

Creating a cloud computing strategy

First in a series: Your roadmap to cloud adoption



Contents

- 1 Introduction
 - 2 Evaluating how cloud computing can transform your business
 - 2 Considerations for establishing a cloud computing strategy
 - 9 Utilizing cloud to gain strategic advantage
 - 10 Why IBM?
 - 11 Creating a cloud computing strategy: First in a series of white papers
-

Introduction

For the first time, chief executive officers (CEOs) are identifying “technology” as the number-one factor they see impacting the success of their businesses.¹ For them, technology is not just part of the infrastructure needed to implement a business strategy. It’s what makes entirely new strategies possible. And without that technology in place to spark continual innovation, they fear being left behind. As a result, chief information officers (CIOs) foresee a major shift in their own priorities as they evolve from service provider to strategic enabler.

Ninety percent of business and technology executives are including cloud computing in their current or three-year plans.² That’s no surprise, given cloud’s emergence as a catalyst for continual innovation across both business and IT. IBM® Global Technology Services® has assisted numerous clients with the development of cloud strategies that support critical business transformations. During those engagements, clients often ask:

- How do we prepare for the arrival of cloud computing?
- What considerations should a cloud computing strategy address?
- How do we utilize cloud to gain strategic advantage?

This paper provides context and guidance on how to create a proactive, effective approach to cloud computing—and will address these important questions in the process.



Evaluating how cloud computing can transform your business

Cloud computing, often referred to as simply “the cloud,” is the delivery of dynamically scalable and often virtualized computing resources—everything from applications to data centers—as a service over the Internet (public cloud) or intranet (private cloud) on a flexible pay-for-use basis. From an IT perspective, cloud computing offers an infrastructure management and services delivery approach that leverages:

- Virtualized resources
- Ability to manage as a single large resource
- Services delivered with elastic scaling

“Although cloud is widely recognized as a technology game changer, its potential for driving business innovation remains virtually untapped. Indeed, cloud has the power to fundamentally shift competitive landscapes by providing a new platform for creating and delivering business value.”³

From this perspective, cloud computing offers a user experience and business model that provides:

- Standardized, self-service offerings that enable efficiency
- Rapidly provisioned services that create agility
- Flexible pricing that can enable innovation

A recent IBM study of more than 800 cloud decision makers defined organizations that utilize cloud to gain competitive advantage as Pacesetters. These organizations use cloud to re-imagine business models, make better decisions based on analytic insights, and serve customers in new ways to create winning business outcomes. *Pacesetters experienced almost 2 times the revenue growth of their peers, and nearly 2.5 times higher gross profit than their peers.*⁴

Pacesetters understand that business and IT perspectives on cloud inevitably merge. Yes, cloud can deliver security-rich IT with fewer boundaries. But more importantly, it can enable rapid delivery of product and service innovation.⁵ As cloud technology matures toward a point of convergence for both business and IT interests, you’re presented with a fresh opportunity to evaluate—or re-evaluate—what cloud can mean for your organization.

Considerations for establishing a cloud computing strategy

Creating a cloud computing strategy will establish a roadmap to achieve your vision for cloud computing. But first, your organization must coalesce around a common definition and perspective for cloud. For example, consider these two definitions:

- Cloud is the industrialization of delivery for IT services. Cloud is a new consumption and delivery model inspired by consumer Internet services enabled by service automation, virtualization and standardization using self-service, economies of scale, flexible pricing models, and workload-based IT resource provisioning.
- Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with reduced management effort or service provider interaction.

Each of these definitions reflects an accurate view of cloud, just through a different lens. Your organization’s definition of cloud will depend on its unique perspective, and the sheer variability of cloud creates vast opportunities for a customized vision. It’s not overreaching to say that with cloud, almost anyone can serve as a developer, virtually any good idea can become an application, practically anyone can influence your business and (security permitting) access your information, and transactions can occur almost anywhere. Given these broad parameters,

your organization must determine how cloud’s flexibility can serve your business and strategic objectives—and how cloud can even redefine those objectives. Your challenge is to uncover the definition of cloud that is relevant for you.

