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BLACK & WHITE PAPER

Going Hybrid

DEMAND FOR CLOUD AND MANAGED
SERVICES ACROSS ASIA-PACIFIC

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About this paper

A Black & White paper is a study based on primary research survey data that assesses the market dynamics of a key enterprise technology segment through the lens of the “on the ground” experience and opinions of real practitioners – what they are doing, and why they are doing it.

ABOUT THE AUTHOR



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Introduction

Executive summary

Cloud technologies are now part of the playbook for nearly all enterprise IT departments, with multiple cloud environments in use at many organizations across the Asia-Pacific region. Many of these businesses regard hybrid cloud as the next cloud frontier for their organizations. 451 Research identifies hybrid cloud as a service delivery model that is a step beyond the deployment of workloads on multiple cloud environments (multi-cloud) to include a degree of interoperability that enables the seamless delivery of business functions across those environments.

In order to examine the factors shaping how enterprise decision-makers are planning for hybrid cloud, 451 Research carried out an independent study of 464 IT decision-makers representing Asia-Pacific's largest businesses in key vertical markets. Businesses surveyed have 1,000-100,000+ employees, and more than three-quarters have annual revenue of more than \$1bn (for additional details, see the study demographics section of this report). Based on the results of that study, this report provides insight about hybrid cloud planning and management, drivers and inhibitors, and factors that are influencing the choice of platforms, tools, technologies and managed services, both currently and in the next couple of years.

The study showed that hybrid cloud is an objective for the majority of businesses, but the complexity of hybrid cloud will require them to build out skill sets and create a formal, overarching hybrid cloud strategy. Businesses that are determined to succeed in hybrid cloud may look outside the IT organization to service providers to deliver workload migration, onboarding and multi-cloud management services.

Key Findings

- More than 90% of businesses use or expect to use a multi-cloud environment, with 52% using or planning a fully integrated hybrid environment in pursuit of security policy consistency, overall agility enhancements and reduced total cost.
- A bit less than half (44%) of Asia-Pacific enterprises are proceeding on hybrid cloud pilots without a formal strategy, recognizing the potential benefits, but not the potential for unexpected complexity to derail efforts.
- More than half of enterprises primarily emphasize migrating workloads from their internal environments when deploying into public cloud, with 28% focused on a 'lift and shift' approach and another 28% refactoring before moving. Another third is focused on public cloud for net new applications.
- Nearly all (95%) enterprises consider security to be at least 'important' to hybrid cloud decisions, with 56% considering it critically important, and a hard requirement.
- A slight majority of enterprises (55%) have worked with or will work with a service provider partner to help execute their hybrid cloud plans, either for deployment and migration (21%) or to support ongoing operation (35%). Access to better tools and to specialist skills are key reasons for this relationship.

Enterprise Cloud Adoption Trends and Attitudes

The Rise of Multi-Cloud and Hybrid Strategies

Cloud is now a part of mainstream IT at large enterprises. Businesses across geographies and industries now consider various cloud platforms and services part of their playbook. Some industry observers have forecast a near-universal shift to public infrastructure-as-service cloud as the dominant mode of workload delivery. However, research conducted by 451 Research points to a continued and significant role for other infrastructure environments for the foreseeable future.

451 Research believes each application has a best execution venue (BEV), an environment that most effectively balances the requirements of the workload and the objectives of the business. Organizations that are deploying or modernizing applications must evaluate requirements for performance, availability, capacity, latency and data isolation, as well as dependencies, budgets and other factors. We believe a multi-cloud or hybrid infrastructure environment provides the means to meet a variety of BEV requirements.

It is clear from the study that into 2019 and beyond, multi-cloud will increasingly become the norm for a significant majority of enterprises across the Asia-Pacific region. More than 90% of firms surveyed (see Figure 1) said they have multiple cloud environments in place with varying degrees of interoperability, from mostly siloed to completely hybrid. More than half said they are already using hybrid cloud – seamlessly delivering functions across multiple cloud environments.

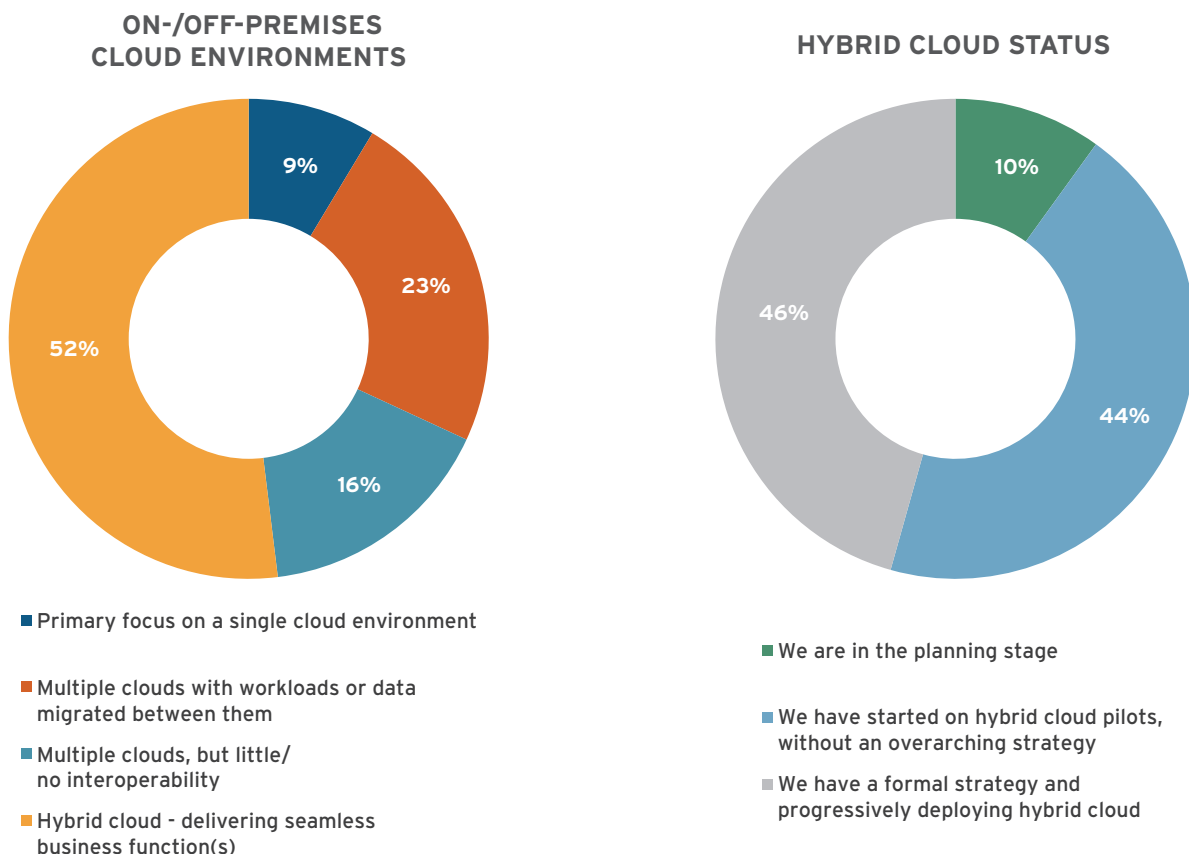
Only a small minority – less than 10% – said they are focused primarily on a single cloud environment, and this group represents a spectrum of use cases, from businesses taking the first steps via on-premises private cloud deployment to rarer cases of businesses that are ‘all in’ on a single public cloud environment.

