

Acer RDM

Technology White Paper

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Acer Remote Diagnostic Manager™

Introduction

In recent years a consistent theme has developed in IT departments everywhere. That theme is the need to reduce the cost of computer ownership. Data processors are taking a hard look at the true costs of owning computers, and are searching for ways to lessen the burden. Beyond the obvious costs of purchasing the initial hardware and software, there are other, less obvious costs that include keeping the software up-to-date and repairing the hardware when it fails.

IT managers spend considerable time planning for the inevitable failure of one or more components in their computer systems. Regardless of the manufacturer, hardware does fail, and if that hardware is a network server, the impact is felt throughout the corporation. With the introduction of Remote Diagnostic Manager (RDM), Acer America has demonstrated its commitment to reducing the cost of owning its servers.

RDM is the latest in Acer's suite of management software designed specifically to reduce the time a server is unavailable, and lessen the overall impact of a server failure. RDM is the sentinel, standing by your server listening to the heartbeat of activity, taking action only if the heartbeat stops.

RDM and its companion product, Advanced Server Manager (ASM) Pro, provide the tools with which to monitor the health of your server, sounding the alarm of impending slowdowns or failures. With their remote workstation capabilities, RDM and ASM Pro can connect to the server to examine the cause of the difficulty and begin corrective action. RDM and ASM Pro are distributed free with every AcerAltos server,¹ thus allowing IT departments to immediately begin reducing their costs of ownership.

Overview

RDM consists of five major components: The RDM hardware module,

the software driver, the server BIOS, the hidden partition, and the RDM Station software. These components combine to provide a rapid recovery system that overcomes the distance barriers between the central computing site and its distributed servers.

If a server fails, the RDM module provides the connection between hardware and software to monitor server operation and begin the notification process. In all but the most severe failures, RDM can assist in diagnosing problems and restoring the server to operation.

The RDM software driver communicates with the hardware module, initializing it for use, then sending regular heartbeat signals indicating it is operating normally.

The RDM BIOS has been designed specifically to work with the RDM module. It accepts configuration parameters that control the actions to be taken if the server fails, as well as controlling the communication

between the RDM Station and the server. The RDM BIOS also provides access to a special hidden partition on the server's hard drive.

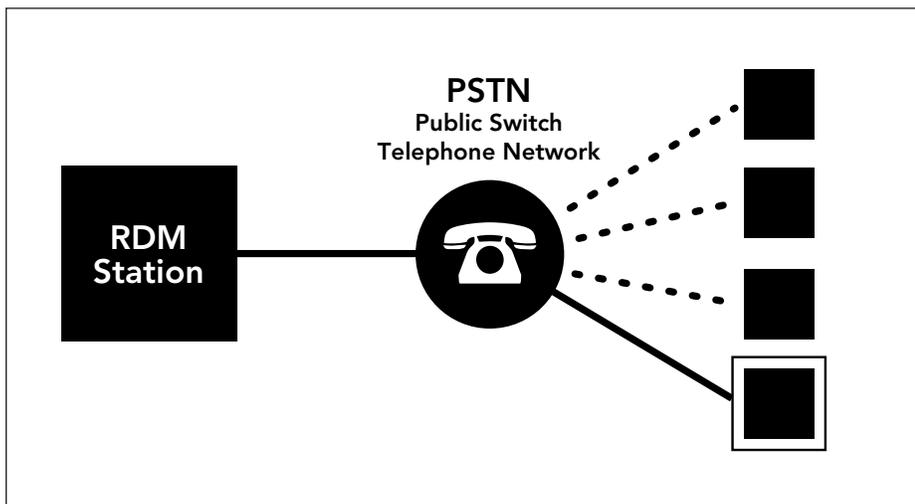
The hidden partition is a special area on the server's hard drive containing the operating system, diagnostic and utility software used by RDM. This partition contains all that is needed

reboot the server and return it to normal operation.

The RDM Hardware Module

The RDM module is an independent, intelligent hardware controller with its own integrated CPU.

Mounted on the server's motherboard, the RDM module listens for the server's heartbeat, an electronic



by the system administrator to examine the state of the server and initiate corrective action.

