SERVICE PROVIDER | CHANGING THE SPEED OF ENTERPRISE CLOUD TRANSFORMATION

PeerPaper Report

NEW REVENUE OPPORTUNITIES FOR CLOUD AND HOSTING PROVIDERS AND WHY SERVICE PROVIDERS CHOSE SOLIDFIRE

IT Central Station
Unbiased reviews from the tech community

ABSTRACT

Service providers can build their business by leveraging the speed and agility of Software-Defined Cloud Infrastructure (SDCI). Choice of platform is critical, however, in creating SDCI for the profitable, rapid rollout and scaling up of new services. IT Central Station Service Provider users weigh in on what to look for in a platform for large-scale cloud deployments. Based on experiences with the NetApp SolidFire platform, they offer recommendations for business success with SDCI at scale.

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INTRODUCTION

Service providers can leverage the speed and agility of Software-Defined Cloud Infrastructure (SDCI) to increase their revenues and operating profits. They can quickly introduce new, lucrative services and transition to faster and more streamlined operational processes than are possible with earlier iterations of cloud infrastructure. Use of specialized hardware declines as well. With solid state storage, SDCI generally reduces the provider's physical footprint and, in the process, helps cut both operating and capital expenses.

Choice of platform is critical, however, in creating SDCI for the rapid rollout and scaling up of new services. IT Central Station service provider users share what to look for in a platform for large-scale cloud deployments. Based on experiences with the NetApp SolidFire platform, they offer recommendations for success with SDCI at scale.

Software-Defined Cloud Infrastructure (SCDI) for Service Providers

SDCI confers a variety of operating benefits on service providers. By simplifying and speeding up deployment of service offerings, it enables both revenue growth and cost reductions. Also known as "Infrastructure as code," SDCI takes advantage of virtualization to separate applications and network functions from dedicated physical hardware. It removes many, if not all, of the physical processes required to provision infrastructure for a particular application. When an application is ready for deployment, or when a customer requires cloud resources, the service provider arranges for the required compute, storage

and network by writing code instead of manually configuring Virtual Machines (VMs), installing software and so forth.

The code invokes the APIs fronting the SDCI resources. Figure 1 offers a simplified reference architecture for SDCI from a service provider's perspective. It's a mostly automated process that translates into more efficient deployment and cloud management. A well-architected and well-managed SDCI contributes to positive business outcomes for service providers.

Challenges with Large-Scale SCDI Deployments

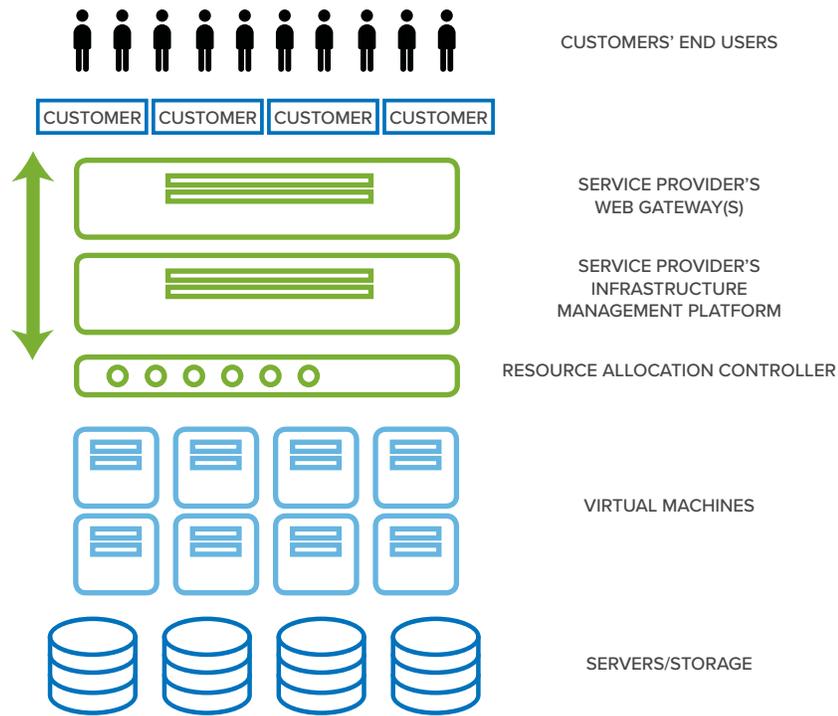The service provider business is competitive. Providers

Figure 1 - SCDI for the service provider.

