

White Paper

Leveraging Consumption-Based Infrastructure Services to Support Innovation and Boost Resiliency

Sponsored by: VMware

Gary Chen
October 2021

Susan G. Middleton

Rick Villars

IDC OPINION

Digital is a permanent, yet dynamic fixture in our world. Individual consumers and employees in schools, companies, and governments are always asking whether there is some digital-based capability/enhancement that could improve their lives and desired outcomes. Entire industries want to intelligently leverage data to their advantage and can do so because they have faster access to digital technologies.

In today's digital-first world, business outcomes and innovations are increasingly tied to the ability to develop and ship software as quickly as possible. Companies want to experiment, "fail fast," and iterate quickly with software, a pattern of use that aligns well with greater use of consumption-based services for digital infrastructure. These same companies also recognize that consumption-based services can play a key role in boosting overall business resiliency. Therefore, the ability to better align IT resources with usage as demand and outside market forces, like those that developed during the COVID-19 pandemic, makes it easier for companies to deploy resources where needed and adapt to unpredictable swings in scale and disruptions planning processes.

SITUATION OVERVIEW

As organizations evaluate their operations after the pandemic, most are focusing on two key learnings: managing a multi-cloud world is complex, and business resiliency and agility are top priorities. Clearly, organizations need to leverage digital infrastructure to simplify operations without jeopardizing resiliency or inhibiting innovation, but how are these goals achieved? Recent surveys reveal some of the steps that IT organizations are considering meeting these goals. IDC research demonstrates that enterprise organizations are prioritizing digital infrastructure resiliency as a foundational element of their IT strategy. Customers are looking for richer levels of visibility, cross-cloud control, and advanced data management and protection that spans the entire edge-to-core continuum.

Shifting Operating Models

Integrated Stacks

To achieve the digital resiliency goals, customers are shifting to cloud architectures on premises and connecting these architectures to the public cloud. A cloud must operate as a cohesive unit, and thus integrated cloud software stacks that combine compute, storage, networking, and management are gaining traction. Some customers are also buying these cloud stacks with certified hardware or with

managed services attached. However, stacks of technology are only one piece of a cloud transformation. The technology must come with a change in operating model and in IT roles and organizations.

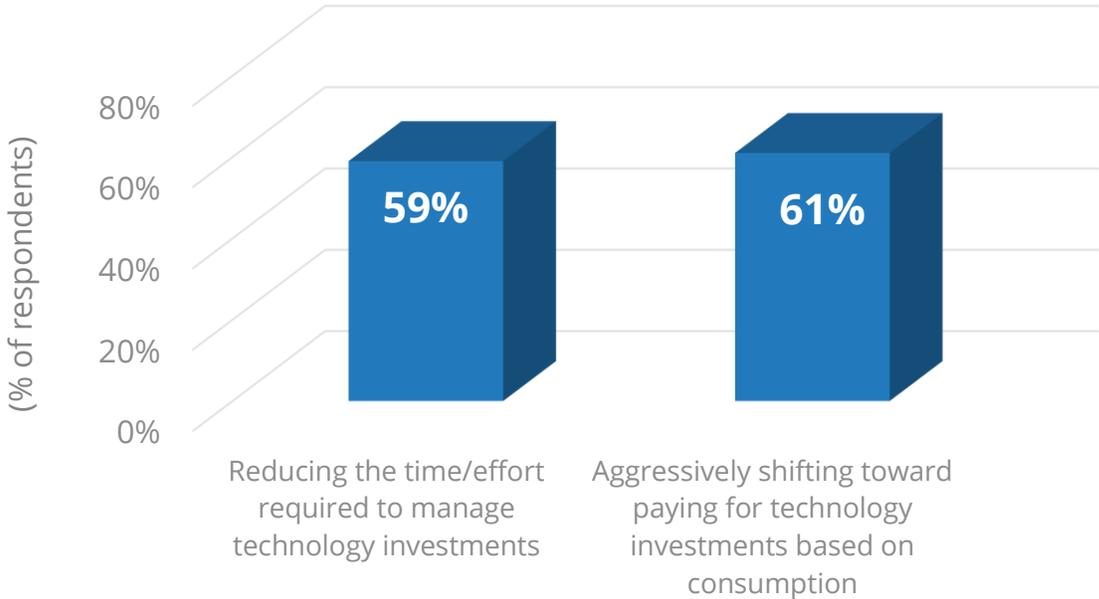
Cloud Operational Models

The shift to a cloud operating model is permeating all aspects of IT. According to IDC's February 2021 *Future Enterprise Resiliency and Spending Survey*, 61% of organizations worldwide were interested in shifting to consumption-based models for IT investments. This interest is being driven by an explosion of interconnected applications and data across multiple locations that stretch from edge to core and the need for effective tools to measure and align usage and budgets (see Figure 1).

