

Application Brief – Data Center

How to Support Blade Servers with IT Infrastructure Management Solutions by Avocent



MARKET OVERVIEW

Escalating business needs are driving many enterprises to increase the computing power of their data centers. To this end, many enterprises are investing in blade servers. Blade servers not only provide easily scalable computing power, but also consume less space and require fewer cables in today's often crowded data centers.

By 2009, 25 percent of all servers shipped will be blade servers, according to recent forecasts by marketing analysts IDC and Gartner. Some of today's blade server vendors include IBM, HP, Dell, FSC, Fujitsu and Egenera. The earliest blade servers were only available with single processors. Today, most major blade server vendors offer blade servers with one, two, or four processors.

AVOCENT IT INFRASTRUCTURE MANAGEMENT SOLUTIONS SUPPORT BLADE SERVERS

Avocent IT infrastructure management appliances and DSView® 3 management software together create multiple ways to connect to all blade server models regardless of the manufacturer. Moreover, DSView 3 software provides users with a single user interface to access and manage blade servers, rack-mounted or stand-alone servers and all other networking equipment in the data center. This application brief focuses primarily on how Avocent products support Dell, HP and IBM blade servers.

SOME FACTS ABOUT DELL, HP AND IBM BLADE SERVERS

While each vendor's blade server has its unique specifications, blade servers by Dell, HP and IBM share similar management features. Each includes (1) a management module for the blade chassis, (2) service processor technology and (3) a central management software suite.

Management features for Dell PowerEdge blade servers

Dell® PowerEdge® 1855 and 1955 blade servers include a DRAC/MC management module, are IPMI 2.0 enabled and use OpenManage™ for centralized management.

Management features for HP blade servers

HP® ProLiant blade servers include an onboard administration module, providing a GUI for the chassis and the blade servers, are iLO enabled, providing a blade-level GUI, and use Insight Control software for centralized management.

Management features for IBM blade servers

IBM® blade servers include the BladeCenter® Management Module, are RSA enabled and use IBM Director for centralized management.

BENEFITS OF DEPLOYING BLADE SERVERS IN THE DATA CENTER

- Space savings – more computing power/servers per square foot
- Simplified infrastructure and cabling – the blade chassis supplies redundant power and fans, reduces the need for external connections to individual blades and provides the framework for blades to easily snap in and out
- Easily scalable – easily add more blade servers
- Resilient – easily replace failed blade servers
- Repair efficiency – schedule blade replacement rather than crisis replacement
- Dynamic load handling – workloads can be dynamically assigned or reassigned to blade servers as needed. Blades can be automatically initialized to serve different applications as policies or workloads demand
- Manageability features – management capabilities included in some models

