White Paper

Three Keys to Maximize Application Migration and Modernization Success

Sponsored by: IBM

Peter Marston Gard Little
July 2019

Executive Summary

Cost savings and efficiency gains have traditionally been the drivers for cloud migration and application modernization. However, more recently, the goals have evolved from reducing costs and driving efficiency gains to increasing business speed, agility, innovation, and performance. Although cloud adoption has progressed, many organizations have jumped into adopting cloud without possessing an effective cloud strategy to get started and efficiently manage their application environments. As a result, they've gotten stuck and haven't been able to capture the benefits they had initially sought. They've struggled to find the right application hosting environments for the full range of their application portfolios. Organizations not only have expanded the types of application hosting environments they use to include a mix of on-premise and private and public clouds but also have broadened public cloud usage to include multiple providers. As a result, multicloud deployments have become the norm for many organizations.

This IDC white paper examines the challenges that organizations with legacy IT and multicloud environments face and how IBM's cloud application migration and modernization services can help organizations establish, cultivate, and nurture a long-standing cloud solution that fosters rapid business innovation and elevates business performance while enabling organizations to fully harness the benefits that modernized applications can offer.

Cloud Migration and Application Modernization Foster Enterprise Agility

Over the past few years, IDC has observed that business imperatives have focused on expanding geographic reach, enhancing customer experience, and improving financial management. To support those corporate business objectives, application and datacenter teams have had to focus their energies on making IT more efficient and enabled for higher performance. Along these lines, IDC has observed key trends that include the following:

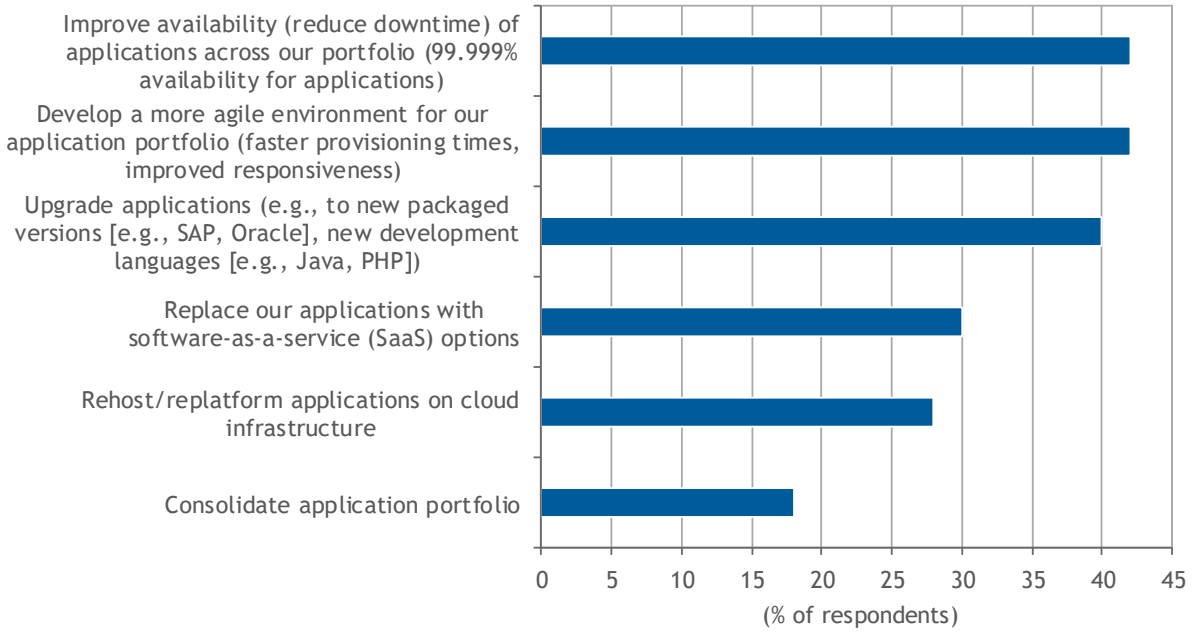
- **Agility is how organizations aim to compete more effectively and differentiate.** According to IDC's *Managed CloudView Survey* conducted in August 2018, the top 2 application initiatives that organizations are focused on for the next 24 months are developing application portfolio agility and improving application availability (see Figure 1). The ability to quickly respond to urgent needs is a key driver for organizations seeking to modernize their application portfolio. Agility in application life-cycle management with DevOps ensures that users are equipped with the proper tools to execute their jobs effectively. It also creates a platform where organizations are well suited to respond to urgent needs quickly and seize business opportunities faster than the competition to build sustainable competitive advantage. Reducing application outages and enhancing application availability help support agility objectives by ensuring applications are available for users at the time they need them.

- **Datacenter transformation and migration to cloud is a mandate to enable agility.** IDC's *Managed CloudView Survey* also revealed that the top 2 datacenter initiatives organizations are focused on are implementing datacenter infrastructure management solutions and replacing existing datacenter infrastructure with cloud (see Figure 2). Drivers for cloud migration center on streamlining datacenter operational costs, efficiency, and management. Infusing resilient and scalable environments empowers organizations with capacity and flexibility to address evolving business needs at a moment's notice. Such versatility and reliability not only help empower business agility but also mitigate organizational risk.
- **Application portfolios are expanding to enable business agility.** As part of enabling application and datacenter imperatives, organizations show intentions to increase their application portfolio size by nearly 40% (see Figure 3). Drivers for this substantial growth include supporting business process gaps, driving end-to-end processes more effectively, and enhancing flexibility and agility by adopting cloud-based applications and decomposing monolithic applications into microservices and containers.
- **The application portfolio mix is shifting.** IDC's December 2018 *Application Services Survey* revealed that organizations have about 39% of their application portfolio base hosted on cloud today. Organizations anticipate that they'll have more than 50% of their application portfolio hosted on cloud in five years (see Figure 4). Drivers for the shift in portfolio constitution center on creating greater flexibility and versatility for application management as well as simplifying IT capital expenditure requirements for application environment management.
- **Multicloud environments have emerged as the default.** IDC's *IaaSView Survey* and IDC's *Cloud and AI Adoption Survey* showed that organizations are using multiple hosting environments for their application portfolio today and also are using multiple public clouds as part of their hosting strategies. Organizations indicated that 64% of their applications are in a private or public cloud (see Figure 5), while 62% of organizations use multiple public clouds (see Figure 6). What this means is that while a wide range of application hosting environments can help create flexibility for application management, a more diverse hosting environment can also create increased complexities and risks for application integration and interoperability.

