Outperforming Businesses:
Realize 2.5-x value with a
hybrid cloud platform approach

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Introduction

Cloud computing has become an essential tool in the past several years. As businesses feel the urgency to dramatically speed their transformation, many are making plans in response to rapidly shifting markets and customer expectations. IT leaders are beginning to standardize around more agile cloud architectures and methods in order to rapidly deliver innovative applications and more easily manage data across silos. The combination of modern DevOps practices using microservices, containers and Kubernetes on cloud, for example, is enabling companies to build on a flexible framework that can support changing business models and automatically scale on demand. The need for more responsive architectures has only become more apparent in light of COVID-19. Businesses like retailers and restaurants have had to quickly develop ways to go beyond accepting phone and online orders to support curbside check in and pick up. Similarly, retail banking has had to support an overnight shift from walk-in branch services to nearly all-digital banking. Adapting to change on a scale of months to years is no longer acceptable – business must be positioned to change quickly, whatever the market context.

Cloud is widely accepted as fundamental to business agility. Meanwhile, new economic realities are forcing IT leaders to move more to cloud and provide access to more cloud services from more sources to meet immediate business demands. Even so, only about 20% of workloads are on cloud, and many critical apps and data remain in the data center in traditional IT. By necessity, many leaders changed their cloud ambitions from lift and shift, to a strategy that accommodates hybrid and multicloud environments and the mix of public clouds, private clouds, and IT that are increasingly the norm. Each business has a unique approach to a distributed and hybrid environment. For example, one business may be impacted by an acquisition or changing performance or compliance and security factors. As such, today's IT leaders have the task of bringing together the moving parts to create seamless and predictable environments, while managing costs and ensuring control.

This need for greater agility without sacrificing control is ushering a new phase of computing -- the industrialization of cloud. IT leaders are in a position to plan the remaining 80% of their cloud journey in a way that best addresses their unique business and workload requirements. Some workloads will be best suited to public cloud or Software as a Services (SaaS), others to private cloud or bare metal, and still others will be modernized using containers and microservices on prem. All of this will require industrialization of not only cloud, but also cloud as a living system – the tools, processes and skills used to build, integrate, modernize, secure and manage all of it.

Cloud computing is no longer simply a convenient source of compute or storage resources. Organizations that view the cloud as a platform for experimentation or cheap compute will be left behind. We are entering an era defined by the industrialization of computing across hybrid multicloud architectures.

IT leaders are adopting hybrid cloud to accommodate varied workload requirements.

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In this paper we will explore how organizations across a spectrum of maturity levels, with a varied mix of cloud models, vendors, tools and IT, are industrializing to drive greater agility, innovation, and scalability. The research highlighted in this paper was commissioned by IBM and includes feedback from IT leaders across a range of leading enterprises and industries.

Cloud is not a destination, it's a continuum

It is easy to assume that simply moving workloads to a cloud will solve many of the complex problems of distributed computing. The reality is more complex. IBM commissioned a study of 30 leading organizations that have implemented a broad range of cloud initiatives, using a mix of clouds, vendors and tools. These businesses represent a cross section of horizontal and vertical industries. The common denominator between study participants was that organizations were on a journey to cloud adoption and were looking to optimize that journey to meet their unique business and technology requirements.

Key research findings

In analyzing the customer research, there are three key findings that exemplify the value of the hybrid cloud to businesses.

1. Organizations were engaged in a concerted effort to move the majority of their mission critical workloads to cloud – increasingly in hybrid deployments.

2. Beyond simply developing apps on cloud, or shifting workloads to cloud, businesses were increasingly looking to adopt cloud-native architectures and agile DevoOps methods.

3. The value realized from cloud initiatives increased as they industrialized processes, skills and tools beyond silos, and adopted a more holistic platform approach.

