

REDUCE TCO AND GET MORE VALUE FROM YOUR X86 INFRASTRUCTURE

GET GREATER VALUE OUT OF YOUR X86 INFRASTRUCTURE

- Oracle is the only vendor that offers enterprise consolidation solutions with built-in virtualization technologies that are engineered, tested, and deployed together as a single system.
- Pre-installed with Oracle Linux or Oracle Solaris, and with Oracle VM virtualization software
- Oracle Linux 5 is up to 75% faster than Red Hat Enterprise Linux 5
- Oracle Solaris provides flexible resource sharing of idle resources
- Oracle VM Server for x86 is the only certified virtualization technology for Oracle software
- All supported by Oracle's award-winning Premier Support offering

By integrating the full hardware, software and support stack, Oracle can reduce your three-year TCO on its Sun x86 infrastructure by as much as 57% over comparable HP and IBM servers deployed with Red Hat Enterprise Linux (RHEL) and VMware vSphere.

What Is Your true Total Cost of Ownership?

As IT professionals continue to drive towards more efficient and cost-effective ways to run their data center infrastructure, the economies of scale offered by open standards x86-based computing are increasingly seen as a compelling solution. Advances in x86 system design and operating systems as well as more mature server virtualization solutions have opened up new possibilities and are fundamentally changing how IT is deployed and managed. However, as these technologies have matured and proliferated independently, many companies are now dealing with sprawling x86 server farms from multiple vendors. This begs the question, “When a federation of vendors is supplying this infrastructure, what is your true Total Cost of Ownership?”

Oracle's highly scalable servers, with free, enterprise-class virtualization, enable you to consolidate your existing applications onto fewer, more powerful systems to reduce costs, improve efficiencies, and accelerate the delivery of services to meet changing business needs.

Integrated Infrastructure Approach

Oracle is the only vendor to offer enterprise consolidation solutions for x86-based infrastructure that include built-in virtualization technologies engineered, tested and deployed together as a single system. By providing leading x86 blade and rackmount servers with integrated virtualization and your choice of [Oracle Linux](#) or [Oracle Solaris](#) with a unified service support contract, Oracle can dramatically reduce the risks associated with deploying and managing IT systems — and provide a highly predictable, easily quantifiable TCO.

Oracle offers a complete portfolio of rackmount and blade servers that consistently deliver [enterprise leadership](#) and superior performance for Java-based middleware, enterprise applications, OLTP and Decision Support Databases with Oracle's own industry-leading software portfolio. Oracle's [Sun Fire](#) and [Sun Blade](#) x86 systems can come pre-installed with Oracle Linux or Oracle Solaris and Oracle VM virtualization software. Oracle Linux 5 is up to [75% faster](#) than Red Hat Enterprise Linux 5 and comes with enterprise-quality support. Oracle Solaris provides flexible resource sharing that can transparently utilize idle resources that are often found in consolidated environments, enabling greater performance and ROI. [Oracle VM Server for X86](#) is the only virtualization solution certified with Oracle software. This certification speeds problem resolution, reducing risk and expensive downtime. And this entire x86 infrastructure is backed by Oracle's [Premier Support](#), the award-winning service and support plan that includes proactive support tools and resources with embedded system diagnostics for faster troubleshooting and problem resolution.

CONTROLLING VIRTUALIZATION COSTS FOR BETTER TCO

- The largest cost drivers in a typical x86 virtualized infrastructure from HP and IBM are software licensing and support costs for Red Hat Enterprise Linux and VMware vSphere.
- On a two-socket system, these two costs represent as much as 73% of the three-year total cost of ownership.
- Oracle's fully virtualized and supported Sun Fire X4170 M2 server with Premier Support has a 52% lower three-year TCO than a comparable HP DL360 G7 server deployed with RHEL and vSphere.
- Oracle's complete virtualized and supported Sun Fire X4170 M2 with Premier Support has a 26% lower three-year lower TCO, and a 38% lower five-year TCO than HP's DL360 G7 server with only Red Hat Enterprise Linux.

RELATED PRODUCTS

[Sun Fire](#) and [Sun Blade](#) x86 systems
[Oracle Linux](#)
[Oracle Solaris](#)
[Oracle VM Server for X86](#)

RELATED SERVICES

[Premier Support](#)

x86 Infrastructure Cost Drivers

The largest cost drivers in a typical virtualized x86 infrastructure from HP and IBM are often software licensing and support costs for RHEL and vSphere. On a two-socket system, these two costs can represent as much as 73% of the three-year total cost of ownership. Hardware acquisition costs are only 18%, while facilities and system maintenance are just 9%. Oracle's system-based Premier Support plan dramatically reduces the cost with fully integrated, single-price support for system hardware, firmware, operating system and virtualization software, with no additional costs for software licenses and support. Oracle Support includes on-site support with a 2-hour response time and a unified, custom support platform with single point of accountability across the Oracle stack. As a result, Oracle's fully virtualized and supported [Sun Fire X4170 M2](#) server with Premier Support has a 51% lower three-year TCO than a comparable HP DL360 G7 server deployed with RHEL and vSphere (*Figure 1*). A minimum of one vCenter license is required to match the ease of management of the GUI-interface included free with Oracle VM, however it is not included in any of the system TCO analyses.

