

Enterprises require a modern workload platform to accommodate both legacy and modern applications across hybrid cloud and multicloud.

# Modern Workload Platforms for the Multicloud Era

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# Introduction

The driving theme for enterprise IT today is modernization, which can take many different forms. In some companies, modernization means becoming a more distributed organization, expanding beyond the traditional datacenter into multiple clouds. Consistency and efficient control are the primary challenges in these distributed environments. For others, modernization is a radical shift in the types of applications that are being built, with a move to cloud-native application architectures that use containers and microservices. Many of these new applications, such as artificial intelligence (AI), require new

# AT A GLANCE

#### **KEY TAKEAWAYS**

To avoid the creation of multiple silos, enterprises will require a modern workload platform that can bring in the new digital world while providing linkages to existing environments and offer capabilities to deploy and manage across both.

levels of performance that rely on new hardware such as graphics processing unit (GPU) and data processing unit (DPU) accelerators. Enterprises will need a modern workload platform that can manage all these new developments in addition to the existing legacy environments.

# **Benefits**

Today's complex IT environment requires more from a modern workload platform to accommodate both legacy and modern applications across hybrid cloud and multicloud. Enterprises are also adopting cloud operating models for their self-managed environments that require advanced capabilities and new workflows. A modern workload platform can enable:

- » Cloudlike capabilities on premises for increased productivity, agility, business innovation, and speed to market.
- The use of SaaS-based management tools for faster time to value and better insights across hybrid cloud and multicloud.
- » A wide range of hardware accelerators on which many modern applications rely.
- » Integrated management of both container-based cloud-native applications and existing virtual machine (VM)-based applications.
- » A better developer experience with self-service, modern declarative APIs, and container capabilities.
- » New purchasing and deployment models such as subscription-based purchasing, consumption-based pricing, cloud-based management, and fully managed services.

### Trends

The biggest shift for enterprise IT in recent times has been the move to cloud-native applications and public clouds. That journey continues, and infrastructure is still a key priority. IDC's *Future Enterprise Resiliency and Spending Survey, Wave 6* (August 2022) found that modernization of infrastructure and networks is the top technology initiative among respondents. The following sections highlight notable trends and challenges in the enterprise IT environment, according to IDC research.

#### The Cloud Operating Model Permeates Across All IT

Customers are still investing in both their private and public environments, according to IDC's *Intelligent Cloud Operations Survey*: 58.5% of respondents will increase spending over the next year on private cloud environments, and 57.6% will do the same for public cloud environments. Hybrid architectures have become the norm in enterprises, with two-thirds of enterprises relying on hybrid capabilities that are a mix of on-premises datacenters, public cloud, VMs, and containers, according to IDC's *Future Enterprise Resiliency and Spending Survey, Wave 2* (March 2022).

In addition to on-premises datacenters, multiple public clouds have become the standard for many organizations. The challenge becomes how to operate consistently and efficiently across multiple clouds. The recent expansion into edge computing and sovereign clouds is also adding more environments into the mix. Today, enterprises are struggling with different tool stacks managed by different teams, a situation that create silos. Figure 1 shows the increasing pain of managing a multicloud environment and the growing priority among enterprises to address it.

#### FIGURE 1: Improving Digital Business Infrastructure

# **Q** When unifying the way your organization manages and secures dedicated on-premises and public cloud infrastructure to improve digital business resiliency, to what degree is each of these a current priority?



n = 824 (North America n = 259; Asia/Pacific n = 370; Europe n = 195) Source: IDC's Future Enterprise Resiliency and Spending Survey, Wave 10, September 2022



#### A Shift Toward SaaS Management

Just as with applications, SaaS presents similar benefits for IT management. These include:

- The offloading of deployment, security, and scalability responsibilities to a provider for faster realization of benefits and ROI. One notable trend is that the management plane has become a growing security target in recent years, increasing the burden on IT to secure, maintain, and patch management software.
- » The use of cloud-based management, which is ideal for providing a single pane of glass across diverse environments that could include on-premises, multiple public clouds, sovereign clouds, and edge locations.

Data from IDC's *Worldwide Intelligent CloudOps Software Forecast, 2022–2026* (July 2022) shows that revenue from SaaS-based management is growing at 1.5x the rate of on-premises management. Over the next five years, the growth rate of SaaS management will increase to 3x that of on-premises management software. In 2023, SaaS-based management revenue is forecast to overtake software-based management revenue for the first time.

#### **Enterprises Must Support Multiple Generations of Workloads**

New applications have rapidly shifted to a microservices and containerized architecture, and many existing applications are being refactored to various extents into those models as well. Refactored applications are not always cleanly modern. Instead, they may be in some middle state where they have some modern characteristics and some legacy ones as well. Even within the same application, different tiers can be in different generations. For example, it is common to have the front end of an application modernized and running in containers, while the back end is running in VMs. This situation can create deployment and management challenges, especially if the on-premises/VM world is siloed from the container/cloud world.