Exploring the key findings:

Key finding: *Organizations were engaged in a concerted effort to move the majority of their mission critical workloads to cloud – increasingly in hybrid deployments.*

For most enterprises, the initial goal was to move as many workloads and as much data to public cloud as possible. But for organizations, the workload requirements, and the complexities and hurdles of a 100% public approach were not cost effective. Common issues that arose from an "all in" public cloud approach range from determining ROI and predictably estimating costs, to having the tools necessary to modernize applications. Instead, what became clear to these businesses that they needed a hybrid approach, using public cloud services in combination with traditional IT on premises or private cloud with the right balance to achieve desired goals in the near term. This hybrid approach also allowed these organizations to develop a modernization roadmap

Open standards, such as containers and kubernetes, allow for greater deployment flexibility.

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to move more to cloud today while still having the ability effectively and incrementally to move to public cloud later.

What do we mean by hybrid cloud and why is it so important? When looking broadly at deployments in the study, hybrid cloud could be defined as an approach to cloud that enabled a business to select the right mix of services residing on the most appropriate platforms and location to support workloads. In effect the hybrid cloud is the definition of distributed computing that businesses have been trying to achieve for decades. Typically, business units have adopted cloud services with a variety of public, private and data center applications and services. This approach has proved to be the most pragmatic way to move forward and is the foundation for what is known as the hybrid cloud.

Key finding: *Rather than simply moving existing applications to the cloud, businesses are increasingly looking to adopt cloud-native architectures and agile DevOps methods.*

The road to cloud was not just about moving more workloads to cloud. Most organizations realized that traditional approaches to developing and deploying applications were not adequate. They needed to move beyond traditional waterfall development practices with releases once a year, to agile DevOps that enabled continuous innovation and delivery. This meant not only modernizing processes, but also updating architectures.

Respondents in the study were consistently moving beyond cloud experimentation and adopting cloud native architectures, such as microservices and serverless computing to develop and deploy code in a flexible fashion. These business leaders were also adopting open-source technology across their technology stacks. For example, Linux is being used to create a common operating system across clouds. In addition, businesses are leveraging Kubernetes to encapsulate microservices and enable portability across environments. Aside from reducing vendor lock in, respondents emphasized the value of open source to get to market faster with contributions from an open source community. Further, they were looking to adopt these not only for net new applications, but to modernize existing applications. Together the use of cloud-native architectures and methods translate into faster time to market for new applications and more frequent delivery of new capabilities.

Key finding: *Organizations determined that the value from cloud initiatives increased as their business units' industrialized processes, updated skills and added tools that could operate across silos. This approach to cloud adoption has resulted in a more holistic platform approach.*

The survey demonstrated that most organizations did not have a single unified approach to cloud adoption. While most organizations had a short list of preferred cloud vendors, others are focused on standardizing on a single public cloud platform. Some companies, because of preferences of various business units, are embracing a multicloud strategy. For example, development teams

Businesses adopting cloud-native architectures and agile DevOps are realizing faster time to market.

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were often distributed globally, and selected different public clouds based on the preference or experience with a vendor. In other cases, additional clouds were added as a result of acquisitions. Sometimes, the choice of SaaS platform dictated the native public cloud environment. The reality is that most businesses did not have a singular public or private cloud, even when they had a preferred or single cloud strategy. As a result, on an enterprise-wide scale, environments were often, not only hybrid, but also multicloud in nature.

Research consistently demonstrates that a hybrid approach can be far more beneficial in terms of agility and pragmatism. But for a hybrid cloud to be more than a buzzword it must be able to adapt to the changing needs of the organization. To make affordable the hybrid cloud must provide a sophisticated level of integration and manageability. By industrializing the hybrid cloud, businesses have proven that they were able to achieve greater economies of scale across a variety of fronts – from people skills and productivity, to reductions in CapEx and licensing, to process efficiency and avoidance of lock in.

There are two leading approaches to hybrid cloud: single vendor and multivendor.

