

Power All Oracle Environments with the Cisco Unified Computing System

Brochure
June 2013



Highlights

Accelerated Oracle Application Performance at Lower Cost

Cisco Unified Computing System™ (Cisco UCS®) is an innovative architecture with record-breaking performance.

Excellent Platform for All Oracle Environments

Support for leading operating systems and virtualization platforms provides exceptional freedom for Oracle environments.

Information Is Money

High throughput helps ensure timely access to information, enabling timely decisions.

Outstanding Scalability

Cisco UCS service profiles make it easy to quickly and accurately scale infrastructure to handle workload fluctuations.

Reduced Cost

Unified fabric plus single-wire management reduces the number of components and cabling, reducing both capital expenditures and operating costs.

Simplified Business Continuity

Remote systems can be provisioned in minutes to mitigate risk in the event of a failure over a wide geographic area.

Better Together

Cisco and Oracle have a long relationship and continue to work together to co-develop solutions.

Cisco and Oracle deliver the technology and innovative solutions companies need to build reliable and agile IT infrastructure.

Business leaders understand that today's problems cannot be solved with yesterday's solutions. Outdated infrastructure generates new challenges in the face of changing circumstances. Inflexible server technology reduces options and increases costs, limiting the pace of business. Compensating by overprovisioning for peak workloads is common, resulting in low system utilization, high capital expenditures, and an exponential increase in management costs.

Cisco and Oracle have joined forces to find ways to use technology to dramatically increase IT infrastructure reliability and agility while drastically reducing complexity. The results of this unique approach are innovative, cost-effective, and flexible infrastructure solutions that meet dynamic and evolving challenges.

Cisco: Accelerating Oracle Performance at Lower Cost

You already know Cisco and Oracle. For decades, Cisco® networking technology has accelerated Oracle application performance while securing data. The Cisco Unified Computing System™ (Cisco UCS®) extends this legacy with a physically distributed, centrally managed system that increases efficiency and business agility.

Cisco UCS is an innovative architecture that combines high-performance servers, high-speed networking, storage access, and virtualization in a converged infrastructure. Automatically configured through unified, model-based management, Cisco UCS simplifies the deployment of Oracle applications and databases, whether they are running in bare-metal or virtualized environments. This high-performance architecture improves Oracle application and database performance, accelerates the deployment of new implementations and upgrades, and greatly enhances operational flexibility.

“GE no longer configures each workload with dual IP addresses and dual DNS entries for production and disaster recovery. Instead, they use Cisco OTV to swing the entire Layer 2 segment, with the applications unchanged and intact, a thousand miles to their DR center. This is radically transforming business continuity implementation and DR.”

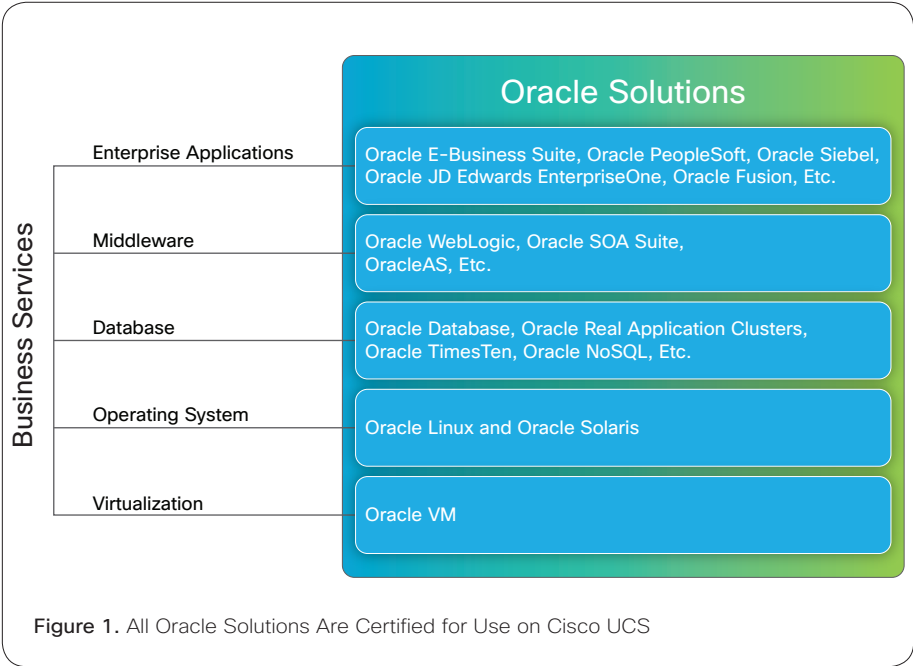
David Welch
CTO and Chief Evangelist,
House of Brick

