Cisco Unified Computing System: A Powerful, Simplified, and Flexible Alternative to RISC Computing

Business continues to ask more of IT. Increased performance, new capabilities, and rapid scaling are standard requirements for today's data center. Over the years, innovative server platforms have helped move the business forward. However, these innovations have often increased both complexity and operating costs. Today, the challenges associated with scale-out architectures are overstretching the management and support capabilities of the IT departments of many companies.

In addition, many existing platforms based on reduced instruction set computer (RISC) processor architectures require proprietary operating systems, often limit customers' software choices and architectural options, and can lock customers into high-cost, proprietary upgrade and support models.

These factors are causing many customers to replace their proprietary platforms with industry-standard x86-architecture hardware to take advantage of a broader set of operating systems, supported applications, and administrative skills.

With the Cisco Unified Computing System™ (Figure 1), Cisco has delivered a significant new server platform. Customers are rapidly discovering that by uniting computing, networking, and storage access resources and the single-pane management of the complete solution, the Cisco Unified Computing System delivers:

- Reliability, availability, and serviceability
- Reduced space, power, and cooling requirements
- Increased IT and business agility

The Cisco Unified Computing System delivers a significant data center advantage.

Figure 1. Cisco UCS B200 M2 Blade Servers

Innovation That Delivers Results

Leadership Performance

- **Cisco® Extended Memory Technology:** The Cisco Unified Computing System offers some of the industry's highest-density two-socket and four-socket rack and blade server platforms capable of delivering greater than 12 terabytes (TB) of memory in a single rack. This computing and memory density enables increased performance and capacity for demanding virtualization and large-data-set workloads. Alternatively, this technology can offer a more cost-effective memory footprint for less demanding workloads while still delivering outstanding performance.
- **Intel Xeon processor 5600 and 7500 series:** The advanced reliability, availability, and serviceability (RAS) features of the Intel Xeon 7500 series combined with the highly available Cisco Unified Computing System architecture with redundant, hot-swappable components is designed to protect data integrity and reduce downtime. These processors also automatically and intelligently adjust server performance according to application needs, increasing performance as needed, and achieving substantial energy savings when performance requirements are low. The Intel Xeon processor has become ubiquitous, supporting multiple operating systems, including Sun Solaris and all types of Linux, and Microsoft Windows systems, enabling a consistent deployment platform across the organization. With Intel's continued support of virtual server environments, the x86 architecture is essentially the standard platform for virtualization, enabling efficient, cost-effective, and reliable computing platforms for the next-generation data center.
- **Broad enterprise application support:** The Cisco Unified Computing System has been certified and has delivered industry-leading benchmarks on a wide variety of business applications from vendors including Oracle, SAP, Microsoft, and VMware.

More Agility and Productivity

- **Stateless computing:** With built-in management that dynamically configures the entire hardware stack, ranging from network configurations to server firmware. Cisco service profiles apply state to every component in the stack so that the system self-integrates and scales rapidly without adding complexity. Hardware failures no longer require IT to swap host bus adapters (HBAs) or network interface cards (NICs), rezone the SAN, alter network configurations, or reconfigure firmware. The system's single point of management increases IT staff productivity, improves compliance, and reduces the opportunity for errors that can cause downtime.

Less Cost and Complexity

- **Unified fabric:** The Cisco UCS server chassis revolutionizes the use and deployment of blade-based systems. By incorporating unified fabric and fabric extender technology, the Cisco UCS server chassis contains fewer physical components and requires no independent management when compared with traditional blade server chassis. This simplicity eliminates the need for dedicated chassis management and blade LAN and SAN switches and reduces cabling and complexity.

  Cisco integrates the system through a standards-based, high-bandwidth, low-latency, virtualization-aware unified fabric that supports your existing enterprise SAN, network-attached storage (NAS), and direct-attached storage (DAS) architectures. The fabric is wired to support the desired bandwidth and carries all network, storage, interprocess communication, and virtual machine traffic with security isolation, visibility, and control all the way to individual virtual machines. With 20 Gbps of I/O bandwidth per server slot and support for future 40 Gigabit Ethernet standards, the unified fabric meets the I/O demands of multicore processors, eliminates costly redundancy, and increases workload agility, reliability, and performance. The unified fabric enables a wire-once deployment model in which changing I/O configurations no longer means installing adapters or recabling racks and switches, with a potential cost savings of thousands of dollars.

- **Cisco UCS Manager:** Embedded system management is uniquely integrated into all components of the system, enabling management of the entire solution as a single entity through Cisco UCS Manager. Whether managing one server or hundreds of servers, Cisco UCS Manager provides an intuitive GUI, a command-line interface (CLI), and a robust and open API for managing all system configuration and operations. Cisco UCS Manager's flexible role-based management enables IT managers of storage, networking, and servers to communicate and collaborate easily on service profile definitions for applications, helping increase personnel efficiency and reduce costs.

