

# How Service Providers Can Support Customer Premises Equipment

An Application Note detailing how Sentry? Power Managers provide a secure, out-of-band solution for supporting Customer Premises Equipment

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## INTRODUCTION

### Managed Services

A Managed Service Provider (MSP) serves as an outsourcing agent for companies that don't have the resources to constantly upgrade or maintain faster and faster computer networks. An MSP can be a hosting company, ILEC, equipment vendor or access provider, such as Genuity, Bell South, IBM, Nortel or Digex. The MSP offers fully outsourced network management services, such as IP telephony, messaging and call center, virtual private network (VPN)s, managed firewalls, and monitoring/reporting of network servers. Most of these services are performed from outside the customer's internal network.

### Customer Premises Equipment (CPE)

Managed Services utilize Customer Premises Equipment (CPE) to bridge the gap between customer and MSP. CPE is data communications or telecom equipment located on the customer's premises (physical location) rather than on the provider's (MSP) premises. Servers, routers, firewall devices and DSL equipments are examples of commonly deployed CPE.

CPE and MSP relationships provide the benefit of adding equipment, management, skills, and core competencies to the customer, while being located at the customer's facilities.

## THE PROBLEM

The major obstacle to managing CPE, of course, occurs when software or hardware locks-up or crashes. Rectifying non-operational CPE is compounded by the obvious distance between MSP and customer, the lack of integrated working relationship between the two parties and the existence of firewalls or other precautions designed to keep outsiders – including the MSP itself – out of the customer's internal LAN/WAN.

Resolving the non-operational CPE is critical to the MSP's contract with the customer. Stiff penalties and fines can be imposed on the MSP when non-operational CPE costs the customer productivity losses, revenue losses and/or customer service issues.

## THE SOLUTION

Sentry Power Managers provide MSPs with a secure out-of-band solution to review, reboot and restore CPE to operational status. The out-of-band solution eliminates the obstacle of the MSP accessing the CPE without going through the customer's private firewall or VPN. With the secure modem, the MSP can dial into the Sentry and connect to the CPE without requiring access to the customer's LAN/WAN.

The MSP first dials into Sentry's secure modem, which requires password authorization on the first attempt, preventing outsiders from multiple attempts at access. The Sentry itself also requires appropriate user ID and password authentication to access its control functions or console port pass-through functions. *(The Sentry also supports multiple users with network administrator privileges, guest-access privileges, and username/password-per-port combinations.)* Upon successfully accessing the Sentry, the remote user can then issue group

or individual reboot commands to the supported equipment units. Additionally, the user can gain access to the remote device through the serial connection to a console port.

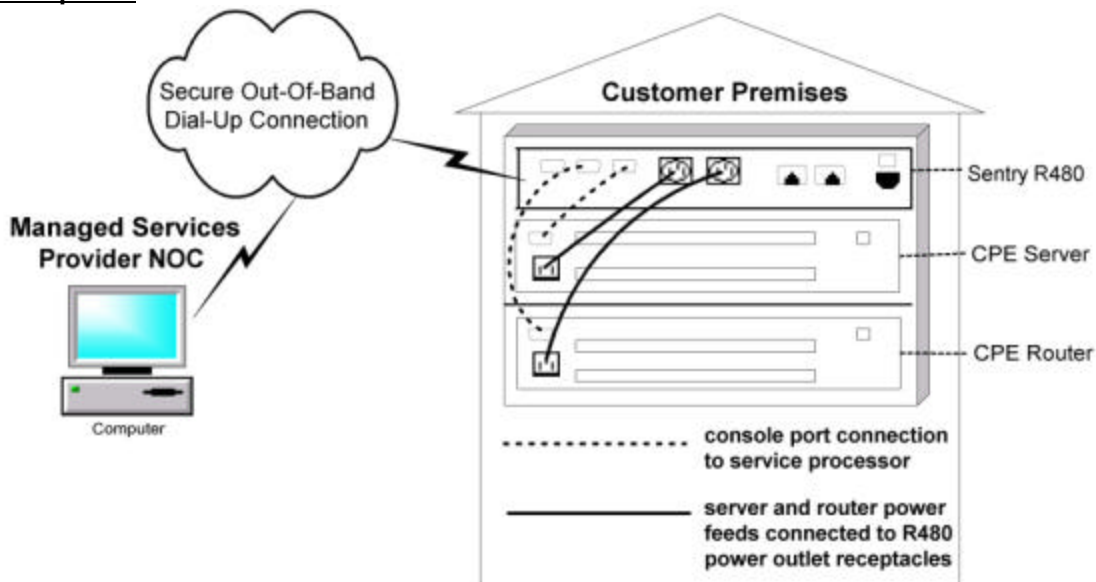
## BENEFITS

The secure out-of-band Sentry solution allows the MSP to remotely resolve non-operational CPE without requiring an on-site visit, reducing costs associated with field service calls, eliminating SLA penalties and improving customer service.