Once you arrive at consensus on perspective and definition, the next logical step is to examine how opportunities “in the cloud” can increase concrete business value. Discovering those opportunities is like de-fogging a windshield. You can see the road ahead and determine how to best align cloud capabilities with your desired business outcomes. These identified opportunities should be at the heart of a cloud computing strategy that also outlines:

Roles

What role—or roles—should your company assume? For example, if you are the **consumer** of a *private* cloud environment, your cloud service supplier is typically part of your organization. If you are a consumer of a *public* cloud, you will most likely be working with an external provider. Your organization will need to establish an integrator role to manage the performance and interaction with the public cloud provider.

Often, the private versus public cloud question is not an either/or decision. Organizations are frequently opting for both, or what is called a hybrid cloud environment. Although such an environment enables a company to deploy applications to the most amenable technical infrastructures, it can also result in complex sourcing scenarios. (See sidebar on hybrid cloud on page 5.)

As a result, the **integrator** role is of ever-increasing importance, because it holds accountability for cloud services provided by an external party—or parties. This role requires the necessary level of IT literacy to communicate and clearly translate business and technical requirements to service providers. In effect, the integrator is your organization’s liaison to all third-party suppliers.

If you own the assets needed to produce and deliver cloud services to the consumer—and those assets can change based on the service layer—then you’re considered a **cloud service provider** (CSP). You have the capability of offering private or public cloud services to your own internal organization, or you could serve as CSP to an external entity. A CSP often works as a critical supplier of services within a hybrid computing model.

