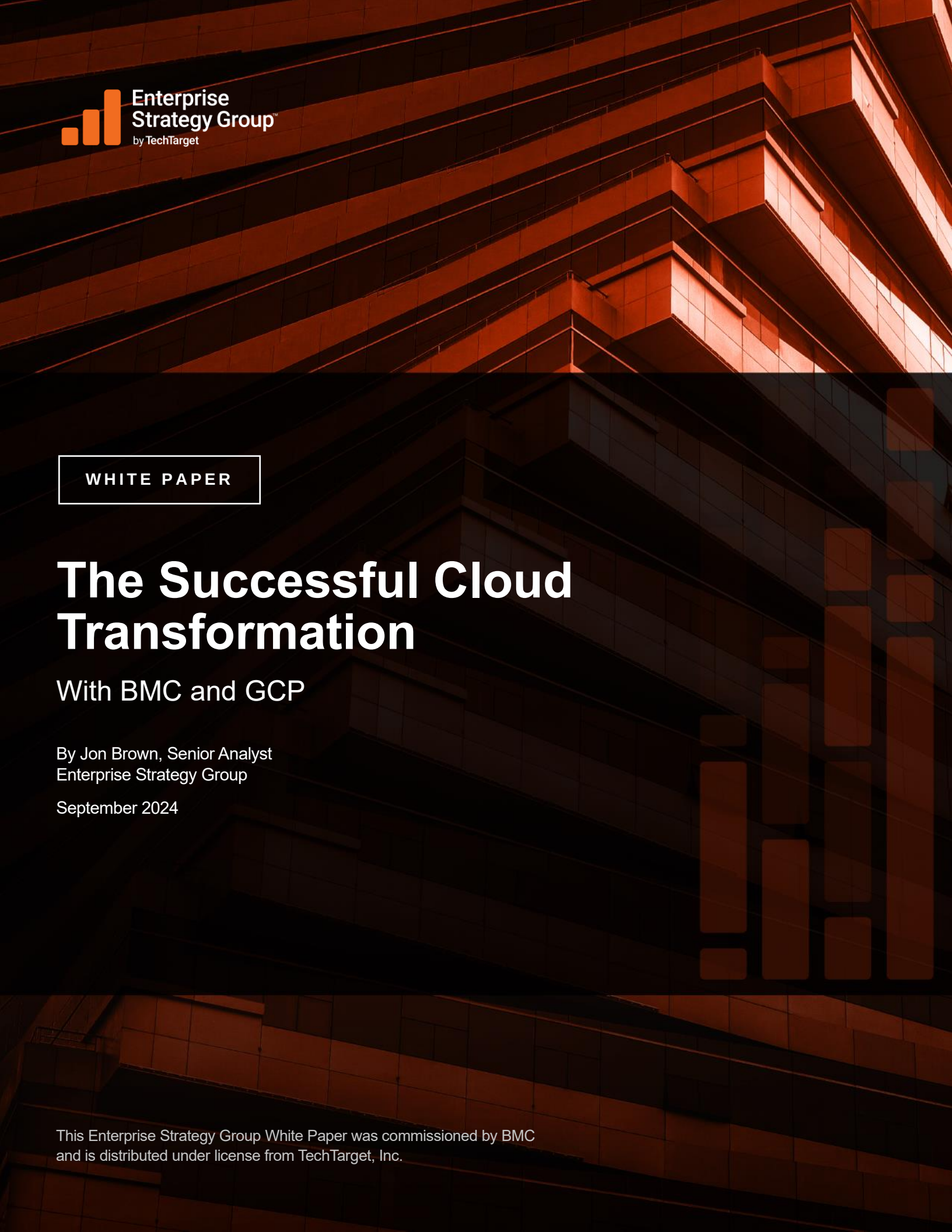

WHITE PAPER

The Successful Cloud Transformation

With BMC and GCP

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Contents

Executive Summary

Cloud computing has fundamentally changed how IT services are delivered. While large cloud providers have been instrumental in this change, cloud transformation itself is a complex journey requiring careful planning and execution—especially for organizations with multigenerational infrastructure—with critical workloads that might have been architected and put into production in the pre-cloud era. By examining and rethinking the transformation process, selecting the right tools, and partnering with the right partners, organizations can unlock the full potential of the cloud, enabling their business to achieve its desired outcomes faster and with a more significant impact.

Why Organizations Are Embracing Cloud Computing Now

The way that organizations compute is undergoing a seismic shift, driven by the ever-increasing adoption of cloud computing. Organizations across all industries are rapidly migrating some or all of their applications to the cloud, seeking to benefit from the numerous advantages of cloud computing.