FIGURE 1

Digital Infrastructure Resiliency Is a Top Business Priority

Q. Agree/strongly agree that as a result of the COVID-19 pandemic my organization is ...



n = 738

Source: IDC's *Future Enterprise Resiliency and Spending Survey*, Wave 1, February 2021

Hybrid Cloud and Multi-Cloud Expansion

As cloud technology and operating models spread, enterprises are finding that their footprint is more widely dispersed than ever. Most enterprises have on-premises resources combined with a public cloud today. Many are expanding to use multiple clouds because of customer requirements and geographical and market expansion or to leverage unique innovation. And the newest trends are pushing more compute toward various network edges. However, as this diversification is happening, major challenges are presented in terms of consistency, manageability, and portability. Each of these

environments may be running different technologies, each requiring different tooling and teams to manage. This also means workloads cannot be easily migrated from cloud to cloud without significant effort and application code changes.

Containers and Microservices Modernization

Containers and Kubernetes are a new way to ship and orchestrate applications, typically on top of existing virtualized and cloud infrastructures. Many new applications are designed for containers and microservices, but enterprises are also migrating existing apps to containers. IDC's current data shows that half of containerized existing applications are lift and shift, and the other half are refactored to some extent. Since containers and Kubernetes are open technologies, they can be more portable in hybrid cloud and multi-cloud scenarios. However, portability is not always automatic with containers as there are several factors such as API lock-in or data gravity that could impede portability. Portability aside, containers are bringing more efficient and application-centric agility while providing a common technology platform across disparate locations for easier management.

The Rise of Consumption-Based Models in the Enterprise

As enterprises begin to shift toward cloud models and containers as discussed previously, they are increasingly turning to consumption-based models to make the transition. These consumption-based models are highly associated with public cloud, but they are not limited to that. Recent years have seen the emergence of local cloud as a service (public cloud platforms that run on premises) and remotely managed private cloud platforms. There are many reasons that adopters of consumption-based models attribute to the success of these models in their environments. In a 2020 survey, IDC asked respondents to identify the top reasons that their organizations would use a flexible consumption-based model:

1. Ability to adopt new technology and upgrades at a lower cost
2. Keeping us on the latest technology
3. Want a cloudlike experience (automated and on-demand self-service)
4. Wanted the environment to be optimized and functioning at a higher level

Adopters of as-a-service models recognize that utilizing these offers provides the flexibility, transparency, and metrics they need to manage their IT infrastructure. By offering services that provide the data protection requirements needed to meet regulatory and security compliance as well as predictable SLAs, these models are addressing IT organizations' pain points and enabling IT organizations to focus on business outcomes instead of managing IT infrastructure. The pandemic also exposed many organizations' weaknesses in their ability to quickly adapt infrastructure and scale, resulting in increased investments in this area during the recovery.

In today's digital economy, business outcomes and innovations are increasingly tied to the ability to develop and ship software as quickly as possible. This includes the capability to experiment, "fail fast," and iterate quickly with software, a pattern that fits well with consumption-based services. Consumption-based services also better align IT resources with usage as demand and outside market forces such as the pandemic cause unpredictable swings in scale. Enterprise IT capacity planning was already difficult in the best of times, and as market forces have grown more volatile, it is nearly impossible to confidently plan for. Organizations have made the connection that as-a-service models improve agility and responsiveness, as well as conserve capital. Consumption-based models enable organizations to focus on business outcomes instead of managing IT infrastructure. This realization is the reason that IDC expects an acceleration in the adoption of consumption-based models.

However, while consumption-based models align well with the changes happening in IT, there are still some notable challenges with adopting these services. The biggest challenge for most organizations is financial management during the transition to a cloud or managed service. Migrations to cloud are notoriously difficult to predict and often face delays due to unforeseen technical complexities and corresponding cost increases. Unpredictable timing becomes a challenge because enterprises are generally migrating from traditional infrastructure and software licenses. It can be difficult to plan the shutdown of the infrastructure capex and the software licenses to align with the start of the cloud service. Enterprises ideally want to squeeze the most out of their existing investments and migrate during an optimal time, such as during a refresh or renewal cycle.

