



Organizing for the Cloud

Your business is ready to reap the rewards of the software-defined cloud era. Is your IT organization ready to deliver?

By Kevin Lees, Principal Architect, VMware Global Operations Transformation Practice

VMWARE WHITE PAPER

Table of Contents

Executive Summary	3
Traditional Versus Cloud View of the IT Operations Organization	4
First Steps on the Road to the Cloud Model	5
#1: Define the Expected Benefits	5
#2: Assess Operational Readiness	5
#3: Determine the Degree of Change Needed	5
#4: Prepare the Organization for Change	5
What Does an Effective Cloud Organization Look Like?	6
SDDC/Cloud Infrastructure Operations: Functions and Key Roles	7
SDDC/Cloud Tenant Operations: Roles and Responsibilities	9
Creating a Collaborative Cloud Culture	10
SDDC/Cloud Infrastructure Operations and SDDC/Cloud Tenant Operations	10
Service Desk and the Networking Operating Center (NOC)	10
Cloud Tenant Operations and Application Development	10
Key Success Factors in Organizing for the Cloud	10
VMware: Ready to Help You Organize for the Cloud	12

Executive Summary

Business leaders look at the cloud model and see new ways to accelerate innovation, create competitive advantages, and drive new business models. IT executives look at private, public and hybrid cloud models and see a host of new possibilities for positive IT outcomes, including:

- **Reduced CapEx** by cutting unit costs for software-defined data center (SDDC) infrastructure
- **Lower OpEx** through streamlined and automated data center operations
- **A better security-to-effort ratio** through security controls that are native to infrastructure
- **Higher uptime** thanks to high-availability, resilient infrastructure and proactive IT operations
- **Improved service delivery times** through app and infrastructure delivery automation

But all too often, a critical aspect of harnessing the cloud is overlooked: The organizational impact of moving to the cloud model.

The fact is, the transition to the cloud model often requires an evolution in roles, skills, processes, and organizational structure. Yet many IT leaders become so focused on the vision or the technological requirements of the cloud that they lose sight of whether their IT staff is properly prepared for the new world.

Organizing for the cloud cannot be an afterthought in the formulation of an effective IT transformation strategy. When IT is in transition, roles and responsibilities are more important than ever. The right people, with the right skills, have to be in the right places and serve the right roles, or the transformation strategy will fail. On the other hand, proper preparation and a well-thought-out organizational structure can accelerate the implementation of your cloud strategies—and ensure the level of buy-in and support that spells the difference between success and failure.

This paper looks at the organizational impacts of transformation from multiple perspectives and provides insights and advice about how to prepare for—and execute—a winning transformation strategy.

Traditional Versus Cloud View of the IT Operations Organization

If you believe form follows function, you'll easily see why there's a significant difference between "IT as usual" organizations and organizing IT for the cloud.

The function of traditional IT has been primarily operational: deliver the infrastructure needed to support projects and key business processes, maintain core operations, enforce policies and procedures, cut costs, and keep production running. And IT has traditionally been organized accordingly: heavy on siloed functional teams, lots of project-driven activities, lots of manual tasks. That is why IT is often perceived as a cost center rather than a source of innovation; an implementation mechanism for business strategy rather than a catalyst for business innovation, or a "Ministry of No" rather than a business enabler.

On the other hand, the cloud is all about agility, rapid scaling, and being more responsive to the business. Clearly, the same IT organization that delivered "IT as usual" is not going to have the same structure and skill sets as a cloud-ready organization regardless whether a private or public cloud strategy. It is going to need to become service-driven: more efficient, more automated, less restrictive, with a higher value on innovation – providing IT at the speed of business.

The question is how. The next sections provide answers based on the collective experience of VMware Professional Services consultants in real-world engagements.