The economic argument is perhaps the strongest driver for the adoption of cloud computing. Traditional IT infrastructure relies on significant capital expenditure (Capex) on hardware, software, and support. Cloud computing, on the other hand, uses a "pay-as-you-go" model, transforming the Capex to smaller operational expenditures—Opex. The net effect of this is it helps organizations align their spending directly to business needs, and it eliminates unnecessary upfront costs.

Beyond simple cost savings, which can be significant, cloud computing offers a level of flexibility and scalability that is simply not possible with traditional infrastructure. With cloud computing, businesses can adjust their resources up and down based on real-time demands, eliminating overprovisioning and inflexibility. This agility is further augmented by cloud computing's global availability. Cloud-based applications and their data are generally accessible from anywhere on the internet, empowering distributed workforces, partner networks, and customers and enabling collaboration from anywhere.

In many cases, there is also a positive impact on sustainability and net carbon emissions due to compute, since cloud providers might have access to renewable energy and most have aggressive commitments to reaching net-zero carbon emissions.

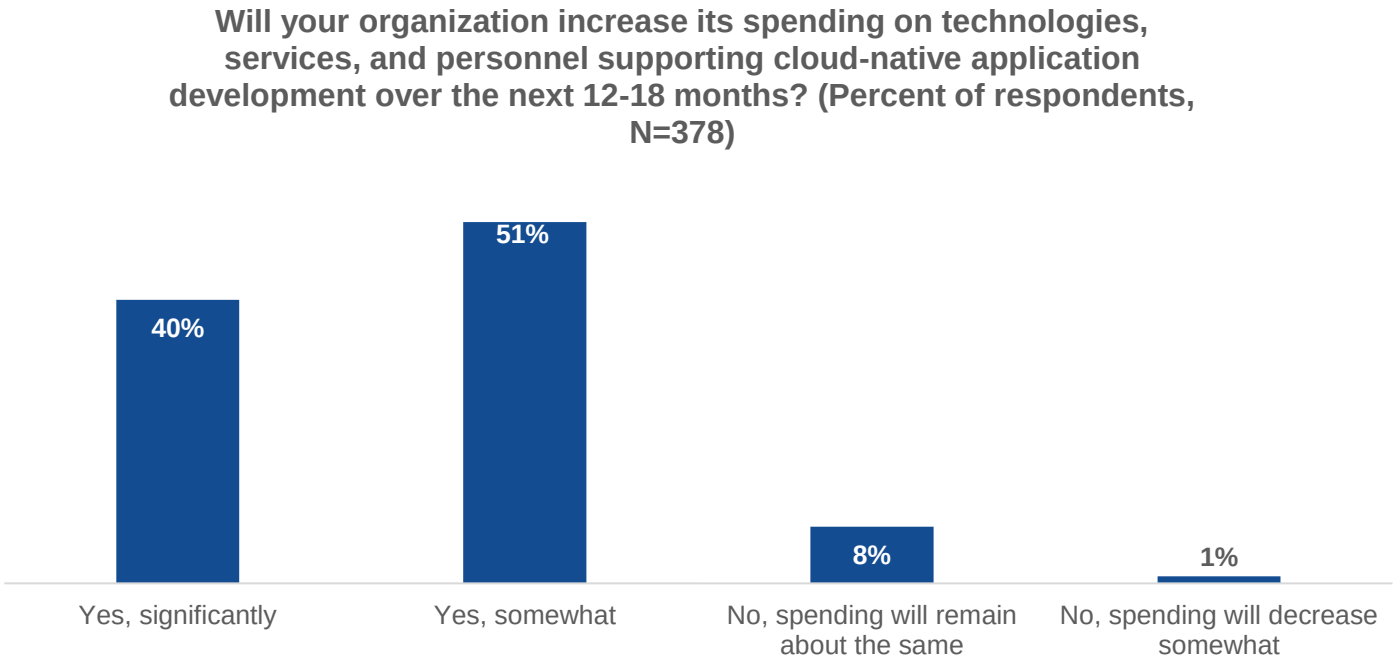
The cloud also provides access to cutting-edge technologies, such as AI, which might be out of reach to businesses that lack the capital and expertise to build their own. This empowers businesses to perform powerful analyses, automate routine and not-so-routine tasks, and potentially gain a competitive advantage.

Cloud computing also aligns with application modernization. Legacy systems can be migrated or rearchitected for the cloud to improve performance, scalability, security, and availability.

The increasing adoption of cloud computing isn't just a trend, it's a fundamental shift that is reflected in investment plans (see Figure 1).[1]

[1] Source: Enterprise Strategy Group Complete Survey Results, *Distributed Cloud Series: The Mainstreaming of Cloud-native Apps and Methodologies*, May 2023.

