VERTIV WHITE PAPER

Build Your Brand on Edge Resilience

Vertiv™ Avocent® IPSL Serial IP Device Enables Flexible Remote Management of Edge Devices

Enterprise technology has evolved from on-premises to cloud-first and edge-driven. That's just in time to capitalize on the growing torrent of data that sensors, devices, and users are creating. Edge sites support local devices and applications, processing data and workloads closer to users and activities. By doing so, they enable digital service delivery and modern industry processes like automation. It's no wonder that global spending on edge computing is expected to soar from $176 billion in 2021 to $274 billion in 2025.[1]

> Gartner predicts that 75 percent of enterprise-generated data will be created and processed at the edge by 2025.

Edge computing solves multiple problems for IT organizations.

IT teams can quickly stand up new capacity, flexibly configure sites to meet business and technical requirements, and scale with growth – qualities that are ideal for cloud service and colocation providers and enterprises alike. Local processing capabilities enable companies in verticals such as energy, utilities, and manufacturing to increase automation: driving throughput and achieving greater product and service quality. Finally, edge sites, which are smaller-scale than data centers are lower cost to deploy and manage, which is compelling in capital-constrained environments.

Edge computing, it seems, has something to offer everyone, which is companies can't seem to deploy sites fast enough. However, once deployed, IT and data center teams must ensure edge site uptime to support business services. Those companies that can ensure exceptional edge site performance have the opportunity to build their brand on resilience: attracting new customers and driving more revenues as others falter.

By 2025, more than half of all new enterprise IT infrastructure deployed will be at the edge, IDC predicts.[3]

[1] *Lionel Sujay Vailshery, "Edge computing market revenue worldwide from 2019 to 2025 (in billion U.S. dollars)," chart, Statista, undated, February 25, 2022, https://www.statista.com/statistics/1175706/worldwide-edge-computing-market-revenue/*

[2] *Rob van der Meulen, What Edge Computing Means for Infrastructure and Operations Leaders, Gartner, October 3, 2018, https://www.gartner.com/smarterwithgartner/what-edge-computing-means-for-infrastructure-and-operations-leaders*

[3] *Jason Carolan, Flexerential, "Edge to Core Networking is Critical for IoT Devices, AI and Automation," DataCenterFrontier, January 10, 2022, https://www.datacenterfrontier.com/sponsored/article/11427682/flexential-edge-to-core-networking-is-critical-for-iot-devices-ai-and-automation*

Navigating the Challenges of Managing Edge Sites

Fast-paced edge growth has created some challenges for IT. Disparate edge site designs and deployments, with different devices from multiple vendors, increase infrastructure complexity, management challenges, and the risk of human error. In addition, businesses are now dependent on digital processes, meaning that unplanned downtime disrupts services, harms worker productivity and the customer experience. Extended outages can result in millions of dollars of losses. Mindful of this, IT teams may feel that using multiple clouds and myriad edge sites can improve resiliency by reducing dependence on any cloud service provider or vendor. However, that strategy only works if decentralized IT capabilities perform as expected. Local edge site outages, for example, can still bring businesses to a standstill, while also making data vulnerable to exploits if firewalls and other security systems are down.

What IT Teams Need Now to Manage Edge Sites

IT organizations have evolved their approach to address edge site management challenges. During the pandemic, IT teams adopted remote monitoring and management tools and processes to keep workers safe and support fast-paced core-to-edge growth. Now they don't want to return to the office. A recent survey of IT workers found that 75 percent of them say it's important for their company to allow them to work remotely indefinitely.[5] Many company leaders agree, preferring to let workers stay remote, so that they can reduce real estate and other facilities costs.

The Impact of Edge Site Outages

A recent survey found that data center teams reported an average of 5.39 outages at their edge sites over a 24-month period, averaging 45.4 minutes of total facility downtime per incident. The #1 strategy data center teams planned to use to reduce these outages was to invest in improved equipment, cited by 61% of survey respondents.[4]

Edge sites experience unplanned downtime for different reasons, including:

- Network outages
- Loss of power
- Human error (such as misconfiguring devices)
- Hardware failures
- Application and operating system failures

Being able to remotely troubleshoot issues and restore device connectivity and operations is critical to driving edge site uptime.