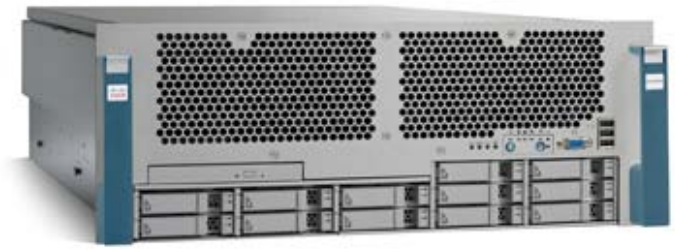
Significant Innovation

- **Cisco VN-Link technology:** High-performance networking to virtual machines is achieved using Cisco VN-Link technology. This technology enables a consistent operational model, whether networks connect to physical servers or virtual machines. All links are centrally configured, secured, and managed without introducing additional switching layers into virtualized environments. I/O configurations and network policies move with virtual machines, increasing security and efficiency while preserving a familiar management framework for network administrators.

Outstanding Energy Efficiency

- **Environmental footprint:** Incorporating unified fabric, fabric extender technology, and a single point of management, the Cisco Unified Computing System enables the chassis to have fewer physical components, consume less power, and generate less heat than traditional blade server chassis using RISC or x86-based architectures (Figure 2).

Figure 2. Cisco UCS C460 M1 High-Performance Rack-Mount Server



At Cisco, the Customer Comes First—It Is Part of Who We Are

At Cisco, the customer comes first; it is part of who we are. Cisco has already proven itself a trusted business partner, delivering high-quality and high-value data center solutions to meet customer challenges. The Cisco Unified Computing System expands on this foundation to radically unify and simplify computing, further allowing companies to focus on their business rather than their infrastructure.

Market Leader

When Cisco enters a market, it is with the explicit goal to become a market leader. Over the past 25 years, Cisco has entered and brought innovation to markets such as enterprise networks, carrier networks, and business telephony. Within a few years of entering these markets, Cisco has become a leader. Cisco is committed to continuing this tradition of market leadership, customer focus, and timely innovation with the Cisco Unified Computing System platform.

Cisco's Vision

Cisco's vision of the next-generation data center focuses on unified simplicity for the customer. With the Cisco Unified Computing System as the modular building block, companies can more easily evolve their data centers to the next stage. Whether migrating to x86-architecture platforms, implementing virtualization, or creating a private or public cloud or integrating the two, consistent, reliable management, automation, virtualization, and industry standards are critical. Cisco understands these technologies and their challenges. Our desire is to collaborate with you to create sustainable business value.

Comprehensive Partner Ecosystem

Cisco is tapping into the ecosystem of highly skilled partners across application software, management tools, operating system vendors, and a wide range of value-added resellers, integrators, and distributors to provide long-term solutions to customer challenges. With Cisco, you will access the right team of people to help you design and implement your Cisco Data Center Business Advantage (DCBA) solution.

Cisco RISC Migration Services

Cisco RISC Migration Services can help you accelerate your transition to a unified computing architecture and optimize the performance of the entire environment. Cisco can work with you to orchestrate a complete migration or simply augment your current plan and resources.

Proven Methodology

Cisco Advanced Services will guide you through a proven methodology that uses the advanced capabilities of Cisco UCS Manager to simplify and compress the migration process. Through the definition and building of service profiles for your workloads, the Cisco Unified Computing System can be rapidly deployed and managed in your environment.

Cisco UCS Manager provides a single-pane view across your entire Cisco Unified Computing System infrastructure, extending the benefits of your migration project into daily management of the environment to meet your business and technical objectives.

Complete Services Suite

Cisco offers a complete suite of customized services to achieve the specific goals you have set for your data centers, whether you are adopting the Cisco UCS B-Series Blade Servers or the Cisco UCS C-Series Rack-Mount Servers. For example, we can help you:

- Increase asset utilization by extending virtualization across data center resources
- Reduce your data center facility footprint and power and cooling costs by consolidating your web and application servers
- Address your requirements for business continuity and disaster recovery

Cisco and our industry-leading data center partners bring in-depth expertise to help you implement these and other projects, sustain and optimize your environment over time, and achieve the full potential of the Cisco Unified Computing System in your data center.

Help with Your Migration

The Cisco Unified Computing Migration and Transition Service can help you take the right steps to achieve your business and technical objectives to reduce risk in your unified computing implementation. This service provides expert support to smooth the transition from your existing server platforms to the Cisco Unified Computing System. Migration support is available for both x86-architecture and older (non-x86) server platforms. Using industry best practices, Cisco helps you create and deliver an evolutionary migration plan that mitigates risk. For more information about how Cisco can help you migrate from RISC to the Cisco Unified Computing System, please contact your Cisco sales representative or send an email to risc-to-cisco@cisco.com?subject=RISC Migration - Please tell me more.

Cisco Certified

As part of its ongoing commitment to the development of skilled IT professionals, Cisco has available two certifications designed for customers and partners that align with data center architecture changes and new job roles such as data center architect, data center builder, and data center technical operations professional.

The certifications, Cisco Data Center Unified Computing Design Specialist and Cisco Data Center Unified Computing Support Specialist, build on foundational skills including storage networking, data center networking infrastructure, data center application services, and virtualization to validate expertise in multiple data center technologies, architectures, and facilities management.

Get Started Today

Find out what a company with 25 years of technology innovation and sequential market success has decided to bring to the server discussion.

Talk to Cisco: we can help you leave your RISC system—and move to Cisco's Unified Computing System.

For More Information

For more information about the Cisco Unified Computing System, visit http://www.cisco.com/go/ucs or contact your local account representative.

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