Figure 1. Investment Plans for Cloud-native Computing



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Impact on Application Development

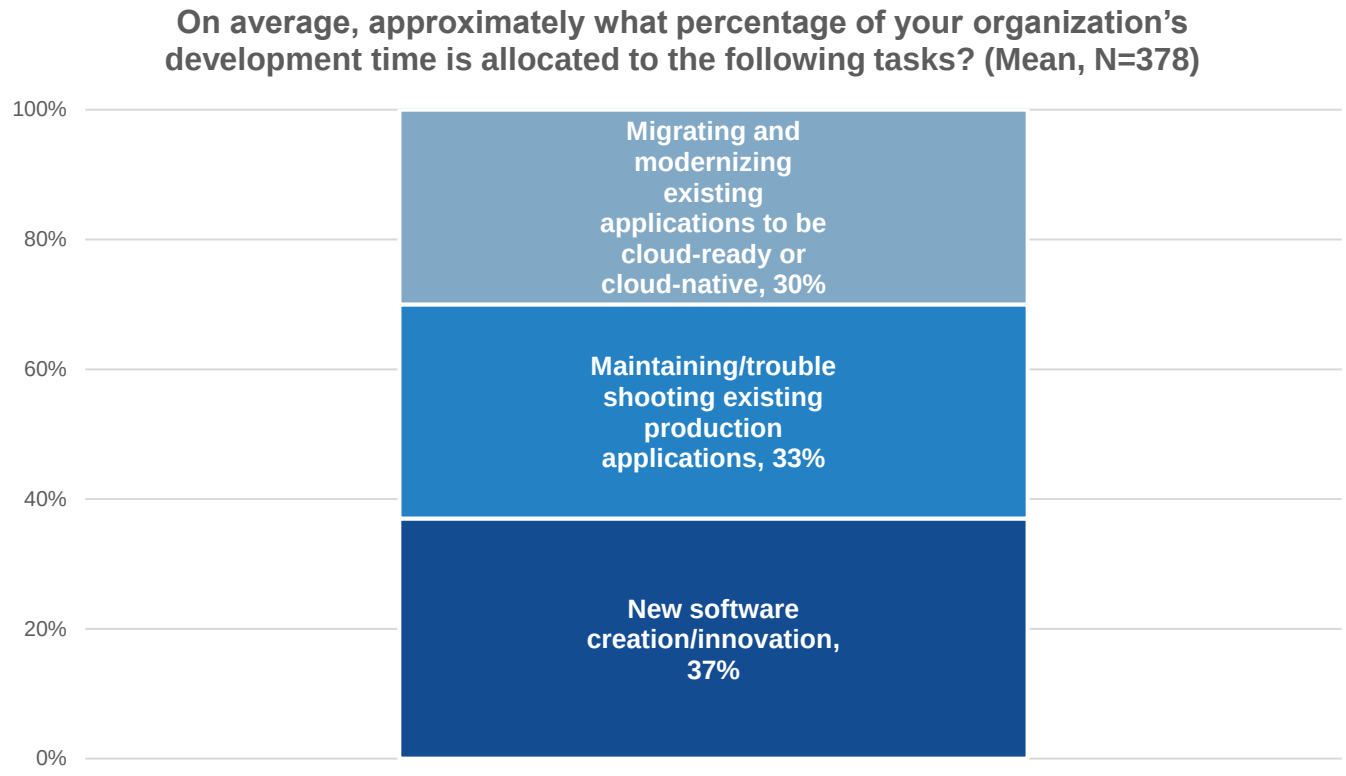
One area that can be positively impacted by the adoption of cloud computing is application development. Research from TechTarget's Enterprise Strategy Group underscored this point, highlighting that organizations embracing cloud-native development spent 37% of their time on new software creation/innovation, which is higher than what is typically observed (see Figure 2).[2] Cloud-native development is a set of methodologies that foster a development style that prioritizes agility and enables more frequent changes and updates to software.

The reasons that cloud-native application development lends itself to more agile approaches is due to:

- **On-demand resources.** Eliminating the need for lengthy hardware provisioning processes for software engineers.
- **Microservices architecture.** Breaking down applications into smaller independent components, which are easier and faster to write and maintain and enable better scaling of individual components that make up the application.
- **Continuous integration/continuous delivery (CI/CD).** Cloud platforms integrate with CI/CD pipelines, automating tasks such as code testing and deployment. This automation streamlines the development process and enables developers to push more frequent updates. For organizations that adopt cloud-native application development, it is not unusual for an organization to speed the cadence of software delivery from annual or monthly releases to weekly or daily updates. This increased frequency of releases means more responsive and generally higher quality software.

[2] Ibid.

