

Predictable Failover and Operational Flexibility for OOB Management in Complex Data Centers

By Andrew Froelich

Summary:

Business and IT leaders are seeking a way to operate efficiently in a world where remote workforces have become the 'new norm'. One challenge of a distributed workforce model is how to ensure that business applications are available and accessible by all, regardless of geographic location. A common solution to this problem is to deploy application workloads across multiple data centers. This allows for:

- Application maintenance with zero downtime,
- Full network redundancy with automatic path failover, and
- Multi-site data replication to protect against loss.



Perle IOLAN Console Servers are designed to deliver OOBM with

- Rapid, predictable, and flexible failover
- Cybersecurity protections
- Zero Touch Provisioning (ZTP)
- Flexible hardware options

While data center and colocation spaces are plentiful and offer the ideal foundation for a distributed computing architecture, several issues arise when attempting to deploy and manage an IT infrastructure that's so widely dispersed. This includes the need for zero-touch deployments, designing redundancy that's reliable and predictable, planning for anticipated growth, uniform infrastructure security, and demand for steadfast **out-of-band access to infrastructure** hardware when network problems occur.

A critical part of managing complex data centers is an out-of-band management (OOBM) system that meets the needs of distributed data center architectures both today and into the future. In this InfraMomentum Insights report, we look at how Perle **IOLAN Console Servers** are designed to deliver the right level of OOBM functionality and flexibility for today's complex data center build-outs.

Rapid, predictable, and flexible failover access:

When it comes to redundancy and automatic failover techniques, network administrators feel most comfortable when working on systems that use standards-based dynamic routing protocols. For years, however, OOBM platforms traditionally relied on proprietary redundancy protocols and failover mechanisms. This left many administrators in the dark as to how OOB failover works and what should or should not be expected when a fault occurs. This lack of predictability has led to situations where OOBM systems are incorrectly configured—resulting in inaccessible infrastructure components when out-of-band access is needed the most.

To make OOB redundancy and automated failover more predictable, Perle IOLANs use the same standards-based dynamic routing protocols that network professionals are already accustomed to. Their extensive routing protocol support includes RIP, OSPF, and BGP, among others. Additionally, support for virtual router redundancy protocol version 3 (VRRPv3), traffic load balancing, and VPN failover for enhanced emergency access are all built-in and operate as expected. These features give administrators an added sense of comfort and familiarity when designing, configuring, and operating an out-of-band network for remote management purposes.

When network failovers do arise within a data center, OOB management systems require one or more independent paths to the outside world that NetOps staff can use to gain access. Perle offers an industry-leading number of multi-path OOB connectivity choices. Options include:

- Built-in high-speed LTE (with fallback to HSPA+, UMTS, EDGE, and GPRS/GSM) for connectivity via public cellular data carriers;
- Dual-band Wi-Fi when out-of-band WLAN network access is available; and
- RJ11 V.92 modem support for traditional POTS line connectivity.

Of course, connectivity through any dual-combination of copper or fiber optic Ethernet ports can also be used to deliver secondary internet/WAN access. Thus, in our research, Perle delivers the utmost in redundant network connectivity access options when primary access becomes unavailable.

Low/zero-touch deployments

When seeking to streamline the remote data center deployment process, low and zero-touch deployments are desired. The concept is to ship OOBM hardware directly to the data center where they can be physically installed by local data center technicians. Once physically connected to the data center LAN, Perle's IOLANs automatically reach out to local DHCP or BOOTP servers. When IP connectivity is established, these IOLAN Console Servers can then be configured, and firmware updated by remote administrators.

Businesses can also opt to implement the PerleView Central Management platform. This web-based cloud management application is a multi-site configuration and visibility tool that simplifies setup, ensures unified policy configuration, and delivers single-pane-of-glass control over IOLAN systems at remote sites.

Cybersecurity protections:

If not properly addressed, OOBM console servers can create unauthorized backdoor access into critical data center hardware and software components. Therefore, Perle's IOLAN platform smartly incorporates an intuitive, built-in firewall service hosted directly on the hardware. Zone-based policies can easily be configured to logically segment and restrict unauthorized access while maintaining the ability to reach all data center systems for enterprise maintenance and emergency troubleshooting purposes.

From a user authorization and access control perspective, Perle IOLAN Console Servers support centralized AAA security and SSH/SSL encryption for unified access controls across multiple data centers with support for RADIUS, LDAP, and TACACS+ authentication protocols. This aids in centralizing the management of one or more IOLANs and assists in adhering to business-vertical compliance policies. The robust authentication and access architecture also gives administrators centralized and granular control over precisely who can access the OOB systems and what level of access they should have.

Two-factor authentication (2FA) is also a highly sought-after and available option on Perle's console servers. 2FA delivers added protection against unauthorized access by requiring a secondary form of authentication before granting access to infrastructure components.

Flexible hardware options to meet all needs:

While OOBM hardware currently installed in your data center may be sufficient today, there's no telling what types of management connectivity will be required in the months and years ahead. Perle tackles this challenge by offering a unique combination of fixed and modular hardware choices that include USB, serial, and Ethernet port connectivity. It's also important to note that many OOBM competitors in this space either have limited or no support for USB or Ethernet port console access. With a Perle IOLAN, you can have all these console port access options available in one unit.

Final thoughts:

In our opinion, **Perle IOLAN Console Servers** offer a best-in-class OOBM platform for businesses that are seeking to deploy and manage complex infrastructures across multiple remote data center locations. The hardware components are built to enterprise-grade specifications and include fault-tolerant features such as dual AC or 48v DC power delivery. The platform also uses a refined and user-friendly GUI interface and front panel digital display that helps with remote troubleshooting. Finally, note that Perle does not require any annual licensing fees to access any features for the life of the product. This is a refreshing and increasingly rare part of the platform that helps businesses reduce ongoing operational costs.

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As a highly experienced network architect and trusted IT consultant with worldwide contacts, Andrew Froehlich has nearly two decades of experience and possesses multiple industry certifications in the field of enterprise networking. Froehlich has participated in the design and maintenance of networks for State Farm Insurance, United Airlines, Chicago-area schools, and the University of Chicago Medical Center. He is the founder and president of Loveland, Colo.-based West Gate Networks, which specializes in enterprise network architectures and data center build-outs. The author of two Cisco certification study guides published by Sybex, he is a regular contributor to multiple enterprise IT-related websites and trade journals with insights into rapidly changing developments in the IT industry.