Best practices and lessons learned:
Gaining higher value from public cloud, with a hybrid multicloud platform

The ability for organizations to leverage cloud as an approach to accelerate innovation depends on the maturity of the business's experience with cloud computing. While the public cloud is the standard for speed, offering instant access to a range of cloud services and innovations, it does not exist in a vacuum. To gain more value from public cloud, you must be pragmatic in order to both deal with your current environment and prepare for what is coming over the coming decade. In other words, to be effective, your approach to cloud must be both hybrid and multicloud by design. The study indicated a continuum of platform maturity. More mature businesses are beginning to define a consistent cloud native approach to developing, deploying and managing applications and data across hybrid and multicloud environments and realizing more value in the process – on average 2.5 times the value.

Open source and open standards are the most important approaches helping businesses to provide consistency regardless of the cloud platform or the mix of infrastructure choices. For example, the consensus among the businesses included in the study is that transforming existing IP into containers is a critical first step in transforming the operational model. Containers enable organizations to incrementally transform existing enterprise applications by allowing them to segment off pieces of the application to prioritize for modernization. In this way developers can containerize functions on traditional infrastructure or private cloud. Likewise, developers can use public cloud services to extend those applications and deliver new capabilities quickly. Most of the business leaders interviewed standardized on Linux because of its support for cloud native technologies such as containers. Container adoption, by necessity is driving adoption of Kubernetes for orchestration. The most mature businesses adopted a cloud platform that is designed to support containers and Kubernetes, as well as integration, security and compliance across mixed, hybrid and multicloud environments. IBM has followed this principle with the adoption

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of Red Hat OpenShift as a foundation for IBM public and private clouds as well as implementation of IBM Cloud Paks. IBM Cloud Paks are a family of offerings that provide an integrated set of AI-infused software solutions for building and managing hybrid clouds, applications and data.

The research indicates that organizations that adopted a consistent platform approach to cloud computing were able to reduce the time it takes from the ideation stage to a full-scale production service by 80% (a reduction from 20 months to only 4 months). This is a dramatic finding. In addition, developers are able to focus their time on value-add activities by adopting DevOps and Agile methodologies and a cloud platform approach. One key value is enabling developers to design applications on whatever cloud they prefer without having to change to a different set of tools native to each cloud. The research showed that the typical traditional developers spend 70% of their time on overhead, while those adopting a consistent platform approach were able to flip the equation – spending 70% of their time on development. The end result is that developer productivity drastically improves and the business able to innovate more quickly.

A consistent approach across vendor clouds and IT can deliver up to 2.5x more value than siloed approaches.

The journey to agile, cloud native development

The world of computing is being transformed as organizations move to the industrialization of the cloud. There are a number of best practices and requirements to ensure that the business can effectively create a roadmap for the next stage of computing. What does it mean to create a roadmap that will enable an organization to have the flexibility and agility to innovate, as customer needs change?

You must think about your current development and delivery processes and culture. Is your development team ready to move from monolithic development and waterfall development to agile DevOps practices? Do they have a tools and skills needed to build or modernize using new architectures like containers and microservices? Do you have the right processes and collaboration across development, operations and security teams to manage workloads across a variety of cloud platforms?

As your organization begins to use a variety of hosted platforms, managed services, and public clouds, will you have a consistent and predictable way to develop and manage a variety of enterprise services.

Creating a plan for moving your apps based on factors that support customers

There some a number of considerations that successful businesses adopt when creating a modernization plan. There are key questions that you will want to answer including:

• How critical is the application to your business success?

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- Does the application meet the needs/expectations of your business and clients?

- How long does it take to deliver new functionality/features?

- How can you deliver value, faster – e.g. containerization and modernization of specific components of the app?

- Does the application properly solve the challenge it's designed to solve?

- Are the application users happy with the user interface and functionality, or are they simply using the application because there is little choice?

- Will the application continue to perform as you shift your approach to the cloud?

- Does your environment adhere to governance and security requirements, and are you prepared to adapt to changing regulations?