Figure 1: Multi-cloud usage and hybrid strategy

Source: 451 Research

Q. Which one of these do/will you mainly use for on-/off-premises cloud environments?

Q. Which of these best describes your status with regard to hybrid cloud?



Regarding their approach to hybrid cloud, businesses are showing an advanced degree of strategic intent (see Figure 1). Nearly half of businesses (46%) said they have a formal strategy in place for hybrid cloud, with another 10% indicating they are in the planning stages. The final 44% indicated that they have begun implementing hybrid cloud pilots without an overarching hybrid strategy in place. While this last group clearly recognizes the potential positives of hybrid cloud, 451 Research believes a formal strategy is essential to achieving (and measuring) the maximum benefit from a hybrid cloud deployment.

Drivers and Inhibitors of Hybrid Cloud

Many factors influence the implementation of hybrid cloud. Those identified as the most important business drivers for hybrid cloud (see Figure 2) illustrate that many businesses regard a hybrid architecture as a solution to the shortcomings of a more siloed multi-cloud strategy, or to the limitations of cloud itself.

Several key drivers of hybrid cloud adoption identified by respondents point directly to the advantages of a unified and integrated hybrid environment in comparison to a siloed multi-cloud picture. Nearly half of respondents pointed to improvements in the consistency of security policies across environments and better management of risk – challenges that can emerge as businesses begin to employ multiple cloud environments. A significant portion (37%) of respondents identified better enabling applications to interoperate as a driver – a specific improvement over multiple, siloed cloud environments, which require automation, integration and a single pane of glass for service management.

Also rated highly were enhancing overall business agility (43%), cost reduction (36%) and improving the speed of application deployment (36%). All of these describe metrics for evaluating the success of cloud usage in general and illustrate that cloud platforms do not necessarily deliver on these metrics out of the box. Hybrid cloud is regarded by many businesses as a methodology for making the most efficient (cost-effective and fast) use of cloud resources.

Rating lowest on the list was the avoidance of vendor lock-in and provision of service independence. This may come as a surprise in the context of cloud. However, large companies are used to dealing with multiple suppliers, and the threat of lock-in does not often feature as a significant challenge in the enterprise segment.

Figure 2: Business drivers for hybrid cloud

Source: 451 Research

Q. What are the three main business drivers for hybrid cloud?



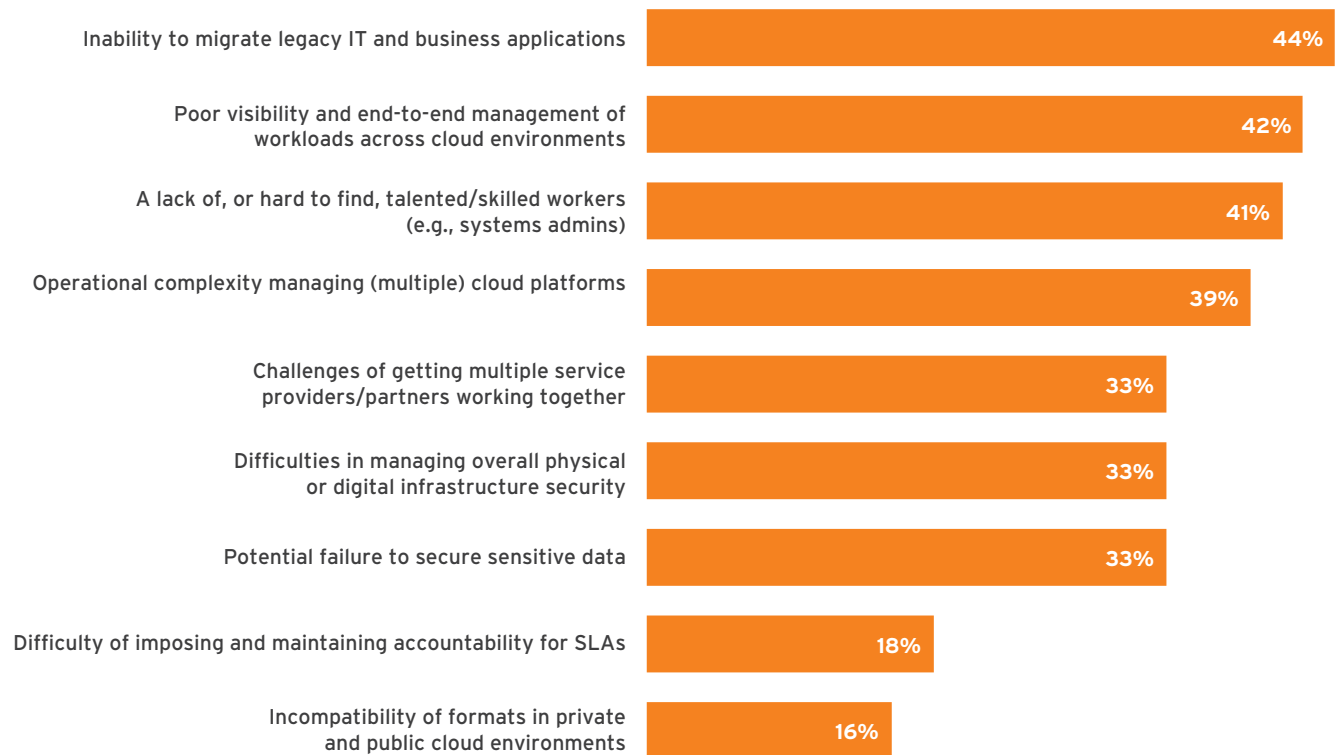
Respondents' perceived challenges include a mix of organizational, economic and technical factors, but the overall picture is one of complexity as a barrier to the advancement of technology (see Figure 3). The top responses included the inability to migrate legacy IT and applications (44%) and difficulty finding the necessary skilled IT workers (41%). Both point to shortcomings of the IT organization, and specifically to the growing scarcity of available talent associated with the cloud in general. Other top responses were poor visibility and management capabilities across cloud environments (42%) and the operational complexity of managing multiple cloud platforms (39%). These point to the inherent complexity in a multi-cloud system and the increased degree of difficulty in managing such an environment.

All of these inhibitors suggest that enterprises will be increasingly likely to turn to automated tools and managed services (or commercial combinations thereof) to address the operational requirements of hybrid cloud.

Figure 3: Inhibitors of hybrid cloud usage

Source: 451 Research

Q. what are three main barriers to hybrid cloud adoption?



Private Cloud Platforms Set the Stage

Enterprise hybrid cloud architectures typically involve both public cloud and on-premises, private cloud components. Although a hybrid cloud strategy can leave room for (or encourage) the use of multiple public cloud platforms, businesses are far more likely to standardize the internal private cloud portion of their infrastructure on a specific platform or technology stack. Enterprises have a wide range of options for building on-premises private cloud, including open source tools, commercial software stacks and other commercial options.

The private cloud platform is tied into other systems that are critical to the execution of hybrid cloud, including management tools, virtualization systems, security tools, procurement and provisioning systems. They represent a key decision in the hybrid cloud path, especially as private cloud platform vendors look to play a larger role in the execution of hybrid cloud.