First Steps on the Road to the Cloud Model

Once key stakeholders and the IT organization have made the decision to evaluate a move to the cloud model based on SDDC, the following steps are recommended:

#1. Define the Expected Benefits

Every company's motivations for adopting cloud-based operations are different, but whatever they are, they should be clearly defined, documented, and communicated to all stakeholders—along with expected results from a business perspective and a technical perspective. Some of the most common business impacts of the cloud model include:

- **Higher agility and efficiency:** Cloud initiatives enable automation and orchestration of key IT services, which in turn make it possible for IT to deploy services the business needs faster, with less cost and risk. A cloud based on SDDC can also bring predictability, control, and choice to service delivery so IT can respond to the needs of business units and repatriate their “shadow IT” projects. In short, offering services in a cloud environment is the starting point for building alignment between IT and the business.
- **Better decision making:** Establishing an integrated cloud operations team, along with its ecosystem, fosters faster and more operationally driven decisions about IT infrastructure as well as streamlined processes and procedures.
- **Increased focus on higher value initiatives:** More automation and intelligent toolsets enable cloud operations to become more proactive and thereby allow the IT organization to shift resources from repetitive tasks to innovation initiatives that add value to the business.
- **Faster response to business needs:** The cloud service model, with its focus on integration, automation, and outside-in versus inside-out thinking, can help streamline everything from the service definition to the service delivery process. This directly impacts the speed with which IT can respond to changing business needs.
- **Improved ability to meet service level agreements (SLAs):** With the cloud operating model the focus is on managing proactively, so services can be delivered reliably and predictably by preventing incidents before they impact services.

#2: Assess Operational Readiness

One potential pitfall in organizing for the cloud is cloud operational readiness. Many organizations discover that they lack the understanding, skills, or the best-practice guidance and training needed to move from their current organizational structure, culture, and mindset to one optimized for a service-driven cloud operating model. An early operational readiness assessment and a prioritized and actionable roadmap are essential to crafting a transition plan that minimizes risk and dramatically increases the chances for success.

#3: Determine the Degree of Change Needed

Once the operational readiness assessment is complete, IT leaders should understand the degree of change required to transition the organization to one optimally structured and skilled for a service-driven operating model. They should undertake a skillset and career path assessment of their IT operations staff to determine who among the existing staff are best qualified and have the desire to fill both operational and change leadership roles in the new operating model.

#4: Prepare the Organization for Change

Organizational change can be disruptive and is often met with inertia or resistance. To help overcome this, IT leadership has to not only embrace and drive the transition but socialize and evangelize it within IT and line-of-business stakeholders. IT leadership also needs to consider ways to incentivize individuals to begin thinking more horizontally, both from a systems perspective and to foster greater collaboration across traditionally siloed functional teams. Modifying each individual's annual review criteria is a key technique to achieving this.

What Does an Effective Cloud Organization Look Like?

A core requirement of preparing an organization strategy for supporting services in an SDDC-based cloud environment is to consider specifically what the elements of such an organization might consist of, what skill sets would be required, and how best to approach the transition. This section provides guidance.

In general, a service-driven operating model should include two key elements: **SDDC/cloud tenant operations**, and **SDDC/cloud infrastructure operations**, as shown in Figure 1.