[4] *Data Center Downtime at the Core and the Edge: A Survey of Frequency, Duration and Attitudes, Ponemon Institute, January 2021, page 5, 6, 9, https://www.vertiv.com/490a6d/globalassets/documents/reports/ponemon/vertiv-ponemon-datacenterdowntimesurveyreport_321796_0.pdf*

[5] *Tech Employee Survey 2021, Protocol Workplace, page 3, https://www.protocol.com/workplace/workplace-survey-2021/download-full-report/*

Here's how the Vertiv™ Avocent® DSView™ Solution and Vertiv™ Avocent® IPSL empower IT teams to accomplish their goals of improving edge site management and reliability. IT teams want to:

Gain global visibility into edge locations: The Avocent® DSView™ Solution provides a management platform, Vertiv™ Avocent® MP1000, which offers a stable, secure point of access to manage and control devices from enterprise to edge. Users can use the Avocent® MP100 platform to manage and provision all infrastructure, gaining visibility into – and control over – compute, networking, storage, and physical infrastructure at enterprise and edge locations. By so doing, they gain real-time insights into devices, wherever they are located.

Avocent® IPSL can be connected to serial devices across edge locations, providing the connectivity teams require to manage them. A single Avocent IPSL can be used alone, to manage devices at one location, or paired with the Avocent MP1000 or Vertiv™ Avocent® RM1048P and other Avocent® KVMs and virtual infrastructure to manage larger-scale edge deployments.

Enable secure remote access to networking equipment: IT teams want to securely access networking devices to configure, trouble-shoot, and update them. Avocent IPSL provides secure remote access to critical IT devices, including firewalls, routers, switches, IoT devices, and more. In addition, Avocent IPSL has a hardware root of trust chip. It provides tamper-proof firmware with secure boot capabilities and strong encryption using TLS 1.3, AES 256 bit, and FIPS 140-2 protocols. Finally, the Avocent MP1000 provides an optional proxy server to conceal end-users' IP addresses, protecting them from cyber threats.

Lock down user permissions: IT teams can further enhance security by using the Avocent MP1000 Management Platform to restrict user access to specific types of devices. For example, the networking team can be granted access to just networking devices, while the power management team can be restricted to access only power devices, such as rack PDUs and UPSs. Finally, the Avocent MP1000 Management Platform can audit every operation performed using the Avocent IPSL or other devices, enabling IT teams to quickly detect anomalies. By restricting user permissions and auditing actions, IT organizations can significantly decrease risks, such as human error or malicious actions that cause device and then cascading system failures.

Provide multiple ways to recover devices: The Avocent DSView Solution provides IT teams with different ways to troubleshoot and recover failing devices. The platform enables both in-band and out-of-band management, ensuring that IT teams can recover devices even when networks are inaccessible. IT teams can use Avocent IPSL to restart, reboot, and power-cycle IT devices when they're down, enabling their faster recovery. In addition, users can leverage the recovery feature Avocent IPSL provides to connect to otherwise inaccessible edge routers, switches, and firewalls; recover them; and restore backed up data.

Avocent IPSL can be connected to serial devices across edge locations, providing the connectivity teams require to manage them. A single Avocent IPSL can be used alone, to manage devices at one location, or paired with the Avocent MP1000 or Avocent RM1048 and other Avocent KVMs and virtual infrastructure to manage larger-scale edge deployments.

Simplify deployment: Avocent IPSL has a small form factor, allowing it to be used for a wide array of use cases where space is at a premium. Avocent IPSL provides RJ45 and USB ports, enabling this solution to connect to a wider range of serial devices. In addition, as a device, rather than appliance, Avocent IPSL can simply be placed near IT devices and connected. It doesn't require expensive wiring to use.

Reduce operational costs: By providing IP-to-serial connectivity, enabling remote trouble-shooting, and avoiding wiring, Avocent IPSL reduces edge site operational costs. These sites can now be monitored and managed remotely, reducing the need for costly emergency truck rolls to unstaffed sites.