Figure 2. Cloud-native Application Development Time Allocation



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

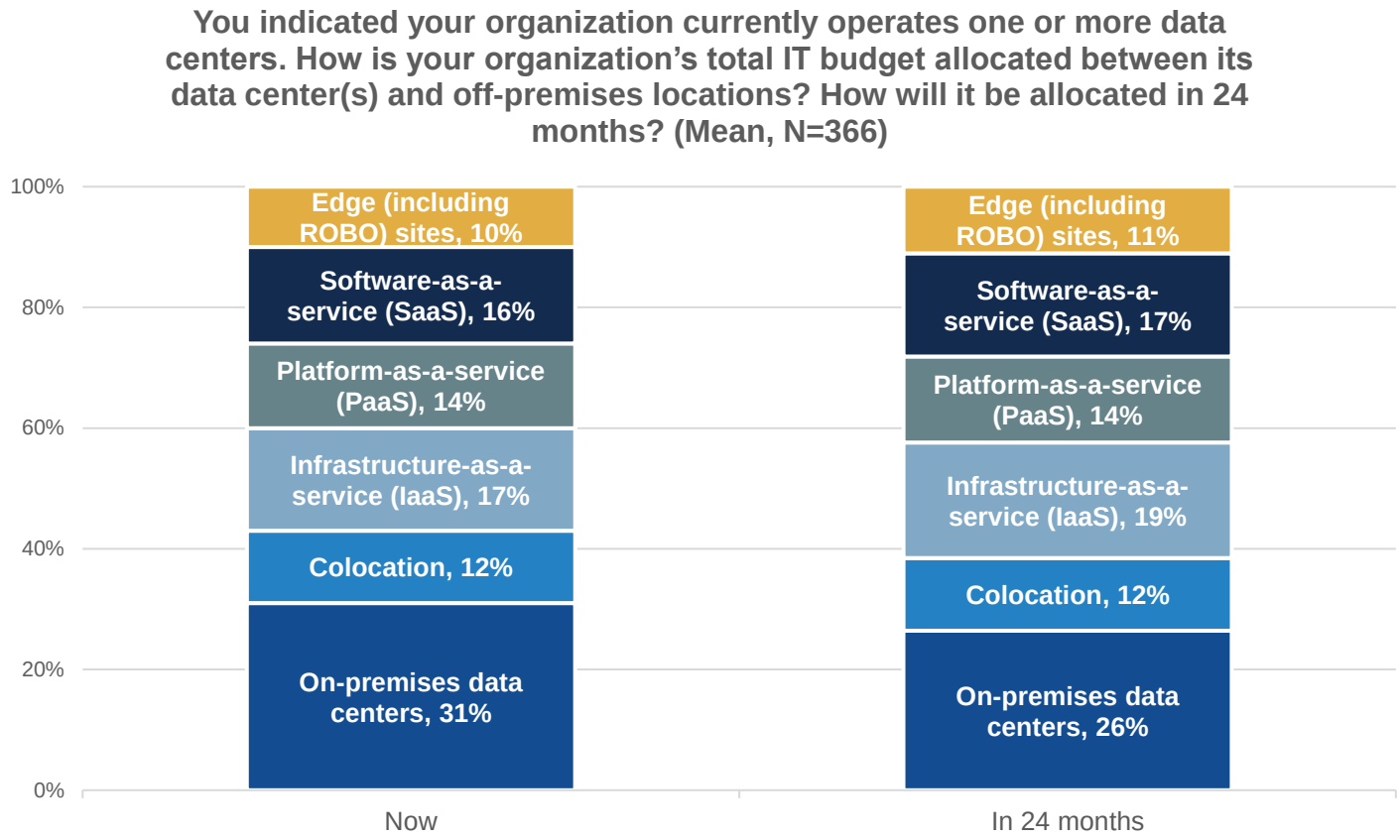
What Is the Status of Cloud Migration?

The path to the cloud is not always linear. Cloud adoption is a strategic journey for firms with multigenerational infrastructure composed of legacy hardware and applications. Some organizations embrace a cloud-first strategy, aggressively migrating workloads to the cloud. Others take a more agnostic approach, selectively choosing workloads for cloud migration based on specific needs. Still, others can be cautious, opting to keep certain workloads on premises.

Despite these varied approaches, the overall trend is undeniable: A growing number of workloads are finding their home in the cloud. Recent Enterprise Strategy Group research demonstrated this shift, revealing a clear trend of organizations allocating budgets increasingly toward cloud solutions, often at the expense of traditional data center investments (see Figure 3).[3] This strategic shift reflects a growing recognition of the benefits that cloud computing offers.

[3] Source: Enterprise Strategy Group Research Report, *Distributed Cloud Series: The State of Infrastructure Modernization Across the Distributed Cloud*, November 2023.