FIGURE 1

Application Initiatives

Q. Which two of the following application initiatives would your company most likely pursue in the next 24 months to accomplish its application goals?



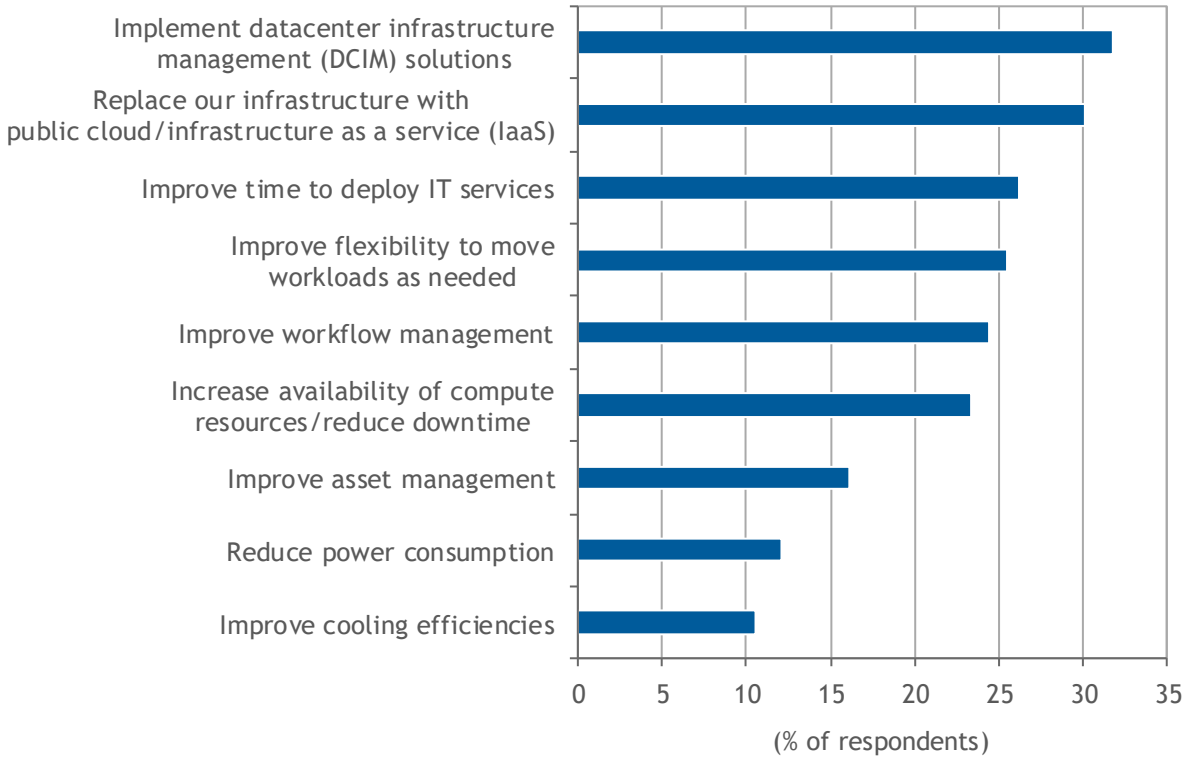
n = 1,500

Source: IDC's *Managed CloudView Survey,* August 2018

FIGURE 2

Datacenter Initiatives

Q. *Please select the two most important initiatives regarding your organization's datacenter infrastructure (e.g., facilities, servers, storage, network) that you would most likely pursue over the next 24 months.*



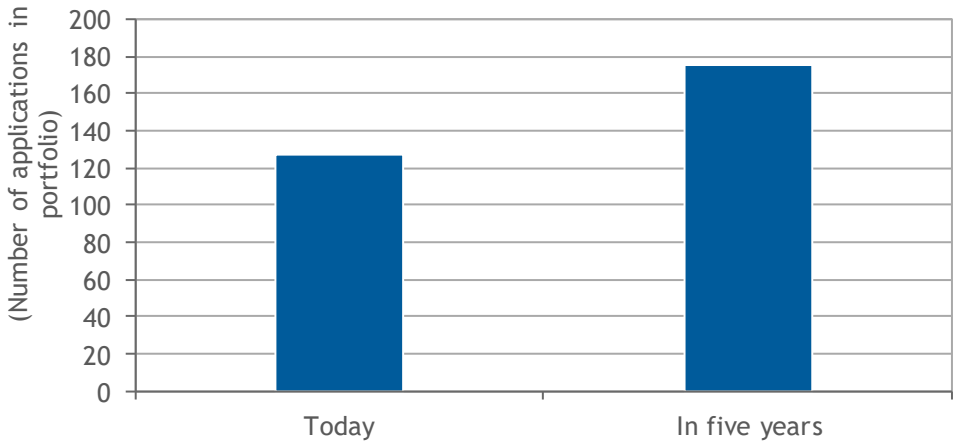
n = 1,500

Source: IDC's *Managed CloudView Survey,* August 2018

FIGURE 3

Application Portfolio Management

Q. *Approximately, how many "distinct/unique" business applications (not instances) does your company have worldwide today, and how many do you estimate it will have in five years?*