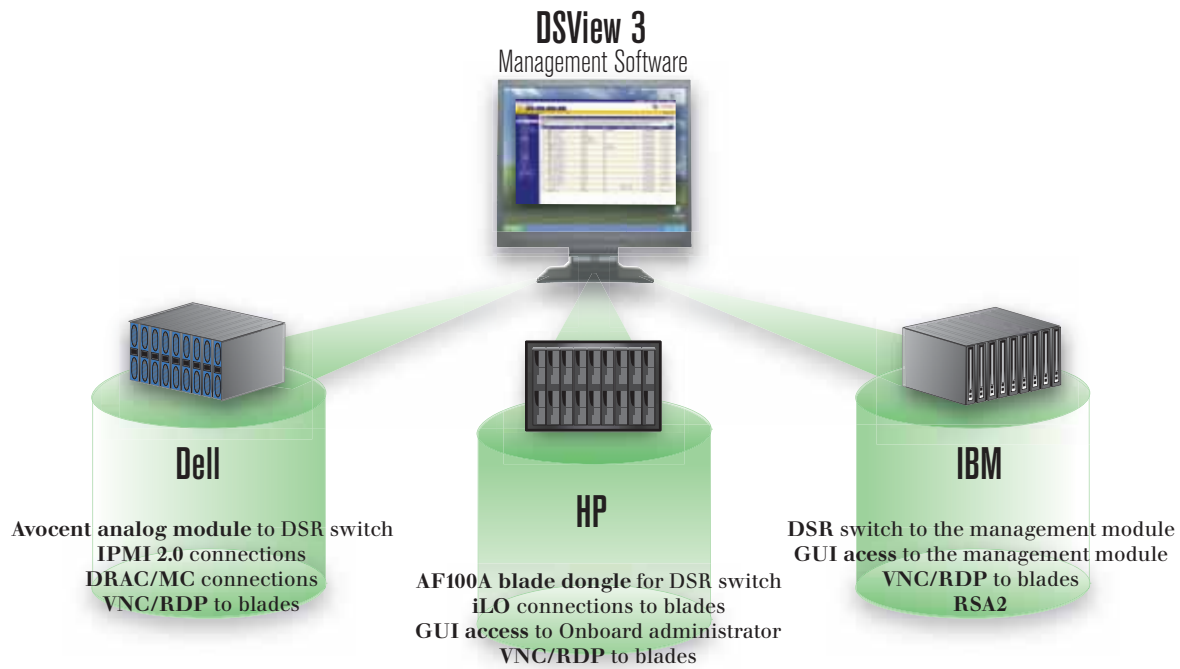
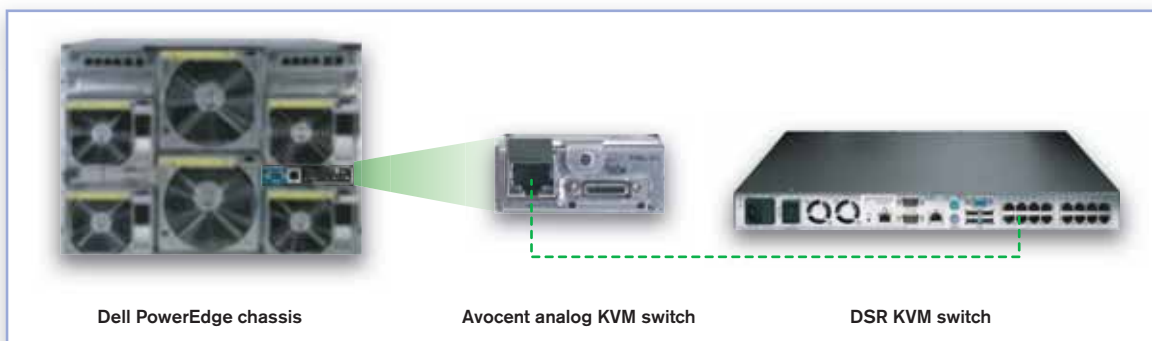


Figure 1. Deployed together, DSView 3 management software and Avocent management appliances provide multiple connection points to blade servers. Note that connection points may vary depending on the blade vendor.

AVOCENT SOLUTIONS THAT SUPPORT DELL BLADE SERVERS

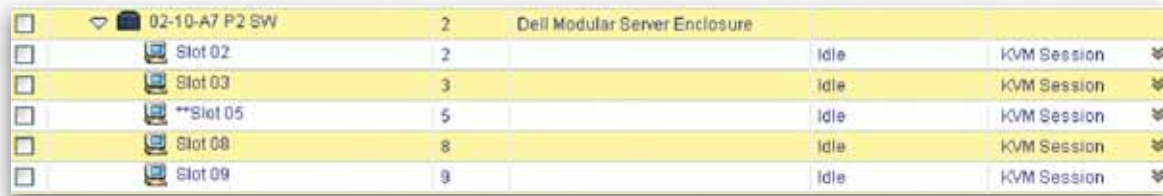
Local management connections

The Dell PowerEdge 1855 blade server has an option for an Avocent analog KVM switch module in its chassis. The KVM switch module connects directly to an Avocent DSR® KVM switch port using CAT-5 cabling. This connection enables seamless cascading to local keyboard, video and mouse, tiering to external Dell and Avocent analog KVM switches and tiering to external Dell and Avocent KVM over IP switches. Each individual blade server appears on the local onscreen display (OSD) of the Avocent KVM switch. Audit logs monitor switching activities of individual users.



