



Server Technology

Quality Rack Power Solutions

Operational Solution for Service Providers deploying Metro Ethernet, Carrier Ethernet or Wireless Ethernet Backhaul Applications.

Network Power Management White Paper

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Overview

In the ever changing communications market, service providers are always looking for ways to decrease OPEX. Many service providers continue to reduce headcounts while increasing the levels of network automation through remote access to networking devices.

In the Core, Edge and Access components of the network, flattening of the architectures (eliminating the need for ATM, Frame Relay, SONET, etc.) and the adoption of Carrier Ethernet has been the technology choice to reduce the amount of Network Elements.

Wireless Service Providers are facing challenges in designing, implementing and operating 4G (WiMax, LTE) Wireless Ethernet networks, the promise of which will aid them in maintaining market share that broadband mobile services offer.

In response to these challenges, Server Technology Inc. offers a line of Sentry -48VDC Remote Power Managers to control the power to remotely deployed networking devices.



Who needs Remote Power Management for Power Control, Power Measurement and Power Distribution of -48VDC equipment?

All Service Providers currently deploying Metro Ethernet, Carrier Ethernet or Wireless Ethernet Backhaul solutions for mission critical networks would benefit greatly from power control, measurement and distribution. When a service goes down, the problem list grows exponentially with time. This includes the loss of revenue, customer dissatisfaction, productivity loss and Service Level Agreement penalties.

Many Service Providers today are migrating their networks toward an all Ethernet based solution set relying on Core, Edge and Access switches and routers powered by -48VDC. When these devices “lock up”, “hang” or need rebooting after an upgrade, the recovery options are limited. The most proven method to restore the device to its operational state is to cycle the power – a Reboot. When the networking device is remotely located in a distant POP, COLO, Cell tower site or an unmanned 24/7 CO, gaining access to the device to perform the reboot presents additional challenges.

Why Does Your Organization Needs Remote Power Management?

Consider this information polled from Server Technology’s customers:

- 72% of all third party Technician’s service calls to locked up remote network equipment are solved with a reboot operation.
- The average cost of a third party service call is \$500.
- Downtime from “locked up” equipment can be reduced from 1.5 hrs to minutes with a Sentry Remote Power Manager
- Loss of revenue or Service Level Agreement penalties from a service interruption can be significantly reduced or eliminated.
- Customer dissatisfaction

What the Sentry -48VDC Does for Remotely Deployed Equipment

The Sentry -48VDC allows the Network Management Center to perform essential operations for distributed equipment:

- **Power Control:** Perform a Remote Reboot to rectify “locked-up”, “hung” or recently upgraded network equipment.
- **Power Distribution:** Distribute dual power input feeds to multiple equipment units in a rack or cabinet and eliminate the need for a power distribution panel.
- **Power Measurement:** Extend network management capabilities and protect the investment of networking devices with SNMP measurement traps, including Load Sense, On Sense and Temperature Sense.

Who are the customers deploying Sentry -48VDC Remote Power Managers today

- **Tier I and II Service Providers** offering Metro Ethernet solutions are deploying the Sentry -48VDC Remote Power Managers with their Core and Edge networking devices.
- **Wireless Service Providers** offering or upgrading to 4G (WiMax or LTE) services are deploying the Sentry -48VDC Remote Power Managers with their Ethernet Backhaul networking devices.

How does a Sentry -48VDC Remote Power Manager Support Equipment

With a Sentry -48VDC Remote Power Manager, recovery of a locked-up device is simple. The Sentry provides a logical, software controlled interface to individual power modules. The Network Operations Center can immediately establish a communications session with the Sentry to power cycle (reboot) an individual networking device, regardless of whether it has a single power supply or multiple...all power supplies can be re-booted as a single unit.

In addition to its ability to reboot networking devices, the Sentry -48VDC can remotely monitor Temperature and Humidity as well as act as an Intelligent Power Distribution Unit, eliminating the need for a separate fuse panel.

Expand Remote Power Management with SNMP Traps

The Sentry family of -48VDC Remote Power Managers utilizes SNMP Measurement Traps to extend network management capabilities and protect the investment in networking devices.

Load Sense dynamically measures the load in amps that each connected server, networking device or telecom equipment is drawing and sends an alarm when a unit draws power outside defined thresholds. Additionally, power planning engineers can use Load Sense to determine how much capacity remains on an existing power source by precisely measuring the amps each piece of equipment draws.

On Sense feature ensures power is flowing through the Sentry RPM. On Sense positively verifies that there is voltage at each Sentry RPM power outlet and sends an alarm when voltage is not present.

Temperature Sense makes certain that remote hardware operates only in optimal temperatures. Each Sentry RPM can be fitted with temperature probes that measure ambient temperatures in degrees centigrade in the rack or cabinet. When low or high temperatures thresholds are exceeded – putting the networking equipment at risk, Temperature Sense reports the variance.

With a Sentry RPM, SNMP Traps are generated:

- When the temperature exceeds user specified limits
- When the device load on any of the power modules exceeds specific limits
- When a failure is detected on any of the power modules
- When the state (on or off) of a power module is changed
- When the chain of Sentry RPM units is started (booted)

These traps can be enabled or disabled by the user, and the limits of the temperature and device load can be set by the user. Traps are detected by the Sentry RPM and then sent to an attached LAN interface for relay to an SNMP destination.

Summary

Growing disparity between broadband service revenue and associated bandwidth consumption coupled with the current global financial conditions make it ever more critical for service providers to efficiently operate their networks.

Server Technologies Sentry line of -48VDC Remote Power Managers offer customers Power Control, Distribution and Measurement in a single device.

- Remote Power Management will reduce OPEX and help maintain SLA's
 - Eliminate expensive truck rolls to cycle power on locked up devices
 - Improve network availability
- Real-Time Power Measurement
 - Add more (New) equipment on existing power resources
 - Power Measurement at each DC circuit provides improved power planning and forecasting



Power Distribution Units

Server Technology Inc. is recognized as a leader in innovative remote power management solutions, originally manufacturing a line of remotely addressable power units called the Sentry Remote Power Managers. Available for both AC and DC power supply, these products enable remote power control (off, on, reboot) of servers and internetworking devices in data centers, remote equipment rooms, POP sites, Telco central offices and co-location facilities. These products have a variety of applications, including server management, data center power management, maintaining backbone equipment and Customer Premise Equipment.

Control remote sites and minimize the impact of locked-up routers, servers, and other network devices. The Sentry -48 VDC family of Intelligent PDU's verifies voltage at each power input/outlet connection, provides real time recording of current draw and offers environmental monitoring.

Each power output terminal is protected by a GMT or TPA fuse. There is a wide fuse capacity range available.