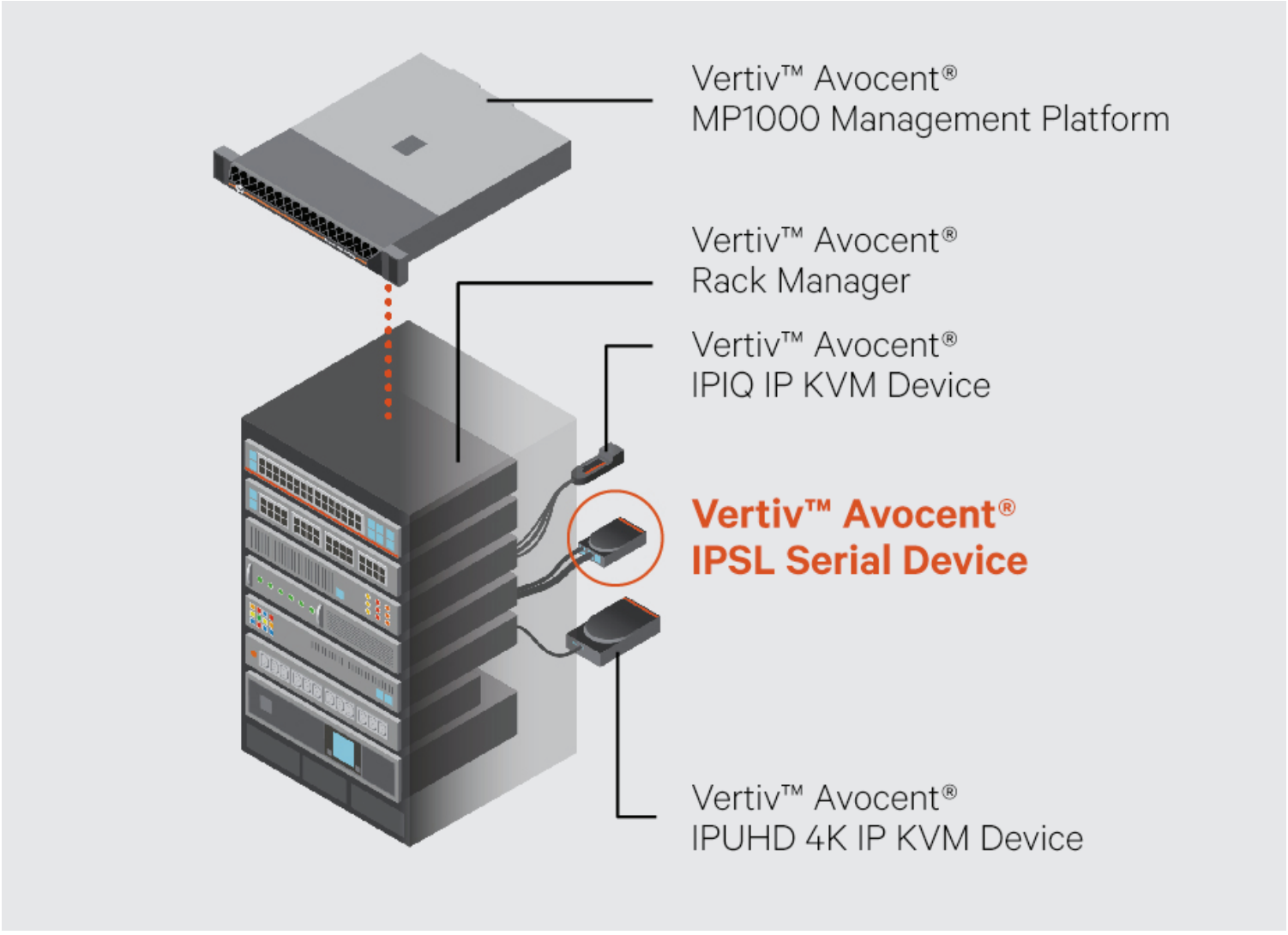
Increasing Edge Site Reliability with Vertiv™ Avocent® DSView™ Solution

As digital growth continues unabated, IT teams want to increase edge site uptime and performance. They're mindful that these unmanned sites are vulnerable to device issues and downtime that can be reduced by implementing proactive monitoring and management.

Using the Vertiv™ Avocent® DSView™ Solution and Vertiv™ Avocent® IPSL four-port serial device enables data center and IT teams to streamline edge site management. They can use Avocent® IPSL to securely connect to all of their IT devices, gain improved visibility into device condition and health at edge locations, and remotely troubleshoot and recover devices.

With the Avocent DSView Solution, IT teams can manage networking and IT equipment on a single platform. By so doing, they gain the ability to use consistent processes to manage devices, improve operations, and ensure high uptime of devices and the applications and services they support. With greater edge site resiliency, the sky is the limit for business growth.

Learn more about Avocent IPSL.



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