



IBM BladeCenter S for Oracle Database with Oracle Real Application Clusters

Help lower your total cost of ownership while adding flexibility to help meet unforeseen requirements

Resilient server infrastructure with the new IBM BladeCenter® S platform, designed specifically for small-to-medium business implementations

A wide and flexible array of BladeCenter deployment options help enable Oracle Database with Oracle Real Application Clusters (RAC) to meet your requirements

Gives you the ability to help increase the availability of the database that runs your business by employing the IBM BladeCenter S monitoring and management tools

Features the BladeCenter S design that integrates servers and offers up to 9 TB of storage, networking and I/O all in a single compact chassis

Low, 110V power requirement, enabling it to be plugged in almost anywhere

IBM BladeCenter S

Tackle your IT complexity with IBM BladeCenter technology. Its design gathers computing resources into a high-density enclosure that supports hot-swappable, high-performance blade servers based on a variety of processors:

- Up to two quad-core Intel® Xeon™ 5500 series processors
- Up to two dual-core IBM POWER™ processors
- Up to four quad-core AMD Opteron™ processors

IBM has maintained the same blade form factor since 2002, which provides you with investment protection. BladeCenter technology simplifies your infrastructure by bringing together your network and storage switching into a single enclosure. These elements are tied together with unified, powerful solution management tools that significantly reduce the complexity and cabling requirements of a cluster configuration. The result is an effectively managed infrastructure that helps maximize resource productivity and minimize IT and network administration costs.



The BladeCenter design addresses your most serious IT issues: manageability, scalability, capacity, performance, cooling, power and space constraints. IBM blade servers are designed to take less time to install and fewer people to maintain, helping reduce IT and network infrastructure costs. Your enterprise or network can benefit from simplified management, fast installation, modular scalability and high availability. BladeCenter design delivers improved space efficiency compared to most 1U rack-optimized solutions.

The new IBM BladeCenter S delivers the power of BladeCenter technology to small and midsize businesses. This is the industry's first blade chassis uniquely designed for small and midsize offices and distributed environments. The IBM BladeCenter S is small enough to sit under a desk, uses standard office power (100–240 V), and yet allows the integration of servers, storage and networking into one chassis — all while running so quietly that office conversations can go on uninterrupted right next to the chassis.

With a capacity to hold up to six blade servers, the chassis simply plugs into an average wall socket, helping eliminate the need to own and operate costly data centers. The BladeCenter S supports virtually all of your applications — including those running on Microsoft® Windows®, IBM AIX®, Sun® Solaris™ and Linux® platforms — and integrates the hardware and software most used by midsize businesses, including:

- Antivirus and firewall protection
- Voice over IP (VoIP)
- E-mail and collaboration applications
- Backup and recovery
- File and print applications
- Easy tools to manage storage

The IBM BladeCenter S is compatible with the BladeCenter family of products, helping to provide investment protection and seamless growth. The new chassis shares most of the IBM BladeCenter blades and switches. Leveraging a single, compatible architecture can help you reduce costs and complexity, again while helping to deliver investment protection.

Rock-solid reliability, feature-rich function

You count on technology to run your business, often within tight IT budgets. IBM BladeCenter developers are constantly engineering new features to help provide additional value for your investment.

IBM Director, our award-winning hardware management solution, is an open, integrated suite of software tools that provides a consistent, single point of management and automation. This suite forms the foundation for the management of your hardware systems, can be extended for additional capability and can integrate with and complement higher-level systems management offerings. IBM Systems Director Active Energy Manager™ provides the capability to monitor the power usage for all System x and BladeCenter servers in your IT environment, giving you the tools to monitor and plan for future power consumption.

These tools are connected to extensions such as Predictive Failure Analysis, Remote Supervisor Adapter and Light Path Diagnostics. Together, they help constitute one of the best system management offerings in the market, making BladeCenter S the clear choice for Oracle Database running on commodity processor-based blades.

Oracle Database 11g and Oracle RAC

Oracle Database 11g is the latest release and represents an evolutionary step based on the previous Oracle Database 10g. This new release has advanced self-management and automation features to help organizations meet service level agreements. Oracle Real Application Clusters (RAC) is an optional feature of the Oracle Database.

Oracle RAC is the key component of Oracle enterprise grid computing. It is a cluster database with a shared cache architecture that provides scalability and high availability for all your business applications (packaged or custom) by exploiting clustered hardware configurations. Oracle RAC accesses a single database from multiple servers, insulating both applications and database users from server failures, while providing performance that scales out on demand.

Oracle Database 10g and 11g include Automatic Storage Management (ASM) and Oracle Clusterware. Combining the use of ASM and Oracle Clusterware virtualizes storage, database servers, application servers, holistic management, and all the other aspects related to deploying and managing a virtualized IT environment.

IBM BladeCenter S running Oracle Database with Oracle RAC

The Oracle Database has been available on BladeCenter servers since the product's inception, and now with the availability of the RAIDed SAS Switch Module (RSSM) the BladeCenter S platform can support the Oracle Database with Oracle RAC.

The IBM BladeCenter S RSSM enables a fully redundant Storage Area Network (SAN) based on high-performance, full-duplex 3Gbps technology. With this innovative solution, small offices across the world can benefit from blades, SAN storage, networking, and management, all integrated into a neat BladeCenter S chassis.

