Michael De Marco | Rothstein Kass IT Manager

Cisco's Unified Computing System combines pervasive virtualization and automated management tools to save costs and deliver flexible new services.

CONVERGENCE CAPABILITIES

When islands of data center technology (servers, storage, etc.) are aligned with specific applications or organizational departments, the result is often inefficiency. IT departments can end up with applications that underutilize or waste the resources allotted to them or applications that are starved of the resources they need.

Through the process of data center convergence, the enterprise can better manage IT resources and ensure optimal performance of mission-critical applications. Convergence can also help eliminate complexity and waste while serving to support growth and improve reliability, availability and serviceability.

Consolidation is a foundational element of a converged data center. So are optimizing the way applications are delivered and enabling resource provisioning.

To assist in the process, the Cisco Unified Computing System (UCS) combines high-performance servers, high-speed networking, storage access and virtualization. The result is an integrated, smart infrastructure that is physically distributed but centrally managed.

Rothstein Kass and UCS

When national professional services firm Rothstein Kass wanted to sharpen its position in a competitive market, it turned to its IT department. The technology team for the Roseland, N.J.–based firm has a long history of doing more than just keeping the servers and software running.

Technology plays a value-added role in helping Rothstein Kass achieve the high levels of client service. "As we put even greater emphasis on customer service, we need to become more efficient than ever," says IT Manager Michael De Marco. "And technology is allowing us to do that."

Rather than just taking a near-term, tactical approach to technology upgrades, the IT group launched a multiyear plan to optimize its data center. The objective was to look closely at every core resource, from servers and storage systems to networks and operational processes.

As a result, the firm is well on its way to achieving pervasive virtualization — not only in servers but also throughout the data center. The strategy has also allowed Rothstein Kass to boost process automation and expand information sharing among staff members nationwide.

"We dove into enterprise virtualization in 2007, and at that time it was to consolidate," De Marco says. "We saw many benefits, including cost savings for power and cooling. But as the technology evolved and the automation piece came into play, we saw new opportunities for optimization."

The Big Picture

Rothstein Kass has been using Cisco System's UCS to manage its virtualized resources since late 2011. The benefits are clear, starting with reductions in operating expenses. Rothstein Kass has experienced a significant reduction in

the time data center staff must devote to managing and provisioning IT resources.

The reason: The firm now relies on a central management console made possible with Cisco UCS. Together with virtualization's ability to enable dynamic provisioning of all resources, UCS helps the IT staff quickly reallocate computing power or bring new capacity online to meet changing demands.

"This means less time is needed to devote to routine tasks," De Marco says. This gives his department more time for strategic initiatives. He expects this heightened level of agility will have ripple effects throughout the firm by helping Rothstein Kass to quickly accommodate future growth and deliver new services as needs evolve.

"Cisco UCS is a solution that many virtualized infrastructures should consider," adds Greg Dubiel, CDW SLS account manager. "UCS delivers a scalable server environment that helps organizations achieve more with less."

> **"Rothstein Kass isn't alone in using an optimized data center to boost competitive edge."**
>
> Greg Schulz, Consultant, Server and Storage IO Group

Optimization goals are fueling a trend among IT managers across vertical markets who are remapping their data centers. The concept eliminates islands of technology, such as groups of servers, storage systems and network resources formerly dedicated to a single department or enterprise operation.

Instead, these managers are taking a more holistic view of IT and creating pools of resources designed to boost utilization rates and enable on-the-fly resource provisioning.

Hardware consolidation, extensive virtualization and balanced mixes of on-premise and cloud implementations are important elements in data center optimization efforts. However, these ambitious strategies often go beyond the technologies themselves.

IT managers also can more effectively use available physical space and fine-tune power and cooling systems for greater efficiencies and less cost.

Tools of the Optimization Trade

IT managers start with virtualization. The widespread server virtualization efforts of the past few years have helped many enterprises reduce physical hardware requirements, increase the utilization rates of remaining devices and alleviate skyrocketing power demands.

Now organizations are looking beyond consolidation to the next big wave of virtualization, says Greg Schulz, consultant at the Server and Storage IO Group. "The goal is to enable higher productivity."

He cites the hypothetical example of a server that supports a mission-critical database application. "The conventional thinking in the consolidation game is that this resource can't be virtualized," he says. Why? Because a database's performance demands require dedicated computing power, but that may be required only during regular office hours.

"Instead of having that server sit idle at night, an organization can use virtualization to move other processes, such as reporting, analytics or backups to the server after hours. Then during the daytime, the critical application goes back to the server and gets all the resources it needs," Schulz explains. "The result is that you are using the server more effectively, and you are increasing overall productivity."

