Prepare to Simplify Your Server Infrastructure

Demystify Unified Computing with This Primer

» Many organizations are exploring server virtualization and are on the lookout for solutions to help avoid VM sprawl, simplify data center infrastructure, and make it easier to manage. In this edition of Meet the Expert, Todd Maillet, GovConnection Server, Storage, and Virtualization Specialist, shares his knowledge of server consolidation and data center architecture. Todd offers insight about what a Unified Computing System can do for your organization.

Q: What is a Unified Computing System (UCS)?

A: UCS is Cisco's server offering. Cisco has been in the server market for roughly 2 years–both in the rack and blade space–and UCS is their offering into the compute world of x86 Intel servers.

Q: Did Cisco see the opportunity to provide this technology because virtualization and virtualizing data centers is becoming such a trend?

A: Absolutely. Cisco has been on the forefront of virtualization from the networking side since its conception. The next logical step for Cisco was the compute side. They have tailored UCS specifically for virtualization. They did a good job at it and can support any customer size, from SMB all the way up to large enterprise space.

Q: Many customers have had a lot of challenges with computing and storage management. How is the Cisco approach to virtualized data center architecture different from other solutions in the marketplace today?

A: Cisco's approach is a lot different. At the forefront of any virtualized solution is VMware; they solved a lot of the management problems that used to exist with the introduction of VCenter. That gave us a single pane of glass that could provide access via APIs into our storage, networking, and physical server infrastructure. However, all of the management points within the server infrastructure still exist, and if customers had a complex setup, then they had a complex management system with multiple touch points and multiple configuration changes. If something died or needed to be added, it could be a one- or two-hour event—sometimes a couple of days depending on the application. Cisco did a lot of work in the back end with the management console that they put together (UCSM). UCSM is a 100% true single pane of glass management system that incorporates your legacy blade servers, legacy rack environment, and any new blade implementations from Cisco. This allows you to spend less time managing your equipment and more time improving your data center.

Q: There are many reports of Cisco UCS with Intel® Xeon® processors breaking performance records. What benefit does Cisco's use of these processors really bring to the table for virtualization?

A: Cisco's partnership with Intel was a logical one. Most vendors have partnerships with both major processor vendors. Cisco decided to focus on Intel because of the speed and quality of their chip sets. To take it a step further, Cisco also developed extended memory architecture with Intel. This allows customers to capitalize on the weakening RAM price and put more VMs on individual blades. Cisco coupling with Intel made a lot of sense, and they broke some barriers together as far as RAM architecture goes.

Q: Is UCS compatible within existing data centers or is this most practical for data centers being built from the ground up?

A: I don't see a problem either way, and I have certainly implemented UCS both ways. They each come with their own set of parameters to follow if you want to properly implement UCS. But, from a brand new data center to an existing data center, it's certainly doable on either spectrum. From the legacy side, if you have an existing network, the Cisco unified approach to networking protocols is really streamlined—you don't need to rely on additional switching or anything else to make every component work together. Utilizing the top of the rack or the existing interconnects, UCS can be easily integrated with blade centers to provide the functionality and newness of a new blade implementation. This architecture has also become a "no brainer" for companies that are building a brand new data center, a DR location, or moving a corporate headquarters. Putting in a new data center with UCS allows you to save time on your deployment and see a positive ROI—you can do a much larger install with less manpower and less man-hours this way.

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Q: If someone chooses Cisco UCS, are they locked into one vendor's solution?

A: No, there is absolutely no "locking in." If we are talking about blades, as with anyone's blade solution, you need to buy from that manufacturer. This is logical because that blade is what would fit into the chassis. But if you decide to go with Cisco's rack offerings, you can integrate with any other manufacturer's servers or software—there are no software platforms that will not run because it is an x86 Intel-based server platform. It is as agnostic as any other vendor. So, no, you are not locked in, in any way, shape, or form. If you are looking at a blade implementation, and the network backbone that is in place is already Cisco, the integration is even easier.

Q: What special tools does Cisco offer to make virtualization easy for organizations?

A: In the past, blade architecture was a collection of tools prepackaged into one. But, that one tool is simply a GUI storefront. It allows you to select the components that you need to manage, and then it links you to another GUI. So, even though there are claims of it being single pane of glass management—and you can't contest that because you are bringing up a single pane—you are in fact utilizing different tools. It requires different knowledge bases and has a different look and feel. Cisco decided not to do this; because they developed tools with a purpose-built design, it is truly one single pane of glass. If a task can be done with your Cisco servers from a management, networking, compute, or VMware side, you will do it from UCSM—without ever changing the look, feel, or flow of the application. It saves a lot of time not only because the GUI itself is well laid out and intuitive, but also because users are not learning multiple tools that have been prepackaged into a bundle and sold as a single pane of glass.

Q: Are most organizations finding UCS to be an affordable solution?

A: This has been the biggest surprise for UCS. Your typical blade deployment usually came with dollar signs "dancing in the air" because there are so many components: the chassis, the blades, the networking components that were internalized to the blades, and upgrades to the existing architecture to house these items. Your average blade deployment to half-populate a chassis was nearly $60,000–80,000 simply because of all of the components—and it didn't futureproof you. For example, if there was a protocol change, or when 4GB fiber channel went to 8GB fiber channel, you had to upgrade or stay behind. With UCS, these things are a single line item SKU—you don't need to piecemeal the components together. Because it is also unified from a protocol standpoint, there are options after you procure and set it up; if you need fiber channel or iSCSI, it is already built-in and there is nothing more to buy on day one. And, from a futureproofing standpoint, Cisco has built their chassis to be capable of a 40GB backplane; there is nothing that you are going to need to do to it for the foreseeable future. If you compare UCS to a rack deployment, your break even to get into blades with Cisco can be 5:1. In other words, the entire blade deployment will cost about the same amount of money as medium and rack servers. And, it is much lower cost to get into UCS.

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