RDM Station is the system administrator's link to the problem server. Running on a Windows® 95® workstation, RDM Station accepts the call from the server's hardware module and establishes the diagnostic session. During the session, RDM Station mirrors the server's console with all its capabilities. The administrator may enter DOS commands, display and change BIOS settings, and run diagnostic programs. Once the problem has been isolated and corrected, the administrator may

pulse triggered by the module's software driver. During normal operation, the driver sends heartbeat pulses at regular intervals. Should the server fail, prohibiting the driver from sending the heartbeat, the RDM module awakens and begins taking action. After assuming control of the external modem, the RDM module calls up to three user specified pager numbers, then waits for the RDM Station to call the server. When the server receives the call, it checks the caller's password and accepts the phone number at which to dial the station back. The server then reboots itself and dials the RDM Station to begin the diagnostic session.

The RDM Driver

The RDM Driver is a simple software module that provides two functions: first, it alerts the RDM hardware module to accept the heartbeat signal. Second, it begins sending the heartbeat. It is this function that tells RDM that the server is operating correctly. When the heartbeat stops, RDM knows to take action.

The RDM BIOS

The AcerAltos server BIOS, more specifically that portion dedicated to RDM, defines the options that control how RDM functions in your server. These options include the actions RDM is to take if the server fails; the communication settings for establishing the diagnostic session; the pager telephone numbers; and the security password. The BIOS also controls access to the server's hidden disk partition.

Hidden Partition

The Hidden Partition is a standard feature on all RDM equipped servers. It provides a convenient place to store diagnostics that are always available when needed the most. The hidden partition is always there, always ready to respond, eliminating the need to search for the diagnostic diskette that disappeared shortly after the server was installed.

The hidden partition is created in Acer's factory where it is preloaded

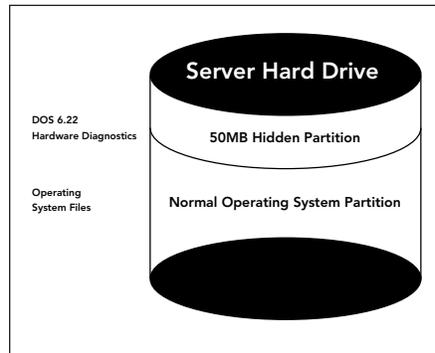
with diagnostic, utility, and operating system software. It resides on the server's hard drive and is hidden from the view of most utility programs. Access to the hidden partition is only available during system failure or if selected through the server's BIOS during system boot. When activated, the hidden partition becomes the primary operating system partition loading MS-DOS as it boots. Once up and running, the server has access to all the diagnostic and utility programs residing in the hidden partition.

Appropriate safeguards have been built into RDM to ensure that the hidden partition is not inadvertently left in place. No permanent changes are made to the server when activating the hidden partition. Should the server fail, it automatically reverts back to the original partition when the server reboots.

RDM Station

RDM Station is a Microsoft® Windows based application that runs on any workstation capable of establishing a dial-up connection. The Station software accepts the call from the server's RDM module and establishes a diagnostic session. RDM Station provides the access mechanism through which the system administrator takes control of the server's

console to interrogate status, run diagnostics from the hidden partition, adjust BIOS settings, and upload or download files. It activates and deactivates the logging facility, and displays the activity logs captured during the diagnostic session. These



logs are useful during subsequent problem analysis, providing a comprehensive record of the activity that took place during the session. When the problem is resolved, RDM Station can reboot the server and return it to normal operation.

In Conclusion

As you have seen, RDM truly does reduce the cost of owning an AcerAltos server. It does this by allowing the system administrator to manage widely distributed servers from a central location. It reduces downtime by enabling rapid response to failures, and faster diagnosis and resolution of problems.

Combined with Acer's ASM Pro, RDM offers a comprehensive solution to server management while reducing the total cost of ownership. ASM Pro provides early warning of

potential problems allowing corrective action to be taken before the server fails. Should the server actually go down, RDM springs into action with sophisticated diagnostic tools that allow problem resolution in the shortest possible time.

Acer has indeed, committed to a partnership with the IT community. With its advanced development expertise, Acer delivers leading edge products that are both easy to use and cost effective. The total cost of owning an AcerAltos server has never been lower.

¹RDM is not included on the AcerAltos 300 server.

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