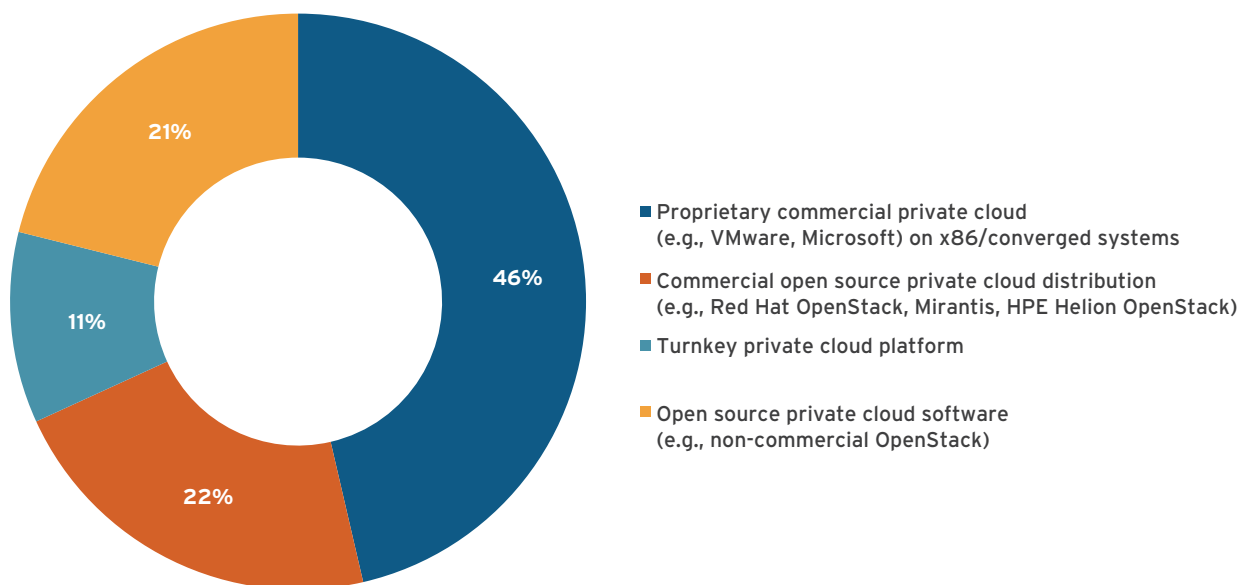
To function effectively as a part of (and in many cases the core of) a hybrid cloud architecture, the private cloud must be compatible with other platforms, and support basic interoperability and workload portability. An organization's choice of internal cloud platform is closely connected to other technology choices it is making regarding hybrid cloud – both influencing and influenced by them.

Among enterprises surveyed, 46% said they are currently using commercial private cloud software from firms such as VMware and Microsoft, running on commodity x86 servers or converged systems (see Figure 4). This is perhaps not surprising because it represents the status quo for the bulk of existing IT infrastructure. More notable is the significant use of both commercial and non-commercial DIY open source software, with a nearly equal percentage of respondents (22% and 21%, respectively) indicating use of these. Turnkey private cloud platforms are in use by just 11% of respondents, representing a small but significant market for an emerging model.

Figure 4: Approaches to building on-premises private cloud

Source: 451 Research

Q. Which of the following best describes your approach to building on-premises private cloud?

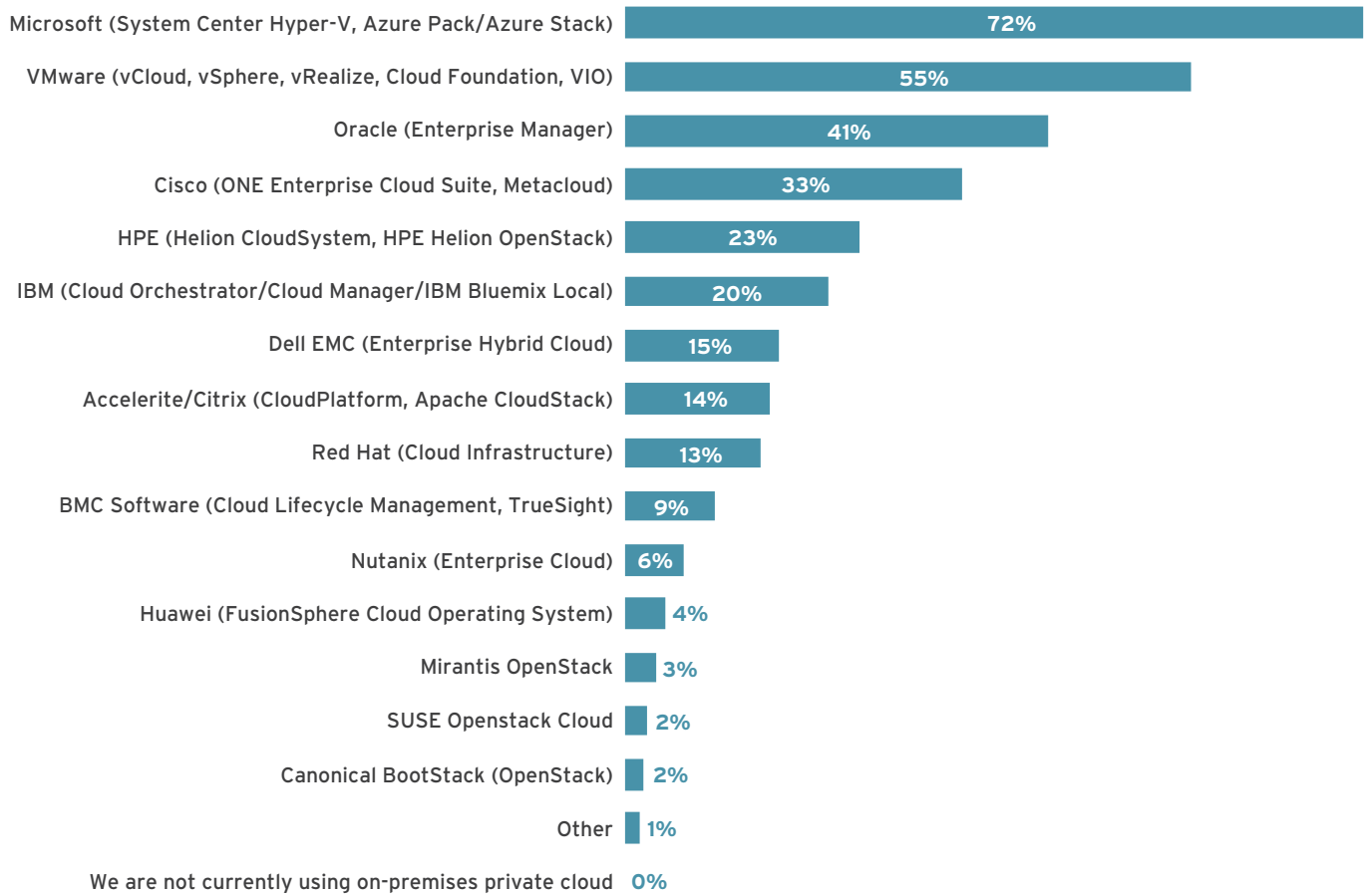


Enterprises indicated that they are using a wide variety of vendors for software to support on-premises private cloud (see Figure 5), with large technology vendors such as VMware, Microsoft, Oracle, Cisco, HPE, IBM and Dell EMC topping that list. In regular studies conducted by 451 Research, each of these vendors is commonly identified as among the most important technology suppliers, illustrating both the pivotal role that large technology vendors play in the market for private cloud platforms and the tendency of enterprises to turn to their most important suppliers of technology for critical pieces of the cloud platform. As the on-premises private cloud continues to evolve as a component of a larger hybrid strategy, enterprises will continue to look to their largest technology vendor for tools that will enable the hybrid picture.