Cisco UCS continues to set world-record benchmarks running Oracle Database and Oracle enterprise applications, and is doing so with a lower total cost of ownership (TCO) than traditional data center and server architectures. Based on blade and rack servers incorporating Intel® Xeon® processors with Intel Turbo Boost technology, Cisco UCS enables Oracle configurations to be sized correctly from the start. These powerful blade and rack servers integrate into Cisco UCS using a virtualization-optimized, low-latency, high-bandwidth unified fabric for exceptional performance and scalability. This approach uses a single network technology to support IP, storage, and management networks, dramatically reducing cabling and management requirements and significantly lowering costs.

By connecting the unified fabric directly to servers and individual virtual machines without using hypervisor-based switching, Cisco fabric extender technology reduces the number of components needed, along with their associated costs. In addition, Cisco UCS uses software-based Cisco UCS service profiles to specify an entire server’s personality, configuration, and connectivity. Compared to traditional data center architectures, this approach dramatically accelerates deployment, eases management, and facilitates rapid scaling of Oracle enterprise application and database environments.

Excellent Platform for All Oracle Environments

Cisco UCS supports all leading operating systems and virtualization platforms, giving organizations exceptional freedom in hosting their Oracle environments (Figure 1).



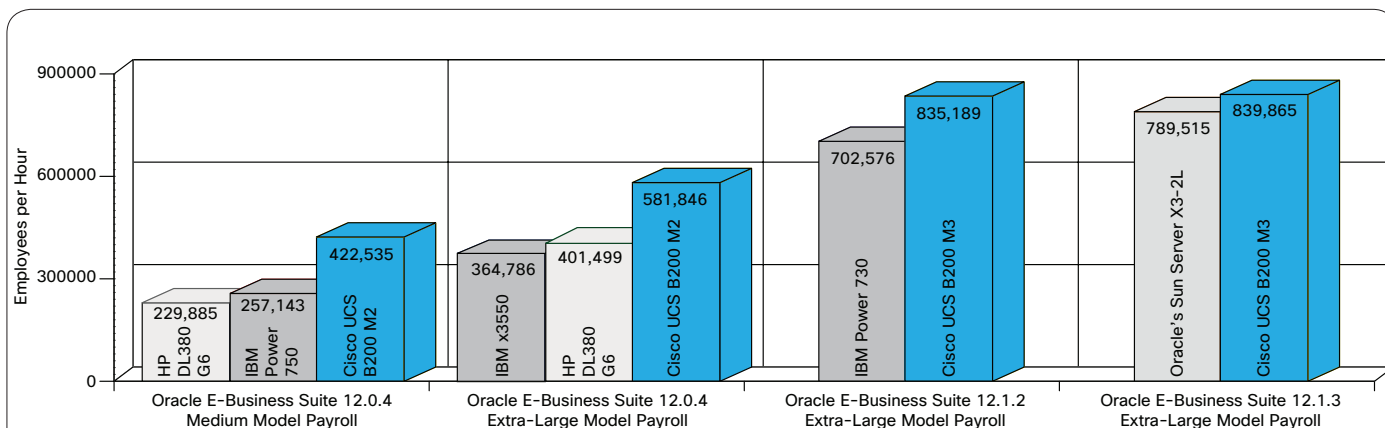


Figure 2. Cisco Continues a Tradition of Record-Setting Performance on Oracle E-Business Suite Benchmarks

The system helps increase efficiency and reduce costs when moving from a one-module-per-server model to a consolidated and virtualized deployment. Certified by Oracle, the system's virtualization-optimized unified fabric securely separates data traffic and delivers high bandwidth and low latency, resulting in near-linear scalability for Oracle Real Application Clusters (RAC) deployments. Indeed, a single Cisco UCS platform is designed to support up to 160 servers with a single point of management, offering a much greater administrator-to-server ratio than is required by the vast majority of Oracle deployments.