CUSTOMERS' END USERS

CUSTOMER CUSTOMER CUSTOMER CUSTOMER

SERVICE PROVIDER'S
WEB GATEWAY(S)

SERVICE PROVIDER'S
INFRASTRUCTURE
MANAGEMENT PLATFORM

RESOURCE ALLOCATION CONTROLLER

VIRTUAL MACHINES

SERVERS/STORAGE

attract clients by offering good value and providing a great customer experience. In this frame of reference, SDCI can enhance or potentially diminish a service provider's competitive posture depending on how its implemented and managed.

There are some challenges inherent in achieving business success with a large-scale SDCI deployment. These include efficient infrastructure management and Quality of Service (QoS) delivery. Storage can be a factor in both of these areas. Some service providers have commented on IT Central Station that they have struggled with IOP-driven scalability, stability and "noisy neighbor" problems before they migrated to a platform that worked better for their needs. Similarly, some service providers shared that they felt constrained by solutions that locked together vendor cloud hardware and software.

What to Look for in a Large-Scale Deployment

Service provider members of IT Central Station have discussed what it took to achieve business success with large-scale SDCI deployment. They shared their insights and recommendations for deploying an effective SDCI. Their comments are based on their experiences with the NetApp SolidFire platform.

ABILITY TO ALLOCATE IOPS TO LUNS

Cloud environments often feature systems in conflict with one another, perhaps accidentally, with uneven and unpredictable load levels and demand volumes. This is likely when a service provider is running applications and storage on behalf of numerous clients. To ensure a smooth experience for clients and their end users, it is helpful to be dynamic in the assignment of Input/Outputs Per Second (IOPs). IOPs are a critical measure of storage/data management performance. As a result, they can affect the end user experience for almost any application.

A Lead Engineer at a tech services company with more than 1,000 employees spoke to this issue on IT Central Station. He explained, "With traditional SAN architectures, you have to architect what kind of disk you need and how many of those disks you need in your storage pool and things like that. With the SolidFire, it's really just a number and it's really just a matter of typing in that number for that certain LUN or whatever it is that you want to allocate for your users."

Figure 2 depicts this capability.

He then added that his admins "are able to allocate a certain number of IOPS in your throughput to your LUNs. That's something that's a little bit more difficult using traditional methods." A Principle Engineer at a tech company with more than 1,000 employees echoed this sentiment, sharing that his SDCI solution was "able to accommodate extreme needs, like burst IOPS."

SUITABILITY FOR VDI

Some service providers generate revenue by providing Virtual Desktop Infrastructure (VDI). For the Lead Engineer at the tech services company "VDI is a perfect use case" for SDCI. He said, "If you have ones [virtual desktops] that need more performance than others, it's easier to allocate it on a prolonged basis for a VDI environment for your specific virtual desktop users."

A Senior IT Systems Engineer offered an insight into how a SDCI platforms affect VDI. He explained, "We previously had another storage vendor, and we would recompose desktops of 350 VDI desktops or virtual desktops, and it would take us 10 to 12 hours. We then implemented the SolidFire on that same subset of

users, the 350 desktops, and we could do it in an hour and a half. It's almost a ten-times savings as far as time for recomposing in our environment or infrastructure."

STORAGE MANAGEMENT CAPABILITIES

Storage management tasks can be a financial drag on efficient service provider operations. The Lead Engineer at the tech services company explained, "Management of traditional SANs was becoming cumbersome. We wanted to look for a more efficient solution. That's why we started looking at SolidFire." A System Admin was pleased that his cloud storage solution "facilitates ease of administration and provides greater IOPS and speed."