While it would be ideal to modernize every application, that is not a realistic path for all workloads. Modern applications are additive to what IT must manage so that legacy base will slowly shrink over time.

Many modern applications are also designed to leverage various hardware accelerators that are becoming more common in IT infrastructure. For example, GPUs are standard fare for AI and machine learning (ML) workloads. The challenge becomes how to efficiently provision and share GPU resources among multiple consumers. A new accelerator type is the DPU, which accelerates network I/O for increased application performance and security. Modern architectures place greater strain on east-west traffic, and the move to zero trust also means that this traffic must be introspected, leading to increased overhead to manage this traffic.

IDC's *Future Enterprise Resiliency and Spending Survey, Wave 2* (March 2022) found that 68% of enterprises are increasing their investments in accelerators or specialized cloud instances.

#### New Buying Models to Accommodate the Shift to Cloud Operating Models

SaaS and cloud brought the as-a-service consumption model and pay-as-you-go pricing to enterprises. More recently, some of these models have become available to on-premises infrastructure. Enterprises have more options than ever in how they deploy and pay for infrastructure, including:

Subscription licensing models and consumption-based pricing, most commonly for software but also available for hardware as well



- » Portable licenses or flexible credits that can be moved across various products or between on-premises locations and cloud
- » New deployment models that include on-premises clouds and cloud delivered, fully managed services that live on premises

# Considering VMware vSphere+

VMware is a leading provider of infrastructure platforms that can cross monolithic and containerized workloads, as well as on-premises and multiple clouds, while offering secure enterprise control.

Foundational to the company's multicloud portfolio is vSphere, an enterprise workload platform. Its newest edition is vSphere+, which brings key capabilities for modernization. These include:

- » A cloud operating model on premises that can be further accelerated by other elements of the VMware portfolio. Through the VMware Cloud, vSphere+ also enables a consistent infrastructure experience across on-premises and multiple clouds.
- » A deeply integrated Kubernetes control plane for running containers and VMs on a unified infrastructure that can be managed with the same set of tools, which allows for running partly modernized applications that include both modern, containerized elements and monolithic, VM-based components.
- » A new SaaS-based cloud management console that ties together a distributed multi-vCenter/multilocation footprint. Future releases will extend management to VMware public clouds. The cloud console, being SaaS based, is easy to consume and begin using.
  - A notable feature is resilient design that endures cloud connectivity interruptions. If network problems sever connections to the cloud console, workloads continue to run, and vSphere+ infrastructure continues to operate under the direction of autonomous vCenters.
- A new Cloud Consumption Interface (CCI) that offers modern, Kubernetes-style declarative APIs to vSphere+ for optimized developer self-service through multiple paths (API, CLI, or GUI), significantly improving cross-team collaboration among IT admins, DevOps engineers, platform operators, site reliability engineers (SREs), and line-of-business practitioners.
- » New support for DPU accelerators that aim to drive new levels of performance, security, and cost efficiency. While DPUs are extremely new, they promise to become standard in datacenter servers.
- Subscription-based pricing to align with cloud operating models. Two available editions (vSphere+ and vSphere+ Standard) allow functionality to be rightsized to the unique requirements of different datacenter, remote office, and edge locations.
- » Relatively simple, nondisruptive deployment process that only modifies a small number of vCenters and leaves hosts and workloads in place and untouched with no need for VM movement or migration.
- » Enhanced vCenter life-cycle management that streamlines regular updates, reducing vCenter downtime to a few minutes and making it easy to adopt the latest releases and remediate configuration drift.



Enterprises are

facing many

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on-premises and multiple clouds.

cloud-native

they adopt

- SPOTLIGHT
  - An extensible platform that incorporates a growing catalog of add-on cloud services with well-integrated workflows. These optional SaaS capabilities can be quickly activated when needed, unlocking new functionality for disaster recovery, ransomware protection, capacity planning and optimization, and more.

#### Challenges

While vSphere+ offers multifaceted capabilities that can unify VM and container workloads and multiple VMware environments, the reality is that enterprises will have other non-VMware platforms as well. Consistency and management across these environments remain a challenge for IT.

Inertia and policy/compliance/governance restrictions often limit new technologies in enterprise on-premises environments. While many new features or technologies may be objectively "better," it can take time for IT admins to become comfortable with them (such as allowing remote services to connect into their on-premises environments) and for the organization to adjust its processes (e.g., purchasing under a new pricing model).

# Conclusion

Enterprises are facing many challenges as they adopt more modern, cloud-native applications that are deployed into on-premises and multiple clouds. This transition is never clean and ideal because enterprises still have a vast installed base of many generations of older technology. Typically, older applications are refactored to modernize them to some extent. However, this approach often creates situations where different parts of the same application live in different worlds, such as containers, VMs, datacenters, and public cloud. To avoid the creation of multiple silos, enterprises will require a modern workload platform that can bring in the new digital world while providing linkages to the existing environments and offer capabilities to deploy and manage across both.

# **About the Analyst**



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