A hybrid platform approach allows for up to 66% more applications modernized than with public cloud alone.

Preparing for adaptability

The closer you get to a consistent approach across those hybrid multicloud environments and across teams the greater the benefits. Moving from status quo to a flexible environment built for adaptability requires planning, foresight and an understanding of your employees, customers, and changing markets. Creating this multicloud computing environment will give your organizations the ability to realize the following five benefits:

1. Support business acceleration so that your organization can quickly react to emerging competition and changing business conditions

2. Increase developer productivity so that development teams can focus their time solving challenging problems rather than on overhead

3. Increasing infrastructure efficiency so that the business can reduce downtime and utilize the best infrastructure that meets workload requirements

4. Improve your approach to regulation, compliance and security challenges so that teams have visibility across your environment and can easily enforce policies

5. Create strategic optionality by utilizing open source technologies and adhering to open standards so that you aren't tied to a single vendor

Taking action to move to industrialized cloud

It is imperative that you educate your management team and key influencers in the organization about the benefits of this significant transformation. Your strategy needs to be based on a combination of demonstrating the cost effectiveness of a hybrid platform approach combined with a transformative amount of flexibility that can help you keep up with unanticipated market changes. In this section we will demonstrate the rationale for making changing that will put your business on the path to true industrial computing.

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Create flexibility and choice to manage containerized workloads across your entire environment.

Making the transition from a rigid computing environment to one that is flexible and adaptable to support business change can be a huge challenge for companies. Most organizations do not have the luxury of abandoning their IP that is managed within the data center in aging applications. While it would be optimal to simply rewrite these applications immediately as cloud native services, this often takes longer than anticipated. Research indicates that a business can be effective in incrementally moving key services from an inflexible application to a modular set of services taking advantage of containerization and a conversion to microservices. Businesses need to evaluate their portfolio of applications and determine which ones are holding the company back and should be decommissioned. Other applications have key services and important data, algorithms and processes that need to be brought forward. Research indicates that businesses often spend more than half of annual budgets on outdated and ineffective infrastructure and supporting applications. The path of least resistance is to leave these out-dated applications in place without change. However, this inaction often comes delays how quickly it can come to market and carries significant opportunity and administrative costs.

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CASE STUDY:

How a Large Enterprise is Achieving 2.5x in Value with IBM's Hybrid Multicloud Platform

This case study represents a composite of a number of companies that participated in the study. All of the technical and business outcomes are direct results from study participants. Because of the diverse array of infrastructure on and off premises, global regulatory and security requirements, as well as digital and traditional business models, we have chosen to demonstrate how a large financial services company has leveraged a hybrid multicloud environment to meet their changing business objectives.

An international banking corporation had begun their journey to the cloud five years ago. Like many organizations, the company was first focused on consumer-driven innovation. This focus meant that mobile applications, and other customer-facing applications were moved to the public cloud.

The company's first move to the cloud was largely about decreasing costs, providing customers with web and mobile applications, and giving developers access to new tools. As more cloud-native FinTech startups emerged, the bank knew it needed to radically shift the organization's strategy. Business as usual was not sustainable. The company was already spending more than $1 billion a year on technology. The executive team created a cross-organizational task force that developed a transformation plan to move to an innovative cloud-based approach focused on reinventing the company's ability to transform the customer experience.

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The shift to enterprise-driven innovation and an industrialized cloud

As the bank reassessed their journey to the cloud, management established several top priorities, including:

- AI to speed insights or improve client experience
- Shifting mission critical to cloud to cut infrastructure and administrative costs
- Secure hybrid to optimize workloads in the right environment
- Open standards to foster faster innovation and to enable portability of workloads and data
- Move from experimentation on cloud to full scale production to get greater economies of scale

With the new ambitious strategy, cloud computing was no longer seen as simply an experiment. The new approach was based on a cloud-first foundation. As a result, all new projects were to be built on the cloud. Even traditionally mission-critical applications that were seen as data center only were moved to the cloud.

