

White Paper

Enabling Hybrid Cloud Transformation

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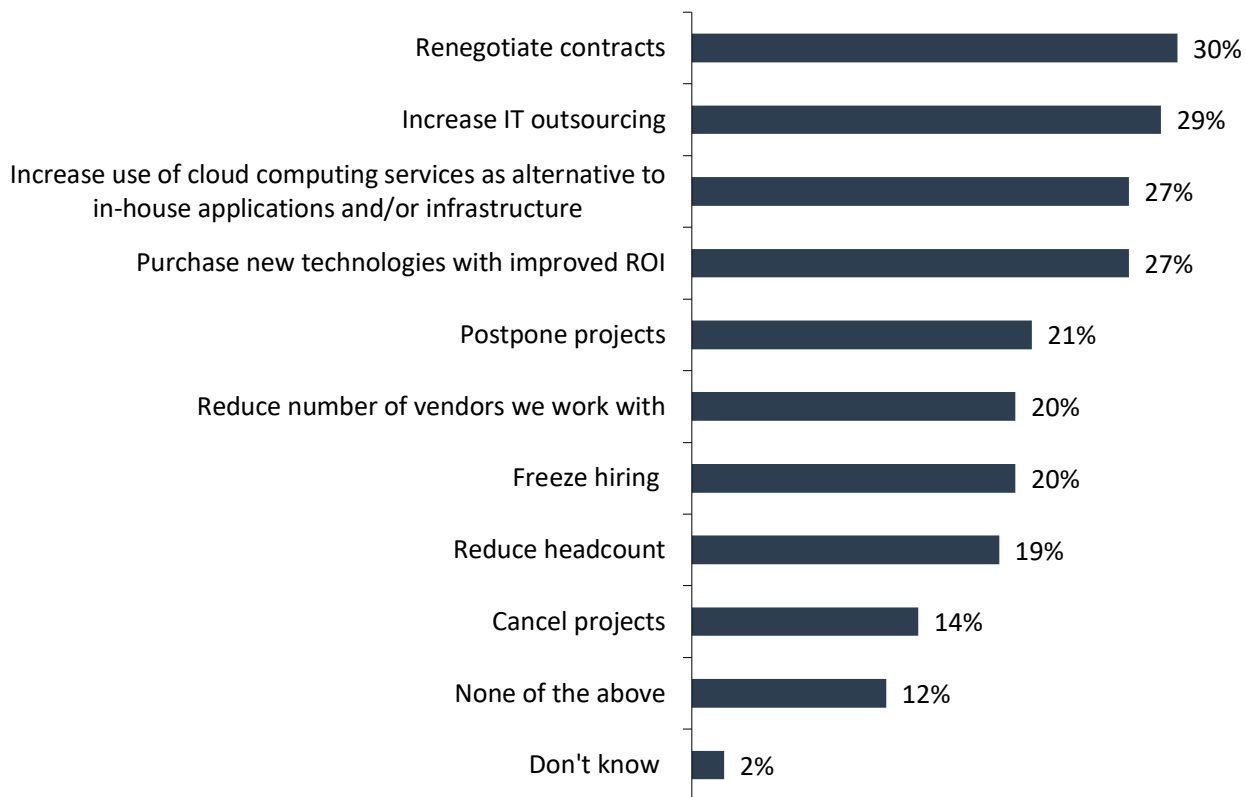
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Introduction

With nearly two-thirds of the average IT budget going toward just “keeping the lights on,” IT organizations increasingly look to public cloud services as a way to reduce ongoing costs.¹ In fact, according to ESG’s annual IT spending intentions research, more than one-quarter of senior IT decision makers identified increasing the use of cloud computing services as an IT cost containment strategy (see Figure 1).² Many IT planners recognize that in order to support and fund key business initiatives like continuous application development and deployment, business intelligence, and application mobility, they need ways to improve infrastructure efficiencies and drive down costs.

Figure 1. IT Cost Containment Measures

Which of the following measures – if any – is your organization taking to reduce or otherwise contain IT expenditures over the next 12 months? (Percent of respondents, N=641, multiple responses accepted)