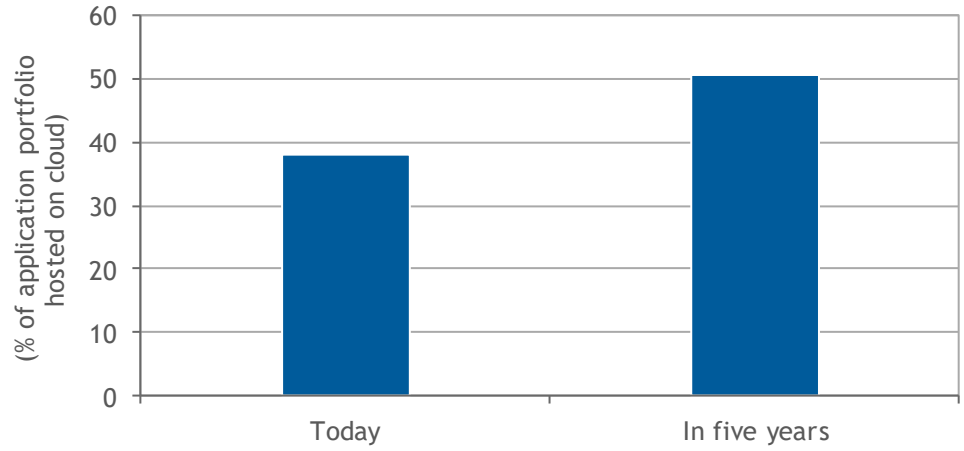
n = 501

Source: IDC's *Application Services Survey,* December 2018

FIGURE 4

Application Portfolio — Native Cloud Constitution

Q. *What percentage of your organization's application portfolio would you estimate is hosted on cloud today (i.e., AWS, Microsoft Azure, Google, Salesforce, Workday, private cloud, hybrid cloud), and what would you estimate that percentage to be in five years?*



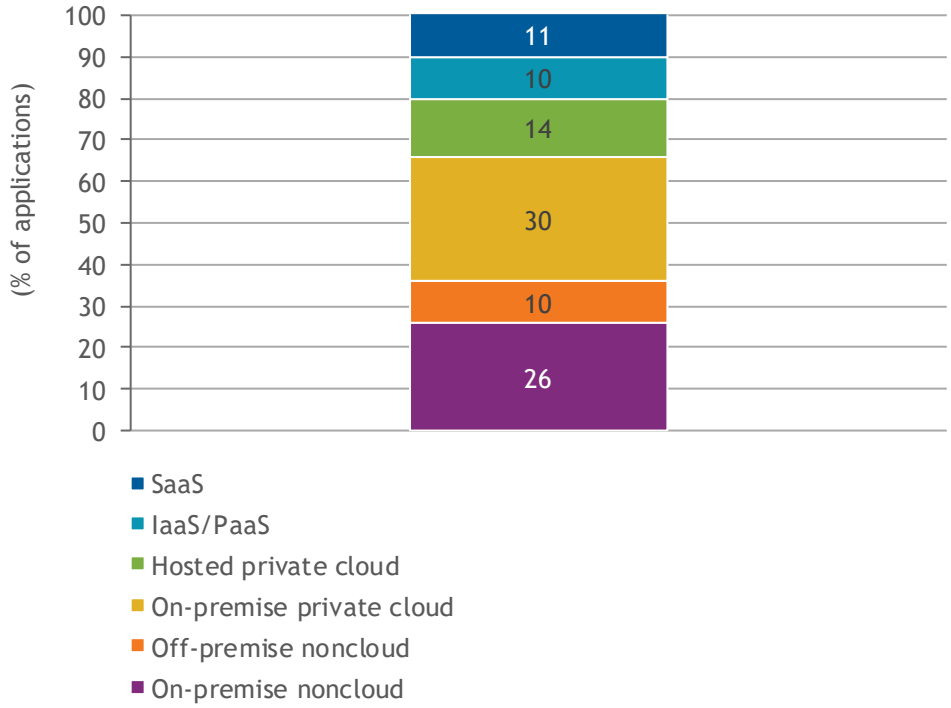
n = 501

Source: IDC's *Application Services Survey,* December 2018

FIGURE 5

Application Hosting Environment Constitution

Q. *What percent of your organization's applications are currently deployed in the following venues?*



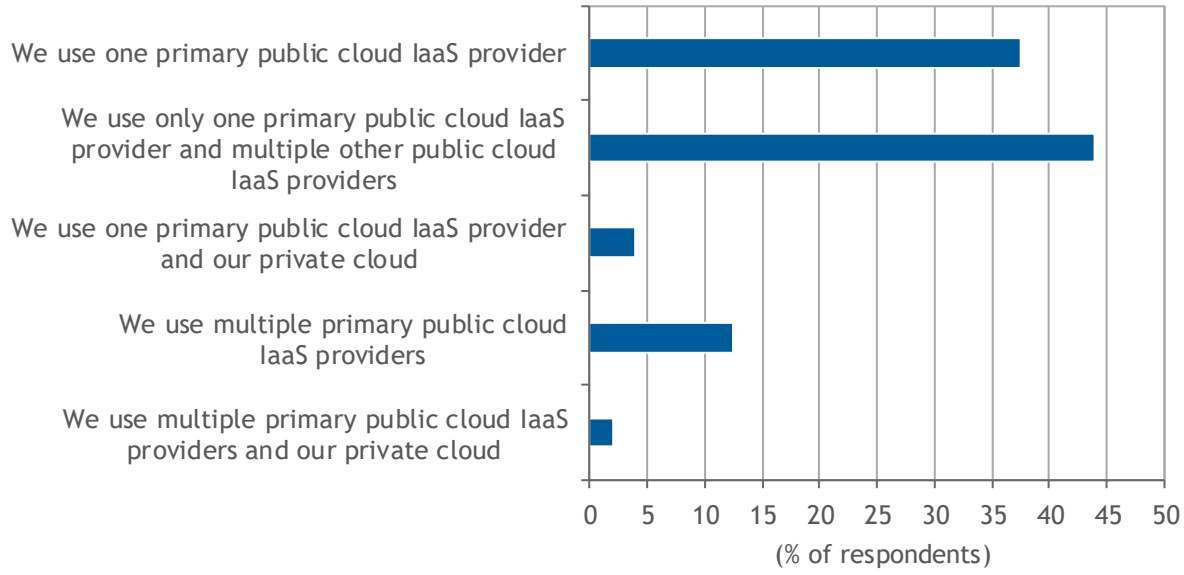
n = 400

Source: IDC's *Cloud and AI Adoption Survey,* January 2018

FIGURE 6

Use of Multicloud

Q. How do you characterize your company's approach to using public cloud IaaS services?



n = 1,134

Source: IDC's *IaaSView Survey,* May 2018

Beware of Cloud Migration and Application Modernization Pitfalls

Organizations are expanding their application portfolios and transforming their datacenters to help fulfill corporate objectives and enable agility. This portfolio growth is also linked to providing and extending functionality and business process support to levels not available in existing application portfolios. While increasing application portfolio size and transforming datacenter environments to multicloud can help facilitate and achieve corporate and IT imperatives, organizations can face pitfalls. Key challenges that can surface with cloud migration include the following:

- **Not realizing the complexity and risks of application portfolio management.** With application portfolios growing, integration levels tend to increase, and because of higher levels of integration, greater complexity among interconnected and disparate applications can surface. Lifting and shifting applications from on-premise hosting environments to cloud environments can compromise existing application integration. As a result, both applications that have been shifted and applications that have not been shifted may no longer work. Failing to understand the depth of dependencies between applications can undermine cloud migration objectives and cause business disruption.
- **Neglecting focus on IT culture transformation.** A common pitfall that organizations encounter with application modernization and cloud migration is approaching migration and modernization as simply an IT exercise and not spending time, energy, and leadership on the culture change management that needs to take place as part of migration and modernization efforts. Organizational structures, business processes, and skills all need to evolve as organizations migrate to the cloud and modernize their applications. Focusing energies on technical tasks in migration and modernization efforts and not on cultural transformation leads to failure.

Three Pillars That Maximize Migration and Modernization Success

IDC believes migration to the cloud is more than a technical upgrade. Organizations need to combine strategy, execution, and cultural change management to ensure risk mitigation and value generation for modernization and migration. Organizations should frame their approach around three pillars to maximize the success and value of a cloud migration or application transformation:

1. Define a fortified strategy
2. Partner up to avert dangers and drive successes fast
3. Take calculated risks through an iterative and disciplined approach

Define a Fortified Strategy

- **Define data-informed and incremental goals.** One incremental goal should be to determine what it means to become an agile organization, not simply to implement an agile software development process. Becoming an agile business is central to capturing the type of innovation that is possible using the cloud.
- **Identify the business outcomes desired.** While modernization and migration efforts are largely focused on technical transformation of datacenters and applications, value focus should center on how the migration and modernization efforts will create, yield, and improve business outcomes. If migration and modernization are anticipated to help IT with increasing flexibility and speed, link how the benefits impact business capabilities such as reducing the costs to serve clients, enhancing sales conversions, improving customer service and satisfaction, or speeding up business productivity.
- **Develop a blueprint for business success.** Align economic interests by ensuring your desired business outcomes are equally desired by your cloud service providers. Time and materials or fixed price contracts often end with a mismatch of expectations between the value received and the fees paid, but not all clients are willing or able to articulate the IT or business outcomes that should form the basis of cloud service contracts. Yet most customers and prospects appreciate negotiating controllable risks, costs, and activity drivers with knowledgeable service providers that are willing to contract for services rendered based on achieving specific outcomes. This type of alignment is at the heart of helping create a more effective business.

Partner Up to Avert Dangers and Drive Successes Fast

Organizations frequently look for third-party assistance with the types of cloud migration and application transformation described previously to add skills and mitigate risk. To this end, IDC has found that selection criteria vary depending on technical initiative, existing relationships, and constraints. Nevertheless, organizations can find the right partner for application modernization and cloud migration if they:

- **Consider three tiers of criteria for application modernization services provider selection.** An IDC MarketScape on application modernization services providers revealed that organizations utilize a variety of criteria to select an application modernization provider. Across 23 organizations that IDC interviewed, service provider selection was based on three tiers of criteria that IDC believes help organizations find the right partner. IDC found that tier 1 represented factors where a strong majority (60% or more) of organizations focused on capabilities, experience, and cultural fit as top criteria; tier 2 represented factors where 10–30% of organizations focused on areas such as pricing, scalability, vendor viability, and thought leadership; and tier 3 represented factors where less than 10% of organizations focused on criteria such as security, development methodology, partnerships, and intellectual property.

- **Focus on the quality of the delivery team and insights it provides for cloud migration.** In 2018, when IDC asked buyers of cloud professional services what characteristics they deem most important for an engagement to be successful, the top response was, "provide an appropriate and high-quality team for the project." This suggests that buyers' demand for cloud professional services may be outstripping buyer organizations' internal supply of qualified talent. Next in order of priorities, providing technical insights and competence beat out providing functional insights and competence as a success criterion; providing industry insights and competence has consistently ranked lower than providing technical and functional competencies since 2014, but it has increasingly grown in importance since then.

Take Calculated Risks Through an Iterative and Disciplined Approach

- **Employ iterative methodologies, and lead initiatives from the business.** Leverage a multidisciplinary approach led by the business with heavy involvement from the office of the CIO. Utilize agile and DevOps methodologies to develop quick wins and establish a foundation for scale. Agile and DevOps methodologies consist of practices and values that introduce change incrementally. The philosophy focuses on iterating activities to simplify change management and improve collaboration among participants. In addition, consolidating IT assets into smaller components (such as microservices and containers) helps facilitate the mindset shift that DevOps and agile require. Moreover, cloud migration and application modernization require significant coordination across various IT disciplines. Utilizing more progressive approaches combined with interdisciplinary squads across infrastructure, applications, and database personnel can help IT delivery teams recover quickly from mistakes and setbacks and help reduce risks.
- **Seek to leverage automation and throttle output higher.** Tooling to automate and speed up simple and repetitive migration processes and de-risking the more complex processes are keys for migration and modernization. IDC has found that many organizations struggle after they get to the cloud, when they realize that more frequent software releases and testing are required to stay current. Manual, more labor-centric approaches will hinder an organization's ability to be agile and will make it harder to generate performance and results. The likelihood of manual error increases, especially in diverse, geographically dispersed teams. Automation, conversely, helps drive standardization and quality and is part of what it takes to be an agile organization that innovates on the cloud.
- **Focus more energy on integration and testing.** Other areas that require more automation are integration and acceptance testing related to the more frequent software releases observed when using the cloud delivery model. While cloud applications can be easier in some technical ways to configure and to roll out, the "classic challenges" of integration, testing, training, and change management do not go away. Software is software whether it's delivered on-premise or via a cloud model. In fact, many cloud vendors release three or four software versions a year, significantly multiplying the testing load compared with annual or biannual cycles for some on-premise software upgrades. Plan for an increased tempo for all types of testing activities, and investigate ways to increase your level of sophistication around cloud-based methods and tools as well as test automation.
- **Use an immersive approach to transform IT culture.** To overcome cultural challenges that can surface with cloud migration and modernization efforts, organizations need to change the way teams work and how they're structured. Traditional approaches to application environment management and application life-cycle management can come up short in driving successful migration and modernization because end-to-end ownership and accountability are spread across business units and not condensed across teams that own the end-to-end life cycle. As such, organizations need to restructure their team alignment across disciplines and use immersive approaches, such as paired development and test-driven development, to help team members get accustomed to working differently.