Figure 5: Vendors and tools in use for on-premises private cloud

Source: 451 Research

Q. Which of these is your organization currently using for your on-premises private cloud?



Workloads and Use Cases for Hybrid Cloud

Movement Toward Cloud Transformation

Off-premises cloud platforms are playing various roles at enterprises, supporting deployment of new, cloud-native applications and the modernization or migration of existing on-premises applications. The mix of approaches that businesses are taking for workload deployment in off-premises cloud infrastructure underscores the breadth of infrastructure and business requirements held by enterprises and outlines the various stages of cloud transformation that businesses are in.

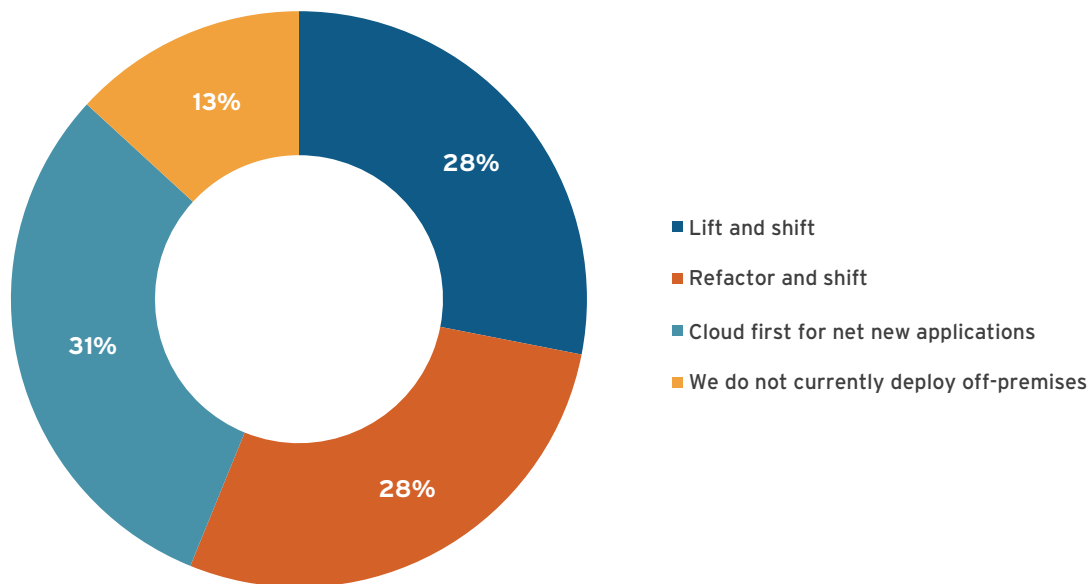
While the largest number of enterprises surveyed emphasized a cloud-first strategy for net new applications (31%), a similar number of companies are focused on lift and shift (28%) and refactor and shift (28%). Consequently, for more than half of businesses, the main use of off-premises cloud environments is as a destination for moving existing applications out of on-premises environments (see Figure 6). Just 13% of respondents said they do not deploy any workloads in off-premises environments.

For enterprises looking at off-premises cloud as a means of modernization or as a way of reducing on-premises requirements, hybrid cloud architectures may offer intermediary steps in transformation, or a means of accessing modernization effects without necessarily requiring refactoring.

Figure 6: Focus of workload deployment in off-premises cloud

Source: 451 Research

Q. Which of the following is the primary focus for deployment in off-premises cloud?



Workloads Being Targeted for Hybrid Cloud

As enterprises progress in implementing their hybrid cloud strategies, they intend for hybrid cloud to be the delivery model for a growing list of workloads. The enterprises surveyed indicated some existing use of hybrid cloud in every workload category, but they also expect significant shifts toward hybrid cloud deployment across the board (see Figure 7).

The workloads most commonly cited as currently running across hybrid cloud environments include email and productivity (33%), enterprise resource planning (29%), security (28%), file and content storage (28%), and database and data warehousing (28%).

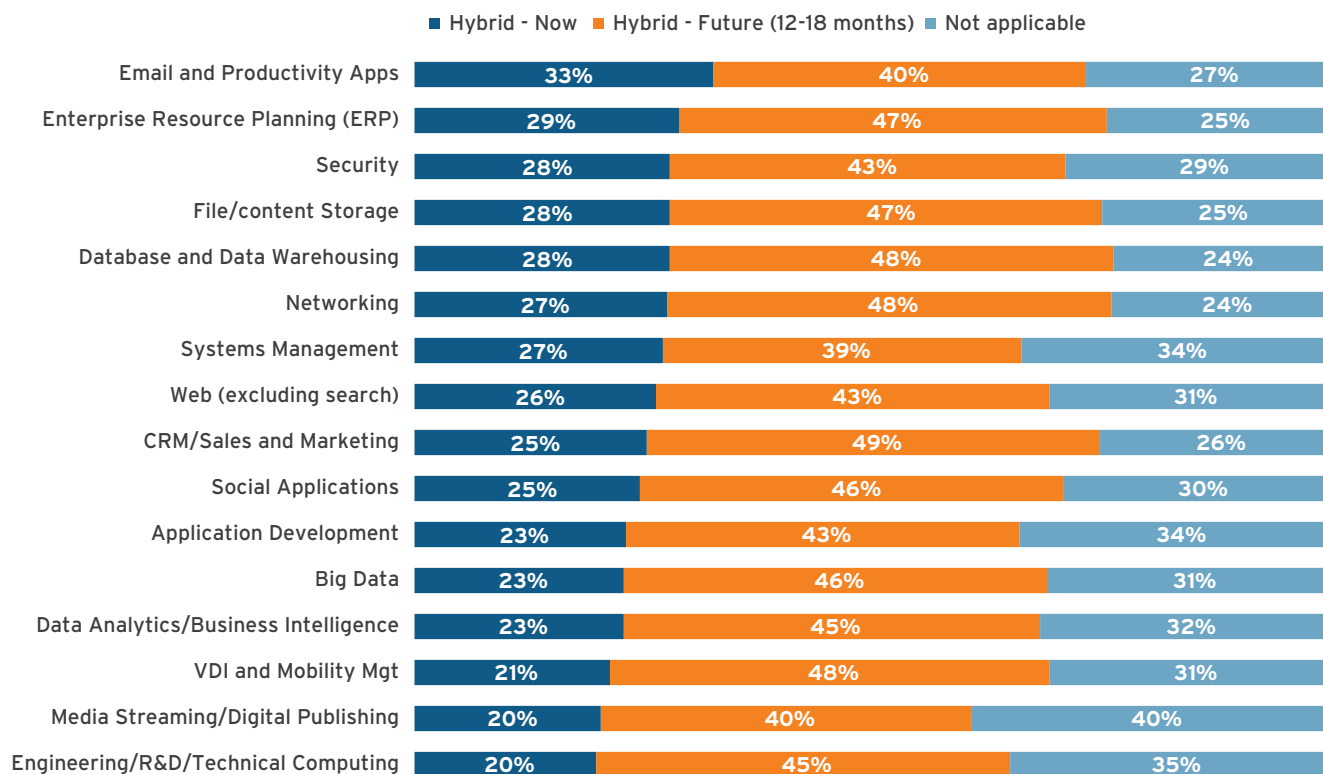
In 2019 and into 2020, respondents said they expect additional deployment to hybrid cloud for a wide variety of applications, with the strongest shifts expected for CRM and sales and marketing applications (49%), database and data warehousing (48%), networking (48%), file and content storage (47%) and ERP (47%).

