AGILITY ... SCALABILITY ... RESOURCES ...

The quest to balance this equation has been a never-ending goal of data center managers for decades. On the journey to achieve this objective, data center infrastructure has undergone an evolution.

It started with basic server virtualization, enabling faster and more efficient utilization of computing resources. The next step was positioning those underlying resources, such as storage and networking, as cloud services. This enabled IT to budget on-premise infrastructure while provisioning additional cloud-based computing resources on-demand for peak operating periods.

Network functions virtualization (NFV) was the next logical step. Services are provided via the network and cloud via commercially available servers instead of specialized hardware per function, a step that further reduces costs and expedites rollouts.

However, top-to-bottom virtualization of the IT “stack” is not enough. Deployment of new applications and their associated services can still be a tedious, manually prone process that consumes resources from across IT domains. The key is orchestration. Like a conductor directing a musical performance, a centralized workflow management tool enables IT to coordinate the various cross-domain provisioning processes to more effectively deploy and manage application and infrastructure services.

The end goal of this evolution is to transform a traditional data center into a software-defined data center (SDDC) where programmability, automation and virtualization of the infrastructure are the name of the game. It combines the very best of those technologies to provide higher infrastructure utilization and faster application rollout times while decreasing downtime due to human error.

DEFINING THE NEED FOR AN ADC IN AN SDDC ENVIRONMENT

Application delivery services must fit into this new frontier. Today, application delivery services are an essential part of the application infrastructure and must integrate natively into the SDDC ecosystem in order for these next-generation data centers to achieve their full benefits. The main goal of an application delivery controller (ADC) is to ensure the availability and performance of applications under any network condition, yet implementing ADC services has traditionally been a manual, resource-intensive and time-consuming process … three characteristics that don’t bode well for reaping the benefits of an SDDC.
This is why it’s critical that any application delivery service becomes an integrated component of the orchestration/automation framework that exists within an SDDC environment. To enable this goal, there are two main components that need to exist within an ADC:

- The application delivery fabric must provide the ability to allocate dedicated resources per the new application’s service, so it can be commissioned/decommissioned on-demand.
- The application delivery controller provisioning system must be fully integrated into the data center’s orchestration system, such as Cisco, VMware and OpenStack, to enable a single pane of glass with one streamlined, automated workflow.

These elements provide the ability to streamline application deployment with integrated application delivery services in a fast and simple manner. That said, there are additional operational considerations that must be addressed in a solution for the SDDC environment:

- Managing the application life cycle is not just about the commissioning/decommissioning of services. It’s also about maintenance of those services. If one of the goals of an SDDC is to reduce the workload of IT experts and also enable nonexperts to easily manage those applications, then providing automation tools for the application life cycle is key.
- Automation is no substitute for service-level agreement (SLA) visibility. One of the most important aspects of any ADC is the ability to view the application’s service levels and all aspects of infrastructure performance that impact it. Any ADC solution should provide a comprehensive SLA monitoring architecture.
- Finally, a layer 4–7 fabric with integrated security services comprised of a combination of virtual and hardware-based infrastructure is essential.

These capabilities enable an IT organization to fully automate the provisioning of all application delivery services, application acceleration, application security and data center protection.
CONCLUSION
As data centers evolve toward software-defined architectures, ADCs will serve as a catalyst to enable IT to add application delivery and security services into the SDDC architecture. By implementing an ADC with the proper underlying functionality and integration points, IT organizations can position themselves to finally strike the balance between managing resources while delivering agility and scalability via the next-generation data center.

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