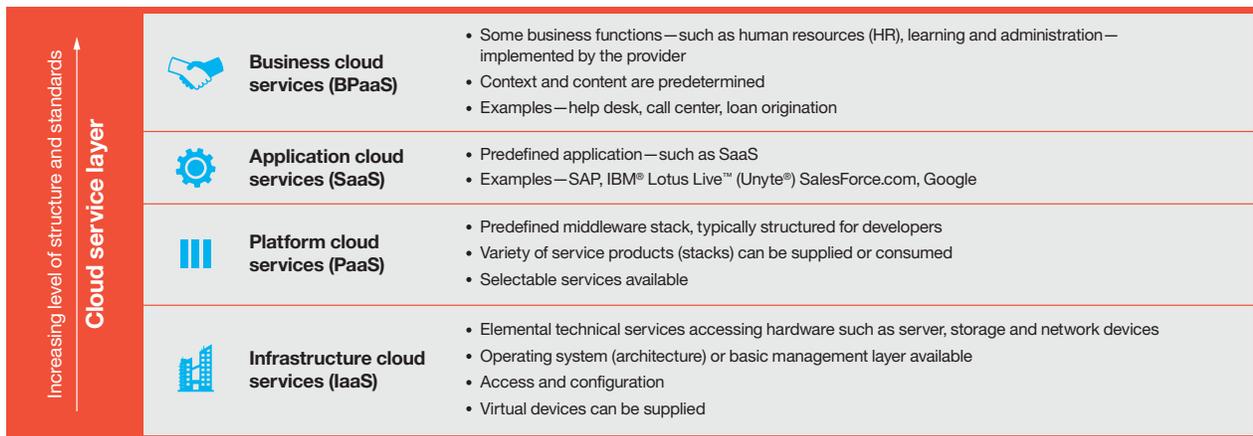


Figure 1. Characteristics of cloud service layers

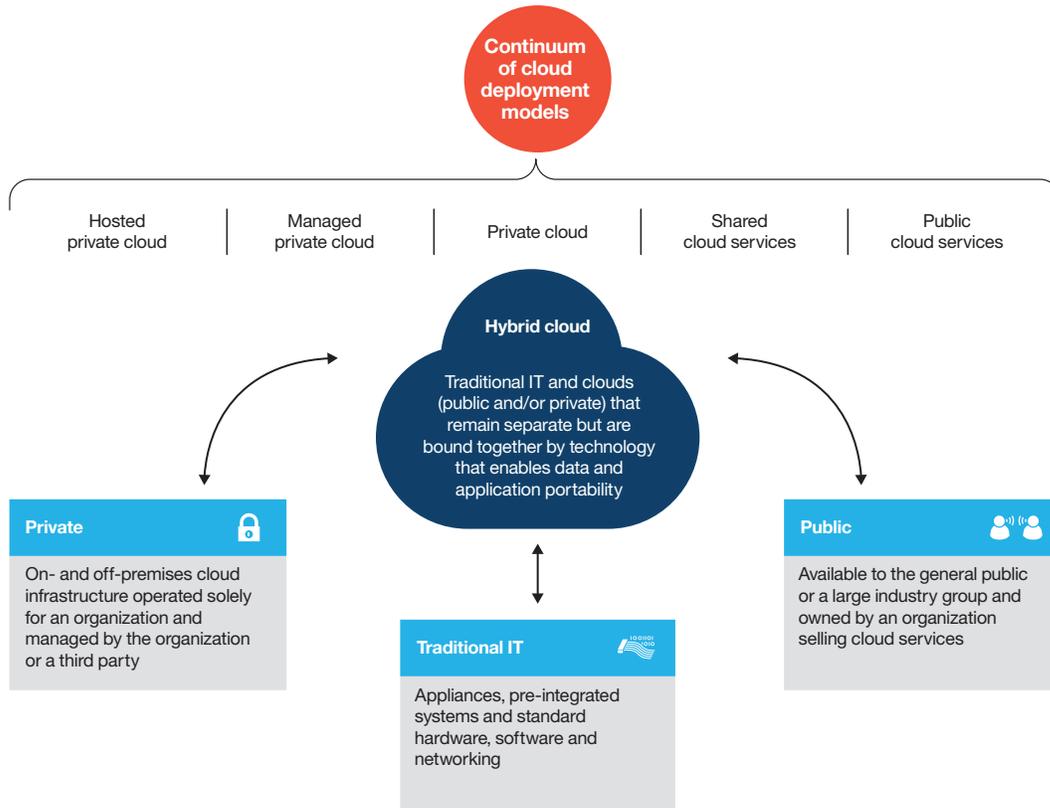


Figure 2. Continuum of cloud deployment models

Service types and deployment models

You will need to determine the types of services and the deployment models your organization requires. These are familiar concepts by now, but Figures 1 and 2 provide a high-level summary.

Sphere of influence

In developing your cloud framework, you’ll need to consider your key stakeholders for cloud services. Are they IT? Employees of certain departments or lines of business (LoBs)? Citizens of extended communities who converge around common business or industry interests?

As you determine this for your own organization, you may initially focus on your IT department. But a recent study shows that business leaders of all stripes—finance, sales, product development and more—are increasingly interested in the business value cloud provides. Respondents were asked how important cloud will be to their organization’s overall business success. Currently, 34 percent of LoB respondents and 49 percent of IT respondents say that cloud is extremely important. But by 2016, cloud’s strategic importance to business users is expected to double from 34 percent to 72 percent, even surpassing their IT counterparts at 58 percent.⁶

A composable infrastructure: Is hybrid cloud in your future?

The future is a composable business, one in which you restlessly reinvent and innovate your processes, make better decisions with real-time actionable insights, accelerate your time to market and integrate across your enterprise. And a composable business requires a composable infrastructure.

Increasingly, organizations are not opting for simply a public cloud or a private cloud, but rather they are designing flexible ecosystems that encompass both environments—a hybrid cloud. A hybrid cloud involves the secure consumption of services from two or more sources, including private cloud, public cloud, or traditional IT, to enable any or all of the following:

- Integration of applications, data, and/or services
- Composition, orchestration and management of workloads
- Portability of data and applications

According to one study, 68 percent of organizations will adopt some kind of hybrid cloud model by 2015, a 19 percent increase over 2013 hybrid adoption rates.⁷

This push toward hybrid cloud should not be a surprise. Organizations are driving the multisourcing model to deliver the best outcomes, and cloud deployment will continue to increase the mix of models in play. Although each organization has its own particular drivers that steer a workload on- or off-premise, applications that facilitate engagement and collaboration, such as interacting with customers or industry, often fit well with the scalability and quick provisioning of a public cloud. These are often known as Systems of Engagement (SoE), and Systems of Record (SoR), such as confidential employee data or sensitive financial information, might typically reside behind the corporate firewall on a private cloud. By creating an integrated hybrid cloud environment, an organization can enjoy the strengths of both scenarios. By aligning applications and deployment models to a spectrum of hybrid environments and capabilities, companies can strike an important balance between access and security.