This shift to the cloud was not easy, and required buy-in from teams across the business. Management understood that it would cost money initially to implement the ambitious plan. There would be no short-term savings. Therefore, corporate leadership had to educate the board of directors and key stakeholders about the timeline and progression of the plan. This process meant that everyone understood the timeline for the project and the resulting benefits. As the project was underway, the cost savings and the potential for significant business agility came into focus.

The bank went through an extensive RFP process with major cloud and technology vendors and selected IBM because of the company's industry knowledge, adherence to standards, use of open technologies, and ability to manage data and applications across a complex hybrid multicloud environment. To satisfy performance, compliance and security requirements, the company selected a number of different cloud platforms, including public cloud infrastructure, applications built on top of SaaS platforms, bare metal cloud instances, and dedicated cloud instances with no shared infrastructure for highly secure data and applications. This use of multiple cloud platforms meant that the businesses needed management tools that could view, control and set compliance rules no matter where data and workloads reside.

The cloud journey to business value

The bank's journey was not linear. Part of the findings in their analysis that resulted in the new strategy indicated that the business was only realizing about 20% of the cloud's potential value. As shown at the far left side of Figure 1, the IT organization began its journey with greenfield, cloud native applications and SaaS applications that directly touched customer. The hybrid multicloud environment evolved over time based on the needs of various business units. One of the requirements moving forward was to put a strategy in place to better

Modern container and kubernetes architectures can greatly reduce production incidents with autoscaling and built in resiliency.

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control and manage this highly distributed environment. The leadership team responsible for the initial strategy remained in place to lead a better planned cloud transformation process. The team expanded to include not only business and technology executives but security, legal experts, and international stakeholders.

This transformation team worked in collaboration with an IBM team of technical and business consultants to identify series of game-changing ideas that would help achieve the full value potential of a hybrid multicloud platform. Early steps to gain value included evaluating all applications for cloud readiness, and lifting and shifting applications from on premises deployments to the cloud. The next step was to modernize mission-critical applications by adopting a containerization and container management platform. To achieve its goals of flexibility, portability, and an adherence to open standard, the team chose Red Hat Enterprise Linux as the default operating system for the ability to protect containers from exploitation, and Red Hat OpenShift as its container platform. One of the stated reasons for adopting OpenShift was the necessity to apply the same container platform to any public, private cloud or traditional IT. As more and more teams operated on this new hybrid multicloud model, the final step was to fully re-platform all applications onto the integrated platform.

Figure 1 demonstrates the journey and value gained from the cloud as they progressed along a series of unlocks.

Compliance spend can be reduced by up to 25% through the use of consistent controls across clouds and IT.
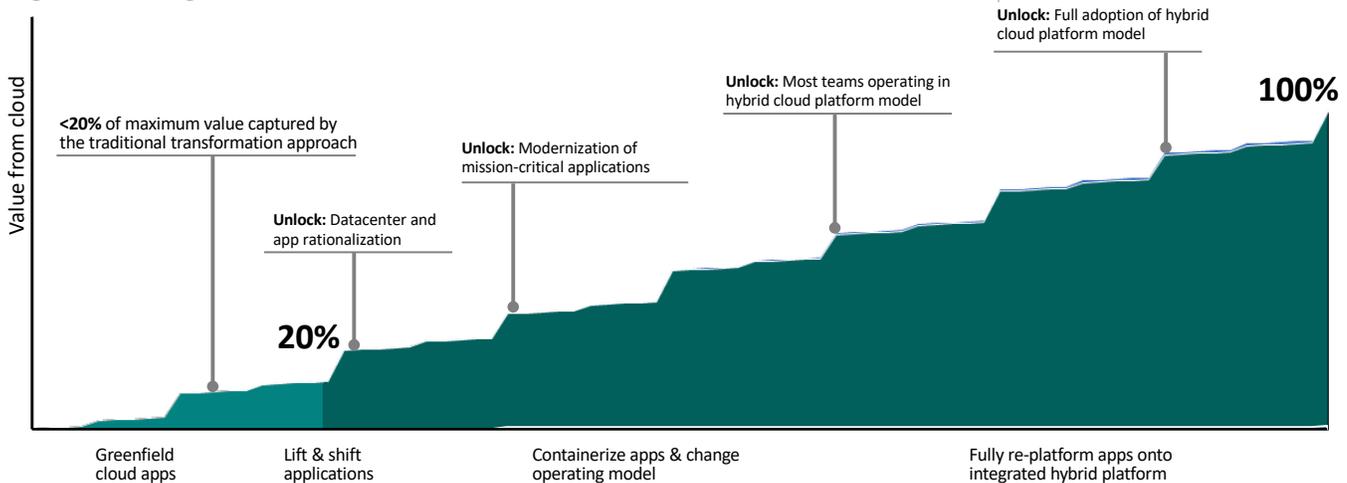

