



IBM System x and Oracle VM virtualization for Oracle clients

Helps lower total cost of ownership and improve flexibility

Consolidate many Oracle and non-Oracle workloads to a single, virtualized architecture to improve resource utilization and reduce cost

Use secure Live Migration and advanced High Availability features to minimize, or even eliminate, system downtime

Take advantage of sub-capacity pricing to license only the processors, sockets or cores needed for your Oracle database

Use IBM System x[®] servers to scale up to 16 processor sockets and one TB of memory.


Download Oracle VM Templates, at no charge, to deploy software more rapidly

Oracle VM

Oracle VM is free server virtualization and management software, first announced in 2007. It provides scalable server virtualization and supports Linux[®] and Windows[®] operating systems as well as Oracle and non-Oracle applications.

Oracle VM provides an easy-to-use graphical interface for creating and managing virtual server pools that run on x86 and x86-64 processor-based systems. Users can create and manage virtual machines that exist on the same physical server, but appear as independent, physical servers.

Each virtual machine created with Oracle VM has its own virtual CPUs, network interfaces, storage and operating systems. With Oracle VM, Oracle provides clients with integrated clustering, virtualization, storage and management for grid computing, as well as unified, full stack support for virtualization, Linux, database, middleware and application products.



Clients can also use Oracle VM Templates To deploy a fully configured software stack using pre-installed and pre-configured software images. This eliminates installation and configuration costs, and reduces ongoing maintenance costs, helping organizations shorten time to market and reduce operating costs.

Many vendors, including IBM, offer virtualization solutions. However, Oracle VM is the only Oracle certified server virtualization solution for x86 and x86-64 processor-based platforms. In other words, if a client opens a Service Request (SR) with Oracle Support for an Oracle product running under Oracle VM, this SR is fully supported.

Products supported by Oracle when running under Oracle VM include the Oracle Database, Oracle RAC (Real Application Clusters), Enterprise Manager, Oracle E-Business Suite, Oracle's PeopleSoft Enterprise, Hyperion, Siebel, Oracle's JD Edwards EnterpriseOne, Oracle Retail, Oracle Weblogic and several others. For a complete list, visit: <http://www.oracle.com/technologies/virtualization/index.html>

IBM System x and BladeCenter

IBM System x is a portfolio of robust servers built on IBM X-Architecture®—the IBM blueprint for bringing innovation to x86 systems. And innovation can help set you apart from the competition. For example, an IT infrastructure that is more reliable, more available and built in a more flexible manner can enable you to get your applications or products into production more quickly. More affordable IT allows you to use the savings to fund other innovation projects.

The innovative, open design of the IBM BladeCenter® offers a true alternative to today's sprawling racks and overheated server rooms. Migrate to the blade solution that uses less energy and gives you more choices and control.

As with the IBM System x servers, BladeCenter is built using the IBM X-Architecture. The result is open, industry-standard blade solutions that easily handle the most business-critical workloads. With IBM BladeCenter you can choose the solution tailored to your diverse needs—so you can innovate with confidence.

Both the IBM System x and the IBM BladeCenter servers use Intel® or AMD Opteron™ processors. Intel processor-based solutions are designed to deliver outstanding performance and availability while simplifying management and scaling to meet future demands. This allows you to build a powerful, cost-effective IT infrastructure that can grow as your business grows.

“The combination of Oracle VM and IBM’s scalable x86-based servers might be a virtualization game changer. Both of these vendors are long-time trusted data center players—which is a significant advantage over their competitors.”

- Dan Olds
Principal, Gabriel Consulting Group
Oracle Gets Virtual, September 2008

The recent announcement of the Intel Xeon® Processor 5500 series offers performance that now matches that of RISC-based processors and gives you both more control and the flexibility to find the right amount of processing power at the right price point.

AMD Opteron processor-based servers from IBM take advantage of the unique capabilities of Opteron technology to help satisfy the compute-intensive demands of scientific, technical and financial applications. Available as quad-core and dual-core, AMD Opteron processors offer superior performance at an affordable price.

IBM X-Architecture

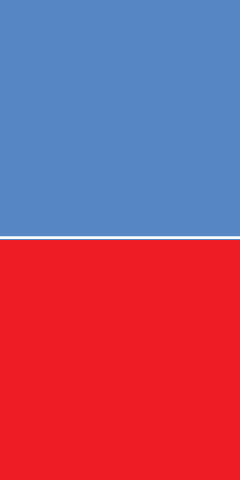
IBM’s fourth generation X-Architecture, commonly referred as eX4, offers significant power savings features that help organizations become greener, more energy-efficient and cost-effective. Performance per watt has become an important metric within large data centers due to power and cooling environmental limitations and the increasing density of server racks.

A dual in-line memory module (DIMM) comprises a series of dynamic random access memory integrated circuits. Advanced Buffer eXecution (ABX) provides on-board buffering to help minimize chip failure. By designing the eX4 technology platform with the registered DIMM technology and the Advanced Buffer eXecution chip, IBM doubled the DIMM slot capacity of the base system without resorting to memory buffering technology.

As a result, these systems are more power efficient and can use up to 37% less power in the memory subsystem, compared to fully buffered DIMM technology. However, they maintain the same level of data protection. In addition to these cost savings, eX4 servers deliver power supplies with efficiency ratings as high as 91.3%—one of the most effective designs in the industry.

All commodity based servers are not alike. IBM has invested over \$100 million working with Intel to develop a unique chipset that minimizes processor overhead and provides more cycles that perform real work. The eX4 chipset helps give these servers a clear performance advantage that helps your organization meet its performance objectives.