Cloud computing should be viewed as an expansion of more structured, traditional IT delivery alternatives rather than a replacement for them. Often, the two will complement one another by providing the “checks and balances” of structure and flexibility—helping to create the composable infrastructure you need.

With the merging of LoB and IT interests, these areas will no longer operate in their own silos with competing priorities. Rather, they will collaborate on your organization’s overall roadmap and strategy. Although business and IT arrive at cloud for different reasons and with different goals, both roles are unified in their view of cloud’s overall value: the ability to deliver IT without boundaries, improve speed and dexterity, and create new business value. Both roles understand that rethinking IT and reinventing the business go hand in hand.

Governance, controls, design and operational considerations

Governance is a broad concept. It involves control and oversight by your organization over policies, procedures and standards for IT service acquisition, as well as the design, implementation, testing, use and monitoring of deployed services.

Compliance and risk management are governance processes that have always been critical to traditional IT systems, and they are equally vital to cloud-deployed IT solutions. What is different for cloud is an expanded set of criteria. Given that cloud services are often sourced outside the IT organization, lack of controls can put the organization in jeopardy for privacy, security, legal and oversight risks. Cloud “silos” or “cloud clutter” often result when governance is not clearly established.

A robust cloud governance strategy and framework should be part of any cloud computing strategy. Cloud governance includes:

- Establishing stakeholder decision rights, such as determining authority roles for procuring solutions and the required level of stakeholder involvement
- Developing cloud decision making processes
- Establishing and enforcing policies to manage cloud providers

Finally, cloud computing requires **design and operational capabilities** that many organizations lack today. The requirements list is long and often challenging:

- A “post shared services” governance model
- Sourcing and procurement processes that engage in “just-in-time” sourcing
- A services-oriented framework for the delivery of IT services
- Integrated event, configuration, change, release, capacity and service-level management

- A service catalog and configuration management database (CMDB) supported by service automation tools
- Metering, rating billing and subscription support
- Offering management
- Virtualized and standardized infrastructure
- A critical mass of resources that can be pooled to justify the investment in the management infrastructure
- Software licensing agreements tailored to a cloud consumption mode

Establishing an effective governance program means considering a wide spectrum of roles, services, deployment models and stakeholders. This range of considerations gives organizations the flexibility to fulfill specific, even unique IT requirements. Yet this same flexibility necessitates a thoughtful approach to assembling an optimum portfolio of IT delivered services.

For example, how do you apply the appropriate level of structure to ensure compliance, achievable service-level agreements (SLAs) and effective security without overloading processes with unneeded complexity? Ironically, achieving the benefits provided by flexibility also requires balancing that flexibility with structure. Cloud computing should be viewed as an *expansion* of more structured, traditional IT delivery alternatives rather than a *replacement* for them. Often, the two can complement one another by providing the “checks and balances” of structure and flexibility.

As you develop a governance approach to both existing services and the acquisition of new services, you will need to evaluate each service with a fresh perspective that embraces this new range of delivery possibilities. Solutions that do not fit into a well-developed enterprise architecture can create an expensive and incompatible portfolio of IT services—the exact opposite of the cloud goal of architecting solutions built from standard components integrated for flexibility and lowest cost of delivery.

Determining which workloads are best suited for cloud deployment

Once you’re ready for cloud, you’ll need to evaluate which workloads (meaning a capability or combination of IT capabilities and services that can make up an application) to migrate.

Potential cloud-enabled services tend to originate from three major sources:

- **Existing applications** can be analyzed for cloud affinities and detractors. See Figure 3. In addition, vendor-sourced applications such as Enterprise Resource Planning (ERP), Supply Chain and Customer Relationship Management (CRM) should be vetted based upon the provider’s incorporation of cloud-conducive features.
- **Future in-house developed applications** benefit from an appropriate cloud-aware enterprise architecture and development standards specifically designed for cloud deployment.
- **Future vendor-supplied solutions** should be evaluated based on vendor-demonstrated capabilities.

