



I D C M A R K E T S P O T L I G H T

Effective Multicloud Strategies Break Down Silos and Promote Business Agility

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Adapted from *IDC's Multicloud Management Survey* by Mary Johnston Turner

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IDC research shows that worldwide, organizations of all sizes are embracing multicloud strategies to enable digital transformation, optimize business agility, increase the speed of development, and control the cost and performance of mission-critical business applications and services. This Market Spotlight examines drivers and benefits shaping multicloud infrastructure and management strategies. The paper also considers enterprise approaches for effectively implementing and managing unified multicloud architectures at scale.

Multicloud IT Strategies Create Operational Challenges

In today's information economy, businesses in all industries increasingly compete using IT and agile development to automate business processes, create new markets, interact with customers, and gain deeper insights into buyer and competitor behaviors. Powered by big data, continuous development, API integrations, social media, automation, and cloud, business today depends on rapid and flexible access to computing, storage, and networking resources that can meet the ever-changing needs of legacy applications and modern cloud and mobile innovations.

In this environment, line-of-business (LOB) decision makers and application developers have more say than ever in the selection of IT technologies and services. These decision makers prioritize time to market and speed of innovation, embrace open source, and are willing to circumvent existing in-house IT teams if they believe internal processes are unable to respond fast enough to requests for new or improved development resources.

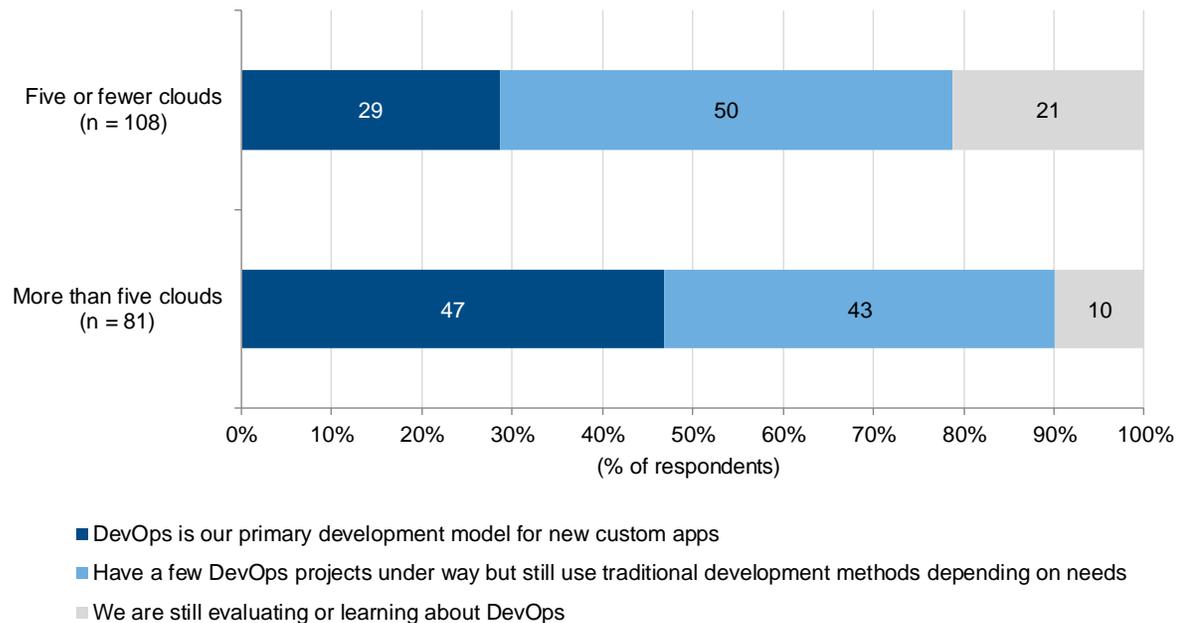
Many LOB and developer teams have embraced public cloud infrastructure as a service (IaaS) and platform as a service (PaaS) as affordable on-demand, pay-as-you-go options that provide nearly instant access to highly flexible and affordable pools of IT resources. DevOps teams have been created to support the infrastructure needs of LOB development teams directly. In many cases, these teams have opted to use one or more cloud platforms, including on-premises private clouds and on-demand, public cloud IaaS and PaaS services. Cloud environments can provide automated infrastructure and development stack provisioning and workload portability using standardized development stacks, configuration templates, and self-service tools to accelerate development of new applications.

As Figure 1 illustrates, DevOps, and the associated need for speed and agility, is heavily associated with the use of multiple clouds. In IDC's recent *Multi-Cloud Management Survey*, almost half (47%) of organizations that recognize DevOps as their primary development strategy expect to rely on five or more clouds by 2020. This finding reflects the fact that different types of applications may have different needs with regard to networking, security, storage, computing, APIs, and integration points.

