge. We found that only a **third** of the respondents were deploying infrastructure at the edge by setting up micro data centers, despite the drive to adopt to emerging technological trends.

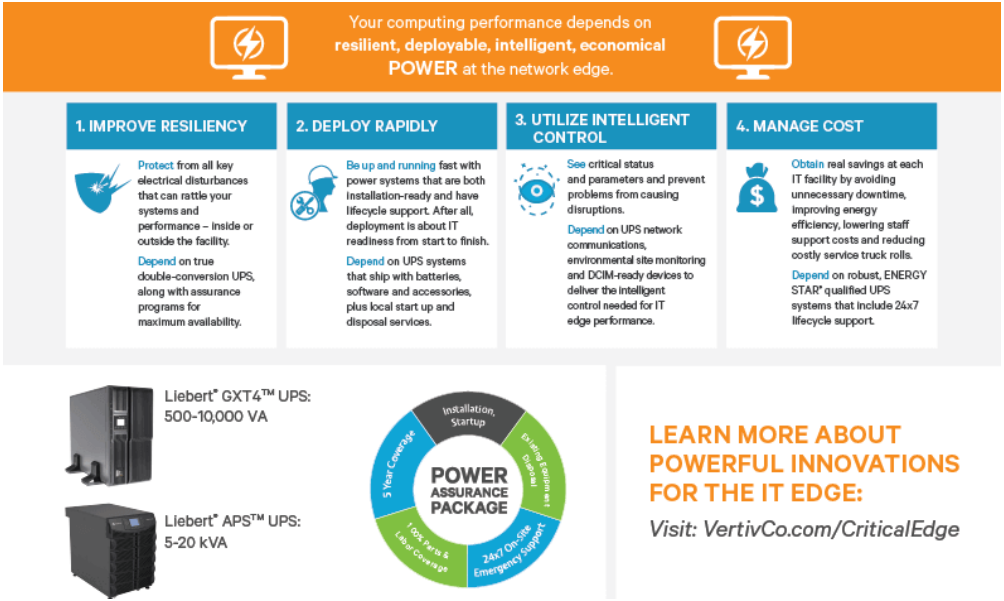
This could mean that the market for edge in Asia remains relatively young. But the opportunity for adoption is great as **97% of respondents** believe that edge computing will be a relevant part of their business model **within the next three years or so**.

VERTIV.

Top Considerations in Setting Up Micro Data Centers

In Asia, only a third of those surveyed indicated that they use micro data centers for their edge strategy, mainly for ***disaster recovery initiatives*** or as a ***backup to their core data center***.

Regardless of their use, micro data centers are fast becoming an essential part of any organization. According to the Vertiv survey, majority of the respondents identified **service reliability (81%), price (75%) and warranty (40%)** as the top considerations for procuring micro data centers. Additionally, **power and monitoring equipment** are the priority solutions when deploying micro data centers.



VERTIV.

Plan, Plan, Plan

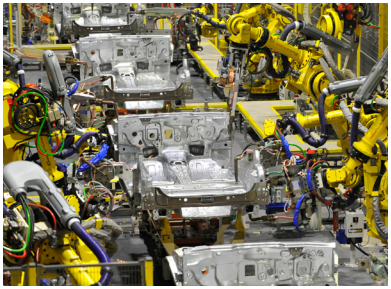
Now that we know what edge computing is and how we can benefit from it, we should start developing an edge strategy for our business. But where do we begin?

A critical part of an edge strategy is having the **consensus of and support of the entire organization**. C-level managers are considered "champions" of the edge, as depicted by the Vertiv survey. Planning is critical and would need a comprehensive evaluation of the organization, including the role of different teams in the edge strategy. The first step is understanding the edge and its benefits to the organization. Cooperation of everyone in the organization is critical for the success of an edge strategy.

It is also important to **select trusted partners** – service providers, location owners, application and content providers – to support your outlined edge strategy. They must have the capabilities to capture the benefits of edge computing without disrupting current data center operations. Selecting reliable infrastructure is crucial in developing a high-functioning edge network where your services and applications will come to work.