IBM's Solution

Overview of Offering

IBM believes that modernizing applications and migrating to a hybrid multicloud platform accelerate cloud-enabled transformation (or digital reinvention). IBM provides an end-to-end services approach to meet clients wherever they are on their cloud journey. The offering consists of a sharpened focus on industries that combine industry-specific cloud solutions with horizontal cloud capabilities, along with an open, secure, flexible, and repeatable method to cloud application migration and modernization. The journey to the cloud involves multiple activities creating a continuum in which workloads progress through:

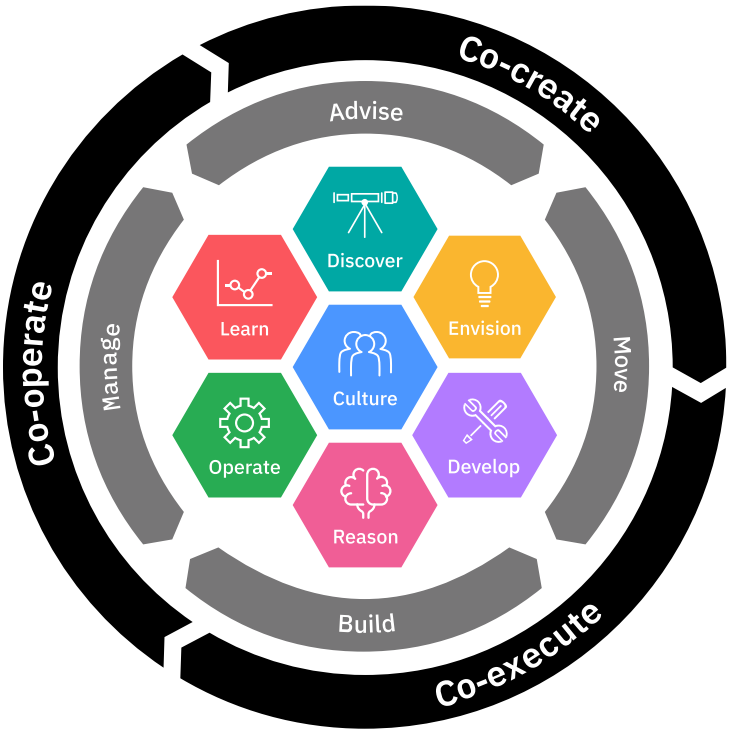
- Planning and designing common foundational infrastructure services
- Using pattern- and template-based automated deployments for public clouds
- Migrating workloads to cloud of choice through a standardized, repeatable, tool-driven framework
- Monitoring and managing workloads using standardized integrated toolchains and processes aligned with cloud platforms
- Governing, tracking, managing, and optimizing cloud usage and spend
- Leveraging IBM Migration Factory

IBM Garage Method for Cloud

IBM Garage Method for Cloud is an end-to-end methodology for cloud-enabled enterprise transformation. Utilizing lessons learned through hundreds of client engagements spanning more than 15 years, IBM Garage Method for Cloud covers the full strategy-to-operate life cycle, as well as the entire business solution architectural stack of process, to application, to platform, across multiple clouds. It systematically establishes a cloud transformation life cycle and typical transformation execution patterns through six major demand profiles, from *advise* to *operate* on cloud. IBM Garage Method for Cloud underpins IBM Cloud Migration Factory, which is IBM's differentiated solutioning and delivery capability. It helps clients transform to cloud in a predictable, speedy, and efficient manner. IBM Garage Method for Cloud is based on seven key elements: discovering your organization's ability to change and cloud transformation risks, innovating through design thinking, developing quality solutions through automation and collaboration, applying artificial intelligence (AI) techniques to improve decision making and reasoning, learning from customers and data to inform and empower decision making, harnessing the full power of cloud through operations automation, and building a high-performance culture (see Figure 7).

FIGURE 7

IBM Garage Method for Cloud Framework



Source: IBM, 2019

Cloud Application Migration

IBM enables non-mainframe-based applications to run on modern cloud platforms and redeploys them to a target hybrid multicloud platform (private or public cloud, provided by one or more vendors). IBM Garage Method for Cloud includes the use of tools such as IBM SCOPE+ and IBM Cloud Transformation Toolkit (ICTT) to ingest discovery data and run analytics to develop migration plans. Migrating applications to modern cloud platforms generally consists of:

- Enabling them to run on current and supported operating platforms, middleware, and databases
- Redeploying them to a target cloud using a deployment pattern providing targeted performance

Application workloads are individually analyzed and migration patterns are selected/created based on agreed-upon rules. Where needed, applications are refactored and new deployment patterns are created. Extensive testing is essential to minimize disruptions to the business. IBM Cloud Migration Factory helps clients by breaking down complexity into predefined delivery patterns of application, application sets, and associated servers for migration to target cloud platform, thus providing a predictable and repeatable framework.