STABILITY/UPTIME

Customers of service providers expect stable performance and high levels of system uptime. In many cases, these are actually guaranteed by contract. Lapses in uptime and performance may result in customer churn, which negatively affects revenue and earnings. For this reason, service providers prefer SDCI solutions that offer stability and reliable uptime. A Head of Commercial Management Servers at a tech services company described his solution in this
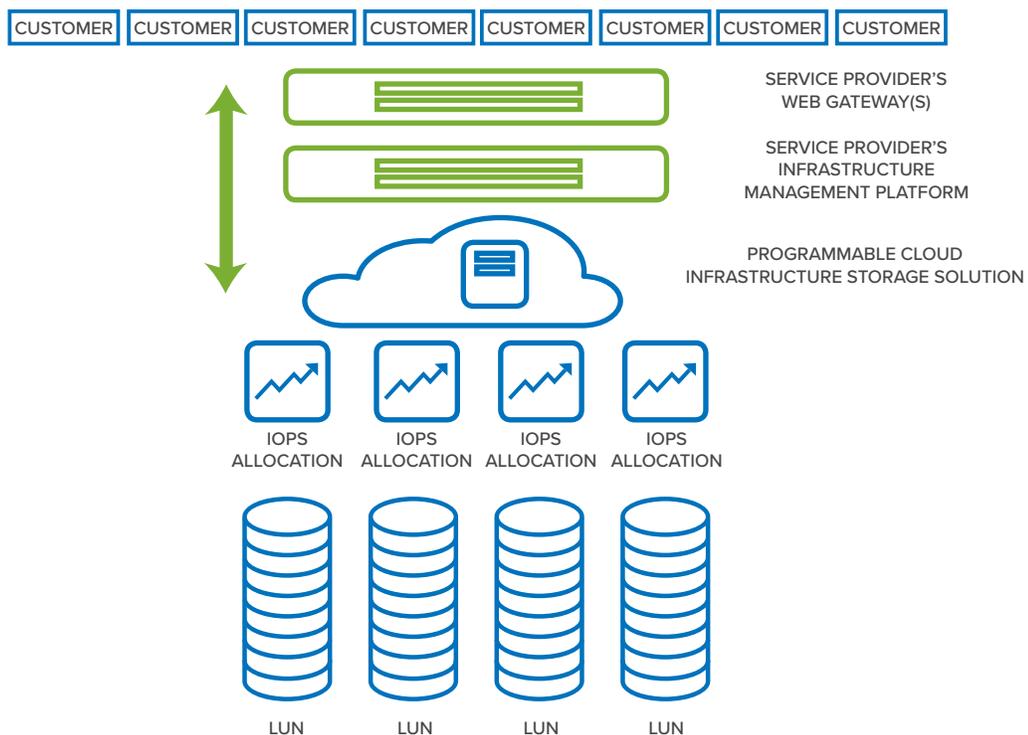

Figure 2 - Dynamic allocation of IOPs to LUNs.

regard, noting, "It's absolutely a consistently stable solution. We have, currently, up-times of 100% and no data loss at all, not even the slightest. That's one of the major points why we went for flash array storage and not local SSD storage, which is, of course, faster, when you look at the IOPS, but the redundancy is just missing." He added, "SolidFire was delivering not only stability, but also a lot of efficiency with the data storage."

QUALITY OF SERVICE (QoS)

Service providers need to deliver an expected service level, or QoS, to their customers. Choice of SDCI platform is critical to this capability. As the [Principle Engineer](#) at the tech company put it, "Our biggest challenge was QoS - not getting guaranteed IOPS at the volume level. Our use case is to provide quality of service and guaranteed IOPS." Now, with SolidFire, he is able "able to provide quality of service as promised." This includes "finally, being able to solve the 'noisy neighbor' problem."

An [Infrastructure Engineer](#) at a tech services company that employs over 50 people said, "I like SolidFire's technology and the way that it is implemented, from a node perspective instead of having a controller shelf architecture. One node can control everything, but if the node goes down, obviously the other nodes can bring everything back up. Going into the next generation data center, that's very compelling, as well as being able to use QoS settings and maintain a standard of performance for the VMs and things that are underlying it."

RAPID, FLEXIBLE CONFIGURATION AND DEPLOYMENT OF CLOUD RESOURCES

Customers are sensitive to delays in the configuration and deployment of cloud-based resources like VMs. The [Lead Engineer](#) at the tech services company remarked that he has tested his SDCI platform "with cloning multiple VMs at the same time." To him, "The numbers it generates are pretty impressive."

The [Infrastructure Engineer](#) at the tech services company felt that "SolidFire's technology and architecture allow for a more fluid and dynamic data center. It moves away from the controller and shelf

design philosophy to a node design. If a node goes down, the other nodes easily take the load. This is accomplished both by the node technology as well as the Double Helix technology. If needed, you can easily remove one node and ship it to another location or attach it to a different cluster, with very little effort."

NO VENDOR LOCK

SDCI is invariably heterogeneous. Service providers tend to like a "best of breed" approach. It gives them flexibility to tailor their offerings to the needs of their customers. A [Senior Storage Administrator](#) at a tech services company with more than 1,000 employees explained, "We've got quite a few different vendors on our floor today. Just about any vendor, you name them, is on our floor." To keep things running smoothly, he wanted a storage solution that would work easily with other platforms. As he said, "For the applications, and what we were trying to move towards, the SolidFire seemed to fit every niche we were looking at, for the part we brought it in for. It was a very good product."

