How to Deliver Best-in-Class Virtualization

Unified Computing: A Winning Strategy for Your Data Center

Organizations today need to be able to react to changes quickly and effectively in order to take advantage of new opportunities, expand into different markets, and generate meaningful growth.

Adopting new technology has proven to be an invaluable strategy for companies looking to stay ahead of the competition. The ultimate goal for many of these organizations is to provide Information Technology as a Service (ITaaS), or scalable resources available on demand—when and where users need them.

Unified Computing Systems (UCS) help deliver this data center of the future by eliminating silos and combining technologies and resources into shared pools. UCS allows you to more effectively support IT initiatives such as virtualization, cloud computing, and server and storage consolidation, enabling the scalable, secure growth your organization needs.

FIGHT SPRAWL

The greatest obstacle faced by most IT departments during periods of growth is infrastructure sprawl. When IT infrastructure is deployed to meet new business demands, the traditional approach has been to create distinct silos that support individual applications and services. Unfortunately, this results in an extremely inefficient use of resources, as utilization is so low.

Not only do these silos trap hardware resources, they also hinder a company's ability to implement new projects, creating a production path that requires multiple steps and people to accomplish even the most basic goals. IT sprawl robs an organization's budget for innovation and makes it harder to keep pace with growth.

The adoption of virtualization has done a great deal to reduce the effects of IT sprawl, but without a significant investment in systems management and automation tools, many data centers are woefully unprepared for the increased challenges of everyday IT demands. Organizations still rely on manually intensive processes that place a heavy burden on IT staff and slow down response times.

CISCO UNIFIED COMPUTING, A WINNING STRATEGY FOR YOUR DATA CENTER

Cisco UCS integrates industry-standard, x86-architecture blade and rack servers powered by intelligent Intel® Xeon® processors with networking and storage access into a unified system. The system is programmed through a model-based management interface to accelerate deployment and performance of applications in bare-metal, virtualized, and cloud-computing environments. A unified fabric supports network and storage I/O, while Cisco Fabric Extender Technology (FEX Technology) brings the network directly to servers and virtual machines for increased performance, security, and manageability.

Cisco UCS can be deployed incrementally, and each stage provides substantial business value:

1. Deploy virtualization-optimized server hardware, enabling server consolidation.

Cisco UCS eliminates redundant devices that populate traditional blade servers and add layers of management complexity.

2. Fully virtualize discrete network stacks across a common high-speed, low latency unified network fabric.

Cisco's unified fabric-based approach to data center infrastructure allows consolidation of LAN, SAN, and NAS over one high-performance and fault-tolerant network. It's based on the Cisco MDS 9000 Family and Cisco Nexus® Family of switches and integrated network services, which provide high-speed connectivity, high availability, security, and consistent quality of experience for data center applications. Cisco Network Services Manager enables dynamic, policy-based provisioning of network services.

3. Implement a centralized, policy-based management system, Cisco UCS Manager to manage all computing hardware and software components, including legacy systems that will continue to exist across the data center, via its single pane of glass console.

One benefit of virtualization is the ability to abstract the hardware from the applications running on it, all the way down to the network interface. When a new server is added to the system, UCS Manager virtually eliminates manual configuration, automatically detects the new hardware and provisioning it according to pre-defined policies.

Unified Computing solves the problem of IT sprawl by integrating server, storage, networking, and management resources into shared pools. By combining separate silos, a common management platform can be used to control operations for many different applications and infrastructure components. UCS takes virtualization to the next level, virtualizing not only your servers, but also your storage and network connections. This delivers the flexibility and scalability needed to allocate the right amount of resources to projects on an as-needed basis, ensuring a highly efficient use of resources.

THE STEPPING STONES TO SEAMLESS GROWTH

Building a Unified Computing System requires several key components. A strong virtualization program is crucial in improving utilization and creating the flexibility to allocate resources as they're needed. To support the creation of new virtual servers, select storage and network components that offer high levels of flexibility and integration. Your organization should also focus on implementing automated tools that simplify management and reduce the burden on IT staff.

The secret to a successful Unified Computing System is laying groundwork that enables seamless growth, reduces operating costs, and eliminates potential problems. Being able to quickly and easily scale resource allocation based on application demand will ultimately provide your organization with the ITaaS functionality and cost-savings that enable your team to focus on business innovation, rather than operations and maintenance.

SHARE MORE, SAVE MORE

Bringing together so many different infrastructure components under one banner also creates the necessity to increase communications between various IT departments. Administrators from server and networking groups, for example, will benefit from sharing ideas, policies, and goals when it comes to new architecture. A shared resource environment creates many opportunities to increase collaboration between groups, build awareness, and prioritize projects to deliver the best possible results for your organization.

If you're wondering how to take the plunge into Unified Computing, start with an assessment of your server, storage, and network environments. The PC Connection family of companies can help you establish a solid foundation for growth with a Unified Computing System that enables greater productivity, manageability, and scalability. Give us a call to get started today.

PERFORMANCE THAT MATTERS

How the Intel® Xeon® processor E5 family enables Cisco UCS to deliver best-in-class virtualization, security, and energy efficiency.

Cisco and Intel have partnered for over a decade on a variety of networking, switching, and routing products. Intel and Cisco have driven standards together, and Cisco has come to rely on performance improvement with each generation of Intel® Xeon® processor. The Intel® Xeon® processor E5 family is designed with versatility in mind. These processors form the core of a flexible and efficient data center and deliver adaptive performance to workloads. Adaptive performance and built-in capabilities, combined with Intel integrated I/O, help eliminate bottlenecks and increase agility. Almost any environment—from virtualization and cloud computing platforms to real-time transaction processing systems—can take advantage of the Intel® Xeon® processor E5 family to boost computing and storage performance and streamline data center operation.

• **Performance**—Cisco UCS can accelerate performance across the data center, including delivering raw computing power for individual servers and high-performance computing (HPC) grids, accelerating enterprise applications, and powering Java application servers. The benchmark results demonstrate performance on critical real-world server use cases, including general-purpose computing, Java applications, high-performance computing, and complex virtualization and cloud-computing workloads.

• **Energy Efficiency**—Cisco has improved processor power consumption under load and when idle when your data center is not under peak usage, meaning the same load applied to the Intel® Xeon® E5 could deliver reduced average power consumption.

• **Security**—Cisco UCS M3 servers also have Intel Trusted Execution Technology (or TXT) enabled on the server. As the ecosystem partners develop software solutions to utilize Intel TXT, the virtualized server can have a stronger hardware root of trust established. This ensures the server is secure and running the intended applications and workloads, as well as helping to prevent malicious attacks that could compromise business continuity.