FIGURE 1

DevOps Helps Drive Multicloud Strategies

Q. How would you describe the current state of your organization's DevOps strategy?



Source: IDC's *Multicloud Management Survey*, July 2016

Agility is driving the need to use multiple clouds. DevOps teams and LOB decision makers need to focus on business innovation without having to concern themselves with the operational logistics of procuring, configuring, and deploying infrastructure and middleware. They want to be able to quickly and consistently define the functionality and services required to do their jobs and have the required enabling management services included as needed.

The downside of this race to innovate is that organizations often end up with business and information silos tied to different clouds. These can be difficult to integrate and coordinate from business process, risk management, and cost optimization perspectives.

As organizations are maturing, many are finding that it makes sense to take a more unified and coordinated approach to using multiple clouds. Sometimes referred to as hybrid clouds, well-managed and integrated multicloud environments allow organizations to mix and match a range of public cloud, on-premises private cloud, and hosted or virtual private cloud options depending on business and workload requirements. Multicloud environments promote cross-workload data integrations and workflows and help standardize approaches for integrating with established physical and virtual systems and legacy workloads. They also enable IT teams to consistently monitor and maintain compliance with security, confidentiality, and regulatory requirements and to take greater advantage of overall corporate purchasing power.

Building an Enterprise-Class Multicloud Strategy

A recent IDC survey of North American IT decision makers shows that 78% of respondents expect to use at least three clouds by 2020 and 50% expect to use five or more clouds by 2020. These clouds typically represent a mix of on-premises private clouds, hosted private clouds, virtual private clouds, and public IaaS, PaaS, and SaaS services.

When managed correctly, multicloud strategies allow organizations the most flexibility possible in terms of balancing LOB and developer demands for agility and access to new technologies versus corporate requirements for compliance, risk management, and cost control. Each organization must determine the right mix of clouds for its specific and unique needs. Typically, IT leaders, cloud administrators, and LOB and development staff will evaluate workload requirements and business priorities to formulate appropriate policies to drive cloud choices.

Many organizations will start by considering business priorities for rapid time to market versus requirements for security, access control, and regulated information management and change control. Businesses that operate in highly regulated industries such as banking or healthcare tend to be fairly conservative in implementing shared public cloud services. Organizations may decide that selected applications and data sets are too strategic to run outside the company's firewall, while others will be best served by on-demand SaaS, PaaS, or IaaS services.

Once operational policies and SLAs are determined, the IT team will consider configuration standards and templates, self-service provisioning requirements, usage showback/chargeback needs, application-specific requirements, and cross-cloud integration needs. The expected longevity and volatility of specific projects and workloads also influence decisions as does the application architecture itself. Highly elastic applications designed to tolerate less reliable infrastructure — particularly if they are subject to widely varied capacity and bandwidth requirements — may be selected for public cloud deployments. Alternatively, conventional applications that require static resources or have stringent data security requirements may be judged to be best served by private clouds.

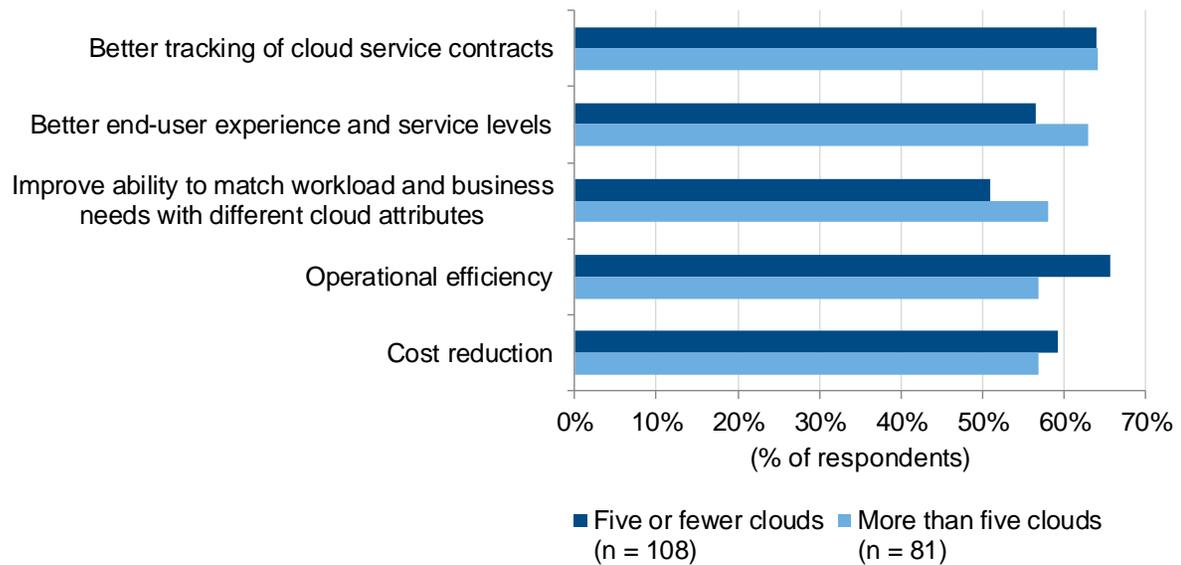
The emergence of multicloud strategies signals an era of increasing collaboration among LOB leaders, development teams, cloud managers, and IT executives. As use of multiple public cloud services has increased in the past several years, many organizations are beginning to see the value of having skilled cloud management staff assigned to monitor and support the full range of on-premises cloud resources side by side with multiple public cloud services. Cloud administrators can help monitor and optimize public cloud usage, ensure workload integration and portability, unify contracts and optimize buying power, build and maintain standard images, support integrations with on-premises resources, and ensure adherence to business risk management and compliance requirements.