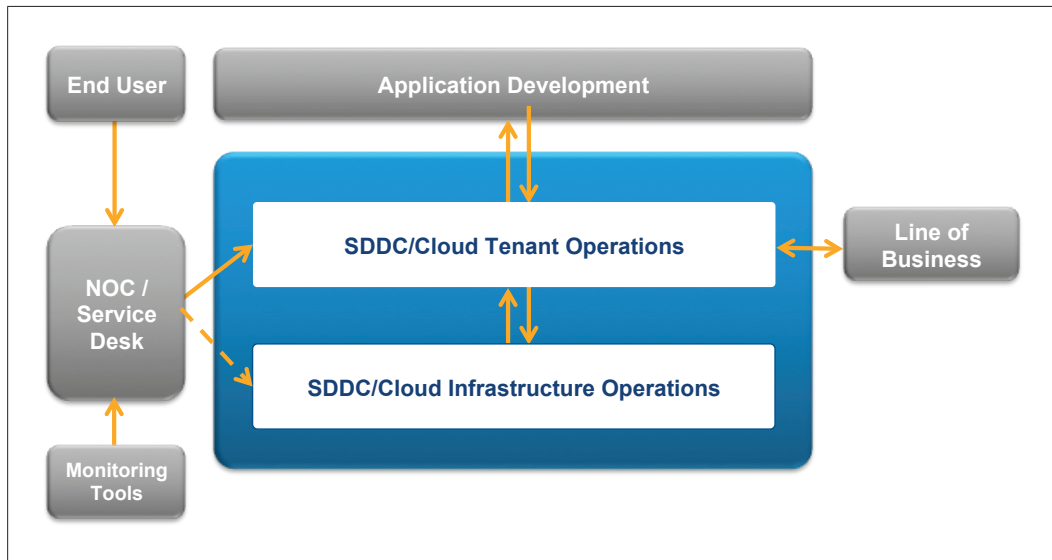


Figure 1. Overview of the Cloud Operating Model

- **SDDC/cloud infrastructure operations** is responsible for architecting, engineering, deploying, and operationally managing the underlying SDDC-based infrastructure.
- **SDDC/cloud tenant operations** manages business organization relationships as well as governing, developing, releasing, and operationally managing the cloud-based services offered on the SDDC infrastructure. Service offerings may include applications provided by an application development team so SDDC/cloud tenant operations also fills a DevOps role.

SDDC/Cloud Infrastructure Operations: Functions and Key Roles

SDDC/cloud infrastructure operations is a team of infrastructure operations specialists and an ecosystem of related functional groups, as shown in Figure 2. It serves as the focal point for all decisions and actions involving cloud virtual infrastructure and its operations, and also defines a set of cross-domain roles aimed at creating a much closer relationship among architecture, engineering, and operations teams.

The goal is to create tighter collaboration across the traditional plan-build-run IT paradigm. This is a necessary step to achieving agility and the operationally-driven decisions needed to support proactive management of an SDDC environment.

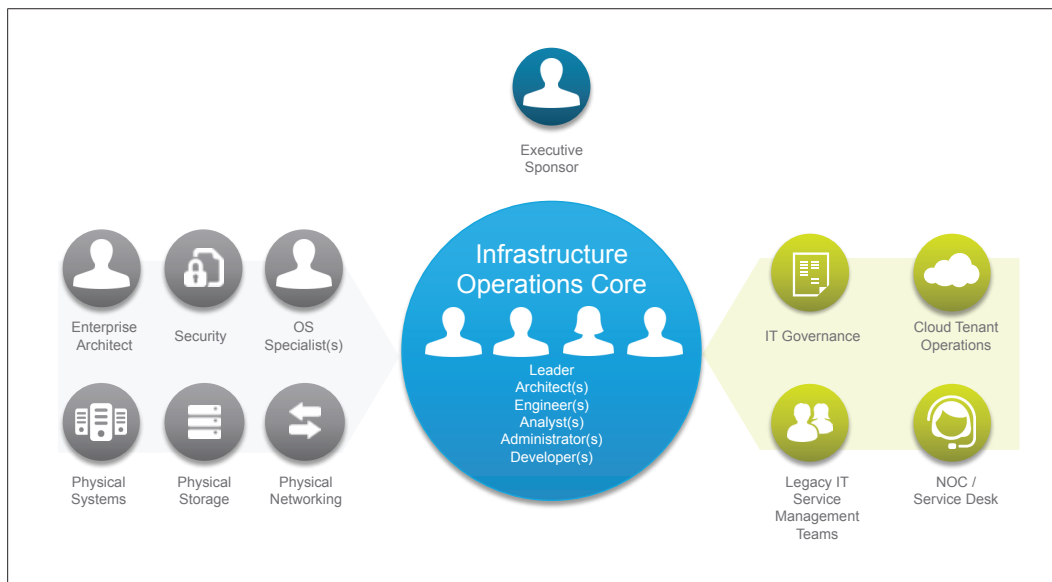


Figure 2. SDDC/Cloud Infrastructure Operations team and ecosystem

The charter of SDDC/cloud infrastructure operations is to continually develop and implement innovative ways to architect, engineer, deploy, and operate the infrastructure in the most cost-effective way possible—while satisfying the operating level agreements (OLAs) for cloud-based services. The primary roles and responsibilities include:

- **Leader/Evangelist:** Responsible for executing the cloud strategy as defined by the executive sponsor, including responsibility for overall services and making sure that the infrastructure can support the offerings and service levels agreed to. Also responsible for actively evangelizing the activities, successes, and impacts of cloud infrastructure operations.
- **Architect:** Sets the overall architectural standards and is responsible for development and maintenance of SDDC architecture and design documents; works with enterprise architects to make sure that the cloud infrastructure architecture is aligned with architectural standards and strategies. Responsible for working closely with SDDC/cloud tenant operations to make sure the underlying virtual infrastructure architecture and technical decisions support the services, service tiers, and OLAs needed to meet business needs.