Also, the System x platform provides a complete solution to your virtualization needs, leveraging technology such as Chipkill™ memory and light path diagnostics developed for RISC and mainframe systems, respectively.



The IBM System x3850 M2 and the IBM System x3950 M2 are examples of IBM servers that use the eX4 architecture. The IBM System x3850 M2 and System x3950 M2 take performance, efficiency and reliability to another level with a balanced enterprise server. They use Intel Xeon Processors 7400 Series up to 2.66 GHz (six cores). With the IBM x3950 M2, you can install up to four chassis, including up to 16 sockets (96 cores) and up to one TB of memory.

Rock-solid reliability, feature-rich function

IBM Director, the award-winning hardware management solution from IBM, is an open, integrated suite of software tools. It provides a consistent, single point of management and automation. This suite forms the foundation for the management of your hardware systems. It can also be extended for additional capability and integrates with, and complements, 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, providing all the tools needed to monitor power and plan for future usage.

IBM System x — the ideal platform for Oracle VM

Oracle VM runs on the IBM System x and BladeCenter platform in a wide variety of configurations because Oracle VM supports x86 and x86-64 architectures. Some of the benefits of Oracle VM on IBM System x and BladeCenter servers are:

- **All-in-one solution**

The IBM BladeCenter S offers a fully redundant, fully integrated SAN storage array that can allow you to run servers, networking, and systems management in a single box.. Running host applications, databases, systems management and storage in this way 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.

- **Sub-capacity pricing**

This allows clients to license only the number of CPUs or sockets they use. Clients can save support fees by shifting from older servers to an Oracle VM partition.

- **Live Migration**

This allows clients to move a workload to another server and VM partition for system maintenance or high availability. This can help ensure application availability should a server failure occur and can help with the scheduling of server maintenance without losing access to key applications or databases. The two servers in a migration pair do not have to have the same configuration.

- **Easy to virtualize**

Both servers and storage can be virtualized to maximize efficiency without the need for dedicated IT staff.

- **Faster application deployment**

By integrating key, in-store computing components, it provides an application-ready platform.

- **On-demand scalability**

To expand capacity, simply add more servers to your cluster.

- **High availability**

Adding servers helps increase the availability of a virtual machine running on Oracle VM. Should a server fail, the virtual machines running on that server can failover to another server running Oracle VM.

Figure 1 shows a sample configuration running Oracle VM on an IBM system x3850 M2 server. The server is shown running several virtual machines with either the Linux or Microsoft® Windows operating systems. In this example, an IBM x3550 M2 server runs the Oracle Enterprise Manager allowing you to monitor the activity of the server pool.

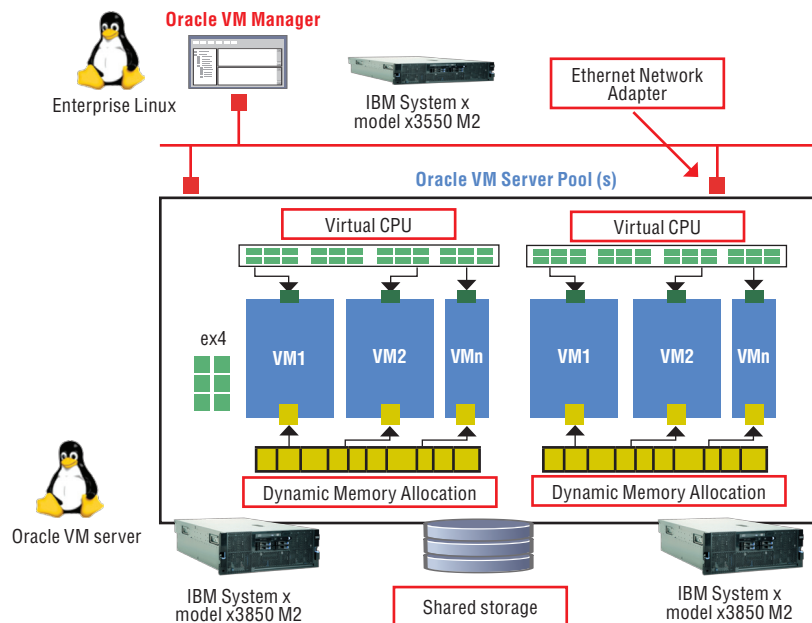


Figure 1. Use Oracle VM to virtualize an IBM System x3850 M2 server



Sizing Oracle VM with the IBM System x and BladeCenter

Sizing for Oracle VM on IBM System x and BladeCenter servers follows the same procedure used for sizing any other Oracle solution on IBM servers. The first step is to complete a sizing questionnaire for the specific Oracle product to be used, for example, Oracle E-Business Suite or JD Edwards EnterpriseOne.

The next step is to submit the completed questionnaire to IBM. You can obtain a sizing estimate customized for your environment from the IBM Techline ISV Solution Sizing Team that provides worldwide sizing support. This organization is accessible through your IBM or IBM Business Partner representative. To start the sizing process, 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 clients 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.

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 learn more about joint solutions from IBM and Oracle, contact an IBM sales representative at 1-866-426-9989, or visit:

ibm.com/solutions/oracle

For more information about the IBM System x family, visit:

ibm.com/systems/x

For more information about the IBM BladeCenter family, visit:

ibm.com/systems/bladecenter

For more information about Oracle VM, visit:

<http://www.oracle.com/technologies/virtualization/index.html>

For more information about Oracle VM Templates, visit:

<http://www.oracle.com/technology/products/vm/templates.html>



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