Information Is Money

Timely access to information leads to timely decisions. Oracle software running on Cisco UCS delivers the performance needed to keep business information up-to-date and available to support a broad range of strategic, financial, and operational decisions.

The balanced architecture of Cisco UCS accelerates the performance of all Oracle applications. In fact, the system's unified fabric, high-performance computing capabilities, and large memory capacity have contributed to world-record-setting performance on both Oracle-specific and industry-standard benchmarks. Using this high-performance platform as the foundation of your information systems helps ensure fast access to valuable business data to increase revenue to surpass the competition.

Oracle E-Business Suite R12 Benchmark

Cisco UCS servers continue Cisco's tradition of outperforming competitors and delivering world-record performance on the Oracle E-Business Suite R12 benchmark (Figure 2). The benchmark simulates several typical workload scenarios used by global businesses, including order-to-cash batch runs and company payroll batch runs. Small, medium, large, and extra-large data sets are used to reveal performance and scalability capabilities.

- Cisco UCS outperformed the IBM Power 7 result by nearly 19 percent on the Oracle E-Business Suite R12 (12.1.2) Extra Large Payroll Model Benchmark. Cisco's score of 835,189 employees per hour demonstrates how the balance of CPU, memory, and I/O resources delivers better performance.
- Cisco also outperformed the Sun X3-2L server by more than 6 percent with a score of 839,865 employees per hour on the Oracle E-Business Suite R12 (12.1.3) Extra Large Payroll Model Benchmark, demonstrating superior storage access performance as a result of the high performance and low latency of the Cisco UCS unified fabric.

Oracle JD Edwards EnterpriseOne Day in the Life Benchmark

Cisco's results on the JD Edwards EnterpriseOne Day in the Life (DIL) Benchmark—a weighted average response time of 0.182 second for up to 15,000 concurrent users using five enterprise resource planning



(ERP) applications—demonstrate how Cisco UCS B200 M3 Blade Servers, in combination with Microsoft SQL Server and EMC VNX5300 storage, deliver high scalability and outstanding performance to Oracle JD Edwards EnterpriseOne solutions. For example, CPU utilization rates on the blade servers were low, with most Oracle JD Edwards EnterpriseOne software components using less than 20 percent of CPU resources. As the workload scaled to 15,000 users, CPU utilization rose to approximately 30 percent, with all transactions completed quickly with significant headroom for growth.

Oracle Siebel Platform Sizing and Performance Program Benchmark

Cisco UCS B200 M3 Blade Servers and Oracle Database delivered fast response times and high transaction throughput on Oracle's Siebel Platform Sizing and Performance Program (PSPP) Benchmark.

- On the Siebel Financial Services Call Center workload, Cisco UCS handled 68,756 Siebel PSPP

business transactions per hour with an average response time of 0.033 second, for a projected daily rate of 550,048 Siebel PSPP business transactions.

- On the Siebel Order Management workload, the system ran 15,173 Siebel PSPP business transactions per hour with an average response time of 0.202 second, for a projected daily rate of 121,384 Siebel PSPP business transactions.

Oracle PeopleSoft Self-Service Benchmark

Cisco UCS delivers both outstanding transactional and batch performance with PeopleSoft Enterprise HRMS 9.1 using Oracle Database 11g R2 on Red Hat Enterprise Linux 5.6 on the Oracle PeopleSoft Self-Service Benchmark. A three-tier, three-node Cisco UCS configuration scaled easily from 500 to 2500 concurrent users, with an average response time of 0.42 second for search and 0.33 second for save operations. Using a redundant solution stack, the configuration scaled easily to 5000 concurrent users, providing

compelling response times while keeping overall CPU utilization rates quite low.