Cloud Application Modernization

Application modernization enables legacy applications (running on Windows, Linux, Unix, IBM AS/400, and mainframe) to run on modern cloud operating platforms and take advantage of cloud technologies including microservices, APIs, and serverless computing. According to *IDC FutureScape: Worldwide Cloud 2018 Predictions* (IDC #US42014717, October 2017), "By 2021, 80% of application development using PaaS will include microservices and cloud functions."

Select applications have to be modernized (replatformed, re-architected, and/or rebuilt) before migration to the cloud. Modernization is necessary in situations where:

- Dated application or application platform technology prevents reconfiguration or refactoring
- Monolithic applications have become challenging to maintain, support, and enhance
- Applications need to be API enabled to support communication with core business applications

Organizational change and cultural transformation are necessary for application modernization, which aims to transform not only the technical aspects of an application but also the method and practices used to deliver new features and to operate the modernized application. Modern application architectural styles such as microservices enable teams to work together more efficiently, resulting in greater deployment frequency, lower change failure rates, faster mean time to recover, and shorter lead time for new enhancements.

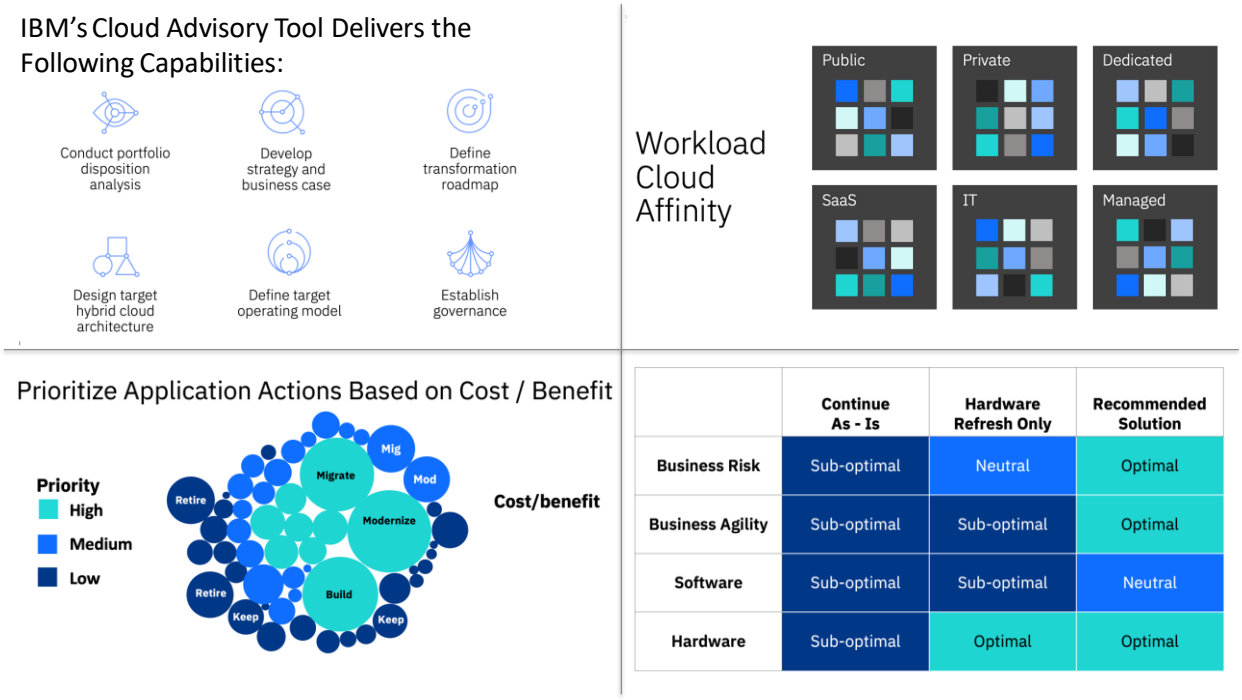
Applications are reviewed in detail, applicable modernization patterns and tools are selected, detailed plans are developed, and then the plans are executed by experienced teams working in a factory model or in a collocated joint client/IBM squad model to generate sustained cultural change. In-depth analysis of applications at the code level reveals application dependencies and the level of remediation needed. The results of this analysis along with any new business requirements can be used by the team to develop a detailed design of the modernized application. This is followed by required code conversion, remediation, and/or new development.

IBM's Offering Differentiation Is Speed

Through IBM's tools, techniques, and services personnel, clients can speed up their cloud migration and application modernization initiatives by 25%. The process starts with ingesting available application and infrastructure portfolio data into IBM's analytical tool, Cloud Advisory Tool. These data sets can be further enriched using automated data collection tools and automated surveys. The complete set of data is then analyzed using a pattern-matching engine to generate application disposition options, which are analyzed by experts working with the client's business and IT functions to define a target state, disposition plan, business case, and road maps. IBM has successfully used the same models, at large and small scales, to map " anywhere to anywhere " changes. Figure 8 depicts how IBM Cloud Advisory Tool ingests relevant information on the application portfolio (technical, financial, and operational) and uses a rules-based engine to provide migration, modernization, and rationalization recommendations for each application along with reduced costs.

FIGURE 8

IBM Cloud Advisory Tool Differentiates IBM Garage Method for Cloud



Source: IBM, 2019

Value Proposition

The value of IBM's cloud application migration and modernization services centers on minimized risks, speed of transformation, and flexibility. Migration and modernization methods that IBM utilizes are fit for purpose to optimize effort/reward. Complex applications and databases are migrated quickly, economically, and with minimum downtime and business disruption. In addition, there is a high level of confidence in consistently reaching target outcomes using predefined patterns, automated tooling, and established teams in a factory model. Modernized applications take full advantage of cloud capabilities, and IBM's cloud application modernization services also address organizational/cultural change resulting in high-performing software delivery teams.