Figure 3. How IT Budgets Are Expected to Shift Due to As-a-Service/Cloud Computing



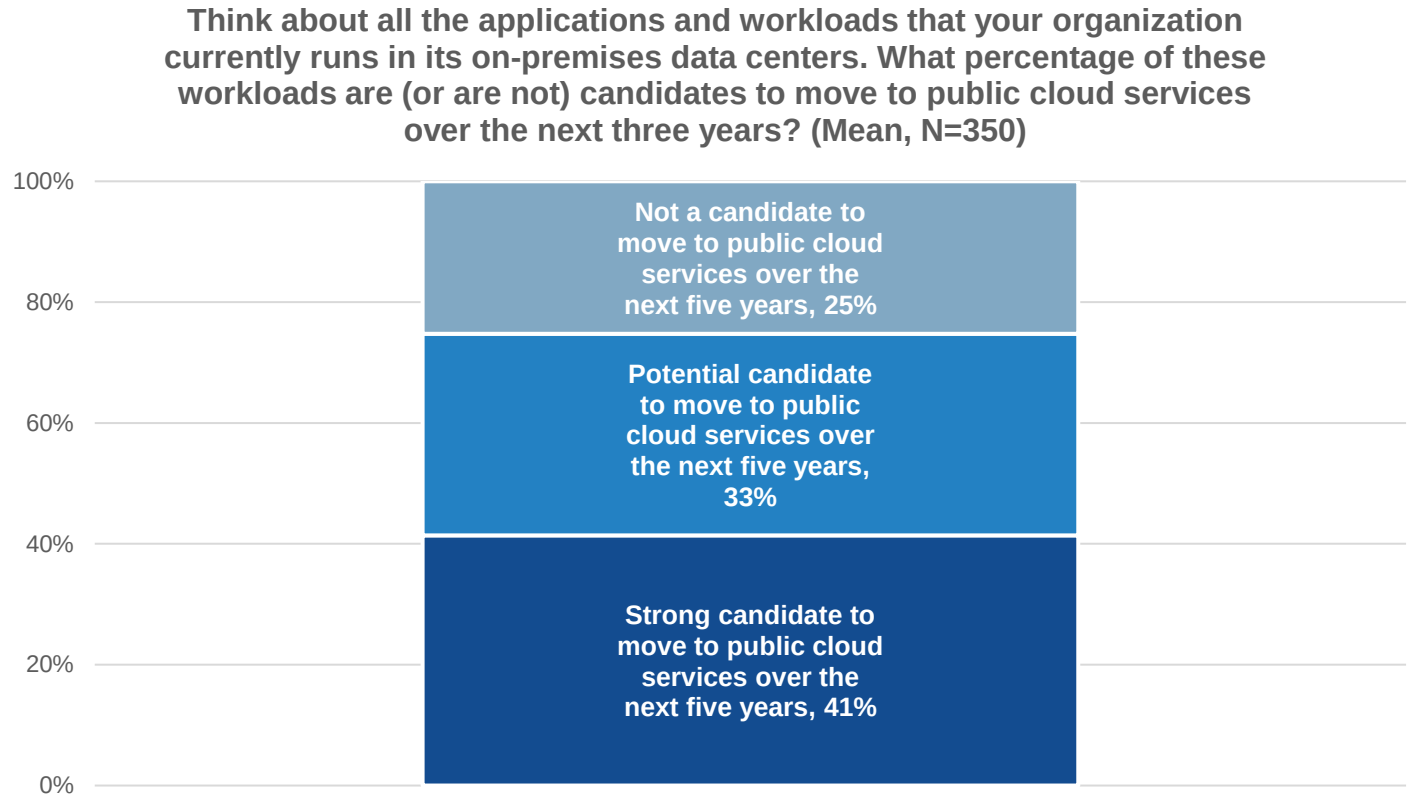
Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Today, on average, organizations allocate 31% of their budgets to on-premises data centers. That percentage is expected to drop by 5% over 24 months to 26%, while cloud computing in the form of infrastructure-as-a-service and platform-as-a-service investments are expected to rise over the same period by 3%.[4] With this undeniable shift toward the cloud, the question becomes "How do we migrate our workloads effectively?" No two workloads are exactly alike, and the ideal migration strategy will vary depending on application size, current platform, data location, complexity, and security, to name a few factors. Given that most midsize and large organizations have hundreds of applications, an organization's ability to actually lift, shift, refactor, rewrite, rearchitect, and redeploy comes into question.

In terms of workload movement, Enterprise Strategy Group asked organizations about the applications they currently keep on premises that will be candidates to move to the cloud in the next five years. The data shows that 74% of applications currently running on premises are cloud candidates (see Figure 4).[5] This represents a massive shift in workload distribution that cloud teams and cloud vendors should prepare for in the coming years.

