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IT Management and the Edge of Network: Are You Ready?

The network edge is always evolving to support new needs and changing business objectives. But today, the evolution is more fundamental, as organizations systematically move IT workloads closer to end-users and devices and farther from core data centers.

For some, that means adding new technology to existing distributed locations. For others, it means putting computing and storage in places it's never been before. For almost all, it means addressing the challenge of efficiently managing a network of increasingly critical and distributed sites.

Why Edge Computing Matters

Cloud computing is one of the most significant technological developments of this century. But the cloud can't support the data-intensive and low-latency requirements of the applications emerging today. From smart retail to real-time analytics and the internet of things, organizations in virtually every industry are turning to edge-dependent applications to improve operations, deliver new experiences to their customers, and improve efficiency and productivity.

Businesses that make the most effective use of edge technology will be well positioned to create competitive advantage. However, making effective use of edge technology requires developing a plan for managing equipment in remote sites.

Preparing for the Known and Unknown

No one would characterize the challenge of managing the dense clusters of technology in the core data center as simple or easy. But at least data center management teams typically have the benefit of being in the same building as the technology they are managing, often with access to a team of dedicated professionals.

How does management and troubleshooting work when you're dealing with dozens or hundreds of sites spread across a broad geographical area with no local technical support?

Without remote IT management tools, even relatively simple IT issues can require an engineer to travel to the site to diagnose the problem. If the problem requires new hardware that is unavailable on-site, the engineer may have to make a second trip to resolve the issue. That could mean days of downtime and engineering resources that are diverted from addressing other issues. The more sites you have, the more frequently this scenario will play out.

And, it isn't just these predictable events that IT management has to plan for. With natural disasters and other catastrophic events becoming more frequent, IT management must be prepared with crisis strategies and technologies. In times where travel is limited, remote management becomes essential.

Remote IT Management Technology

Although the growth in edge computing is driving increased need, remote IT management is not new. Mature and robust tools are available that enable centralized management of multiple edge sites. These include:

- KVM switches that provide IT administrators with a complete remote management solution to access and control servers, networking equipment and other devices.

- Serial consoles that provide remote management of a wide range of devices, including PDUs and thermal management systems. They also include more sophisticated capabilities, such as the ability to respond to some issues without human intervention.

One of the key capabilities of these systems is the ability not only to see what is happening in remote locations but also to control it. Engineers and technicians need to be able to access the system even if no IP is available, examine logs and resolve software and firmware issues remotely. The ability to access storage media through the remote management system enables out-of-band file transfers and OS patch deployments.

The number of sites that can be supported varies by solution, but these systems can be configured to work together to support hundreds of sites. Key software features that have proven useful in edge site management include the automated discovery of remote equipment and devices, and the ability to define multiple access levels for secure management.

Remote Management and Security

Security should be a key consideration in the selection of any remote management system. Security breaches are often caused by careless actions of those on the network, and a well-designed management system can limit this vulnerability.

Secure KVM switches allow users to access multiple computers with different security levels from a single console while protecting data from accidental or unauthorized transfer when switching between systems. They can also restrict the types of peripherals that can connect to it. Look for solutions that comply with the NIAP Protection Profile for Peripheral Sharing Devices.

Serial consoles should be designed with a similar focus on security with features such as preset and customizable security profiles, support for SSHv1 and SSHv2 encryption protocols and two-factor authentication.

Benefits of Remote Management

With the growth in edge computing, many organizations are in the position today to evaluate the use of remote management tools for the first time. Here are the benefits that should be considered during the evaluation process.

- **Faster Problem Resolution:**
  Many IT equipment problems are software-related. Remote IT management systems allow these problems to be resolved without visiting the site and often without human intervention.

- **Simplified Management:**
  Software updates and other routine maintenance tasks are greatly simplified by enabling access to multiple devices through switches or consoles. With these tools, IT administrators can gain centralized remote access to devices across multiple locations to streamline configuration, troubleshooting and monitoring.

- **Reduced MTTR:**
  IT management tools that provide both in-band and out-of-band access have proven their ability to reduce mean-time-to-repair in the data center by enabling faster issue identification and, in some cases, remote resolution. These savings are amplified when applied to distributed locations that, without remote access, would require technician travel time just to identify the issue.

- **Enhanced Security:**
  Today's IT management tools minimize the need to access IT systems physically and include support for smart card/CAC readers and other physical security systems, enabling centralized management of access to critical facilities.

- **Lower Operating Costs:**
  Faster provisioning, improved management and reduced MTTR all translate directly into lower operating costs while freeing technical resources to focus on strategic initiatives.

Vertiv™ Avocent® Solutions for Edge Site Management

Vertiv offers a complete family of KVM and serial consoles for remote site management through the Avocent brand. For help in configuring a remote management solution for your distributed network, call us at +1-866-277-1924 or visit http://www.vertiv.com/Avocent.