Oracle PeopleSoft North American Payroll Benchmark

Cisco UCS demonstrated accelerated batch processing capabilities on the Oracle PeopleSoft North American Payroll Benchmark. The benchmark was run on a Cisco UCS configuration for 240,000 employees and completed within 57 minutes. Payroll batch processing was run on a database server running a two-node Oracle RAC configuration. Despite the challenging workload, the payroll run was completed in 56.4 minutes, generating 255,319 payments per hour. CPU utilization remained low throughout the test, indicating considerable processing headroom.

Scalability to Meet Business Demands

IT departments manage workload highs and lows that result from quarterly and annual business cycles, seasonal demands, news events, and advertising

“The Cisco Unified Computing System platform has greatly improved application performance, which translates to higher productivity for our users. Our field teams are able to respond immediately to customer questions and requests for quotes, without having to go back to the office and spending hours putting together data. My IT organization has received unsolicited emails from users in the field expressing their pleasure and the difference it is making in their productivity.”

Ramesh Razdan

Vice President, Cloud and Big Data
Service, EMC

initiatives. Cisco solutions for Oracle quickly, easily, and accurately scale up and out to handle workload fluctuations.

System

When one high-activity period subsides and another one begins, Cisco UCS service profiles enable resources to be reallocated to meet demands within minutes, not hours or days as is typical with traditional architectures. In failure scenarios, Cisco UCS service profiles enable failed systems to be replaced within minutes, often eliminating the need to host hot spare servers with the expense of additional software licenses.

With Cisco UCS service profiles, each Cisco UCS server is a stateless resource until Cisco UCS Manager establishes its personality, configuration, and connectivity. Cisco UCS service profiles specify how the entire hardware stack is provisioned: from network profiles to server firmware. To move a workload to a new system resource, an administrator simply reprovisions a server by applying a service profile, reboots the system, and accesses the application. With Cisco, there is no hard-wired configuration that ties an application to a specific server. By creating a pool of computing resources, Cisco UCS simplifies the movement of applications to quickly meet business needs.

Designed to scale up to 160 blade or rack servers, Cisco UCS can quickly scale to meet growing needs, without the cost and complexity of having to add layers of infrastructure.

Intel Turbo Boost Technology intelligently adjusts server performance to meet workload demands. At the

same time, Intel Intelligent Power Technology automatically regulates power consumption to conserve energy when workload demands are light. These capabilities automatically and appropriately size the infrastructure while reducing energy costs.

Network

Cisco virtual interface cards (VICs) support an I/O environment in which the number and type of devices can be configured on demand using either Ethernet or Fibre Channel. Used with Cisco Data Center Virtual Machine Fabric Extender (VM-FEX) technology, Cisco VICs directly connect virtual machines to the network. This design combines the performance and management of physical networks with the scalability of virtual networks.



Management

Cisco UCS Manager performs complete lifecycle management of every component in the server and network stack so that the system self-integrates and scales rapidly without complexity. Cisco UCS Manager uses role- and policy-based management and service profiles to increase IT staff productivity, improve compliance, and reduce opportunities for human errors that can cause downtime.

With Cisco UCS, you can smoothly scale your Oracle environment to meet business needs. When those needs change, the system provides agility to transition with the business (Figure 3).

Reduced Cost Through Unified Fabric

Tying this flexible, scalable environment together is a low-latency, high-bandwidth, virtualization-aware unified fabric. The unified fabric uses 10 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE) to accelerate all I/O traffic. Traditional server architectures require separate I/O adapters for LAN, SAN, and management networks. Using a single network, rather than three or more, reduces the number of components and amount of cabling needed so that organizations can save on both capital and operational costs.