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In this vein, service providers also prefer solutions that avoid getting locked into a single vendor stack. Flexibility keeps operating costs down by avoiding the typically high costs associated with having a single vendor. The [Head of Commercial Management Servers](#) at the tech services company shared, "We're currently working on the Element X operating system with SolidFire, because we're trying to break the combination of hardware and software. We're going for the Element X implementation, where you can use any hardware you like. That's also something where SolidFire's very supportive. Maybe we end up buying the SolidFire hardware anyway, but it's a nice option. You have no vendor-lock; you can purchase the software from SolidFire and use some appliance from other vendors."

SCALABILITY/SCALE OUT CAPABILITIES

Ideally, a service provider's business will grow over time. Sometimes, growth will occur in unexpected spurts. At other times, growth may be steady and slow. Regardless, the need to scale infrastructure is a crucial success factor for the service provider. IT Central Station service provider members expressed their enthusiasm for SDCI platforms that scale (up and out) well.

> 66 **Being able to restrict IOPs for specific applications and workflows is a really huge benefit for us."**

As an Enterprise Architect at a comms service provider with more than 1,000 employees noted, "We had initially purchased AFF for this solution and, while it met our needs, we thought that SolidFire might be a better fit based on how we wanted to configure OpenStack and what our workload was; and again, for the scalability in terms of IOPs and how we have to grow that for AFF versus SolidFire." He then praised SolidFire by stating, "the scalability, being able to add a node, add compute, add storage, and being able to restrict IOPs for specific applications and workflows is a really huge benefit for us."

SUPPORT

Support can be a decisive issue in a service provider's operations. Service providers are in the business of meeting expectations. If part of their infrastructure has a problem, they must rely on vendors with superior support to help them resolve the problem quickly. The Lead Engineer at the tech services company put it this way: "When I look for a vendor such as NetApp, some of the important criteria are the market space, their customer support, and how responsive they are from the account manager to the SEs, not just tech support but also the other guys involved in the organization, too."

The Head of Commercial Management Servers at the tech services company described his SDCI vendor's technical support as "very good." He continued, saying, "We had some minor issues when we started

the US data center, because we did not reach the performance level that we were promised and that we had in the European data centers. We figured out, it cannot be a hardware problem; it must be somewhere within our implementation. The SolidFire guys were very, very supportive and now, with over-provisioning, we reach levels that are far beyond the guaranteed levels." He then added, "What we really loved about SolidFire was the agility of the team."

ABILITY TO REDUCE OPERATIONAL COSTS AND REDUCE STORAGE FOOTPRINT

Cloud infrastructure is a business asset frequently measured in terms of square feet of data center space. When infrastructure can generate the same revenue from a smaller physical "footprint" in the data center, the higher its Return on Assets (ROA) will be. Service providers thus place a premium on compact infrastructure solutions. From this perspective, a Storage Architect at a tech services company with over 1,000 employees found that SolidFire helped with "green initiatives. Power, cooling, datacenter footprint."

He added, "Ultimately, it's about cost, on that front. I think we can tie that one to some capex and opex." For context, he explained, "We have a large company. We have an aging workforce and we can't just keep acquiring highly skilled employees as people retire." The Storage Architect at the tech services company made a comparable remark, saying, "We expect that it'll take some time but we expect that it [SolidFire] would reduce our operational cost, absolutely."

Where do operational savings come from with SDCI? According to the Enterprise Architect at the comms service provider, "Horizontal scalability enables us to add a node, compute, and storage, and results in cost savings and better efficiencies." He also shared, "For us, budget wise, just being able to say we know this workload is coming down the pipes for new design, a new ASIC chip, anything like that. We can predict what the cost is going to be versus having to buy disk at another solution. It's great for us."

The Enterprise Architect at the comms service provider found cost savings in SolidFire's scalability. As he found, "For us, it is a cost-savings, so if we

hit a certain number of IOPs within an AFF system we have to add another pair of controllers and we have to add more disk. There are also bottlenecks for AFF, for how many SSD shelves you can run for those specific clusters, whereas with the SolidFire side we are just able to add nodes on and get what we need. They're both great solutions that fit the use case a lot better."

CONCLUSION

SDCI benefits service providers who can make it work for their business needs. Platform choice is a crucial success factor, though. As IT Central Station Service Provider users commented, getting SDCI to function at scale takes the right tools. They shared the importance of a platform being able to allocate IOPS to LUNs and meet the requirements for VDI. Efficient storage management enables the service provider's admins to work productively on behalf of clients.

Meeting client expectations and QoS agreements takes a platform that scales well and offers stability and high levels of uptime. The right SDCI platform will provide rapid, flexible configuration and deployment of cloud resources like VMs. IT Central Station members also prefer platforms that are able to split software and hardware to avoid getting locked into one vendor. A well-implemented platform for SDCI will lead to reductions in operating costs for the service provider and become a driver of positive business outcomes.

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