Cloud Migration and Application Modernization Case Studies

IDC interviewed three organizations to understand the backgrounds and results of their cloud migration and application modernization initiatives. We sought to learn their firsthand experiences with charting a cloud migration and application modernization strategy, how they approached project implementation, and what they're doing to operate their cloud migration and application modernization initiatives moving forward. Through the interviews, IDC found that migration and modernization objectives centered on meeting corporate digital transformation imperatives, improving customer intimacy and loyalty, and driving economic development. Conversely, we also found that key challenges – such as not focusing enough attention on implementation communication, underestimating time and resources spent on cultural transformation, and following a uniform

approach for application migration — can lead to lackluster results. IDC also found that successful initiatives require best practices in change management. Ensuring top management support and building effective governance structures and processes to control and guide transformation direction were critical for success. When cloud migration and application modernization initiatives are managed effectively, organizations can reap the benefits of optimizing cash on technology spend to boost business performance, improving responsiveness to customer needs and demands, and simplifying future datacenter maintenance activities.

Swire Beverages Limited

Swire Beverages Limited had run into challenges with rapidly and easily assimilating new acquisitions into its corporate umbrella and integrating new territories as part of its business in a timely fashion. From an IT standpoint, acquisition of new organizations and territories stressed the organization's ability to scale and flexibly meet customer demands. Nearly 90% of the company's datacenter infrastructure had become obsolete, and the organization was hesitant to refresh its infrastructure assets through large capital investments that might take more than five years to pay back. Because of the rapid rate of territory acquisitions and complexity of territory integration, Swire needed a technology backbone that enabled the business to scale quickly and was flexible to changing business conditions.

Swire engaged IBM to help manage the cloud migration and application migration effort and guide the company through transformation. IBM had a previous relationship with Swire. The provider had helped Swire with its SAP implementation, and its inside knowledge around Swire's application portfolio landscape and IT environments made IBM a strong fit to help Swire migrate its application portfolio as well as transform Swire's datacenters to cloud.

IBM helped Swire build a 14-month cloud migration and application modernization plan that consisted of two major phases. Through the migration, IBM helped Swire not only manage and serve as the testing services provider for the initiative but also coordinate and manage AWS technologies and professional services as part of the transformation effort.

After six months, Swire completed the first phase of its cloud migration by transforming its datacenter to cloud and moving 70% of its targeted applications to the cloud. Nearly seven months later, Swire completed its second phase, where it had moved its sales force automation function — which supports roughly 10,000 sales personnel — to the cloud. Key benefits that Swire was quick to realize included optimizing utility of its infrastructure assets — which helped eliminate costs for unused datacenter capacity that Swire experienced in the past — and creating the autoscaling and flexibility the firm needed to enable increased response times for sales personnel to more quickly and accurately fulfill customer demands. A by-product of Swire's decision to undertake cloud migration and application modernization also helped the firm simplify its overall datacenter maintenance.

Having established a solid platform for future expansion, Swire is focused on the next steps, including driving digital transformation further throughout other geographic regions of the organization. The first step in Swire's digital transformation has been completed, but Swire intends to expand its cloud datacenter platform to more territories in Asia to bolster the company's competitiveness and improve customer relationships.

T&I Innovation Center

T&I Innovation Center is a consortium of six regional banking institutions in Japan, known as the TSUBASA Alliance. The organization was formed in 2016 with the aim of helping the banking industry in Japan plan and develop new financial services offerings with a common IT platform that can spawn innovation. The TSUBASA Alliance, supported by IBM Japan, came together to develop a shared core banking system and technology that member banks and fintech firms could utilize to develop applications using a common platform. By using a common platform, banking organizations could better execute core operational activities and provide customers with enhanced banking experiences. In addition, this alliance is expanding its scope to other business aspects (i.e., international business, inheritance, and trusts), and it is a unique approach in the Japanese regional banking industry. T&I was established to expand this ecosystem to fintech firms, and it recognized that open APIs were critical for developing new digital financial services.

Key challenges for Japanese banks have traditionally centered on lacking an ability to improve and provide superior customer experience due to the high costs of deploying and integrating new technologies. New technology deployment and integration tended to increase operational costs and adversely affect the banks' business cash flow. The existing IT backbones that the banks had in place hindered their ability to service a wide range of varying customer needs and demands and hampered their ability to make in-process changes based on evolving business conditions.

Realizing that economic value could be improved across various banking institutions by improving customer experiences though updating core banking technologies, the TSUBASA Alliance began to shape a vision for a new technology backbone that could digitize banking operations and serve as a catalyst for future innovation in banking services. T&I sought assistance from a third-party service provider to help shape the vision as well as transform the vision into real change for the Japanese banking industry. The organization selected IBM from among a crowded field of services providers because of IBM's strategic approach to the problem, deep technical expertise (e.g., systems integration required for highly reliable and scalable systems), and ability to link IT solutions with business outcomes.

With IBM, T&I built what is called the TSUBASA FinTech Platform, an open banking API platform; likewise, T&I built an application and PaaS platform called the TSUBASA FinTech Service Contents Platform using container technology and IBM's private cloud. The open API platform, launched in April 2018, and the modern PaaS platform, launched in March 2019, have given T&I modern platforms that enable banks to enhance processes and outcomes with third-party providers. The platforms also have opened the door for banks to engage with and collaborate with fintech firms that can serve to spur new business opportunities with prospects that the banks previously have had difficulty reaching.

Lloyds Banking Group

In 2008, the global financial crisis created significant challenges for financial institutions seeking to upgrade their technology infrastructure. For many years leading up to 2008, Lloyds Banking Group had been running IT infrastructure and services for several U.K. banks using older infrastructure assets. Leading up to and during the financial crisis, Lloyds had been hard at work building out a new, on-premise datacenter infrastructure that was equipped with advanced technologies to better support its evolving business needs and drive higher levels of efficiency in IT operations. The financial crisis, however, spawned many new regulatory requirements that constrained Lloyds' ability to freely utilize working capital. Because new regulatory requirements limited Lloyds' ability to obtain capital, Lloyds had to stretch both its use of cash and the duration of its datacenter buildout. In 2014, when the new

datacenter project was completed, regulatory and business pressures forced Lloyds to evaluate alternatives to its on-premise datacenter and disaster recovery strategy. The up-front capital and shortened time-to-value requirements from regulators and Lloyds' business lines were too great to make further on-premise datacenter expansion work.