A hybrid cloud includes multiple infrastructure environments, with unified management systems that facilitate the migration of workloads between them. Inherent in that is the idea that a hybrid environment can provide the appropriate execution venue for any type of workload, whatever its requirements. As a result, businesses are showing confidence that their hybrid cloud environments will support the full breadth of their application portfolios.

Figure 7: Current and future hybrid cloud use by workload

Source: 451 Research

Q. Which of these workloads are you running/will you run in hybrid cloud in 12-18 months?



Workloads Moving Away from Public Cloud

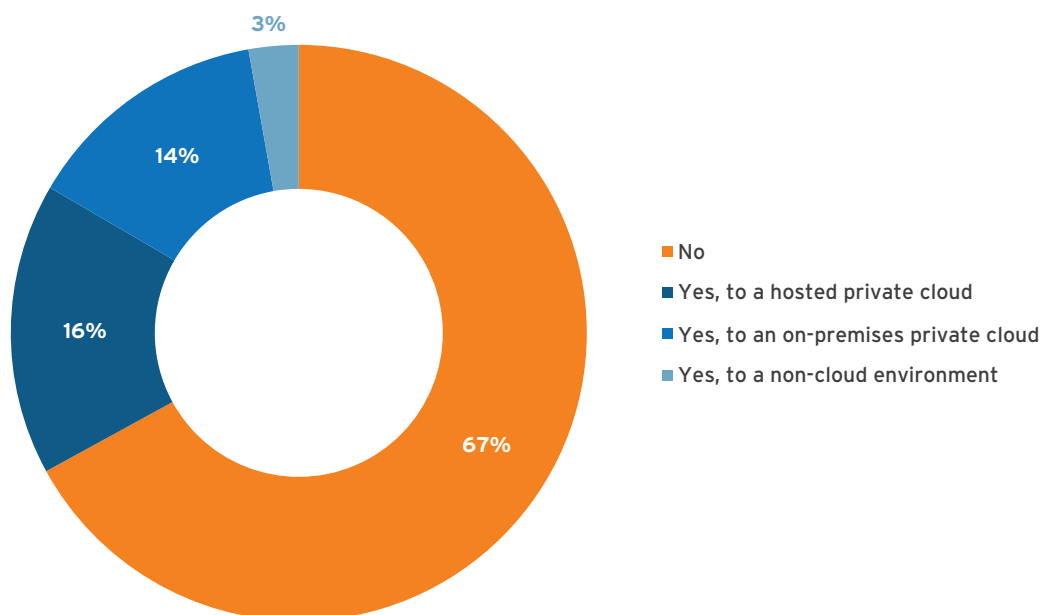
A minority, but, nevertheless, a significant portion of enterprises (33%) said they have moved workloads out of public cloud during the last year (see Figure 8) to place them in other infrastructure environments. Those migration targets were evenly divided between hosted private cloud (16%) and on-premises private cloud (14%). Few enterprises (3%) have moved workloads from public cloud to non-cloud environments.

There are many factors that influence this type of shift, but the fact that a third of businesses have moved workloads away from public cloud illustrates the belief that public cloud IaaS is not necessarily the best execution venue for every type of workload.

Figure 8: Migration of workloads out of public cloud

Source: 451 Research

Q. In the last 12 months, have you migrated any applications/data from public to another environment?



Among the reasons cited as the primary cause for migrating workloads away from public cloud, the most common were performance issues (18%), improvements to the on-premises cloud environment (16%), and changes in leadership (15%). The fact that the major causes for migration out of public cloud were fundamentally different factors (organizational mandate changes, internal platform advancements, perceived shortcomings of the external platform) shows this is not a broad trend but an isolated decision in each case.

A hybrid cloud environment engineered for workload portability can address the need for ongoing migration of workloads between various infrastructure environments to continually optimize for the best mix of performance, availability, security and cost.

Security is a Critical Consideration

Security and regulatory compliance are intended outcomes of a hybrid cloud architecture. They are also critical considerations when designing, implementing and operating hybrid cloud – almost all (95%) of the enterprises surveyed indicated that security and compliance are at least ‘important’ considerations for hybrid cloud, and 56% said that they are critical considerations and hard requirements.

Although hybrid cloud provides a flexible set of resources that can be used to address certain security requirements (for instance, enabling certain data to be isolated), it also introduces new levels of operational complexity, extending the potential attack surface and introducing new areas of risk. There are aspects of information security that enterprises believe will be inherently enhanced by the

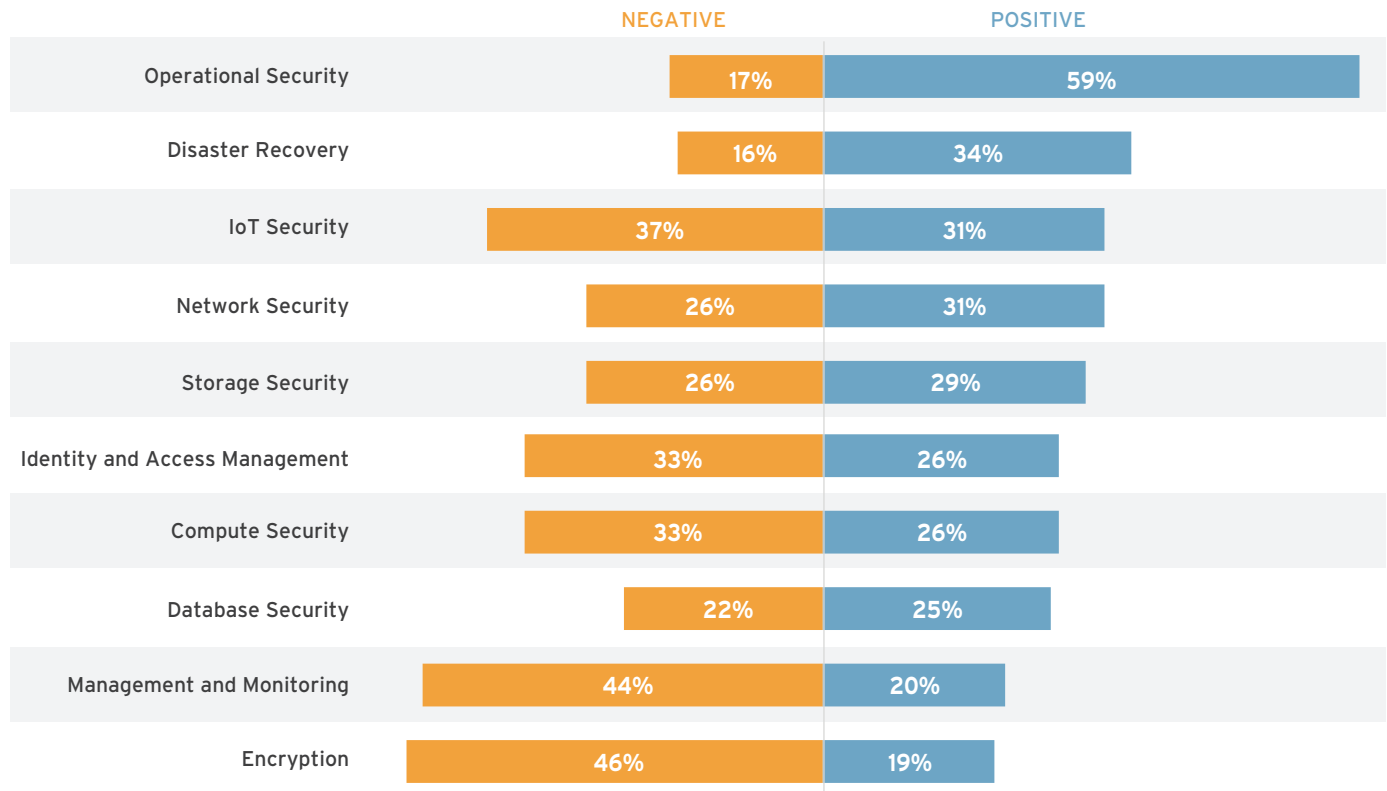
implementation of hybrid cloud (see Figure 9), including operational security (59%), disaster recovery (34%) and network security (31%). However, there are also aspects they believe will be negatively impacted, including encryption (46%), management and monitoring (44%), and identity and access management (33%).

