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[Tech Watch]

Data Center Building Blocks

Agencies can use Cisco UCS technology to take advantage of 10 Gigabit Ethernet and unified fabric.

By Karen D. Schwartz
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Photo: Michael Hitoshi/Getty Images

Looking for a way to consolidate its data centers, the Defense Media Activity (DMA) turned to a suite of solutions anchored by [Cisco's Unified Computing System](#).

The goal is to consolidate multiple sites (part of meeting the requirements of the Base Realignment and Closure Act) into one efficient, agile, high-performance, secure and highly available data center. A cornerstone of the project is UCS, which will let DMA create a high-performance, network-based data center — one that takes advantage of 10 Gigabit Ethernet and unified fabric to unite LAN and storage area network traffic.

DMA is only one of several government organizations realizing the benefits of moving to Cisco's unified computing system. Others include NASA's Ames Research Center, the city and county of San Francisco, and New Mexico.

San Francisco is using Cisco UCS, along with a [Cisco Nexus 1000V switch](#) and [VMware](#), to create a virtual data center.

New Mexico is implementing UCS to deliver infrastructure as a service, and Ames has made UCS a cornerstone of its Nebula Cloud Computing platform.

"It's extremely useful for any organization looking to expand compute capacity, especially combined with server virtualization," says Jim Frey, research director for Enterprise Management Associates. "Cisco meets this challenge by putting all of that into the same system — one that leverages virtualization from the ground up."

A Unifying Approach

Cisco UCS has many advantages for organizations. One of its most important functions is to unify server power with networking, virtualization software and unified management.

Because networking is integrated into the system, only one switch is needed for 40 chassis; a single UCS device can consist of up to 40 chassis, each with eight blades. That's a big deal when it comes to management and cost, says Cisco Vice President Jackie Ross.

"You have reduced by two-thirds the amount of hardware required," she points out.

A second benefit is integrated virtualization. Because virtualization is an integral part of the Cisco UCS platform, available through Virtual Network Link (VNLink) technology, organizations have the

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same visibility into and control of each virtual machine running on each blade — just as if there were a physical network connection. That means IT staff can manage each individual virtual machine separately, yet centrally.

Consider what this means for security. Without Cisco UCS, if a data center IT team assigned a security policy to a server, all the VMs running on that server would have to have the same security policy. With Cisco UCS, each can be assigned a different security policy.

Finally, UCS provides unified management.

"You used to have different management applications for storage, networking and servers, but with UCS there is a service profile," Ross says. "So for a particular application, you can assign various network and security policies to all components. It's much faster to set up and bring up new applications."

About **19%** of 2,600 IT professionals surveyed have already tested or deployed unified computing, and another 41% plan to do so in the next 12 months.

SOURCE: Survey by InsightExpress for Cisco, December 2010

The UCS Advantage

Other unified computing technologies are on the market, but only Cisco UCS was developed by a networking company. And that's a key difference, says research analyst Jim Frey of Enterprise Management Associates.

Cisco UCS includes the networking inside the box, making the UCS truly plug-and-play, which is a unique advantage, Frey says.

"Because Cisco isn't a traditional computing vendor, it has been able to interject a lot of intellectual property, expertise and innovation around the networking side of the equation," he says. "It makes things work together extremely well."

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