Because of these challenges, Lloyds explored alternatives to its on-premise datacenter strategy. Minimizing costs and increasing speed to market were key drivers in determining a new datacenter strategy and infrastructure solution that could not only address regulatory mandates but also empower Lloyds' core business functions to more flexibly and rapidly take advantage of new business opportunities and enhance customer loyalty. In 2015, Lloyds began evaluating a cloud strategy for its datacenter, and by 2017, its infrastructure solution approach evolved to a multicloud strategy.

Lloyds selected IBM to help build, strengthen, and execute its cloud strategy. IBM had been a large technology and service provider to Lloyds. Coupled with that, IBM possessed the right business knowledge and familiarity with Lloyds' applications and infrastructure landscape. IBM's private cloud offering, overall strategic fit, and previous relationship made the provider the right partner choice for Lloyds. IBM helped Lloyds develop a road map for its cloud datacenter and application migration plan, and in September 2018, Lloyds began moving applications to IBM's private cloud. In less than six months, Lloyds has been able to realize key benefits such as reduced datacenter operational costs and increased time to value for application development life-cycle activities. Moreover, the time needed to procure and provision new applications has been dramatically reduced, from what had traditionally taken up to 18 weeks to spinning up core images within hours for application development. The cost savings associated with this move are comparable to what other large organizations have experienced.

Use of IBM's private cloud and further progression toward multicloud will help Lloyds become leaner in its IT operations. The reduced costs of operations and reduced time for infrastructure setup will help Lloyds redirect IT resources to more value-added strategy work, as well as restructure its datacenter operations to be more cost efficient. Heading into 2020, Lloyds plans to move more of its application portfolio to private, public, and hybrid clouds based on application age, technical complexity, and integration requirements, and once the organization achieves critical mass with the cloud application migration, Lloyds expects that its business lines will begin to see the full benefits of business agility pass through.

Challenges and Opportunities

Organizations are increasingly leveraging partner ecosystems to aid them in managing their application portfolios and hosting environments so they can position internal resources to focus on activities other than IT and application management. As organizations lean more on partners to support and take over ownership of key application and hosting activities, service providers need to be aware of evolving market conditions and buyer preferences so that providers can be well suited to seize opportunities and extend relationships. Migration and modernization services providers should:

- **Prepare to share more risk.** IDC's deals analysis of application and outsourcing services contracts has shown that application and cloud services contractual agreements are evolving. Increasingly, buyers are demanding that providers share more risk in their relationships through different pricing models, such as fixed price and outcome-based services. As such, providers need to be well equipped to offer and provide services in a manner that clients expect to remain competitive.

- **Leverage relevant client references to bullhorn capabilities.** A key finding of the IDC MarketScape on application modernization services was that buyer organizations tend to place significant importance on an application service provider's ability to provide relevant references. Through our interviews, we found that reference-ability was the top criterion organizations used to ultimately select an application modernization partner. As part of the interviews IDC conducted, buyer feedback on references revealed that providers that supplied references from industries similar to those of prospective buyers, with similar modernization challenges, stood out against other providers that had been short-listed. As such, application services providers should be prepared to leverage references that have high relevance to new prospects. The references should come from the same industries and have faced the same migration and modernization challenges. Sometimes, the right, relevant references can be the best outside sales reps for your application services.
- **Ensure flexibility of cloud options, including use of partnership ecosystems.** With agility being the top driver for using hybrid cloud services, enterprises will depend on service providers to offer not only a wide array of cloud options, from private and public, but also the flexibility of consuming cloud utilizing any resource. This will require that service providers maintain an agnostic approach by utilizing not just their own cloud resources but also those of technology (hardware and software) vendors and cloud service provider partners (e.g., AWS, Azure, Google, and Alibaba).

Summary and Conclusion

Cloud migration and application modernization help organizations unlock and expand agility. Through such initiatives, organizations are better positioned not only to achieve corporate imperatives but also to build sustainable competitive advantage through IT. IDC believes cloud migration and application modernization will continue to grow in importance over the next several years as organizations seek to drive higher levels of business value and business agility in their application portfolios. Because of this, IDC believes organizations should:

- **Define clear and measurable goals and objectives.** Outline specifically what cloud migration and application modernization will bring and will not bring to your organization's business. Use these goals and objectives as the anchoring foundation for how your organization intends to (and will) be successful across the various facets of application and datacenter management.
- **Revamp the governance and overarching performance measurement model.** The benefits of flexibility and agility come at a cost. Organizations can't simply build a solution and let it operate on its own, unmonitored. As organizations move to a multicloud model through their migration and modernization activities, they need to develop a uniform governance and oversight model to monitor performance and explore areas to tune agility higher. While the goal of migration is to enhance efficiencies and agility, organizations must still develop escalation paths and define measures of success to ensure cloud migration is providing and will continue to provide value. Having multiple hosting environments for the application portfolio can create varied layers of bureaucracy that can bog down an organization's ability to be agile. As such, organizations need to rethink and restructure how they manage their transformations as a going concern. Organizations should establish a set of resources that are responsible for guiding, directing, and managing the program, such as a steering or management committee, and ensure that the program has line-of-business representation, input, and buy-in.

- **Weigh trade-offs between providers that can be agnostic and offer an array of services.** A tricky part of selecting the right modernization and migration partner is avoiding any type of lock-in to ensure flexibility for potential future changes. In customer interviews IDC has conducted on the use of application service providers, organizations indicated that they have found the most prosperous relationships and business results with service providers that are flexible and adapt to buyer organization change versus providers that impose rigid, specific contractual agreements. While selecting a provider that is cloud agnostic has its advantages, buyer organizations generally have to manage multiple vendor relationships between the cloud provider and the application service provider, which can create complexity and elevate costs for multiple different service levels. Having a single provider that can offer its own cloud as well as provide application services simplifies service-level accountability but can create levels of lock-in. As a result, organizations need to carefully consider the trade-offs and make calculated decisions to fully understand the risks and depth of partnership that are part of the buyer and service provider relationship.

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

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com