Figure 9: Positive and negative impacts of hybrid cloud on information security

Source: 451 Research

Q. Which of the following are/would be most POSITIVELY impacted by implementation of hybrid?

Q. Which of the following are/would be most NEGATIVELY impacted by implementation of hybrid?

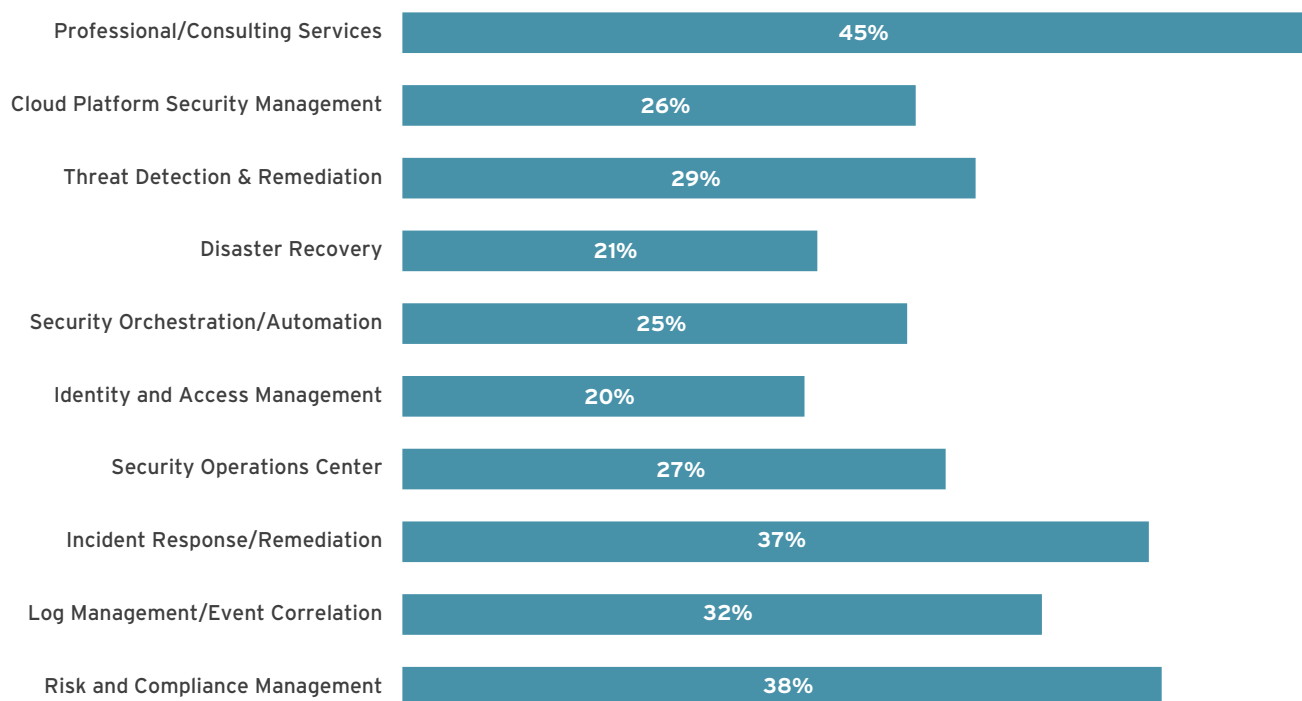


Enterprises embarking on a hybrid cloud strategy must build in security, but designing and applying security for hybrid cloud is challenging, and a task that is sometimes outside the capabilities of the organization's own security team. This is an area in which businesses are increasingly looking outside the organization – to managed security service providers – to address. Asked which types of managed services would be most effective in helping to secure hybrid cloud (see Figure 10), the most common responses among enterprises surveyed were professional and consulting services (45%), risk and compliance management (38%), and incident response and remediation (37%).

Figure 10: Managed services for hybrid cloud security

Source: 451 Research

Q. Which of the following (managed) services would best help secure hybrid cloud?



Professional and consulting services can include assistance with designing a framework for applying security policies across hybrid cloud deployment. Risk and compliance management is an essential function for enterprises operating in highly regulated industries or geographies with obligations to handle client data in specific ways. Incident response and remediation services can deliver a specialist skill set and tools that can validate the ongoing execution of security policy and provide insight into vulnerabilities the IT department might miss.

The Growing Role of Managed Services

The demand for managed services goes beyond security to include services that support both the initial design and implementation of hybrid cloud, as well as its ongoing operation. A slight majority of enterprises surveyed (55%) said they have or will have a preferred third-party partner supporting their cloud plans, either to help with deployment and migration to cloud (21%) or to support its ongoing operation (35%).

More than half of businesses have already identified a partner, or the likelihood of working with a partner, for migration or operations. We believe this will grow as migration projects lead to the need for other services, and as businesses that have not previously identified the need for managed services encounter internal skills gaps associated with the complexities of hybrid cloud.

We expect a shift in 2019 toward additional management, based on survey responses about the extent to which aspects of enterprise cloud operations are managed now, or will be in the future. For most categories of operational task, and for some areas of strategic consulting, enterprises plan to increase their reliance on managed services (see Figure 11). Tasks most frequently handled via outsourced services today include infrastructure platform management (52%), application change and capacity management (51%) and application performance management (49%).