Figure 1. The incremental approach to achieving value from the hybrid cloud

Understanding the value of a hybrid multicloud platform approach

The transformation team provided the company's leadership team and board with quarterly reports. These reports included successes, unforeseen challenges, and budget overruns. At the 18-month mark, the team reported that this initial effort of re-platforming was nearly complete. Many of the workloads that remained on premises had to be modernized through containerization and connection to cloud services – this includes mainframe applications that were traditionally managed by a completely separate IT team. Furthermore, the company had reimagined its approach to the mainframe, creating a private cloud on the IBM Z system (LinuxONE) running the Linux operating system.

Value across five business metrics

By adopting IBM's hybrid and multicloud platform, the bank is seeing value in the following five key areas:

Business Acceleration
- Reduced product development time
- Modernizing applications far more quickly than their siloed approach
- Faster time-to-market for non-cloud-native apps

Application Development & Maintenance Productivity
- Accelerated app release time from months to weeks
- Reduced response time to app support and maintenance
- Reduction in dev and maintenance costs and labor

Infrastructure Cost Efficiency
- Slashing infrastructure costs because of less maintenance
- Predictable infrastructure because of a modern architecture
- Up to 50% lower infrastructure labor costs from improved productivity

Regulatory & Risk
- Consistent security and compliance controls across all environments
- Cutting compliance spend because of consistency
- Reducing application risk incidents by up to 50%
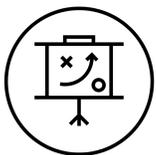
Strategic Optionality
- Avoiding lock-in to proprietary clouds and services
- Matching workloads with the best fit cloud
- Open source flexibility with an extensive developer and partner community

Vendor agnostic platforms deliver strategic optionality that can adapt to changing business requirements.

## Realizing 2.5x value of a platform approach over traditional IT with public cloud

While corporate leadership understood the need for a roadmap to execution of the cloud strategy, the transformation taskforce had to show tangible economic results. As you can see in Figure 2 below, the team was able to quantify the value gained for four out of the five key value areas that are described above.

Traditionally, the bank had incorporated some limited use of public cloud into their overall IT infrastructure. This approach was estimated to have driven about $100 million in value by increasing three key value area -- business acceleration, developer productivity, and infrastructure cost efficiency. However, at the start of their re-invention as a cloud first company, the team recognized that they were, in fact, missing out on the full value potential that a hybrid cloud approach offers.

The transformation team was able to show that by adopting a full hybrid and multicloud platform approach, the business was able to add $250 million of total value to the business. These economic results across the four value areas demonstrated a 2.5x increase in value versus the original approach of traditional IT with some public cloud use. In addition, there were important values that became apparent when rapid change was demanded. The bank was much better positioned than competitors to quickly respond to changing business conditions. For example, although many of the bank's branches remained open during the COVID-19, the vast majority of its corporate staff worked from home. The IT organization was able to scale up resources to support a massively distributed workforce while also assuring continued compliance and security. The company's previous IT architecture would have struggled under the dramatic shifts in technology demand.