Oracle RAC requires a separate, private, high-bandwidth, low-latency network to synchronize the state between servers. In traditional architectures, this requirement adds the cost of yet another dedicated network. In Cisco UCS, the unified fabric supports the private network along with other network traffic. The result is fewer

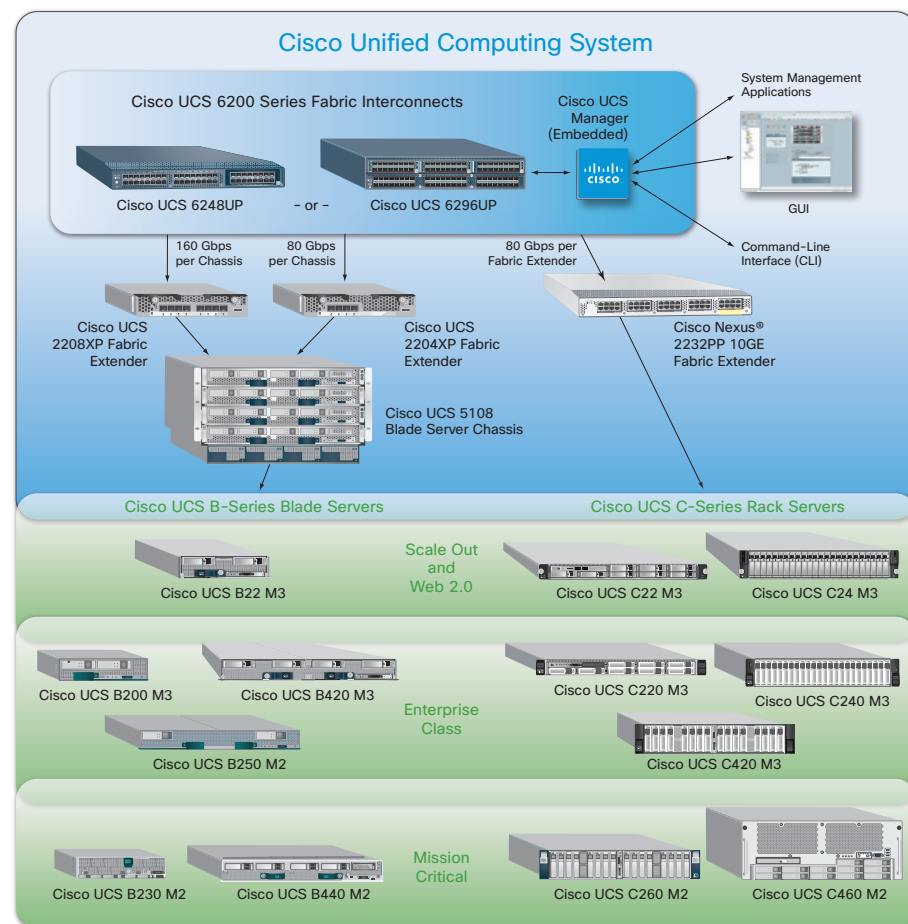


Figure 3. Cisco UCS Integrates High-Performance Servers, High-Speed Networking, Storage Access, and Virtualization Through a Single Point of Management

I/O adapters to purchase, simplified network infrastructure, and increased Oracle RAC performance. Oracle joined Cisco in defining the certification process for this new technology and for the Oracle ecosystem as a whole.

Simplified Business Continuity

Any organization that values its data enough to store it in Oracle databases knows the importance of business

continuity planning. Because Cisco UCS is configured through software, all the configuration information needed to run an Oracle environment can be exported from a running system and applied to a remote one. This capability enables a remote system to be provisioned in minutes in the event of a failure.

Reducing the opportunities for failure, the highly efficient Cisco UCS requires fewer servers, switches, adapters, and



cables; consumes less power; and generates less heat than traditional, manually assembled systems. In addition to enhancing reliability, the system's simplicity reduces TCO while increasing performance and availability.

Better Together

Cisco and Oracle have a nearly 20-year relationship, and they continue to work together to co-develop solutions that deliver better value to customers.

Validated Designs Ease Deployment

Early on, Oracle standardized on Cisco networking solutions, and Cisco's IT department hosts one of the largest Oracle E-Business Suite, Oracle Database, and Oracle RAC deployments in the world. Together, Oracle and Cisco have validated the capabilities and configurations of Oracle applications and databases running on Cisco UCS. Cisco Validated Designs make getting an Oracle environment up and running easy and nearly risk free.