- **Engineer:** Responsible for designing, building, and testing the SDDC infrastructure components comprising the cloud environment.
- **Analyst:** Responsible for infrastructure capacity forecasts, day-to-day capacity and resource management, working with the tenant operations team to understand the future cloud service demand forecast. Also responsible for proactively monitoring the infrastructure components in support of satisfying the agreed operating level agreements.
- **Administrator:** Determines and executes maintenance requirements, provides tier 3 support of the infrastructure components comprising the cloud environment; responsible for working with developers and other teams to implement integration with external systems.
- **Developer:** Implements any required SDDC component integration with other systems and IT applications; develops, tests, and deploys automation workflow; and evangelizes to and mentors cloud infrastructure operations ecosystem teams about SDDC integration and automation.

SDDC/Cloud Tenant Operations: Roles and Responsibilities

SDDC/cloud tenant operations is central to defining, developing, and providing cloud-based service offerings. It incorporates service governance and life cycle management, service definition, design, development, release management, service operations, service blueprint management, and customer relationship management. Services could be deployed to an internal private cloud, to an external cloud provided by a cloud provider, or both in the form of a hybrid cloud.

The charter of SDDC/cloud tenant operations is to continually develop and implement innovative ways to govern, design, develop, release, provide access to, and proactively operate the portfolio of cloud services provided to customers while actively maintaining customer relationships and quality of service. The primary roles and responsibilities include:

- **Leader:** Provides guidance to team members, maintains a working relationship with the SDDC/cloud infrastructure operations leader, actively promotes awareness among end-user organizations, and maintains management-level relationships with the tenant operations ecosystem teams.
- **Customer relationship manager:** Works with the customer to determine their service demand pipeline—both new and retiring services; works with service portfolio manager to build this into the portfolio and the service analyst to include the demand pipeline in the capacity forecast.
- **Service owner:** Acts as the product manager of one or more services. Responsible for the overall definition, marketing, and delivery of the cloud-based service offering(s), collaboratively works with service stakeholders to define the cloud-based services; determines a price for their cloud-based service offerings; provides real-time information on service level attainment.
- **Service portfolio manager:** Develops and maintains cloud service portfolio policy including the criteria for acceptance, works with IT management to develop the cloud service strategy.
- **Service blueprint manager:** Responsible for life cycle management of the blueprint that defines the construction and placement of cloud-based service offerings when they're selected from the on-line request portal.
- **Service architect:** Responsible for translating the service definition into technical requirements for service development, provides tier 3 cloud service support as needed. Responsible for working with application architects to understand what's needed to develop cloud-aware applications architectures.
- **Service developer:** Works with the service architect to understand cloud-based service offering technical requirements and develops new cloud services into blueprints as well as their automated provisioning process, releases cloud-based service offerings into production. Works with application developers to develop service blueprints and automated provisioning processes throughout the application development life cycle when bespoke or third-party applications are part of a cloud-based service offering.
- **Service QA:** Develops test plans as well as tests and accepts services as fit for release to production as well as post-release validation; works with application developers to define automated tests for cloud-based service offerings as part of continuous integration.
- **Service analyst:** Develops and maintains service capacity forecasts, responsible for the day-to-day capacity and proactive management of services. Proactively monitors cloud-based service offerings as they move through development, continuous integration, and pre-production, in addition to production itself.
- **Service administrator:** Administers tools used by cloud tenant operations to govern, develop, and operate services.

Creating a Collaborative Cloud Culture

Effective organizational interactions are critical to the success of both SDDC/cloud infrastructure operations and SDDC/cloud tenant operations. Three key organizational interactions are described in this section.

SDDC/Cloud Infrastructure Operations and SDDC/Cloud Tenant Operations

The relationship between these groups should be symbiotic. As a result, each group must be continuously aware of what the other is planning and doing. For example, cloud infrastructure operations must always be aware of service demand in order to plan for capacity. Trending information is important to capacity planning but with the extremely dynamic nature of cloud computing, forward looking demand is equally as important. The reverse is also true. For example, cloud tenant operations must be aware of SDDC virtualized networking capabilities in order to correctly and predictably architect, design, and implement cloud-based service offerings.