Remote management connections

The DSView software interface tracks user switching activity and displays each Dell blade server individually. The Dell blade servers can be managed remotely through DSView 3 software or through the MergePoint™ 5200 series of service processor managers. The MergePoint 5200 connections enable IPMI-based power management and Serial Over LAN (SoL) sessions. Also in-band tools such as RDP and VNC are available depending on the OS installed on the blade server. These can be added as alternate connections to the blade servers to complement the out-of-band connections provided.



Item	Slot	Port	Device	Status	Connection
02-10-A7 P2 SW		2	Dell Modular Server Enclosure		
Slot 02	2			Idle	KVM Session
Slot 03	3			Idle	KVM Session
**Slot 05	5			Idle	KVM Session
Slot 08	8			Idle	KVM Session
Slot 09	9			Idle	KVM Session

Figure 2. The Dell PowerEdge blade server appears in a cascade list as a 10-port Dell modular server enclosure in the DSView 3 software interface.

Dell PowerEdge blade server specifications

- 7U (12.25 inch) modular chassis
- Up to 10 blades per chassis, providing 60 blades maximum in a standard 42U rack
- x86 processors
- Avocent KVM switch modules (analog or digital) are available for the Dell blade server chassis for local and remote KVM switching capabilities
- DRAC for additional remote management included in chassis – separate from KVM card
- No support for 4-way blades currently

AVOCENT SOLUTIONS THAT SUPPORT HP PROLIANT BL BLADE SERVERS

Local management connections

An HP adapter (sold by HP, part no. AF100A) can be directly attached to an individual ProLiant BL blade server; that blade server can then be directly connected to a port on an Avocent DSR KVM switch. Each blade server attached to an HP adapter appears in the local OSD. User permissions can be configured, and switching activity is captured in the audit logs of the DSView 3 software.

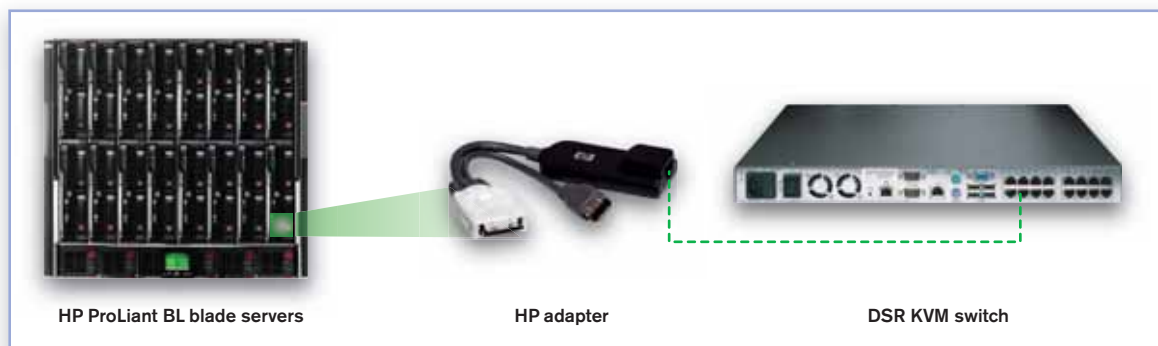


Figure 3. Individual blade servers appear on the local OSD.

Remote management connections

When DSView 3 software is deployed for centralized management, each blade server attached to the HP adapter and the DSR KVM switch will appear as a target device in the main DSView 3 software interface (Figure 4). In addition, each HP blade server has iLO capabilities, so remote users can also connect to individual blades through DSView 3 software or the MergePoint 5200 series of SP managers.



