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SDDC:
Creating a business-centric data center

If you are seriously considering a software-defined data center (abbreviated: SDDC), or are curious about how the SDDC philosophy might work for you, then you are not alone. In the last year to 18 months, there has been a dramatic shift in how SDDC is perceived within the IT industry. It has grown from an over-hyped philosophy to a platform concept that many IT professionals now believe they can take seriously.

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Part of the reason for this is the continuing pressure to reduce costs and then do more with less, in part to compete with the public cloud. With traditional IT already squeezed dry of possible savings, the only option left is to start doing things differently – to re-engineer IT to work from a new and lower cost-base, and in an even more business-centric way.

So you need both to find new ways to deliver business services, and to automate as much of your IT administration as possible. The latter is especially important when you consider the cost of suitably-skilled staff, and just how much of a waste of their skills it can be to have them doing routine provisioning or manual infrastructure work.

For example, most of today's data centers have many different devices or technologies, each with its own user interface and set of commands. Often, even devices from the same manufacturer will work in different ways, and simply taking a new unit out of its box, connecting it to the network and configuring it to work properly will require an appropriately skilled and qualified engineer.

Of course, we can automate or script a lot of the routine functions when it comes both to deployment and the subsequent need for updates and changes. However, administrators must learn all the devices that they need to work with, in case non-routine changes are needed. Even a relatively simple network update could require them to use multiple different configuration techniques.

It would be considerably easier, cheaper and faster if everything worked the same way and exposed a standard set of APIs. This would allow as much as possible to be standardized and automated via management software and a single pane of glass. Quite apart from making the infrastructure more flexible and allowing the business to self-provision, automation allows non-specialist staff to handle the routine work. This is a significant benefit if you are struggling to find and hire specialist skills.

In the process, SDDC could also help dissolve the barriers between your team silos and allow your specialists to work across a wider range of technologies and areas. Not only can this harmonize processes between business segments, but it has the potential to boost job satisfaction, and it allows organizations to redeploy expensive skills to develop new services and take the business forward in new and better ways.

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SDDC works by abstracting the three important hardware layers of compute, network and storage via techniques such as virtualization. This converts the hardware into pools of standard resources, and moves the control plane into software. Those virtualized resources can then be provisioned and administered using a layer of management and orchestration software, instead of by physically connecting cables and pushing buttons. This in turn allows IT administration to be automated and/or carried out remotely.

From a philosophical perspective this is similar to the way cloud services work, which makes it relatively easy to fit SDDC within a business-centric hybrid cloud strategy. Many businesses want to make more use of public and private cloud resources – in appropriate contexts of course – so the ability to tap into those when demand hits a spike could be extremely useful.

If all this looks a lot like hyper-converged infrastructure (HCI), that is not surprising. HCI is in many respects a microcosm of SDDC, packaged in a form that is easy to deploy and consume, and as a result many IT professionals have chosen this kind of architecture as a proof-of-concept for a full SDDC deployment.

The caveat here is that HCI only addresses a subset of the service models that a full SDDC might need to cover, and it also has scalability limitations. So while it can be an excellent solution for private cloud-type services or for smaller SDDC use cases, such as remotely-managed data centers in branch offices, HCI is unlikely to meet your needs if you have larger projects or a more complex set of service delivery models. In particular, most HCI implementations lack the operational virtualization that is part of the SDDC concept – this is the ability to automate operational processes and workflows, as well as technology.

HCI may also create new silos, and so will the arrival of new technology from IT vendors who have adopted software-defined approaches because it saves them money too. You therefore need a proactive approach to SDDC, adopting it in a planned way, because if you just let it happen it will be thrust upon you. The risk there is that, instead of a re-engineered data center that boosts efficiency and cuts costs, you will once again be struggling to make disparate services work together.

Once you decide to approach SDDC proactively, there are several more things to consider. One is openness, not just within the data center but outside it. For example, does your proposed supplier have all the necessary cloud connectors? If it doesn't, then your hybrid options will be limited. And does its SDDC solution recognize the need to embrace and include existing tools, systems and ways of working? After all, few of us can afford to rip out and replace our entire infrastructure.

Think too about what this will mean for your software licensing.

While some software vendors have developed pricing models that allow services to be spun up and down as needed, several are wedded to a legacy customer base that does not allow them such flexibility. Will you need to switch software in order to ensure that your SDDC project is cost-effective?

Then, check what sort of roadmap your supplier has for application-centric computing and related technologies such as containers. These will be important elements of the future SDDC because they allow applications to be deployed in a much more granular and server-independent way.

And how much can you trust the proposed supplier? Lots of them talk the talk, but can they offer more than yet another silo, and do they have a complete vision for the data center? In many cases, the answer will be no, but you can find a yes if you choose wisely.

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