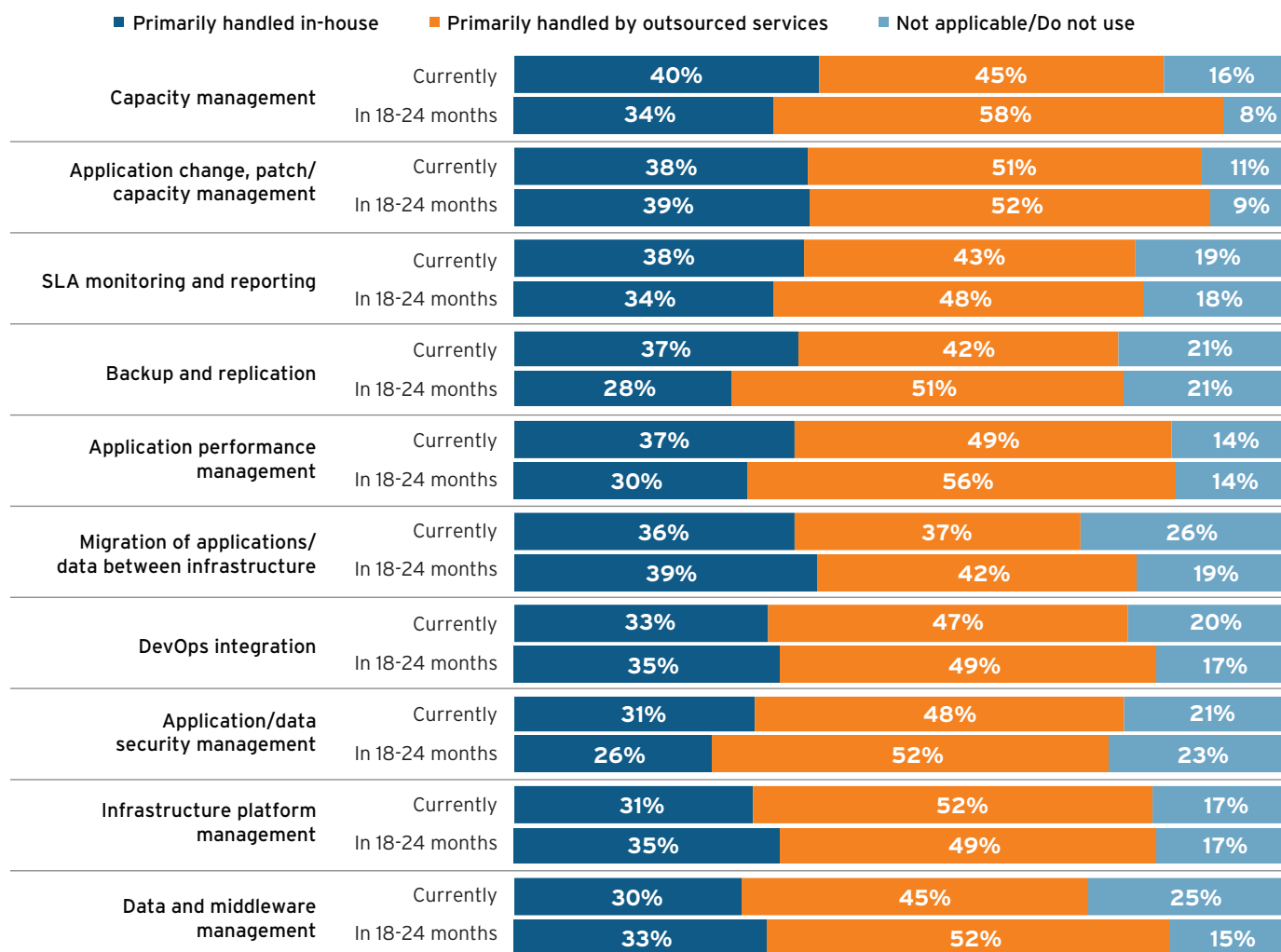
Enterprises expect the greatest shift toward outsourcing over the next 18-24 months to take place in the categories of capacity management, backup and replication, application performance management, and application and data security management. Notably, they only expect one category of task – infrastructure platform management – to shift away from third parties and toward in-house teams over the next two years. This may illustrate the expectation of knowledge transfer as in-house IT is exposed to externally sourced operations during that time.

Figure 11: Degree of Service Outsourcing, Current and Future

Source: 451 Research

Q. Which of these is currently primarily handled in-house/outsourced?

Q. Which of these will primarily be handled in-house/outsourced in 18-24 months?

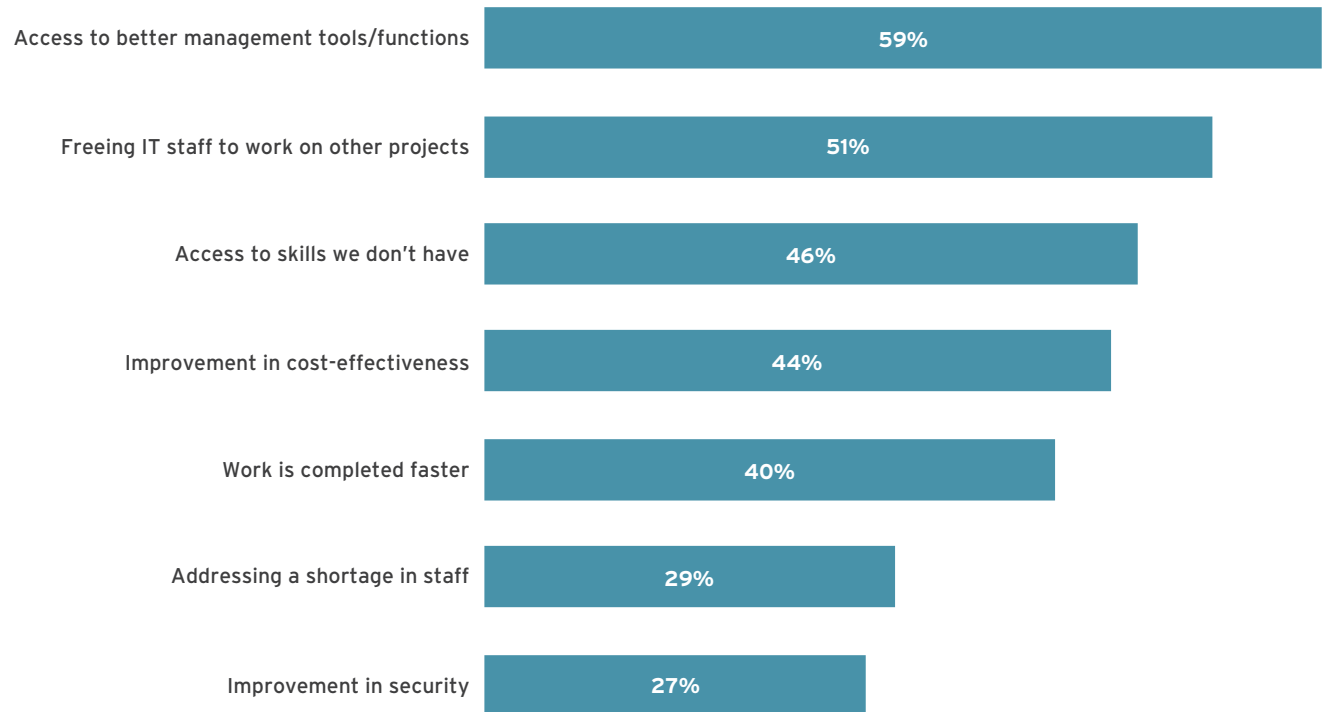


As multi-cloud and hybrid cloud adoption accelerates across industries, expertise in hybrid cloud design and execution will become increasingly scarce, leaving enterprises turning to external managed service providers for access to the necessary skills. Enterprises surveyed said the intended effect of engaging these types of managed services goes beyond expertise, however, to include access to better toolsets (59%), as well as freeing up time for existing IT staff to work on projects that are more critical to the business, or more differentiated (51%).

Figure 12: Managed services objectives

Source: 451 Research

Q. What are the reasons for using outsourced services over your own resources for these tasks?



The 451 Take

Conclusions

For enterprises across the Asia-Pacific region, the full set of performance, cost and other requirements for new, cloud-based workloads, as well as existing applications, will drive use of complex, multi-cloud management. This will give way to more integrated and interoperable hybrid cloud infrastructure. Effective execution will require a unified strategy, as well as the contributions of technology vendors, public cloud platform suppliers and managed service providers.