Source: Enterprise Strategy Group

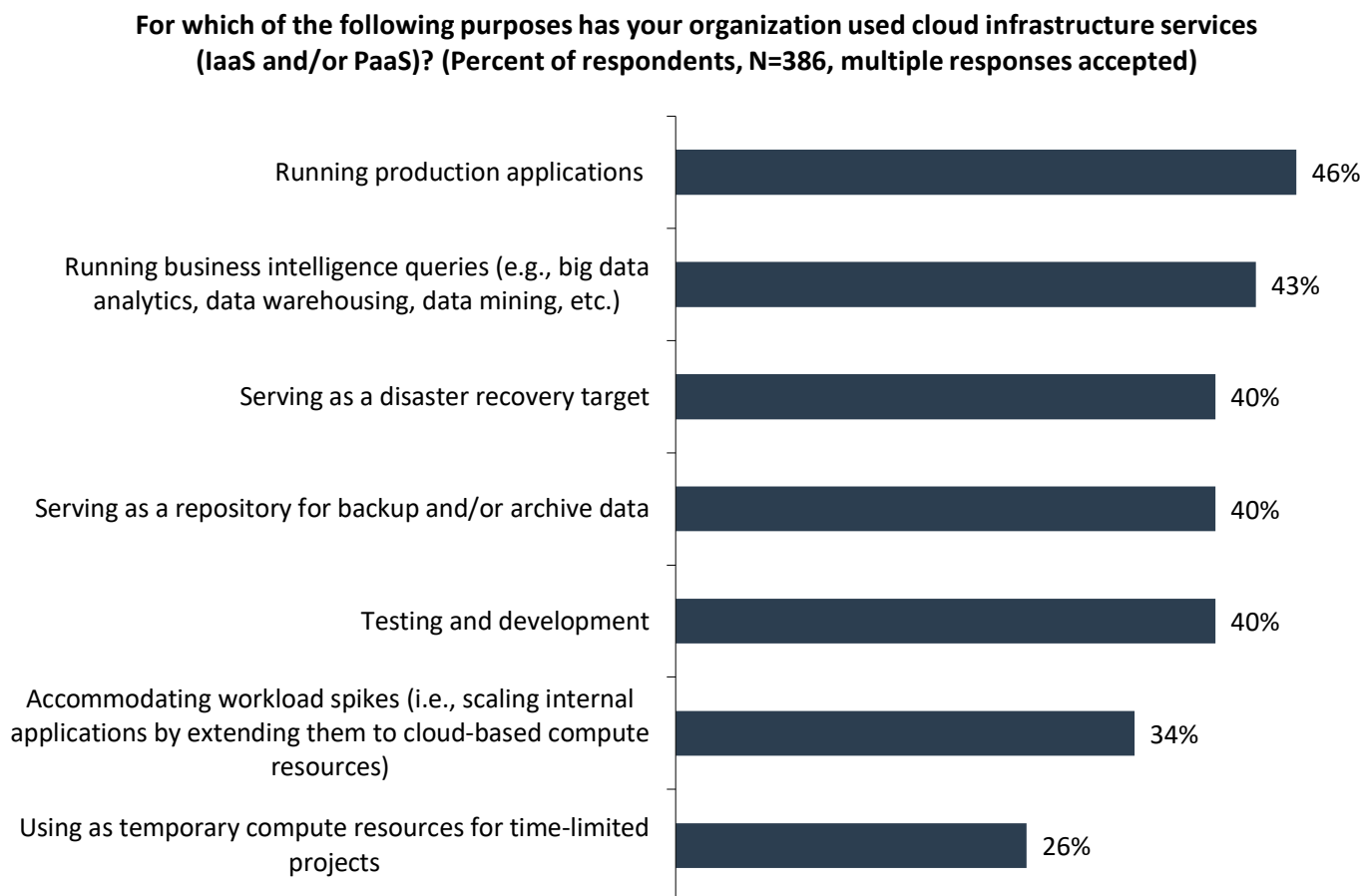
In fact, many IT planners indicate that they currently use or plan to use public cloud infrastructure across several key use cases, which include test and development (test/dev), disaster recovery, and long term data storage in the form of backup copies and archived information (see Figure 2).³ By complementing on-premises infrastructure with abundant, low-cost cloud computing resources, it is possible for IT organizations to reduce costs, improve service levels, and possibly even eliminate the need to host some of these resources on-premises. This hybrid approach of blending private cloud infrastructure with public cloud resources has the potential to reduce capital and operational expenditures and can even enable IT organizations to respond much faster to the needs of the business.

¹ Source: ESG Research Report, [2014 IT Spending Intentions Survey](#), February 2014.

² Source: ESG Research Report, [2017 IT Spending Intentions Survey](#), March 2017.

³ Source: ESG Brief, [2018 Public Cloud Infrastructure Trends](#), April 2018.