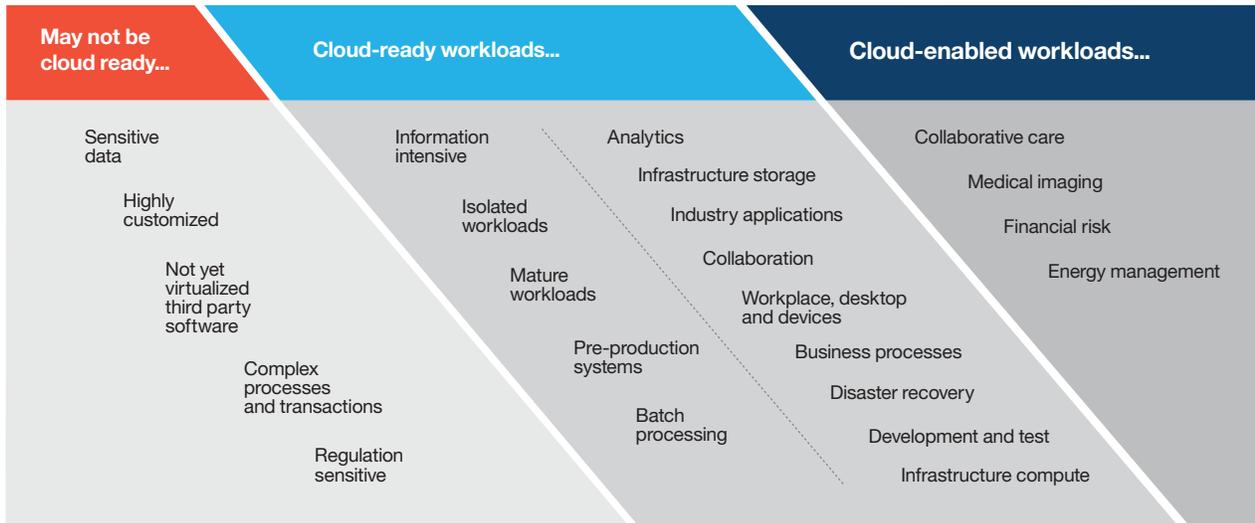


Figure 3. Objectives and criteria for analyzing a portfolio of applications for cloud suitability

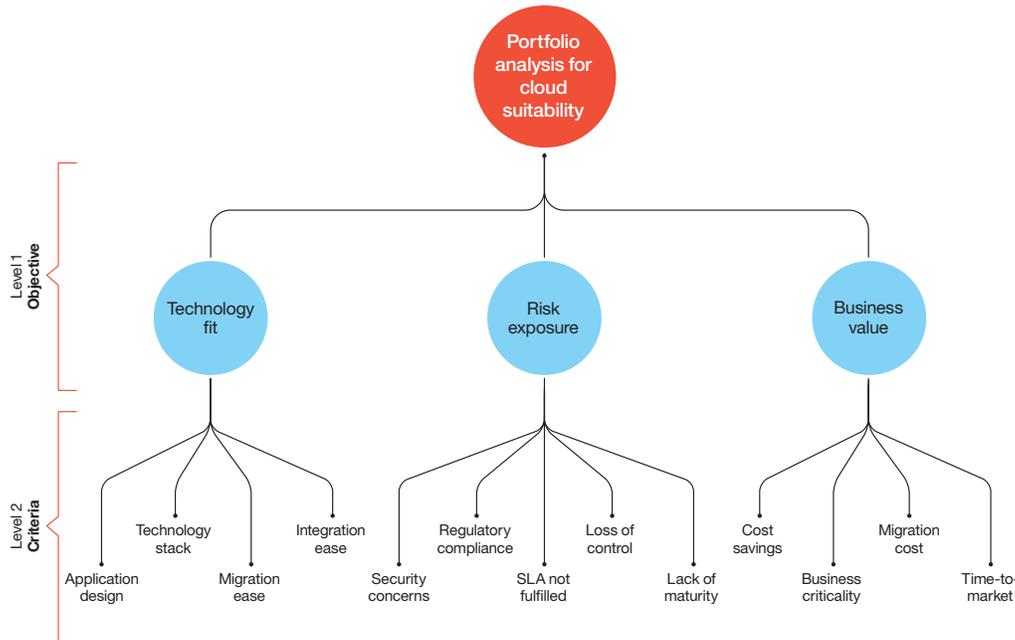


Figure 4. Cloud adoption is driven by workloads.