Figure 4. Each blade server attached to the HP adapter and the DSR KVM switch appears as a target device in the main DSView 3 software interface.

HP Proliant BL blade server specifications

- 7U (12.25 inch) chassis
- Up to 16 blades per chassis, depending on the type of blade servers installed
- 1, 2, or 4 processor models available
- No local KVM user port
- 2 diagnostic cables per chassis included for local KVM access, but no built-in KVM switching
- iLO for remote management built into each blade server

AVOCENT SOLUTIONS THAT SUPPORT IBM BLADE SERVERS

Local management connections

A user can attach an Avocent DSRIQ module to the KVM port on the blade chassis management module, and then the module can be directly connected to a port on an Avocent DSR KVM switch. In the local OSD, the connected blade chassis appears as a single target device, not as individual blades. The user must use a hot key sequence to access individual blades. Hot key sequences are necessary because the IBM management module does not have an OSD for local switching between blades. Due to this limitation, audit logs of switching activities and user permissions are also not available for individual blade servers. A key benefit of this connection method is that an out-of-band connection to the management module is created, which can be used to switch among individual blades even if the entire blade chassis is offline or is experiencing network connectivity issues.



Remote management connections

A user can connect to the RSA service processor in the IBM management module through DSView 3 software or through the MergePoint 5200 series of SP managers. If the user chooses to use DSView 3 software for a remote connection, the user will only gain access to the main interface and will need to use the drop down menu on the welcome screen to select individual blades.



Figure 5. Each blade server does not appear as a target device in the DSView 3 software interface.

IBM BladeCenter eServer specifications

- 7U (12.25 inch) chassis with 14 slots
- Each eSeries chassis holds up to 4 management modules
- 1, 2, or 4-way blade servers available
- Management module with local KVM port with KVM switching capabilities (uses hot key sequence)
- Management modules include IBM RSA technology for remote management

Additional Ways to Connect to Blade Servers

DSView 3 software enables users to add services to target devices using the in-band tools RDP and VNC to complement out-of-band connections. Browser/GUI access to service processors and management modules are also possible through DSView 3 software and the MergePoint 5200 series of SP managers. Supported service processors include DRAC for Dell blades, iLO for HP blades, IPMI for Dell blades and RSA for IBM blades.

DSView 3 software supports many different connection methods including in-band remote software, out-of-band physical connections and the recent support for embedded technologies such as service processors. The result is a powerful solution that has the unique ability to merge all of these connections into a single interface, providing the user with simple and fast connection options. For example, in Figure 6, the target device named PWR_Edge_800_BMC can be accessed through a KVM, IPMI, SoL, or RDP/VNC connection.



Figure 6. The target device, PWR_Edge_800_BMC, is accessible through a KVM, IPMI, SoL, or RDP/VNC connection.

The Avocent Advantage

For more than 20 years, Avocent has provided its customers with IT infrastructure management solutions to access and manage servers and network devices in enterprise data centers, branch offices and small and midsize businesses worldwide. Currently, 93 percent of Fortune 100 companies use Avocent solutions in their IT infrastructures. Our IT infrastructure management solutions feature KVM over IP switching systems, serial console servers, power management devices and embedded server management products, all controlled by DSView 3 management software.

Avocent solutions provide customers with multiple ways to connect to and support their blade server deployments, regardless of the manufacturer. With DSView 3 software, customers can control not only their blade server deployments, but also their rack-mounted servers and other networking equipment in the data center – all from a single, consolidated user interface.

ABOUT AVOCENT

Avocent (NASDAQ: AVCT) delivers IT operations and infrastructure management solutions for enterprises worldwide, helping customers to reduce costs and simplify complex IT environments via integrated, centralized in-band and out-of-band hardware and software. Through LANDesk, Avocent also is a leading provider of systems, security, and process management solutions. Additional information is available at www.avocent.com.