Features include:

- High-performance, fully duplex, 3Gbps speeds
- Support for RAID 0, 1, 5, and 10
- Supports two disk storage modules with up to 12 x 3.5in SAS or
- Nearline SAS drives, solid state drives that provide up to 9TB of internal storage
- Redundant configuration (dual RAID controller, dual-switch and dual-BBU) integrated into BladeCenter S chassis
- SAS boot and shared storage in IBM BladeCenter S chassis
- Six local processor blade support in IBM BladeCenter S chassis
- Customer hot-swappable components

The RSSM allows hard drives to be networked together as a SAN device, which can be shared by the blade servers. Previously, to add SAN capability to the BladeCenter S platform, it was necessary to add a switch to allow it to be connected to an external storage network. The new RSSM-enabled SAN capability makes it easier for customers to deploy Oracle RAC by offering server and SAN in a single enclosure.

Oracle Database with RAC is certified by Oracle for each specific version of an operating system. For example Microsoft Windows 2003 and 2008, Red Hat Enterprise Linux, and SUSE Enterprise Linux are supported. To get the latest support status for the operating systems supported with the Oracle Database and RAC please visit: www.oracle.com/technology/support/metalink/index.html

IBM BladeCenter S — an ideal integrated platform for Oracle Database with Oracle RAC

Oracle Database with Oracle RAC runs on the IBM BladeCenter platform in a wide spectrum of configurations. Some of the benefits of running Oracle Database with Oracle RAC on an IBM BladeCenter S are:

- A true all-in-one solution: servers, networking, management, and now a fully redundant, fully integrated SAN storage array built into the BladeCenter S chassis. Host applications, databases, systems management and storage in a single box can dramatically reduce complexity and costs. This integrated IT infrastructure simplifies the deployment of servers and storage, reducing the resources and level of expertise needed to manage it all.
- Easy to virtualize: both servers and storage can be virtualized to maximize efficiency without the need for dedicated IT staff.
- Redundant “everything”: IBM BladeCenter S has redundant power, cooling, and switching features.
- Increased application deployment speed: through integration of key in-store computing components, providing an application-ready platform.
- High-availability: near-continuous uptime for database applications, a spare blade can automatically take on the workload from a malfunctioning blade.
- On-demand scalability: expand capacity by simply adding servers to your cluster
- Proven technology: BladeCenter S with RSSM technology and Oracle Database features, including Oracle RAC.
- Large database support: up to 9TB of total storage capacity.

Figure 1 shows the architectural overview for the Oracle Database with Oracle RAC running on an IBM BladeCenter S platform. Given the affordability of the BladeCenter S and the ease of expandability, this solution is ideal for customers that need a simple and easy-to-deploy Oracle RAC solution.

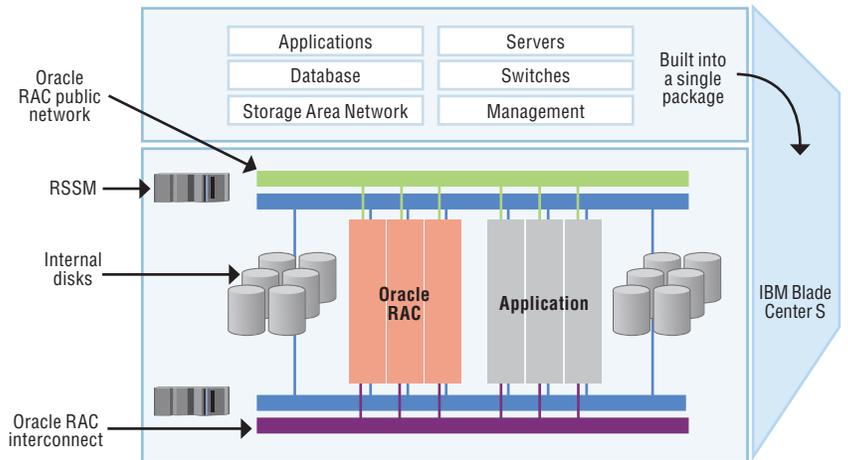


Figure 1. Architecture overview

Sizing Oracle Database with Oracle RAC for the IBM BladeCenter S

When estimating the capacity of a BladeCenter S for running Oracle Database with Oracle RAC it is important to be sure that the number of SAN disks configured can adequately handle the expected I/O workload. This topic, plus many others, can be addressed by IBM's sizing methodology. IBM has developed a sizing-estimation capability that addresses this and many other capacity-estimation issues and can aid in designing an optimal configuration for the Oracle Database with Oracle RAC when deployed on the BladeCenter S platform. You can obtain a sizing estimate customized for your environment from the IBM Techline ISV Solution Sizing Team. This organization is accessible through your IBM or IBM Business Partner representative. To start the sizing process, you can download a questionnaire from:

ibm.com/erp/sizing

The IBM and Oracle alliance

Since 1986, IBM and Oracle have partnered to create smart, serious innovation that's helping to shift the world. More than 100,000 joint customers benefit from the strength and stability of the Oracle and IBM alliance, which offers technology, applications, services, and hardware solutions that mitigate risk, boost efficiency, and lower total cost of ownership (TCO). IBM's service organization, IBM Global Business Services, is an Oracle Certified Advantage Partner and has a proven track record with over 5000 experienced professionals who have completed over 7500 Oracle projects. IBM and Oracle continually enhance the alliance to ensure they are helping companies respond quickly to constantly shifting market conditions and client demands. This is accomplished through the delivery of industry-specific hardware and software solutions, optimized to the client's environment.

For more information

To find out more about joint solutions from IBM and Oracle, please contact an IBM sales representative at 1-866-426-9989, or visit us at:

ibm.com/solutions/oracle

For more information about the IBM BladeCenter family, visit:

ibm.com/systems/bladecenter

For more information about Oracle Database, visit:

www.oracle.com/applications/database.html



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