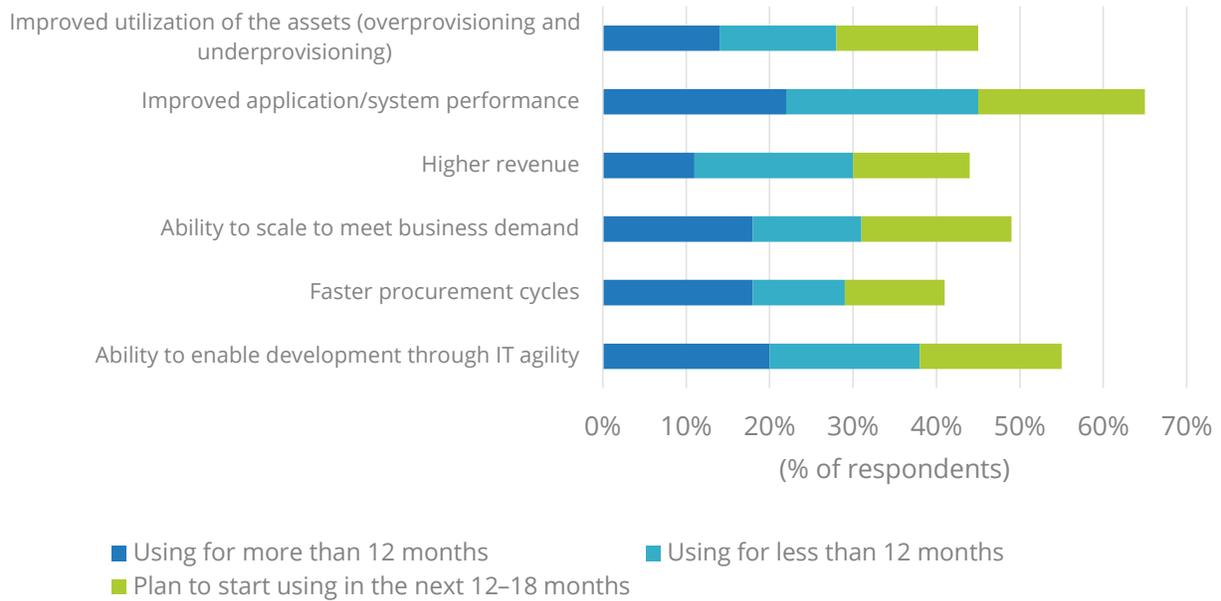
Another challenge as enterprise deployments spread into hybrid cloud and multi-clouds is cost transparency and optimization. Each environment may have a different tech stack and cost basis, which can complicate cost views across multiple environments. The other challenge is providing views on cost targeted toward different roles to guide behavior. For example, it can be difficult to map infrastructure costs to a particular app or an individual service of an app. Without this information, high-level cost information is of little use to a developer. Often developers get a reputation that they do not care about costs and waste cloud resources. But, in many cases, developers do understand about optimizing costs but are not provided actionable data at the level they need.

Costs and pricing transparency are the key reasons that IDC recommends including stakeholders from all segments of the business: IT, finance, and line of business at the early stages of implementation. It's critical that all the three groups are aligned on key topics about usage, budgets, and timelines. Addressing key concerns about consumption-based models will be important to overcome objections to the shift from traditional buying behaviors. Adopters of consumption-based models recognize key business benefits that ensure the cloudlike flexibility and cost metrics needed to build a more agile and resilient environment (see Figure 2).

FIGURE 2

Hybrid Cloud Infrastructure Accelerates Performance and Agility

Q. What business-related benefits results, or do you expect will result, from your organization's use of consumption-based infrastructure?



n = 600

Source: IDC's *Consumption-Based Infrastructure Market Trends Survey*, September 2020

VMWARE PROFILE

VMware Cloud Foundation

VMware Cloud Foundation (VCF) is a unified hybrid cloud platform for managing VMs and orchestrating containers. VCF is a fully software-defined datacenter platform that includes virtual compute, storage, and networking with vSphere, vSAN, and NSX-T technologies. VCF extends the core vSphere hypervisor using a standardized architecture that can be deployed consistently across public clouds and datacenters and managed using existing vRealize tools and skills. VCF's highly automated deployment process using the SDDC Manager helps streamline configuration and deployment. VCF is the foundation for VMware-based public clouds such as VMware Cloud on AWS, Azure, Google Cloud, and IBM Cloud.

