SearchSystemsChannel.com E-Guide

Chapter 3: Storage

Storage blades can help you address your customers' storage capacity and interconnect needs. This chapter presents storage blade technologies and benefits.

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Blade servers well-suited for disaster recovery plans

Anne Skamarock, Contributor
October 3, 2007

Planning for disaster recovery has long been a prudent business practice. But conceiving and implementing such a plan can be an expensive and time-consuming project, so companies tend to drag their heels about it—and sometimes suffer very costly consequences when disaster does strike. Fortunately, blade servers have matured to the point where they make sense as the cornerstone of a workable, affordable disaster recovery plan. The channel can deliver real value to customers by building and selling blade server solutions for disaster recovery.

Why blade servers? Because there's no better platform for building a disaster recovery site or service. Often called a "data center in a box," blade servers excel in efficient use of space and power distribution. They reduce cable costs, are easy to administer and upgrade, and can easily be accessed for repairs. Best of all, they come in a variety of configurations to suit virtually any customer's budget. All of these factors make blade servers an attractive component of a disaster recovery plan.

One of the biggest selling points for blade servers is their efficient use of space. Blades offer the highest computing density with the lowest footprint available today. For example, a standard 19-inch rack can be populated with 42 1U servers or 64 half-height HP c-Class blades using four HP c7000 BladeSystem chassis, or 84 IBM blades using six IBM BladeCenter E chassis.

In addition to efficiently using space, each blade chassis shares resources—such as power, cooling, network switches, storage switches, cabling and management resources—across all the blades within the chassis, so each server doesn't require its own resources.

The shared switches provide the server blades with any-to-any connectivity through the chassis. Most switch modules slide into the back of the chassis, connecting directly to the chassis mid-plane. This eliminates cables between the blade servers and the switches and reduces the number of cables required out of the back of the chassis—cutting cable costs and the amount of cable management required. The blade solutions that do not use a mid-plane architecture all pre-wire the chassis for ease of cable management. Most blade vendors offer switch modules that are produced by companies such as Cisco and Brocade so that the end-user management interface for their infrastructure remains the same.

The final shared resource is overall chassis management. Each chassis has a management module that allows administrators to monitor and manage all components in the chassis from one interface. These management modules come with a network interface for remote or local management of the chassis and its components, thereby making management of the blade ecosystem effortless.

Since blade servers are densely packed, the companies offering blade chassis solutions have put a great deal of time and effort into creating highly efficient power distribution systems and cooling capabilities within the chassis. On average, a blade chassis uses 30% less power than the same number of 1U or 2U servers. Each

watt saved in power equals a watt of cooling saved. However, as noted above, many blade servers can be placed in a chassis, requiring a more efficient cooling architecture as well as intelligent disaster recovery site planning to maximize cooling efficiency. The IBM BladeCenter and HP BladeSystem chassis both use front-to-back cooling technologies—which, depending on the size of the disaster recovery site, can create hot and cold aisles, much like standard rack configurations. Alternatively, the Verari Systems Vertical Cooling Technology moves the hot air out of the top of the box using a high-velocity stream of cool air. It is important that your customer, when planning a disaster recovery site, understands the power and cooling capabilities of blade server offerings; toward that end, you can incorporate disaster recovery site planning into your solutions mix.

Another advantage of blade server solutions is that they are easy to access for maintenance and easy to provision, or add new blades to a chassis. When configuring a disaster recovery site, you can choose to remove all or nearly all state, i.e., identifying information, from a blade server, by using blades without local disks (diskless blades). In this configuration, you would boot the server from a storage network using the PXE protocol. This would allow the disaster recovery site to boot any supported operating system (OS), dependent upon the customer recovery scenario, rather than hardwiring the boot to one OS. This, together with I/O virtualization, eliminates the need to reconfigure the network (both LAN and SAN) any time a change is made to the blade server, making the blades completely interchangeable. This gives the disaster recovery site maximum flexibility to manage and upgrade servers as the business requires.

Blades come in many varieties and capabilities to meet your customers' cost and disaster recovery needs. You could populate your customer's disaster recovery blade chassis with a variety of CPU types, cores and speeds; with or without local disk; fast or slow networking capabilities; or the ability to boot from SAN or not.

If you deploy a disaster recovery system for a client using blade servers, be sure to recommend that they use disaster recovery software that allows for recovery to dissimilar hardware. This way, your customers can be running their applications on either bladed or non-bladed servers but can recover to a blade server. This will give your customers the ability to take the greatest advantage of the blade options available within their price range.

Recommending storage blade servers

Brian Peterson
May 23, 2007

What are the signs that a VAR should recommend storage blades for customers?

Brian: Since their debut, storage blade manufactures have promised that this new storage platform will deliver value on par with the ever popular server blades. As such, VARs should look for similar problem scenarios to apply storage blades.

These include:

- Space and power constraints: Blade storage can be purchased and deployed in very small spaces and are at least as power efficient as traditional arrays.
- Clients that require cost effective storage: Most storage blades today leverage Serial Attached SCSI (SAS) interfaces that also support SATA drives.
- Clients that require rapid deployment of new capacity:Blade technology is designed to be plug and play. While the specific procedures vary with manufacturer, this is a primary design element of most blade storage systems.
- Clients that need investment protection As the blade centers often leverage SAS interconnected, today's cost conscious customer can deploy SATA drives and later upgrade to SAS drives without changing the chassis.