Figure 2. Cloud Infrastructure Use Cases



Source: Enterprise Strategy Group

One of the longer-term cloud value propositions is giving businesses a seamless way to augment their virtualized computing infrastructure onsite by utilizing the public cloud during unexpected or seasonal spikes in activity. By load balancing or bursting application workloads into the cloud, businesses can obviate the need to overprovision compute and storage resources on-premises to accommodate these peak periods of demand. This represents a significant opportunity to drive additional cost reductions while providing even greater levels of agility. However, IT professionals have several pressing concerns about moving their virtualized workloads and information into the public cloud.

Hybrid Cloud Challenges

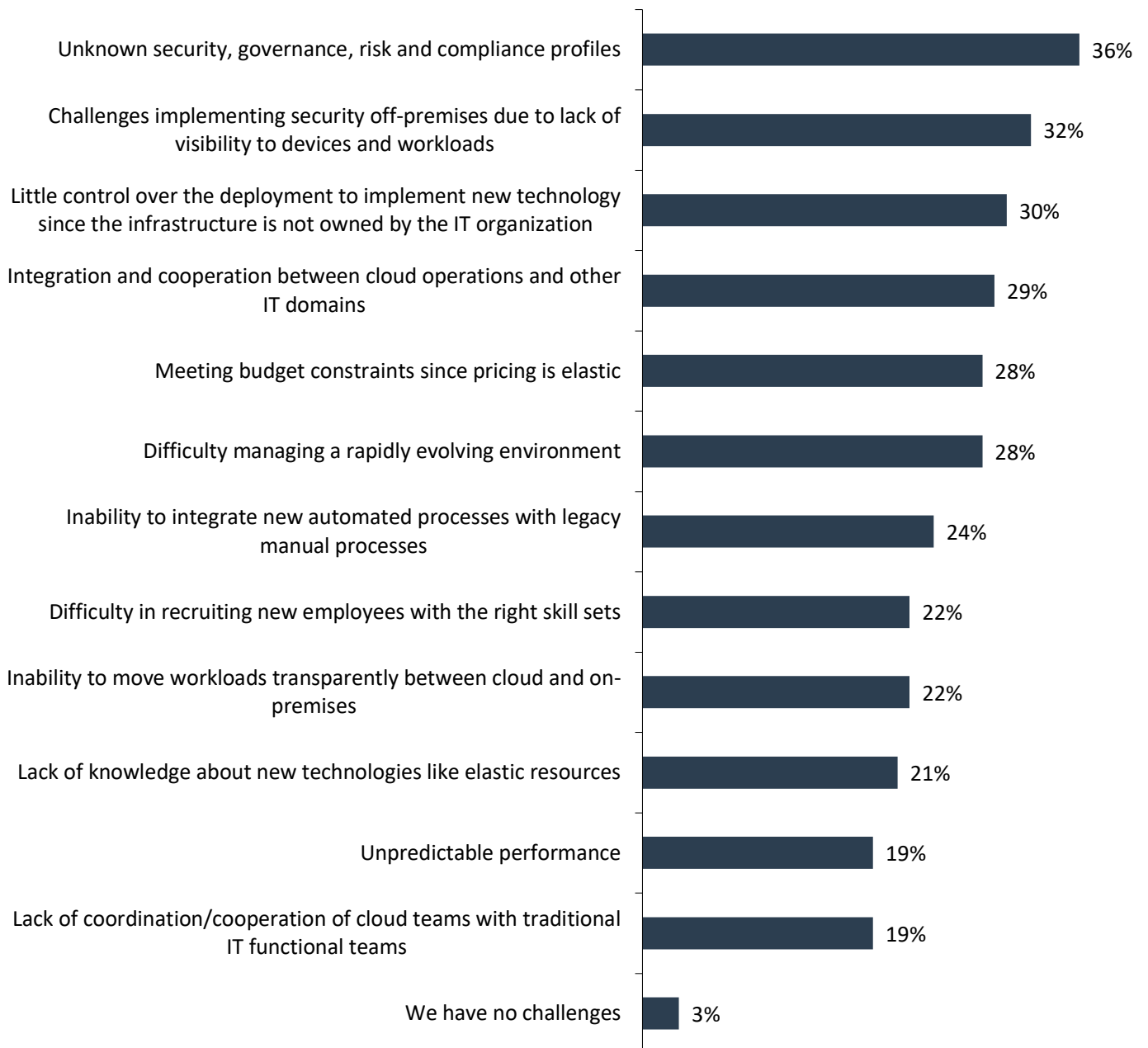
Despite ubiquitous adoption of these services, IT decision makers still have concerns about and face challenges stemming from deploying business application workloads and data in the public cloud (see Figure 3).⁴ Not surprisingly, security and compliance top the list, with 36% of respondents identifying issues stemming from unknown security, governance, risk and compliance profiles and another 32% citing lack of visibility to devices and workloads impeding the implementation of security tools. Businesses may become reluctant to relinquish control of their data if it is difficult to maintain data chain of custody, and control over what information remains on-premises to comply with corporate data governance and regulatory mandates (like HIPPA and SEC-14), and what can be placed in the cloud. Ensuring that sensitive business data remains secure, whether on-premises or in the cloud, remains a top concern for IT and business executives. IT planners need hybrid cloud tools that employ strong data security techniques to help ensure the protection of corporate data