VCF is available with integrated VMware Tanzu Standard, enabling vSphere to host both VM and container workloads. Tanzu Standard includes both the core Tanzu Kubernetes Grid distribution and the multi-cluster Tanzu Mission Control manager. VCF with Tanzu allows container- and Kubernetes-based workloads to be deployed and managed using the same set of VMware management tools that existing VM admins are familiar with today. It provides access to all standard Kubernetes APIs and allows developers to manage VMs via Kubernetes APIs, if desired. Integrations with Tanzu Mission

Control and Tanzu Observability allow DevOps teams to extend control across multi-cluster, multi-cloud deployments and have deep visibility into the application stack.

VMware Cloud

VMware Cloud is a distributed multi-cloud platform spanning datacenter, edge, and multiple public cloud infrastructures that is based on the same stack as VMware Cloud Foundation. It brings together many of VMware's public cloud offerings such as the VMware-operated VMware Cloud on AWS, certified VMware clouds on major VMware cloud partners including Microsoft Azure and Google Cloud, and VCF deployments managed by VMware-certified cloud partners including Dell Technologies. VMware Cloud provides consistent workload performance and portability across the full range of customer digital infrastructure environments since all the offerings build on the same VCF foundation. VMware Cloud also features the VMware Cloud console, a single monitoring and management environment for VMware Cloud infrastructure regardless of where it's deployed.

VMware Cloud Universal

VMware Cloud Universal is a new consumption-based subscription program designed to allow flexibility in purchasing a selection of VMware cloud products, regardless of where they are deployed. Customers purchase a pool of credits that can be redeemed for a range of VMware products:

- VMware Cloud on AWS, a VMware-operated public cloud
- VMware Cloud on Dell EMC, a VMware managed private cloud
- VMware Cloud Foundation with Tanzu Standard for customer-managed on-premises deployment
- vRealize Cloud Universal, VMware's management suite spanning operations, automation, log analytics, and network operations that combines SaaS and on-premises components
- VMware Tanzu Standard Edition

VMware Cloud Universal eligible products may be available in one, three, or five-year terms. The consumption-based model allows customers that are migrating to VMware public cloud platforms to shift unused on-premises VCF credits to cloud deployments as needed without having to renegotiate contracts. Entitlements can be purchased and managed via the VMware Cloud console.

VMware Cloud Universal also includes access to VMware Success 360, a customer success program that includes planning resources, adoption guidance workshops, customer support, and a health scorecard tool.

CHALLENGES/OPPORTUNITIES

IDC recognizes multiple challenges for many organizations as they transition to new platforms. The biggest challenge for most organizations is financial management during the transition to a cloud or managed service. Migrations to cloud are notoriously difficult to predict and often face delays due to unforeseen technical complexities and corresponding cost increases. Unpredictable timing becomes a challenge because enterprises are generally migrating from traditional infrastructure and software licenses. In addition, overcoming internal silos with an organization is another significant barrier that requires internal cooperation and agreement about both timelines and budgeting.

Another challenge is the importance of including stakeholders from all segments of the business: IT, finance, and line of business at the early stages of implementation. It's critical that all the three groups

are aligned on key topics about usage, budgets, and timelines. Addressing key concerns about consumption-based models will be important to overcome objections to the shift from traditional buying behaviors and closing the opportunity. IDC recommends that VMware focus on these challenges to overcome objections and increase market growth.

CONCLUSION

Although the world has firmly planted itself in a digital-first economy, the economic and business outlook for the next three years is highly fluid due to the pandemic. Disruptive and complex macroeconomic, microeconomic, and technology currents flow rapidly across one another, creating choppy winds for business and technology leaders to navigate.

Organizations must be able to quickly invest in and broadly adopt innovative technologies to participate in increasingly digital-first markets. They need to generate profitable revenue growth from empathetic customer experiences; enable an intelligent, empowered, and well-connected workforce; and demonstrate an ability to adapt operating models to complex customer requirements. All of this will be built on digital infrastructure that makes full use of the advantages of consumption-based services.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

140 Kendrick Street
Building B
Needham, MA 02494
USA
508.872.8200
Twitter: @IDC
blogs.idc.com
www.idc.com

Copyright Notice

External Publication of IDC Information and Data – Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2021 IDC. Reproduction without written permission is completely forbidden.