In a similar way, organizations can use virtualization to dynamically shift loads across various servers to perform upgrades without incurring downtime and enhance operations continuity and disaster recovery efforts, he adds.

Virtualization provides similar load shifting and uptime benefits for storage systems. In addition, optimization-minded IT managers are looking to unified storage technologies to provide added value.

Unified storage systems support both block and file storage and the relevant protocols in the same unit, often along with redundant arrays of independent disks (RAID), load balancing and other management capabilities. As a result, IT shops can take another step toward optimization by reducing the range of technology they have to purchase and support.

Networking technology is following suit with virtual, software-based switches that create opportunities for hardware consolidation and dynamic resource allocations.

Management Resources

But virtualization in all its forms isn't the complete answer for data center optimization. IT departments also need tools to ease the management of resource pools. A number of options are becoming available. For example, Symantec's ApplicationHA provides application monitoring to help maintain high availability and reduce service disruptions for applications in virtualized environments.

"These technologies are helping organizations take the risk out of virtualizing more of their more critical applications," says Mike Reynolds, product marketing manager for Symantec's Storage and Availability Management group.

IT managers can use ApplicationHA to monitor applications and receive immediate alerts in consoles such as VMware vCenter if a program crashes for any reason. The solution will restart a failed application if possible or it works with native high-availability tools to ensure that it fails over to a healthy virtual machine.

To help optimize storage systems and facilitate rapid provisioning of storage resources, Symantec offers VirtualStore. The technology creates a standard image of Virtual Machine

Disk (VMDK) files that can be re-used when new virtual machines are created. Because provisioning virtual machines is fast and easy, administrators can proactively or reactively create them based on business requirements.

However, creating a VMDK for each virtual machine can quickly eat up storage space, Reynolds says. The golden image created by VirtualStore can help organizations reduce VMDK storage requirements by up to 90 percent, according to Reynolds.

Central Control

Rothstein Kass uses the Cisco UCS platform to manage its virtualized resources. The platform includes UCS Manager, a central tool for controlling system configurations. Cisco UCS Manager allows storage, networking and server teams to collaborate on defining service profiles for applications.

Other features include:

- Automatic adjustments to supported servers to adjust performance according to the current needs of applications
- Just-in-time provisioning with service profiles for storage networking, security, power and cooling, and hardware maintenance
- Unified fabric technology to reduce cost by eliminating the need for multiple sets of adapters, cables and switches for LANs, SANs and high-performance computing networks
- Cisco VN-Link technology for central configuration and management controls for networks connected to physical servers or virtual machines

The Rothstein Kass IT team is seeing a significant payoff from these management capabilities.

"As you try to manage different products in the data center, it can grow into a major challenge," De Marco says. "Any way we can automate a task is a huge benefit, because you don't need someone to manually sit there and do these jobs. And hands-off automation also means we see a reduction in manual-input errors."

For example, if the enterprise needs a new server, the IT team uses UCS to provision a virtual machine — it need not worry about related components, such as which physical computer, storage system and network connection to use.

"We are also in a refresh cycle for some of our computing resources," DeMarco notes. "So we will be phasing that in by using UCS to do the orchestration and automation piece of that project. Going forward, I will be able to just pop out a blade server and pop a new one in. I won't have to change much in the infrastructure.

"We can move resources around and re-purpose them," he adds. "UCS manages the complexity of merging computing and networking and storage together."

DATA CENTER OPTIMIZATION: TAKE THESE STEPS FIRST

1. **DEFINE OBJECTIVES:** Identify what will probably be a mix of goals ranging from maximizing current IT investments and achieving faster provisioning of enterprise services to boosting the organization's productivity and creating a foundation for future growth.
2. **PRIORITIZE GOALS:** Organize discussions among key operations and IT stakeholders to identify which goals are top priorities, which will help determine where to make investments in new technologies and data center redesigns.
3. **TARGET HIGH-VALUE PROJECTS FIRST:** Build support for ongoing optimization investments by initially focusing on the financial rewards of quick-win efforts, such as consolidations of underutilized servers and storage systems.

De Marco says his group deployed UCS in less than a week with the help of technical consultants from CDW. "They are our technology advisor, and we lean on them for guidance," he says.

"Rothstein Kass originally turned to us to provide technical guidance around data center optimization," adds CDW's Dubiel. "I'm happy to say 'We were there from proof of concept, to delivery, to final integration.'"

For the future, De Marco plans to build on current data center initiatives, using UCS to spread virtualization even further into IT operations at Rothstein Kass. "Our goal is to have every layer virtualized," he says. And that will mean continued high levels of service for all the entirely nonvirtual customers. ■