At a high level, when comparing candidate workloads and their feasibility for cloud adoption, initial questions revolve around business value. What is the real cost benefit of moving those workloads to the cloud? From there, you will need to evaluate the technical characteristics of the application. Is it technically feasible to move the workload to the cloud? How will that migration impact the ecosystem? And of course, your organization must consider concerns about risk exposure. (See Figure 4.)

Even though cloud environments exhibit immense flexibility, not all workloads are suitable for cloud deployment. As well, you will want to explore new workloads that are actually *enabled* by the cloud. Such workloads by their very nature can greatly enhance business value and innovation for your organization. They can include high-volume, low-cost analytics, collaborative business networks, industry-scale “smart” applications and more.

Utilizing cloud to gain strategic advantage

Earlier in this paper, we introduced the concept of Pacesetters, organizations that use cloud to gain competitive advantage over their rivals. As noted, Pacesetters experience almost 2 times the revenue growth of their peers, and nearly 2.5 times higher gross profit than their peers.⁸ In fact, when research compares Pacesetters to Chasers, defined as organizations that are more cautious about cloud and in early stages of adoption, the Pacesetters' use of cloud diverges dramatically:⁹

- Pacesetters are 136 percent more likely than Chasers to use cloud to reinvent customer relationships.
- Pacesetters are 170 percent more likely than Chasers to use analytics extensively via cloud to derive insights.
- Pacesetters are 79 percent more likely than Chasers to rely on cloud to locate and utilize expertise anywhere in the ecosystem.

Attaining this level of performance means always remembering that cloud is more than just a service delivery platform—it's an entirely new business model. As you define cloud for your organization and develop your cloud strategy, brainstorming around the four objectives below can be a productive exercise, sparking transformative ideas on how cloud can provide strategic advantage for your organization:

- Enable new business models and client relationships
- Help improve the agility and dexterity of business
- Deliver security-rich IT with fewer boundaries
- Enable more rapid delivery of product and service innovation

IBM Workload Transformation Analysis for Cloud

IBM Workload Transformation Analysis for Cloud uses our IBM Research-developed, patent-pending analytical tool to produce a quantitative analysis of your workloads, including the application and IT systems, behavioral policies and their relationships. This tool can deliver a prioritized list of workloads suitable for migration to the cloud, and also a comparison of operational costs and migration difficulty.

Using our established methodology in tandem with this robust analytics tool, we provide you with the detailed information you need to help make educated decisions about the most optimal workloads to migrate to the cloud. When compared to analyzing your data manually, our tool and process can help you reduce your analysis time by up to 66 percent.¹⁰ This can set you up for a faster implementation of cloud technology, helping you ultimately reduce costs and improve service delivery. To summarize, the tool can:

- Decide which cloud models are most appropriate for your organization based upon your business and IT priorities
- More quickly determine which workloads are most suitable for cloud deployment
- Assess your IT capabilities, and identify what is required to achieve your cloud goals
- Create an actionable roadmap to achieve your cloud objectives
- Utilize IBM's firsthand experience and analytics to validate your cloud blueprint

You receive an executive summary detailing findings and recommendations, a strategic plan and key initiatives, a gap analysis and more. You can learn more about IBM Workload Transformation Analysis for Cloud on [ibm.com](https://ibm.com/services/us/en/it-services/cloud-services/workload-transformation-analysis-for-cloud/) at ibm.com/services/us/en/it-services/cloud-services/workload-transformation-analysis-for-cloud/

Why IBM?

A solid strategy for cloud computing is critical to helping you deliver innovative IT services that can create new business value, and IBM Cloud Advisory Services can help. In fact, overall IBM was positioned as a leader in the IDC Marketscape: Worldwide Cloud Professional Services, 2013 Vendor Analysis. According to IDC's 2013 *Global Cloud Professional Services Buyer Perception Survey*, clients highlighted IBM as strongest in providing functional and industry insights and competence, and using resources globally.¹¹



Figure 5. IBM Cloud Advisory Services can guide you on your journey to realizing business value through a successful cloud implementation.