The secure out-of-band Sentry solution assures the customer with CPE that devices attain maximum uptime without requiring security breaches through its firewall, manual intervention from its staff or interruptions from outside personnel at their site to restore non-operation CPE.

## EXAMPLE SOLUTIONS

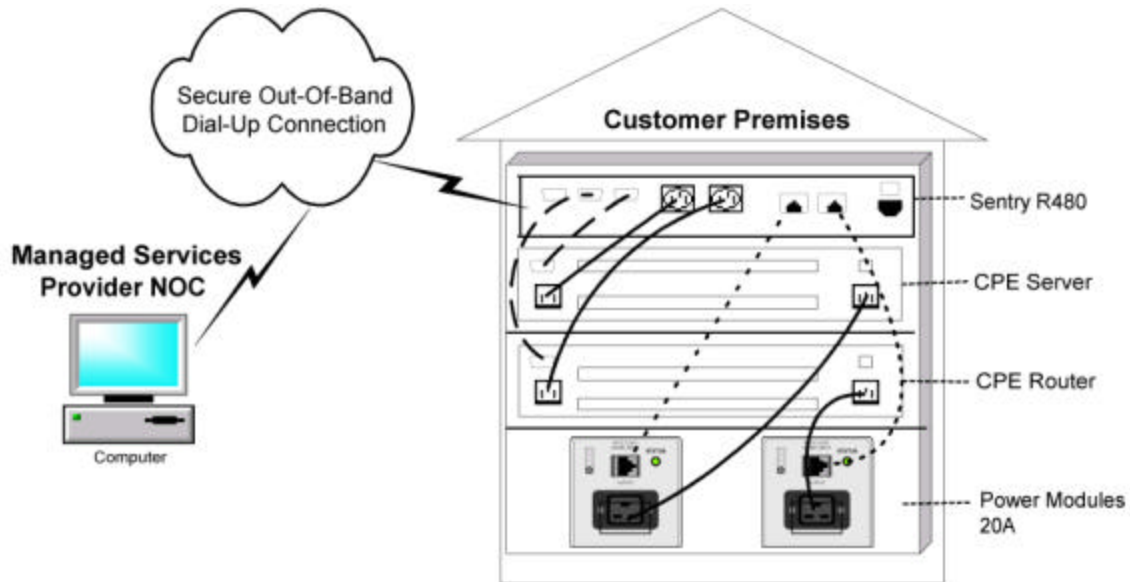
### Example #1



Example #1 shows how one MSP (a large hardware vendor) manages key CPE for a “big box” retailer with 1,000+ store locations. Installed at each store are a server and router manufactured by the vendor and managed its services’ group with a MSP contract. Each server contains a service processor that allows the MSP to monitor the server in each store from a central operations center. Installed alongside the server and router is a Sentry R480 with an integrated secure modem. Both the server and router’s power feeds are connected to the Sentry’s power outlet receptacles, and a RS-232 serial cable connects the Sentry’s console pass-through ports to the console ports on both the server and router.

In the event that any one of the more than 1,000 servers encounters a software failure, operating system malfunction or hardware error, the MSP can remotely issue a reboot command for the server through the console port connection to the server’s service processor. By monitoring the service processor, the MSP can watch the boot messages and detect if the “soft” boot-up process fails or does not resolve the error. If necessary, the MSP can then issue a power cycle reboot command to the failed server via the Sentry’s Remote Power Management functionality.

**Example #2**



Many network devices have two power supplies and require independent power feeds from different circuits to ensure redundant power. Example #2 is similar to Example #1, but it also adds the feature of redundant power feeds through the use of the Sentry In-line Power Modules (IPMs).

The IPMs are similar to the (internal) Power Modules integrated in the Sentry R480's enclosure in that they allow a remote user to cycle the power to a remote equipment unit to reboot the device and return it to an operational state. Unlike the internal Power Modules, the IPMs require a unique power feed – independent from the Sentry enclosure and, therefore, a separate, redundant power feed for an individual equipment unit. The Sentry Remote Power Manager (e.g., R480) and the IPMs are connected via signal wires. A remote user establishes a communication session with the Sentry and controls the IPM as if it were one of the Sentry's internal Power Modules.

**SECURE OUT-OF-BAND SENTRY CONFIGURATIONS**

Sentry Item #	Internal Secure Modem (Option C+)	No. of Power Input Feeds	No. of Power Outlet Receptacles	Redundant Power Feeds	No. of Console Ports
R480 Option C+	Y	1	2	No	2
R480 & qty (2) IPMs Option C+	Y	3	4	Yes	2
R402 Option C+	Y	1	4	No	4
R402 & qty (4) IPMs Option C+	Y	5	8	Yes	4
R203 Option C+	Y	2	8	Yes	8
R205 & qty (8) IPMs Option C+	Y	10	16	Yes	8