



**ABSTRACTED
INTELLIGENCE**

POOLED RESOURCES

**AUTOMATED
OPERATIONS.**

ENTERPRISE NEEDS FOR ACCESS, CONTROL AND VISIBILITY

The transition from physical servers to Virtual Infrastructures changed the face of the data center as we knew it. Infrastructure as a Service (IaaS) enabled consistency, efficiency, and lifecycle management of our data centers over the past few years. Now, a Software Defined Data Center (SDDC) can further simplify, not only how we choose the hardware that runs in our data centers, but how we develop strategies for managing our IT infrastructures. SDDCs go beyond traditional abstraction above core hardware assets and establish a single toolkit that also encompasses hybrid clouds. And SDDC is a data center where *all* of the infrastructure is visualized and turned into a single shared resource pool, managed by software. Think of it this way: Abstracted Intelligence, Pooled Resources, Automated Operations.

CHALLENGES:

IT departments want to transition to a proactive role—one that acts as a broker of services for the organization. Currently the majority of time is spent on fire-fighting and maintenance.

With a hardware-defined data center, the business is confined to running applications and services that conform to the limitations of the available network resources.

Applications slow during peak loads

Individual data centers used to be designed for specific purposes and were highly siloed, resulting in low utilization rates. The rigid infrastructure made

it difficult to adapt to changing business and IT requirements; therefore, utilization rates were trending progressively lower.

Servers, storage, and networking components were highly underutilized, leading to a low return on investment. Legacy applications with specific hardware requirements constrained the company's ability to consolidate resources.

Reliance on specific physical hardware components prevented competitive procurements and increased capital expenditures. Moving to a software-controlled infrastructure would offer more freedom to choose hardware components that provide the best combination of cost and features from a number of vendors.

As a result of mergers and acquisitions, the IT staff included a large number of senior engineers and technicians with highly specialized skills who were supporting legacy applications. In addition to driving up operating expenses, this degree of specialization made it difficult to scale the labor force in response to changing requirements.

WHY SDDC?

The adoption of the SDDC allows for an IT team to integrate into your business and its strategies with more flexibility, agility, and consistency to meet demands placed upon it. Need to utilize your Hybrid Cloud resources for a month, without causing an application outage? Need to transition workloads easily between Private and Public cloud as the cost models change? Need to bring the development environment into the Private Cloud from a Public Cloud resource without any reconfiguration?

Enable self-service IT resources backed by pooled resources, that have the elasticity to scale on demand, run anywhere within your cloud, and can have their costs quantified.

Policy based management for all aspects of your IT infrastructure are what comprise the SDDC, and create these type of possibilities.

WHAT SDDC CAN DO FOR YOU

1. SDDC frees up IT resources. Intelligent, policy-driven automation requires minimal human involvement, reducing time spent on tedious IT maintenance:

- Simplified, unified data center management
- Streamlined and automated data center operations
- Application and infrastructure delivery automation



2. Reduces cost. SDDC extends the economic advantages of virtualization to the entire data center. This platform optimizes physical infrastructure utilization and productivity while extracting greater value from existing IT investments, thanks to the pooling and automated, policy-driven control of resources.

- Detect and adapt to spikes in demand, scaling automatically when necessary to accommodate surges in traffic and optimize performance
- Relieve network bottlenecks - network resources can be automatically applied to relieve bottlenecks and ensure application responsiveness
- Data center virtualization and standardization
- Enable integration and holistic cross-pollination of IT systems

3. Because everything is software-defined, it can also be automated, which increases the speed of delivery for network resources. The software is capable of creating and mapping server, storage, and networking resources, which provides much greater agility, flexibility, and reliability.

- Provides for greater agility, control, efficiency and reliability when deploying enterprise technology services
- Allow for a wide scope of uses including deploying, managing, storing, computing and networking myriad business applications in a cloud environment

4. Integrated architecture that allows the merger of legacy architectures, cloud computing, and workload-centric architectures into a single manageable domain.

5. Unmatched efficiency and resiliency – Workloads are automatically balanced and redirected by policy-based management software to meet the constantly changing demands of the business. If a server fails, recovery time is minimized and outages are avoided.