⁴ Source: ESG Master Survey Results, [The Emergence of Multi-cloud Strategies](#), April 2018.

assets, wherever they may reside, on-premises in private cloud data center environments, or in the public cloud. In short, solutions that can combine stringent security with efficient data movement could enable businesses to leverage the elasticity of public cloud resources to increase agility and drive down costs. Other issues include adjusting to elastic cloud pricing within the confines of a pre-set IT budget and organizational complexity tied to attempts to integrate cloud operations and other IT domains. For example, coordinating the various IT functional teams (virtual, storage, networking, and database admins) to support the migration of application data and workloads can be logistically complex and challenging.

Figure 3. Biggest Challenges with Public Cloud Infrastructure

In your opinion, what are the biggest challenges your organization faces when it comes to the usage of public cloud infrastructure services? (Percent of respondents, N=513, five responses accepted)



Source: Enterprise Strategy Group

Intelligent Hybrid Cloud Data Movement

These security, compliance, logistical, and cost concerns demonstrate a need for solutions that can enable the secure and efficient movement of data across hybrid cloud environments while also ensuring application QoS and adherence to corporate data governance requirements. According to various industry estimates, only 5-10% of any given application's data is active at any point in time. By sending only active data into the public cloud, rather than the full data payload, most of the concerns listed could be easily remedied. This intelligent data movement could enable IT organizations to leverage remote computing resources in the public cloud while maintaining control and protection over their business data assets on local storage.

Cloud Performance and Efficiency

For example, from a cloud performance standpoint, intelligently moving only hot or active data (5-10% of the workload data volume) into cloud flash resources can be a cost-effective way to help ensure application QoS. And as data becomes inactive or "cool," it can be de-staged to lower cost disk resources back in the local data center. This could help ensure that higher cost cloud storage resources would always remain reserved for just live or active data sets, ensuring storage efficiencies. This "just-in-time" data streaming and migration approach for moving business data across hybrid cloud environments could also help reduce network latency while lowering network bandwidth costs.

Lower Bandwidth Costs

Likewise, the efficiency of only sending active data sets across telecommunication links can dramatically reduce telco bandwidth requirements, while lowering the associated cloud provider data ingress and egress costs. Moreover, it could dramatically speed up the time it takes to boot strap applications in the cloud, helping businesses to increase their agility.

Cloud Data Control

When only active data is cached in the cloud, businesses can use the cloud as an application front-end without relinquishing control over their information. Any changes made to the data while it is operating in a cloud storage cache would be asynchronously written back to the storage in the on-premises data center, allowing IT to secure, manage, and protect this information. By not storing any persistent data in the cloud, businesses can always maintain data chain of custody in on-premises storage. This also helps to minimize the challenges associated with repatriating cloud workloads.

Cloud Data Security

Data security is another top-of-mind issue with respect to running business workloads in the cloud. By applying strong AES-256/FIPS 140 encryption to data at rest and data in flight and maintaining custody of encryption keys on-premises, IT planners can mitigate potential data security vulnerabilities. In addition, with only active data (in an encrypted state) residing on cloud-based storage resources, a much smaller attack surface would be available for data hackers to exploit.

The Bigger Truth

Hybrid cloud computing can be a key enabler for lowering IT costs and fostering business agility and innovation. But in order to accomplish these objectives, IT organizations need a way to maintain the control, security, and protection over their data assets so they can fluidly migrate and repatriate workloads as the business demands. But if data cannot be efficiently migrated from one cloud provider to another and/or back on-premises, this may remain nothing more than a lofty aspiration for many businesses.

Application-aware, intelligent solutions, such as Primary IO, offer organizations an automated way to securely and efficiently move data across remote, hybrid cloud computing resources while maintaining control over their data assets on

local storage in the data center. This helps IT managers ensure that data remains protected, secure, and in compliance with corporate data governance and regulatory requirements. As importantly, it gives organizations the flexibility to leverage on-demand, remote cloud computing resources from any cloud provider to improve business agility, lower costs, and increase their competitiveness.

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