Three-quarters (74%) of decision makers recently polled by IDC expect to use the same set of management processes and tools to manage all clouds by 2020. As Figure 2 illustrates, organizations that are embracing a unified approach to multicloud management are seeking to improve tracking of cloud service contracts, improve end-user experience, and improve their ability to match workload and business needs with different cloud attributes.

FIGURE 2

Top 5 Unified Multicloud Management Objectives

Q. Which of the following objectives are driving your organization's decision to use the same management tools and processes to manage all clouds?



Note: Multiple responses were allowed.

Source: IDC's *Multicloud Management Survey*, July 2016

Cloud administrators, an emerging IT role assigned responsibility for multicloud operations, are seen as partners by development and LOB teams. Cloud administrators typically have responsibilities that extend well beyond traditional systems management and integration tasks. They are often expected to design and manage processes that include service provider validation, integration, contract quality and usage monitoring, and ongoing optimization of various cloud resources across multiple business and developer teams.

As the use of multicloud strategies matures, IDC expects most enterprises will designate staff to ensure consistent end-user experience, monitor compliance with SLAs, provide oversight regarding regulatory and corporate information management requirements, and maintain consistency and integration across corporate cloud resources. These organizations will need to manage multiple clouds using a shared set of management capabilities, including performance monitoring, log analytics, security, access control, provisioning, and service brokering.

A unified approach to multicloud management will pay off not only in terms of IT operations productivity but also in terms of being able to provide business and development teams with a comprehensive view of resource availability and consumption, compliance reporting, and end-to-end service levels and end-user experiences.

Business Agility Requires Effective Multicloud Management, Networking, and Security

Effective multicloud management moves beyond simply enabling self-service virtual machine (VM) provisioning for developer teams. To avoid creating business and operational silos, multicloud management solutions need to be able to discover the full range of workloads and cloud services being used by the organization. By developing and maintaining consistent configuration, control, and operational policies across all resources, multicloud managers can simplify and streamline operations.

Beyond workload discovery, analytics, and service deployment automation, multicloud architectures need consistent approaches to a number of issues that impact connectivity, end-user experience, and infrastructure performance across diverse cloud platforms and services. Specifically:

- Data formatting and transfer
- Creation and deployment of configuration templates and technology stacks
- Awareness and support of cloud- and application-specific APIs
- Consistent end-to-end network integration and security
- Storage and data protection support that is appropriate for each type of workload and cloud
- Collaborative LOB, DevOps, and IT governance and policy development

Container-based microservices, continuous integration, and automated workload deployment tools are helping improve workload portability by standardizing application interfaces and isolating workloads from underlying infrastructure dependencies. However, IT operations and DevOps teams continue to need access to a common, automated software-defined infrastructure control plane that can discover workloads and infrastructure whether on-premises or in a public cloud. They need to be able to optimize compute and storage choices to meet the specific requirements of each workload and automate all aspects of configuration, provisioning, and life-cycle operations. They also need to be able to control and programmatically manage security and networking across multiple clouds, including logical switching, routing, firewalling, load balancing, VPN, QoS, and monitoring. This same software-defined control platform must also support configuration and compliance audits, monitor performance, analyze utilization, enforce security, and support connectivity across multiple private and public cloud services.

Multicloud environments will change frequently as developers take advantage of emerging technologies and business teams get increasingly creative about how to make use of mobile, video, social, and big data technologies. As the complexity of multicloud resources increases, cloud administrators, DevOps teams, and application developers need a common view into consumption and usage to support resource allocation, maintain internal cost assessments and chargeback programs, and ensure that unused resources are terminated and repurposed as appropriate.

Role-based, software-controlled management platforms enable different personas, particularly cloud administrators, DevOps teams, and LOB analysts, to track resources and service levels in the context of their day-to-day responsibilities. While cloud administrators may want a 360-degree view of all cloud resources and utilization, DevOps teams and LOB staff may be more focused on specific projects or specific service providers. Common, collaborative LOB, DevOps, and IT governance and policy development programs will ensure that the priorities of each group of stakeholders are met while maintaining consistent support for corporate compliance requirements and business objectives.

Conclusion

IT operations, cloud administrators, DevOps leaders, application developers, and LOB decision makers all recognize the value that effective multicloud strategies can provide to their organization. Multicloud management platforms are critical enablers of these strategies. By reducing operational silos and simplifying the way LOB and developer teams access resources, multicloud management will enable enterprises to better optimize cloud investments while more quickly developing and deploying applications that will differentiate the business and drive revenue growth.

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