6. Enable enterprises to potentially achieve self service versus multiple handoffs/touch points within the IT team for resolving issues or for specific request fulfillments with regard to provisioning or capacity enhancements.

- Enable enterprises to provide and build just-in time environments rather than an infrastructure procurement process for each and every business application.

HOW WEI CAN HELP

Transitioning to a Software Defined Data Center is a **journey**. The technologies required to build a SDDC are established. The Virtual Infrastructure that provides your IaaS is a core

SDDC BENEFITS

-
- Turns siloed infrastructure into a singularly controllable environment
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- Complete redundancy
-
- High availability and resilient infrastructure
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- Flexible and stable platform for any application
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- Workload-aware infrastructure
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- Faster application deployment provide organizations with their own private cloud, allowing them to have far more control over hosted data

component that abstracts the operating system from having any type of hardware dependency. The Software Defined Storage (SDS) layer allows you to abstract the storage area networks in the same way Virtual Infrastructure abstracted the operating system from server hardware. The Software Defined Network (SDN) layer allows your network to focus on delivery of data, while allowing you to abstract the details of individual port configurations with a policy based network that can transition across Private and Public Cloud boundaries.

MAP THE JOURNEY

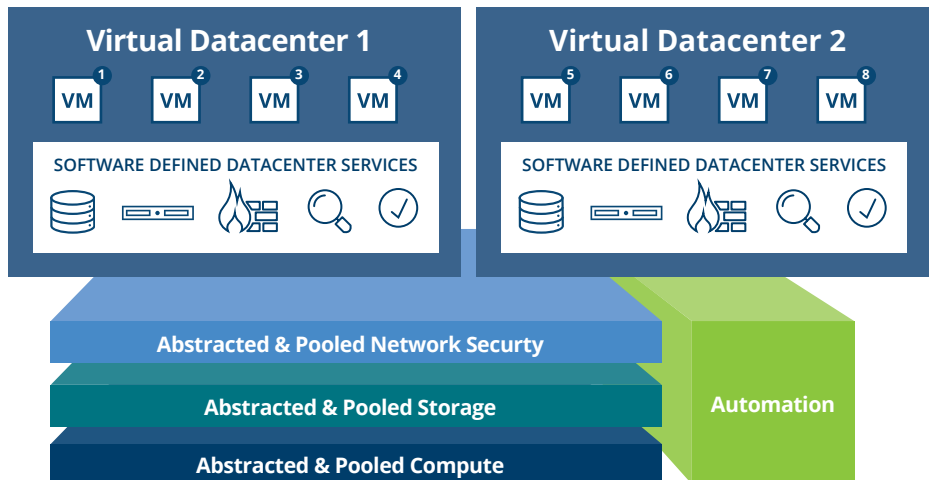
- Virtualization and Abstraction
- Management, Automation and Predictive Analytics
- End user virtual workspace
- Self Service (ITaaS)

OR

- Standardize and virtualize
- Automate and orchestrate
- Self service infrastructure
- Self service applications with full lifecycle management
- Converged cloud—becoming a service broker in a hybrid environment

WHAT DOES THE SOFTWARE DEFINED DATA CENTER LOOK LIKE?

In the SDDC all of the infrastructure is virtualized—compute, networking, storage, memory, etc. A general depiction of the structure is below.





There are a number of technical challenges that WEI will help you overcome in your journey to SDDC. These include:

- Complexity in architecture and integration
- Manual to bring up and configure
- Rigid infrastructure scalability
- Time consuming software lifecycle management
- Proliferation of control points
- Advanced technical skill required.

WEI has been helping our customer's journey to the SDDC, and enabling policy based management for our customers. Is it time for WEI to help you transition?

THE RISE OF THE SOFTWARE-DEFINED DATA CENTER

Virtualizing everything, introducing automation and using IT as a service.

What a concept. Software for the modern data center. Consider the situation even five years ago. Legacy data centers were hardware-centric. Storage companies created their own chips and boxes to ship to customers. Networking vendors took a similar approach, creating individual circuits and arrays for their products. Although this approach wasn't necessarily bad, the resulting hardware products were relatively inflexible, and the flexible software layer played a supporting role.