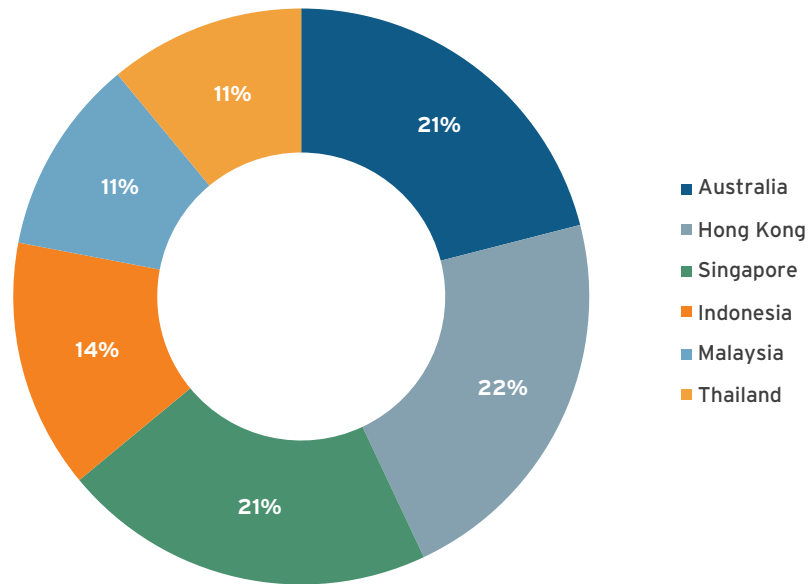
Recommendations and Next Steps

Enterprise IT decision-makers should consider the following:

- If a hybrid cloud strategy is not already in place, it is important to create one. A strong, formal hybrid strategy can inform technology decisions and help to avoid costly changes or refactoring later.
- Consider engaging with a professional services firm to advise on business development. The needs of the business – not just the needs of IT – should be the driving force in a hybrid cloud strategy. This engagement could include an audit of current application cloud-readiness, including identifying dependencies and other priorities that will help to identify the correct execution venues.
- Engage with existing service providers – including ISVs, systems integrators, telcos, MSPs and VARs – for perspectives on your hybrid cloud strategy. Their services will be part of the hybrid whole, but they may also seek the opportunity to add value as cloud-enablement partners.
- It is critical to implement a data and information security and compliance plan as you execute on your strategy for hybrid cloud. This should go beyond backup or disaster recovery to include assessment of risk and monitoring of exposure.
- Examine the use cases for hybrid cloud on an individual workload basis. Consider the business requirements of each workload and how all workloads can best be integrated and deployed. Time spent at the planning stage will save time and help avoid implementation delays later.

Methodology

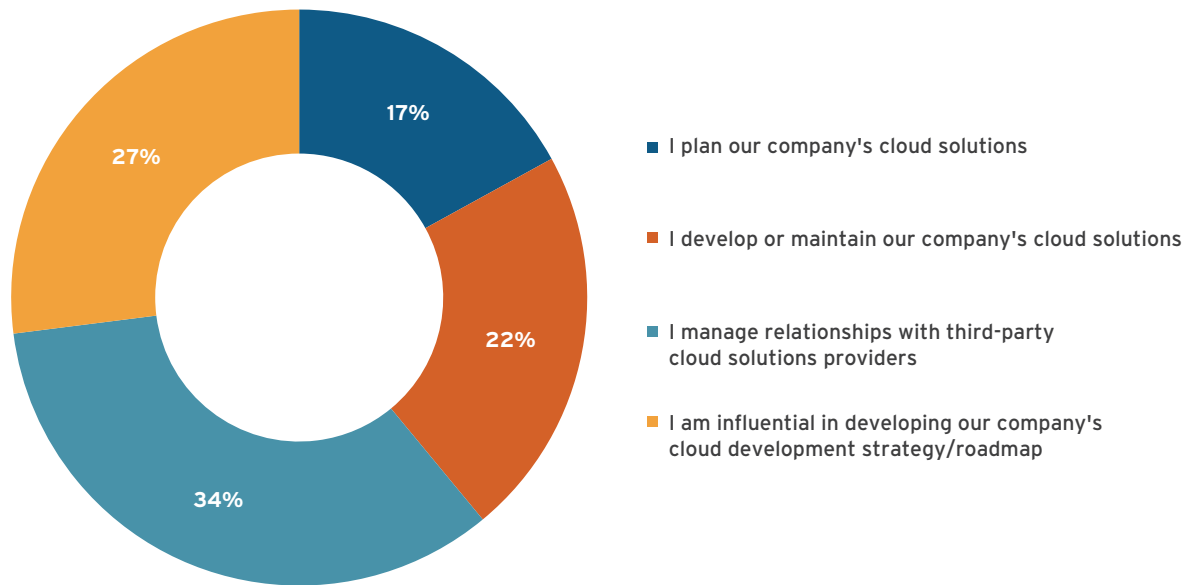
Survey results used in this report were collected in Q3 of 2018 by 451 Research as part of an independent study of large enterprises located in the Asia-Pacific region. The study was commissioned by NTT Communications and VMware Inc and was conducted in six countries (Australia, Singapore, Hong Kong, Thailand, Indonesia and Malaysia).



The study was designed to provide insight about how IT executives tasked with making key technology decisions are evaluating their requirements related to hybrid cloud, and their considerations regarding how to deliver business applications, manage risk, drive efficiency and manage their IT operations.

Study Demographics

In assessing hybrid cloud adoption by businesses across Asia-Pacific in a range of key sectors, we have been able to analyze prevailing technology choices, service provider preferences, service priorities, and measures of hybrid cloud strategy and execution. We conducted the study fieldwork during September and October 2018 using a combination of web-based surveys and telephone-based interviews, comprising approximately 25 structured questions. All respondents had primary responsibility for making IT purchasing recommendations, influencing decisions and strategy about their company's hybrid cloud initiatives, or significant decision-making authority.



For this report, we analyzed and reviewed data derived from a sample of 464 large enterprises, with headcounts ranging from 1,000 to more than 100,000, and with a majority (70%) having annual revenue of more than \$1bn. The sectors studied included:

- Finance/Insurance (17%)
- Manufacturing/Construction (16%)
- Retail (13%)
- Design/Media/Content/Entertainment (10%)
- Business Services/Professional Services (10%)
- Logistics/Distribution (9%)
- Hospitality (9%)
- Technology/Electronics (8%)
- Pharmaceuticals/Life Sciences (7%)

NTT Communications can help

NTT Communications is experienced working with deployments of multiple clouds and business transformational IT projects at enterprise scale, throughout different industries and in countries around the world. Championing enterprise IT and an understanding that many IT problems are, in reality, disguised business problems informs our approach, creating pragmatic solutions that achieve goals allowing IT leaders to present real business benefits to their boards.

Cloud deployment at an enterprise level is often painted with the same blunt brushstrokes used to form the approach of start-ups: as a simple choice between cloud, not cloud or hybrid. This is too simplistic for the real world of enterprise IT, where board pressures demand measurable business benefits and innovation to support business growth; where budgets and headcount issues clash with multiyear projects and business priorities with an ever-changing technology background.

Navigating this journey successfully is complex – if it were easy, everyone would have the answer already.

This paper shines light on the key discussions that IT managers and CIOs are having in the real world, quantifying complexity and bringing difficult decisions to the surface. Legacy systems, unclear future technology choices, and security and compliance régimes all point to the absolute need for a realistic, mature approach to such deployments with clear deliverable business benefits.

To find out more about how NTT Communications can help with:

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About VMware

VMware, a global leader in cloud infrastructure and business mobility, helps customers realize possibilities by accelerating their digital transformation journeys. With VMware solutions, organizations are improving business agility by modernizing data centers and integrating public clouds, driving innovation with modern apps, creating exceptional experiences by empowering the digital workspace, and safeguarding customer trust by transforming security. With 2016 revenue of \$7.09 billion, VMware is headquartered in Palo Alto, CA and has over 500,000 customers and 75,000 partners worldwide.

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