Service Desk and the Networking Operating Center (NOC)

Both the service desk and the network operating center (NOC) will interact with cloud infrastructure operations and cloud tenant operations teams. Initially these interactions may be more frequent as SDDC infrastructure-related tier 2 and service-related tier 2 support will be provided by the both cloud infrastructure operations and cloud tenant operations respectively. Even initially the service desk should interact predominately with cloud tenant operations as they will be in the best position to triage service-impacting incidents; calling in cloud infrastructure operations or application development support only if needed.

Cloud Tenant Operations and Application Development

Cloud tenant operations interacts with application development teams from three perspectives: application development team as a customer of infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS) offerings, for example; a service development partner (DevOps) throughout the application development lifecycle if a bespoke or third-party application are included in a service offering; and for tier-3 production operations support if potential issue is proactively identified or a production incident occurs that cloud tenant operations determines is due to the application.

Key Success Factors in Organizing for the Cloud

Implementing cloud infrastructure operations and cloud tenant operations can be both a transformative and a disruptive process. However, there are a few key factors that can help you achieve a successful outcome and avoid pitfalls.

#1: Enlist Active Sponsorship at the Executive Level

The executive sponsor(s) must take an active role in the transformation. They should have a well-defined cloud strategy clearly articulated within the IT organization, actively communicate and enforce a cloud-first deployment policy with customers, and support the implementation of services to support the policy. The executive sponsor(s) must also actively foster collaboration between IT functional groups, especially as they relate to the cloud infrastructure operations. Finally, they must actively reinforce the service-oriented mindset both within IT as well as evangelizing outside of IT, especially with the business units and their executive colleagues.

#2: Establish the Ecosystems and Educate

Effective ecosystems are critical to success. Without an active ecosystem each group will become an island unto itself and will fail. Education is key to creating an effective ecosystem. Care must be taken to make sure that the functional groups comprising the ecosystems are not only continuously educated on the importance of their role but also continuously educated to ensure they have the requisite level of knowledge to successfully fulfill their role.

A proven, successful technique for establishing a collaborative ecosystem is to identify functional team champions. Champions are individuals who are incentivized, through annual review criteria changes, to collaboratively work with SDDC/cloud infrastructure operations and SDDC/cloud tenant operations to make them successful, and to act as evangelists back into their functional groups.

As the SDDC-based cloud environment scales and becomes more critical to the on-going success of the business, these individuals also become prime candidates to fill corresponding functional roles within the cloud infrastructure or tenant operations teams as appropriate. For example, the network and security functional team champions would be logical choices to fill network and security virtualization roles respectively.

#3. Know Your Processes

IT processes need to change and evolve to support the level of agility required when offering cloud-based services and operating the underlying SDDC infrastructure supporting the cloud. Heavyweight, high-governance processes slow down the speed with which IT must move to meet business needs in the highly dynamic world of cloud. When you begin planning your move to becoming an internal cloud provider and implementing a highly agile and dynamic SDDC environment, take that opportunity to thoroughly review and update your IT processes to be more lightweight while providing the appropriate level of governance.

#4: Plan for a Pilot-Based Launch and Scale Up

This applies primarily to cloud tenant operations. To be viable long term, the initial cloud tenant operations launch must be well managed. The recommended approach is to begin with a pilot implementation including a willing and supportive business unit. This allows cloud tenant operations to validate its approach in a real-world situation and also affords the opportunity to evaluate and refine before scaling up. Once cloud tenant operations and the pilot business unit agree the interactions and processes are running smoothly, additional business units can be on-boarded.

VMware: Ready to Help You Organize for the Cloud

Today's forward-looking companies are looking to the cloud model to spark IT's transition to service provider and true business partner. However, achieving the desired IT outcomes—such as dramatically lower unit costs for SDDC-based infrastructure, greater control for IT organizations, and faster delivery for IT services—requires a focus on the organizational impacts of the transition, including needed evolutions in roles, responsibilities, processes, and organizational structure.

VMware has built some of the largest and most successful public and private clouds in the world, and we thoroughly understand the opportunities and the challenges. VMware brings that experience and insight to bring to market a complete solution that includes a full suite of the software products and services you need to gain the maximum benefit from cloud computing. This combination of software and expertise, delivered via services and education to customers of all sizes across all industries, is unique to VMware and its global ecosystem of partners.

To learn more about the VMware SDDC-based cloud solution, visit www.vmware.com/it-outcomes.