[4] Ibid.
[5] Source: Enterprise Strategy Group Research Report, *Multi-cloud Application Deployment and Delivery Decision Making*, June 2023.

Figure 4. On-premises Workloads That Are Candidates to Move to Cloud in the Next 5 Years



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

What Are the Key Challenges With Cloud Transformation?

Most of today's IT infrastructure and application landscape can be called "multigenerational," meaning that it is a distinctly heterogeneous mix of legacy and modern hardware and software platforms. Many organizations run mission-critical, or at least essential, workloads on infrastructure that is over a decade old. This means even decades-old hardware and applications must be accounted for since these often still act as a system of record and perform business- and mission-critical functions.

These systems could be run more efficiently and effectively on modernized infrastructure and, especially, in a cloud environment, but too often those organizations lack the knowledge, expertise, and staff to handle the transition without disrupting operations. This opportunity—and necessity—to migrate key workloads to the cloud has become more apparent in recent years.

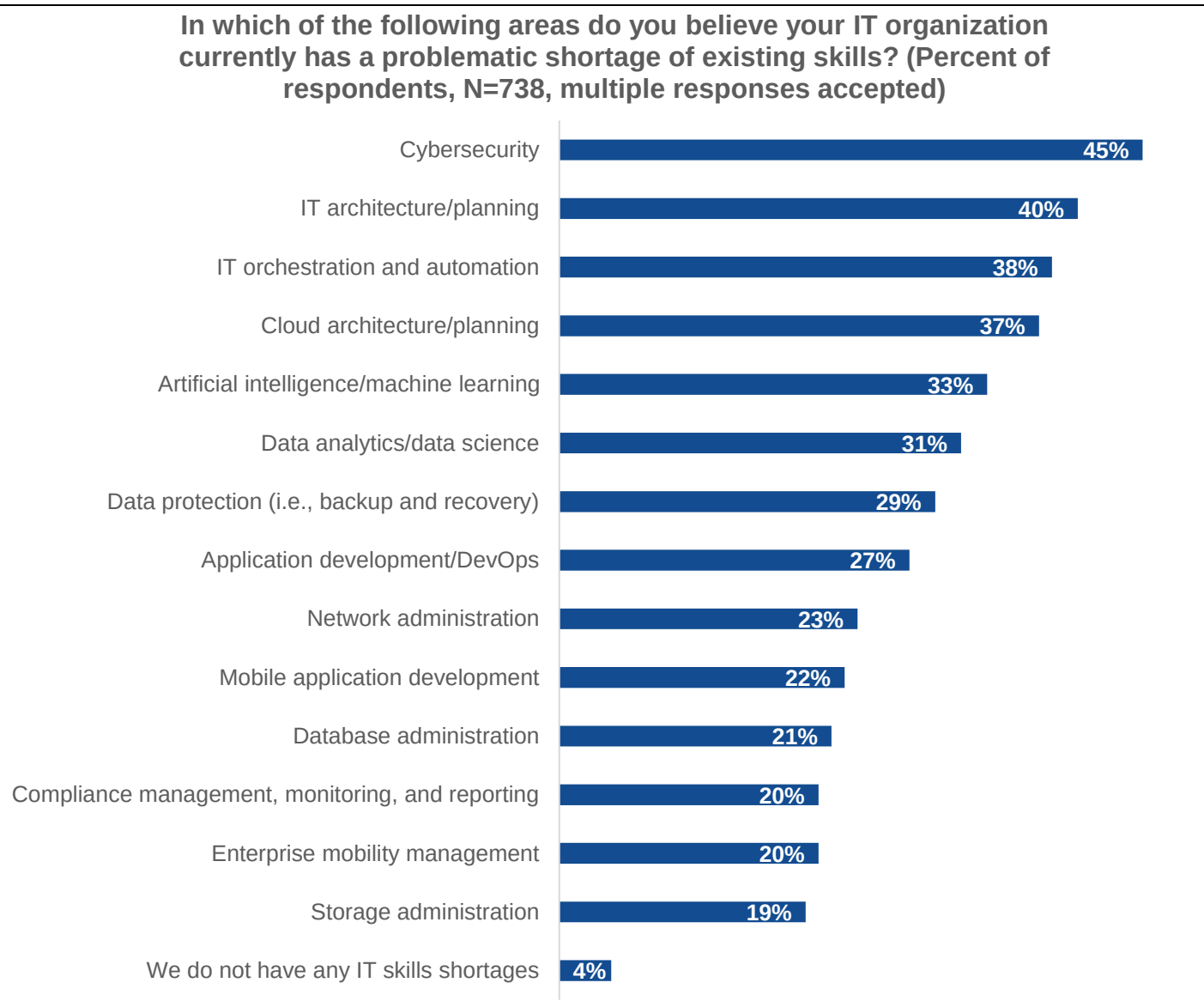
Therefore, organizations need to consider a number of key factors when evaluating if, when, and how to migrate those workloads to a public cloud environment. These include:

- **The practicality of migrating from older, on-premises platforms.** In many cases, these migrations are not "lift-and-shift" projects and need the experience and expertise of a proven partner.
- **Managing legacy code and technical debt.** Again, older systems, technologies, and tools often cannot be simply retired without a plan on how to manage anything associated with and linked to those systems.
- **AI and automation.** Cloud transformation requires new application and infrastructure management tooling with AI capabilities to distill signal from noise and isolate root causes. Leveraging automation is also important

here because IT organizations typically want to deploy their limited staff on higher-value activities, such as DevOps and cloud-native development, not have them manually monitoring and tweaking system performance.

- **Overcoming the skills gap.** Take security as one example: Organizations are experiencing a problematic and growing shortage of skilled IT professionals, and many other important positions remain unfilled in areas such as cloud architecture and planning, IT orchestration and automation, artificial intelligence/machine learning, application development, and more (see Figure 5).[6] It is becoming more expensive and troublesome to compete for the candidates looking either to enter the field or to move from an existing position. Organizations contemplating a cloud transformation should have a plan to address likely skills shortages before they begin their journey.

Figure 2. Most Common Skills Shortages



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

[6] Source: Enterprise Strategy Group Research Report, *2023 Technology Spending Intentions Survey*, November 2022.

The cloud transformation journey is a tremendous opportunity for businesses to achieve agility, scalability, and cost-effectiveness. However, navigating this transformation requires careful planning, a deep understanding of application needs, and the ability to address challenges such as security, application refactoring, compliance, and talent gaps. While the benefits are undeniable, the complexities of cloud migration and ongoing management shouldn't be underestimated. To bridge the skills gap and lower the risk of "go it alone" cloud transformation, partnering with an experienced cloud service provider can be the most strategic decision.

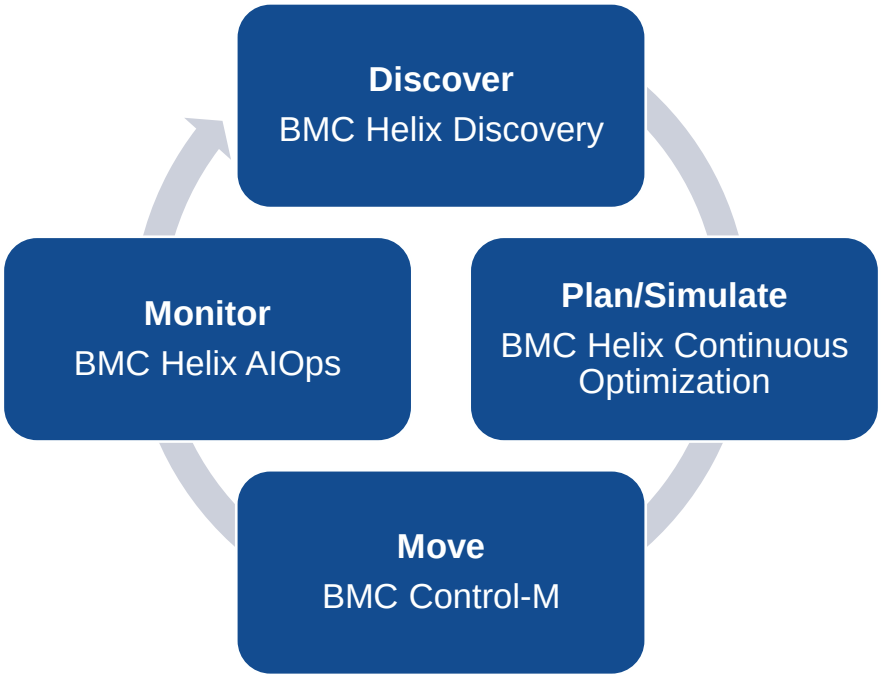
How BMC and GCP Enable Cloud Transformation

The good news is that expertise and tools exist to help organizations smooth their cloud transformation:

- **Google Cloud.** As a widely recognized innovator and the leader behind Kubernetes—the foundation for modern containerized applications—Google Cloud Platform (GCP) empowers businesses to thrive in the cloud. Leveraging Google's technology and expertise, GCP offers a comprehensive suite of cloud services.
- **BMC.** With a rich heritage managing multigenerational IT environments, BMC Software is a leading provider of enterprise IT management tools. Its comprehensive portfolio empowers businesses to navigate the complexities of the cloud. From tools like BMC Helix Operations Management with AIOps to multi-cloud service management solutions, BMC equips organizations with the tools to plan, optimize, automate, and streamline their journey to Google Cloud.