In this article, I introduce the new data center standard: the software-defined data center (SDDC), in which software becomes the focus over hardware. Because SDDCs have several defining characteristics, including virtualization, automation, and the use of IT as a Service (ITaaS), I take a look at these characteristics in detail.

VIRTUALIZATION

Every SDDC employs a high degree of virtualization, which goes beyond virtualizing servers. Everything is sucked up into the virtualization vacuum cleaner: storage, servers, and even supporting services such as load balancers, wide-area network (WAN) optimization devices, and deduplication engines. Nothing is spared. This eliminates the islands of CPU, memory, storage, and networking resources that are traditionally locked within a single-purpose device, such as a backup to disk device, and creates a single shared resource pool for both business and infrastructure applications.

Virtualization abstracts the hardware components of the data center and overlays them with a common software layer: the virtualization layer, which manages the underlying hardware. The hardware can be a mix-and-match mess, but it doesn't matter anymore, thanks to the virtualization layer. All the data center administrator has to worry about is making sure that applications are running as expected. The virtualization layer handles the heavy lifting.

AUTOMATION

Many boardrooms today are asking companies to do more with less. One of the fastest ways to improve efficiency (and reduce costs) is to automate routine operations as much as possible.

Until now, many legacy IT architectures have been so varied and complex that automation has been a pipe dream only. SDDC brings the dream one step closer to reality.

Software-imposed normalization of the data center architecture permits higher degrees of automation. Moreover, the software layer itself is often chock-full of automation helpers, such as application programming interfaces (APIs). With this kind of assistance, automation becomes far easier to achieve.

IT AS A SERVICE

When resources are abstracted away from hardware and plenty of automation techniques are in place, companies often discover that they can treat many IT services as exactly that—services.

As they do with all other services, companies that use ITaaS have certain expectations:

Predictability: The service should operate in a predictable way at a predictable cost. The SDDC can provide this conformity.

Scalability: Business needs today may be very different from tomorrow, and the data center can't be a limiting factor when expansion becomes necessary. In fact, a data center should be an enabler of business expansion.

Improved utilization: Companies expect to get maximum benefit from the services they buy. Because a hyperconvergence-powered SDDC is built on common components that eliminate the islands of resources traditionally trapped within infrastructure appliances, high utilization rates are exceedingly easy to achieve.



Fewer personnel: With SDDC, a company can operate a data center with fewer people. The reason is simple: SDDC banishes traditional resource islands in favor of the new software-powered matrix.

Having fewer personnel translates directly to lower costs. In fact, research by Avaya suggests that an efficient SDDC can lower personnel costs from 40 percent of total cost of ownership to a mere 20 percent.

Reduced provisioning time: A company that invests in SDDC expects to receive business benefits. SDDC offers agility and flexibility, which reduce provisioning times for the new services that business units require.

HARDWARE IN A SOFTWARE WORLD

When people hear the phrase **software-defined data center**, their first question usually concerns where the software for the SDDC is supposed to run. The answer is simple: The software layer runs on hardware.

But if SDDC is software-centric, why is hardware still required? Again, the answer is simple: You can't run a SDDC without hardware.

Most hardware in SDDCs looks quite different from hardware in traditional environments. Whereas legacy data centers have lots of proprietary hardware to manage myriad devices, a SDDC uses mostly commodity hardware.

If a SDDC contains any proprietary hardware, the software leverages it to carry out important functions. In the world of hyperconvergence, this kind of hardware essentially becomes part of the data center's standard operations. Because it's identical hardware (and not unique to each device), it scales well as new appliances are added to the data center. Software is still top dog in such an environment, but without the hardware, nothing would happen.

ABOUT WEI

**WEI is an innovative,
full service, customer centric
IT solutions provider.**


**Why WEI? Because we care.
Because we go further.**

At WEI, we're passionate about solving your technology problems and helping you drive your desired business outcomes. We believe in challenging the status quo and thinking differently. There are a lot of companies that can take today's technology and create a great IT solution for you. But we do more. We go further. And we have the customer, vendor and industry awards to prove it. WEI is a premier technology partner, who always puts our customers first while providing the most innovative solutions for over 25 years.

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