IBM Cloud Advisory Services: A unique value proposition

- Positioned as a leader in the IDC Marketscape: **Worldwide Cloud Professional Services, 2013 Vendor Analysis.**¹² (IDC's 2013 Global Cloud Professional Services Buyer Perception Survey)
- Tested tools, assessments and workshops—including our unique cloud adoption framework and workload analysis tool—to help measure business impact
- Deep business and technical architecture, and data center and data center strategy expertise
- Open standards-based approach
- Experience from client cloud engagements and technology incubation projects
- Structured architecture approach
- Experience from our own transformation
- One of the broadest systems, storage, software and services portfolios in the industry to help find the right fit for your business
- The ability to deliver insights from the research conducted in our global cloud computing centers
- Extensive patent leadership

At IBM Cloud Advisory Services, we take a collaborative approach, weaving together business insight, advanced research and technology to help give you a distinct advantage in today's rapidly changing environment. See Figure 5.

Our integrated perspective on cloud consulting, design and implementation can turn strategies into action. With expertise in 17 industries and global capabilities that span 170 countries, we help clients around the world benefit from new opportunities available on the cloud. To learn more, visit:

ibm.com/cloudcomputing.

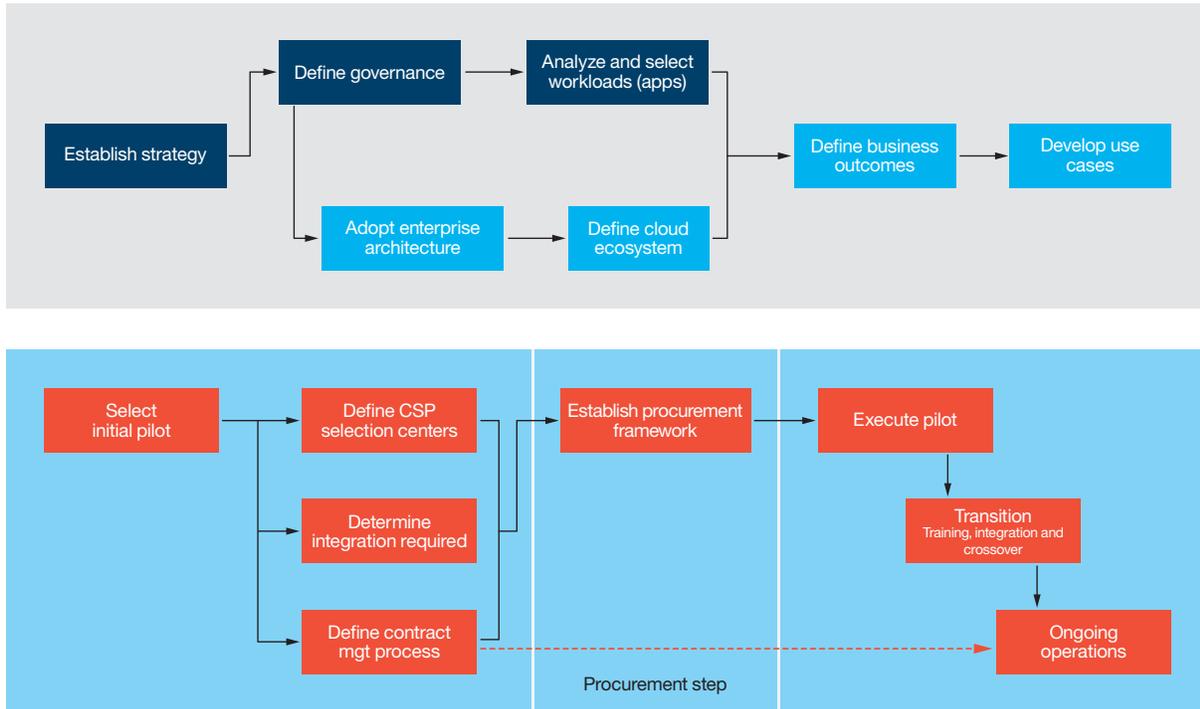


Figure 6. This is the first in a series of white papers, **Your roadmap to cloud adoption**, which guides you through the steps necessary to create a cloud adoption roadmap like the example shown here.