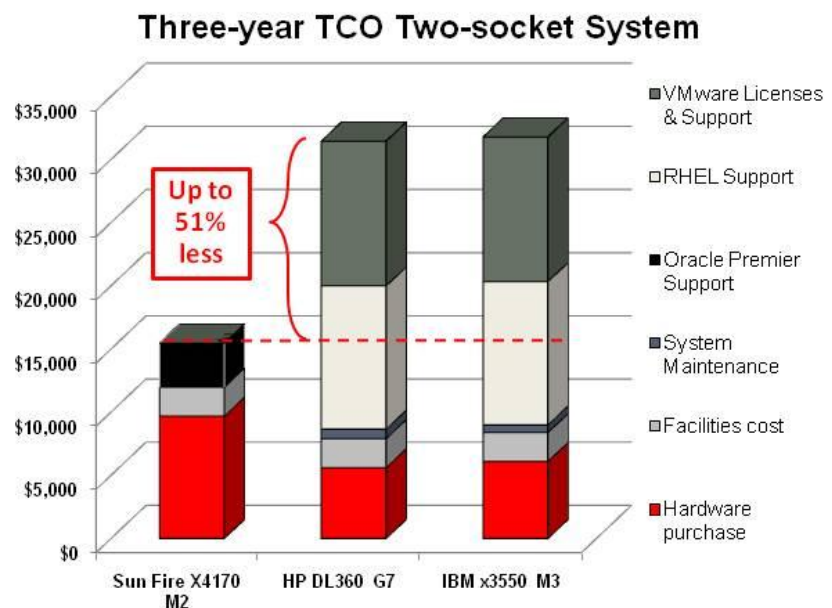


Figure 1. Three-year fully virtualized, supported TCO of a two-socket systems Intel® Xeon® processor 5600 series¹ system.

Five-year and Non-virtualized TCO

[IDC research](#) shows that the most common server refresh period is actually five years². The five-year TCO for this same comparison shows Oracle's Sun Fire X4170 M2 server and Premier Support has a 57% lower five-year TCO than the HP based alternative. Since Red Hat requires a support agreement to run RHEL in production, look at the TCO for x86 infrastructure that will be deployed with RHEL but not vSphere. Oracle's complete virtualized and supported Sun Fire X4170 M2 with Premier Support has a 22% lower three-year lower TCO, and a 36% lower five-year TCO than HP's DL360 G7 system with only RHEL. Oracle is still less expensive and includes advanced virtualization.

Consolidation Benefits with Oracle x86 Blades, 8-socket systems

Oracle also provides superior TCO on both blades and large multi-socket systems. When comparing a similar blade configurations for consolidation, Oracle's fully virtualized [Sun Blade 6000 System](#) with ten [Sun Blade X6270 M2](#) server modules, integrated [networking](#) and

Premier Support included, offers a 36% lower three-year total cost of ownership than a comparable HP BladeSystem c7000 with ten BL460c G7 and networking deployed with RHEL and vSphere (Figure 2). For companies running five-year technology refresh cycles, the Oracle configuration provides an even higher savings of 42%.

Three-year TCO 10 × Blades + Chassis + Networking

**WITH UP TO A 52% LOWER
THREE-YEAR TCO, ORACLE
PROVIDES THE GREATEST VALUE
FOR YOUR X86 INFRASTRUCTURE**

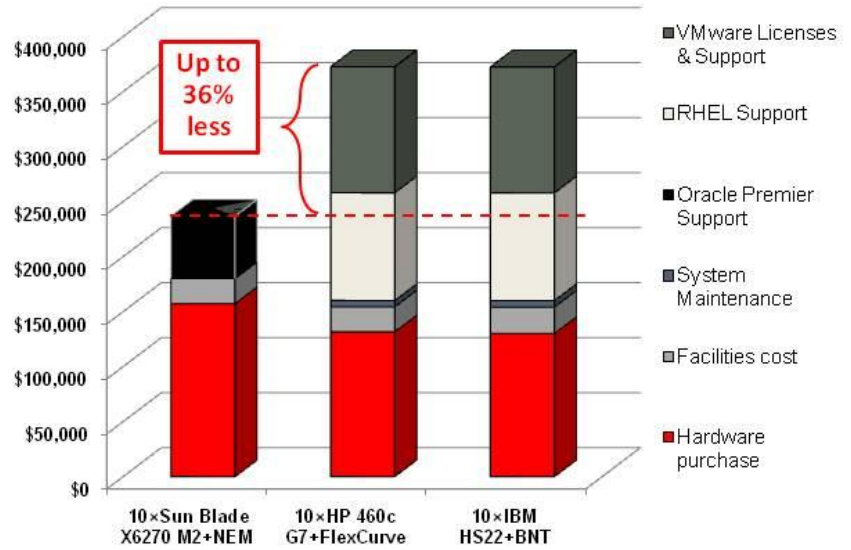


Figure 2. Three-year TCO of a fully virtualized and supported ten-blade configuration using the Intel Xeon processor 5600 series¹.