However, at the start of their re-invention as a cloud first company, the team recognized that they were, in fact, missing out on the full value potential that a hybrid cloud approach offers.

Recurring benefits – illustrative example[1]
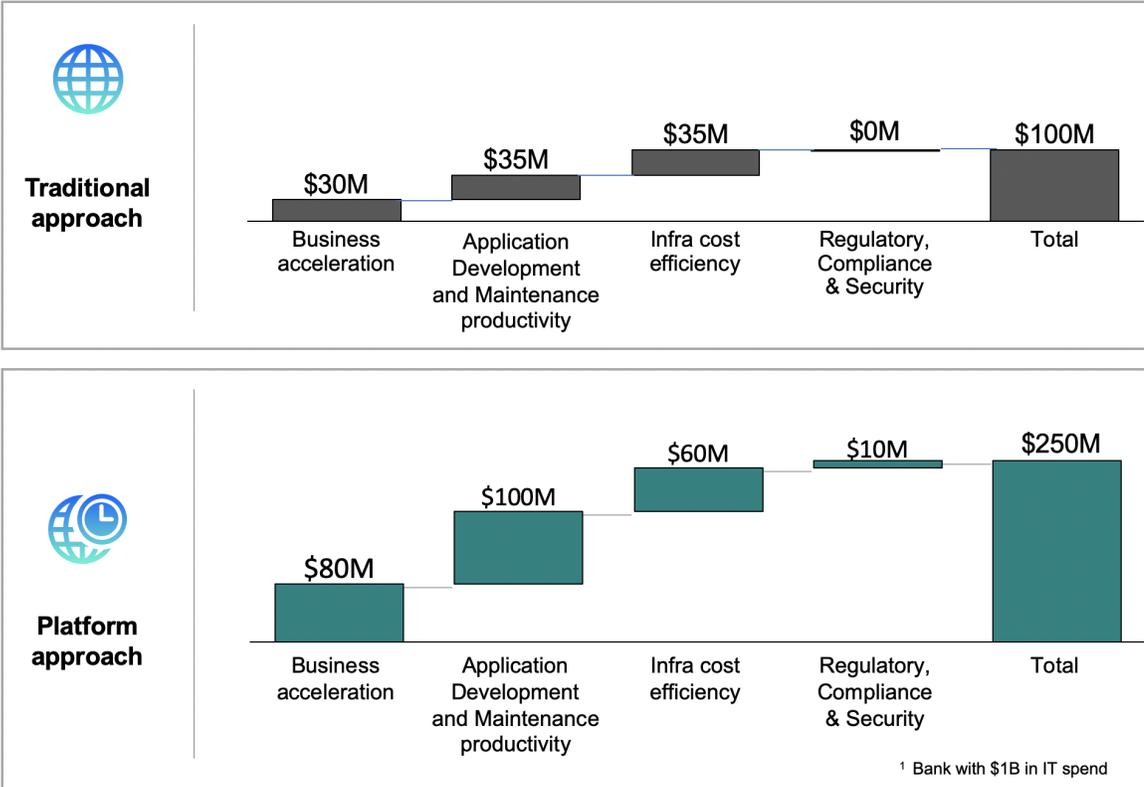
Figure 2. Recurring benefits of the hybrid cloud platform

Conclusion

As we move to the industrialization of the hybrid cloud it is becoming clear that the business value of moving to this model can provide a business with significant technical and business value. Over the years there have been many technological approaches over the decades that have helped developers write better code or have helped businesses add well-designed applications to their portfolio. However, the competitive and rapidly changing business climate today demands fast action. The hybrid cloud infrastructure based on open standards is key to this transformation. Successful businesses are discovering that this industrial approach to the cloud can have a significant impact on the bottom line of businesses of all kinds that make the significant short-term financial impacts well worth it.

Hybrid cloud infrastructure based on open standards is key to realizing competitive advantage.

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