The process of cloud transformation with BMC and Google Cloud follows four steps that emphasize cost savings and optimized outcomes (see Figure 6).

Figure 6. Cloud Transformation Journey



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

This process, which enables organizations to adopt cloud computing for workloads suitable for migration, includes the following steps:

1. **Discover.** During this initial phase, applications that are targets for cloud transformation are fully discovered. What this means is that a dependency map—a complete picture of what the application relies on to function properly—is created, which ensures that all of the components the application needs will be available in the cloud. Failure to accurately discover and map dependencies can result in a failed migration for that application. BMC offers BMC Helix Discovery, an agentless continuous discovery tool that automatically discovers the assets and applications and then maps relationships between them.
2. **Plan/Simulate.** After discovering applications and mapping their dependencies, leaders can plan and prioritize which ones are best suited for cloud. As seen in Figure 4, some 74% of on-premises applications are candidates for cloud migration. The sheer magnitude of applications this can be in a reasonably large organization necessitates a well-defined prioritization strategy, as attempting to migrate everything all at once carries a significant risk of failure. To navigate this step, BMC offers BMC Helix Continuous Optimization where leaders can use their own criteria—the strategic significance of the application, the cloud cost savings potential, the suitability of the existing application architecture for cloud, and number and diversity of dependencies—to make a plan for application migration prioritization. The tool allows IT teams to simulate the cost and performance characteristics of the workload. By modeling and monitoring application behavior and resource consumption, leaders can have insight into the projected efficiency of their cloud spend and use this information to make decisions about when and where to move workloads. BMC Helix Continuous Optimization gives real-time insight into the costs of an application. Google, through its FinOps Hub offering, also delivers a significant set of cloud cost management/FinOps tools that are specific to the GCP platform.

   ### On the Importance of AIOps

   AIOps helps organizations analyze data, identify patterns, predict problems, and resolve issues faster, making their entire business more resilient.
3. **Move.** Once the migration plan is solidified, the actual movement of workloads and data to GCP can begin. While GCP provides tools for this process, BMC Control-M is valuable for orchestrating the complexities of application and data workflows, especially when migrating in stages. Many organizations opt for a phased approach to minimize risks and disruptions; Control-M excels at managing these partial migrations, ensuring seamless operations regardless of the workflow's location. By integrating with GCP, Control-M offers a unified platform to build, schedule, deploy, and monitor production workflows, providing enhanced visibility, reliability, and overall control. BMC Control-M doesn't physically transfer data but effectively manages the migration process, allowing organizations to maintain a clear overview and achieve their migration goals efficiently.
4. **Monitor.** Monitoring isn't new, but its importance has increased along with its complexity: Workloads run in different data centers and availability zones, and customers, suppliers, and partners rely more on digital processes in the cloud. Organizations need a way to ensure application performance, measure customer experiences, and enable support staff to address any performance or application problems as they arise proactively, regardless of where application components are executed. This is especially difficult in the cloud, as cloud environments are much more fluid and dynamic than on-premises infrastructure. BMC, a noted leader in AIOps, offers BMC Helix AIOps—a fully integrated, cloud-native observability and AIOps solution designed to tackle challenging environments.

By following the four-step process, organizational leaders can deliver on the promise of cloud computing while minimizing the risks associated with migration.

Conclusion: The Confident Cloud Migration Journey

The cloud has fundamentally changed how applications are delivered—often offering greater agility, scalability, and potential cost savings. Leaders increasingly recognize the potential of cloud computing, as evidenced by the backlog of applications that are candidates for cloud migration and are waiting to be migrated. But navigating this journey to the cloud can be challenging. Skills shortages, cost concerns, and a lack of a clear strategy and methodology can impact outcomes.

Cloud migration is more than a one-time event; it's a transformative journey that, when executed properly, empowers businesses by unlocking new business opportunities, accelerating development cycles, and ultimately creating a competitive advantage.

Against this backdrop, we've looked at how two leaders, BMC and Google Cloud, collaborate to offer a four-step approach to cloud migration that minimizes risk and ensures a smoother transition for workloads—especially for organizations with existing multigenerational infrastructure that might have workloads that need to be migrated from mainframe, client/server, and other platforms. Organizations have trusted BMC and Google Cloud with their most critical IT workloads, providing them the tools and expertise to enable successful and ongoing cloud migration and optimization.

For more information on how BMC and Google Cloud can help your organization on its journey, visit www.bmc.com/partners/bmc-and-google-cloud.html.

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