In a similar comparison, the Oracle [Sun Fire X4800 M2](#) server, an 8-socket rackmount system alternative for large-scale consolidation, has a 35% lower three-year total cost of ownership than a comparable IBM x3950 X5 server, and a 38% lower five-year TCO (Figure 3).

Three-year TCO Eight-socket System

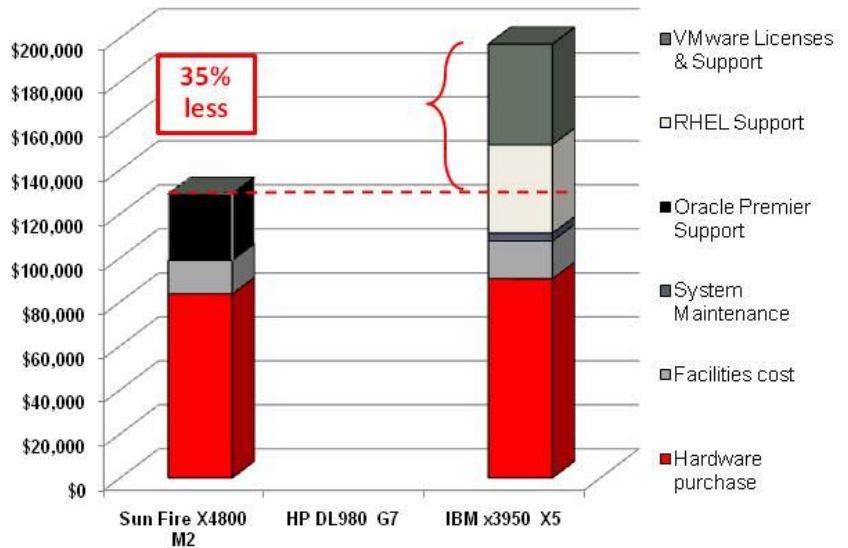


Figure 3. Three-year TCO of a fully virtualized and supported 8-socket rackmount server configuration using the Intel Xeon processor 7500 series¹. As of 7/12/2011, HP has not announced pricing or availability of systems using the 8-way

Intel Xeon E7-8800 family of processors, therefore no equivalent comparison is possible.

Unleash the True Value of Your x86 Infrastructure

Oracle's unique offering of a fully integrated and virtualized x86 infrastructure combines leading performance for systems with superior operating system choices and virtualization technologies. Oracle dramatically simplifies administration by offering a single tool to manage the entire stack, and a single support organization with the award-winning Premier Support. With as much as 57% lower three-year TCO versus typical deployments of HP and IBM systems, Oracle provides the greatest value for your x86 infrastructure.

Contact Us

For more information visit oracle.com/goto/serverconsolidation or call +1.800.ORACLE1 to speak to an Oracle representative.

¹ All analysis by The Edison Group: "[The Optimized Stack: Reducing Total Cost of Ownership through Vertical Integration](#)" based on pricing as of July 12, 2011. Vendor pricing at: **Oracle:** Sun Fire X4170 M2, Sun Blade X6270 M2, Sun Blade Modular System, Oracle Switched NEM, Sun Fire <http://www.oracle.com/goto/x4800m2> X4800 M2. **HP:** DL360 G7, c7000, BL460c, FlexCenter, DL980 G7. **IBM:** x3550M3, HS22, BladeCenter H, BNT, x3980 X5. **Red Hat** 2-sockets with unlimited virtual guests. **VMware** vSphere 4.1 Enterprise Plus Acceleration Kit for 8 Processors (licensing costs pro rated to number of sockets in configuration). **Other costs:** Average retail kW US Department of Energy, annual datacenter cost per square foot. **Configurations:** *two-socket system:* 2 x E5649 processor, 6 x 4GB LV DIMM, 2 x 300GB SAS HDD, SAS RAID HBA, DVD-RW, 2 x PSU, *blade system:* blade chassis, 10 x blades each with (2 x Intel Xeon X5670 2.93GHz), (12 x 4GB), (2 x 300GB); redundant power and cooling, 10Gb switch; *eight-socket system:* 6x E7-8870, 72x 4GB DDR3, 4x 300GB HDD, REM, 2x NEM, DVD, SRK. V1.2

² Source: IDC white paper titled, "[Server Refresh: Meeting the Changing Needs of Enterprise IT with Hardware/Software Optimization](#)," by Jean S. Bozman and Katherine Broderick, July 2010. Available at <http://www.oracle.com/us/products/servers-storage/servers/x86/idc-server-refresh-170677.pdf>.



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Hardware and Software, Engineered to Work Together