Innovation Supports Big Data

Understanding the demands of big data environments, Cisco and Oracle collaborate to provide the infrastructure building blocks for the quick deployment of scalable and effective big data solutions. Oracle selected Cisco UCS as the initial platform for Oracle NoSQL Database certification for many reasons.

A network-based architecture and the capability to manage large numbers of rack-mount servers from the same management domain makes Cisco UCS an excellent platform for shared-nothing architectures such as Oracle NoSQL Database. In addition, configurations with large numbers of internal disks in Cisco UCS C-Series Rack Servers allow organizations to easily handle the huge data volumes associated with NoSQL deployments and still take advantage of the speed of local processing.

Insight Solves Customer Challenges

Cisco and Oracle understand that technology can help solve business

problems, yet developing the right solutions requires insight. The Cisco UCS Oracle Customer Forum brings together Cisco customers that use Oracle solutions to discuss the Cisco UCS roadmap and technology advancements. Cisco gathers direct feedback from customers to help guide the development of product feature sets and ensure that Cisco UCS meets the unique demands placed on infrastructure by Oracle deployments.

Recognition Builds Customer Trust

In acknowledgment of the value that Cisco UCS brings to Oracle environments, Cisco received the Oracle 2010 Enable the Eco-Enterprise Award at Oracle OpenWorld 2010. The Eco-Enterprise Award honors Oracle customers and partners for their environmental leadership. Winners come from a wide range of industries that use Oracle products to support their green business practices and sustainability initiatives to reduce their environmental impact, cut costs, and improve business efficiency.

Converged Infrastructure Saves Money

A solution to the data requirements of an Oracle deployment extends beyond the server to include the storage subsystem. In an effort to reduce the implementation time required, Cisco has collaborated with both EMC and NetApp to document best practices for balanced configurations. These solutions are branded as Virtual Computing Environment (VCE) coalition Vblock™ Systems and NetApp FlexPod systems. Customers around the world have achieved tremendous savings following these guidelines.

Constant Improvement Addresses the Needs of the Future

The amount of data continues to grow exponentially each year, and database performance must increase to keep pace. Cisco partners with third parties to incorporate technologies that push the limits of performance. Recently, Cisco collaborated with Fusion-io to document the benefits of offloading processor-intensive scripts to improve overall performance. Details are located at www.cisco.com/go/oracle.

For More Information

- Cisco Unified Computing System: <http://www.cisco.com/go/ucs>
- Cisco UCS and Oracle software: <http://www.cisco.com/go/oracle>
- Email: ciscowithoracle@cisco.com

Benchmark Disclosures

Oracle E-Business Suite R12 Benchmark

The performance comparisons cited in this document are derived from detailed benchmark reports published by Oracle at <http://www.oracle.com/us/solutions/benchmark/apps-benchmark/results-166922.html> as of September 28, 2012. For more details about Cisco's Oracle E-Business Suite Benchmark performance, please refer to: [Cisco UCS B200 M3: Dominating the Landscape for Oracle E-Business Suite Performance](#).

Oracle JD Edwards EnterpriseOne DIL

Detailed information about the Oracle JD Edwards EnterpriseOne Day in the Life Benchmark testing conducted can be found in the performance brief:

[Cisco UCS B200 M3 Blade Server: Outstanding Performance and Scalability for Oracle's JD Edwards EnterpriseOne Applications.](#)

Oracle PeopleSoft

For more information about Oracle PeopleSoft on Cisco UCS, please refer to: [Accelerate and Scale Oracle PeopleSoft Deployments with Cisco UCS](#).

Oracle Siebel CRM

Oracle Siebel CRM Release 8.1.1.4 Industry Application Platform Sizing and Performance benchmarks are based on Siebel CRM Release 8.1.1.4 customized industry applications and reflect a heavier scenario mix and more aggressive think times than earlier versions. Results of this benchmark are not comparable with those of prior Siebel CRM Release 8.0 benchmarks. For more information on Oracle Siebel CRM performance on Cisco UCS please refer to: [Cisco UCS B200 M3 Blade Server: High Performance and Scalability for Siebel CRM](#).



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.