Creating a cloud computing strategy: First in a series of white papers

You’ve just completed the first in a series of white papers, **Your roadmap to cloud adoption**. These papers guide you through a high-level roadmap toward a future cloud design and implementation, as shown in Figure 6.

- **Part One: Creating a cloud computing strategy** (<http://ibm.co/TXqLpE>) has taken you through the steps highlighted in **dark blue**.

- With **Part Two: Defining a cloud ecosystem**, (<http://ibm.co/WiOqm7>) you will explore the topics in **light blue**.
- And **Part Three: Establishing a relationship with your cloud service provider** (<http://ibm.co/1k3aITy>), covers the areas highlighted in **orange**.

The papers are designed to be used both separately and together, or with your IBM Cloud Advisory Services consultant, who can provide even more in-depth information.

For more information

To learn more about IBM Cloud Advisory Services, please contact your IBM representative or visit ibm.com/cloudcomputing

About the author

Bob Freese is a certified consultant on the IBM Global Technology Services Cloud Advisory Services global team. He has over 40 years of experience in IT strategy consulting and has spent the last seven years performing cloud strategy engagements for clients and training IBM technology consultants worldwide.



© Copyright IBM Corporation 2014

IBM Corporation
Global Technology Services
Route 100
Somers, NY 10589

Produced in the United States of America
September 2014

IBM, the IBM logo, ibm.com, and IBM Global Technology are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at “Copyright and trademark information” at ibm.com/legal/copytrade.shtml

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

The performance data discussed herein is presented as derived under specific operating conditions. Actual results may vary.

THE INFORMATION IN THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

⁶ Under Cloud Cover: How leaders are accelerating competitive differentiation, page 2. IBM Center for Applied Insights. October 2013. ibm.com/ibmcai/globalcloudstudy

⁷ Brandon, Jonathan. “What’s standing in the way of hybrid cloud?” Business Cloud News, July 8, 2013. <http://www.businesscloudnews.com/2013/07/08/whats-standing-in-the-way-of-hybrid-cloud/>

⁸ Under Cloud Cover: How leaders are accelerating competitive differentiation, page 3. IBM Center for Applied Insights. October 2013. ibm.com/ibmcai/globalcloudstudy

⁹ Under Cloud Cover: How leaders are accelerating competitive differentiation, page 4. IBM Center for Applied Insights. October 2013. ibm.com/ibmcai/globalcloudstudy

¹⁰ Based on IBM client engagements, actual results may vary.

¹¹ Little, Gard, Rebecca Segal, and Chad Huston. IDC MarketScape: Worldwide Cloud Professional Services 2013 Vendor Analysis, August 2013, IDC #242401. http://idcdocserv.com/242401e_IBM

¹² Little, Gard, Rebecca Segal, and Chad Huston. IDC MarketScape: Worldwide Cloud Professional Services 2013 Vendor Analysis, August 2013, IDC #242401. http://idcdocserv.com/242401e_IBM

¹ The Customer-activated Enterprise: Insights from the Global C-Suite Study, page 5. IBM Institute for Business Value. October 2013. <http://www-935.ibm.com/services/us/en/c-suite/csuitestudy2013/>

² The Power of Cloud: Driving Business Model Innovation, page 2. IBM Institute for Business Value. February 2012. <http://www-935.ibm.com/services/us/gbs/thoughtleadership/ibv-power-of-cloud.html>

³ The Power of Cloud: Driving Business Model Innovation, page 1. IBM Institute for Business Value. February 2012. <http://www-935.ibm.com/services/us/gbs/thoughtleadership/ibv-power-of-cloud.html>

⁴ Under Cloud Cover: How leaders are accelerating competitive differentiation, page 3. IBM Center for Applied Insights. October 2013. ibm.com/smarterplanet/us/en/centerforappliedinsights/article/globalcloud.html

⁵ Under Cloud Cover: How leaders are accelerating competitive differentiation, page 5. IBM Center for Applied Insights. October 2013. ibm.com/smarterplanet/us/en/centerforappliedinsights/article/globalcloud.html



Please Recycle