VERTIV.

Edge in Action: Case Studies



Moving Towards Modernization:

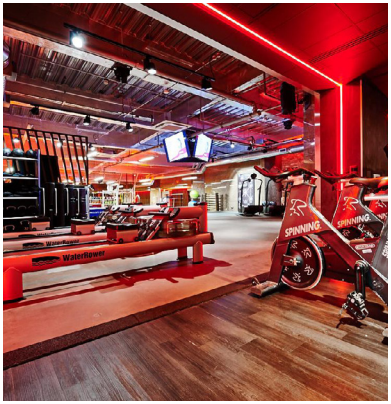
The Case of a Top-Notch Global Automotive Company

- **Who is the client?** This global automotive manufacturer has a strong presence in Southeast Asia. It continues to aspire to lead the market by investing in innovative solutions that would allow them to be ahead of the competition.
- **What is the challenge?** As part of its modernization and business improvement initiatives, it built a new office server room in Kinrara, Puchong to handle business demands. It needs a solution that would fit its limited floor area while maintaining flexibility to meet future capacity demands.
- **How did Vertiv solve it?** We deployed the SmartRow solution – its compact design enables rapid deployment, while maintaining management oversight from its Singapore headquarters.

CONTACT US TO LEARN MORE

VERTIV.

Edge in Action: Case Studies



Keeping Communication Lines Open:

The Case of The Space Studio by Fitness First

- **Who is the client?** The Space Studio by Fitness First is the first ever dedicated mind-body studio within the Barangaroo precinct. It is custom-built to practice Yoga, Barre, Pilates and Meditation, with light projections and soundscapes.
- **What is the challenge?** It is looking for a communications cabinet that could house its IT equipment; however, there are a number of logistical challenges in situating it within the studio.
- **How did Vertiv solve it?** We deployed the SmartCabinet™ solution – its footprint was perfectly suited for the studio's small area. Its low acoustics was also appreciated by yoga instructors, because it did not disrupt their meditation sessions.

CLICK HERE TO LEARN MORE

VERTIV.

Edge in Action: Case Studies

Future-Proofing the Telecom Network:

The Case of Chorus Ltd.

- **Who is the client?** Chorus is New Zealand's largest telecommunications infrastructure company. It builds and maintains the country's fixed line network that serves as New Zealand's IT backbone.
- **What is the challenge?** What physical infrastructure is required to support increasing demand for innovative products and services at the edge of the network?
- **How did Vertiv solve it?** We deployed a 16-rack SmartAisle solution – it contains all the infrastructure expected from a traditional, 1,000 rack build, but without the long design and build time.

CLICK HERE TO LEARN MORE

VERTIV.

Summary

The concept of edge computing might be a newly emerging trend to Asian enterprises. We are starting to discover its potential in terms of applications and benefits, which results in improved digital experience. While it seems complicated and multi-layered, figuring out the underlying edge strategy based on the company's needs and requirements should help in identifying the important facets you really need.

Once you have identified the important details, you need to have the best partners who will help you implement your edge strategy. Vertiv, with its best-in-class integrated products, expert service capabilities and top-notch knowledge of the latest technologies, is very much equipped to support you in this journey to the edge.

Learn more about the edge and what Vertiv has to offer:

FIND OUT MORE ABOUT THE STATE OF THE EDGE IN ASIA

VERTIV.

Resources from VERTIV

- VIDEO: See how Vertiv SmartRow DCX modular data center can simplify your IT at the Edge
- VIDEO: Three Tips for Simplifying IT Deployment in Edge Locations
- VIDEO: 2016 Cooling The Edge Survey
- VIDEO: Addressing Power Challenges at the IT Network Edge
- INSIGHT: How to Gain Control of the Expanding Edge?

VERTIV.

VertivCo.com

Vertiv-Edge-Playbook-BR-EN-Asia