Storage blades can meet storage network capacity needs

Anne Skamarock, Contributor
April 28, 2007

Are you considering using server blades, but holding back because your customer needs more local storage capacity without tapping networked storage? Do you also want to take advantage of the blade chassis foot-print and shared features, such as redundant power, cooling, monitoring and management? If so storage blades may be a great option.

Like any other blade, storage blades come from a variety of vendors with different capacities, interconnect and targeted markets. Earlier this year, HP announced their HP StorageWorks SB40c storage blade. This blade inserts into the BladeSystem c-Class chassis adjacent to the processor blade; it provides additional direct-attach storage (DAS) capacity via a high-speed PCI Express connection between the two blade slots. The SB40c contains up to six hot-plug small form factor (SFF) SAS (serial attach SCSI) or SATA (serial ATA) drives with an HP Smart Array P400 RAID controller with battery backed-write cache. Today, the c-Class chassis supports a maximum of eight SB40 storage blades per chassis for a total of over 7 terabytes (TB) of DAS. This additional in-chassis storage allows you to avoid moving customers to a network-storage environment. For that reason, it's ideal in data centers where network-storage knowledge is limited, such as branch offices and remote offices (ROBO), or where applications are easier to manage with local stor-age, such as mail servers or smaller databases.

Verari Systems also offers a processor blade with off-the-shelf components that take blades one step further—to the storage blade. Verari's VB5150 is a network-attached storage (NAS) subsystem, optimized for high density, containing one head-node (VB1150) and up to four storage blades (VB5155S), which are connected via SAS expanders for as much as 30 TB capacity per subsystem. Each storage blade supports a RAID controller and up to 10 hot-swap SATA drives. The VB5150 utilizes Verari's BladeRack 2 platform (also used with processor blades) with redundant power inputs, power metering and cooling with support for up to 48 storage blades for a total of 360 TB capacity. Verari has integrated the PolyServe File Serving Utility

onto the head node with support for NFS, CIFS and FTP. Verari has a long history in the high-performance computing, cluster computing and enterprise computing markets, where high-density shared file access is a key factor.

The embedded systems vendors have taken hold of the storage blade idea as well. Performance Technologies has IP storage blades (IPnexus CPC5900) for those with CompactPCI PICMG 3.0 requirements, supporting 1 TB storage expandable to 2 TB via a storage expansion blade. Both NFS and iSCSI protocols are supported. Motorola has Fibre Channel-based ATCA storage blades (ATCA-S100) with up to 300 gigabytes (GB) capacity per blade. And there are others, such as EtherDrive storage blades or Adtron. These solutions are targeted at companies who want ultimate flexibility in building their own solutions utilizing storage blades, often for custom applications or with specific markets targeted.

Storage blades are being developed to augment many different solutions with interconnect and capacity flexibility to meet the needs of customers. The ability to share chassis space, power, cooling and management with processors provides a plethora of channel business opportunities.

To learn more about what is being done with storage blades or storage with respect to blade servers or storage and server virtualization, attend the Seventh Annual Server Blade Summit on Blades and Virtualization: The Perfect Marriage, May 1-3 in Anaheim, Calif. This year's program is supporting three tracks, IT strategy and business, IT technical implementation and vendor technical, supporting seven storage-specific sessions across the tracks. Be sure to visit the ROI Planning Lab being sponsored by IBM Tivoli and Avnet to see how blade systems and virtualization solutions can positively affect your bottom-line.

Blade storage management considerations

Anne Skamarock, Contributor
April 22, 2007

With the advent of any new technology, such as storage blades, the question of management is always close at hand. How do you manage storage blades? Do you have to send your staff to another class? It depends.

The main differences may come with the initial storage configuration. The good news is that nearly all the storage blade vendors use standard protocols and interfaces, so more often than not, the day-to-day management of storage on blades will be the same that you would do for similar types of storage. Classes may be required if you bring in a storage interconnect technology, such as network-attached storage (NAS) or storage area networks (SAN), that is new to your or your customer's environment.

For example, the Hewlett-Packard StorageWorks SB40c storage blade looks to the operating system like storage on the processor blade because it's direct-attached storage (DAS). Initial array configuration of the storage blades use HP's browser-based Array Configuration Utility (ACU), which allows you to also add more disks to the array or completely reconfigure it, just as you would with many of HP's other storage arrays.

With SAN or NAS, blade management will depend a great deal on the storage blade vendor. For example, the Verari Systems VB5150 storage-bladed subsystem uses PolyServe's File Serving Utilities to provide a NAS-based interface. Blade-specific management would be done through the PolyServe utilities. However, day-to-day management functions like backup would be performed the same as you would for other storage.

How storage is managed within embedded solutions is entirely dependent upon the solution provider. Storage blades, such as Performance Technologies IPnexus CPC5900, comes with a development environment and uses standard IP SAN (iSCSI) and NAS (NFS and SAMBA) interfaces.

No matter what blades are being used, day-to-day operations will not need change much, however, blade configuration can vary widely from vendor to vendor.

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