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IBM Limited Edition

Cloud Brokering

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Learn to:

- Transform your capabilities and resources into business value
- Successfully plan for a hybrid cloud environment
- Transform your IT organization into a services broker

Judith Hurwitz
Daniel Kirsch

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Cloud Brokering For Dummies®, IBM Limited Edition
Published by
John Wiley & Sons, Inc.
111 River St.
Hoboken, NJ 07030-5774
www.wiley.com

ISBN: 978-1-119-37841-9 (pbk); ISBN: 978-1-119-37852-5 (ebk)

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

Publisher's Acknowledgments

Some of the people who helped bring this book to market include the following:

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Production Editor: Vasanth Koilraj

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Introduction

Welcome to *Cloud Brokering For Dummies,* IBM Limited Edition. Cloud brokering is an essential component for creating a successful hybrid cloud environment. Only a few years ago, line of business (LoB) leaders found it pragmatic and economical to simply select a cloud service without much thought to the long-term implications. Today, this practice is changing. Companies must plan for the best cloud services to meet both their short-term, tactical goals as well as long-term, strategic goals. In some situations, selecting the least expensive service is best; in other cases, the security and performance of workloads are most important.

Successful businesses are learning that they need to plan for the hybrid cloud. It's not simply a matter of picking a specific service. The use of services — including those from the data center, from IT services on a private or managed service, or from a public cloud — have to be coordinated and managed across your organization.

Upfront planning helps organizations make the best use of existing IT resources. Today, organizations deal with an array of services, including public and private Infrastructure as a Service (IaaS), platform development services, Software as Service (SaaS) applications, and various managed services, such as data and security services. Planning requires data. In order to gather data and use it effectively to reach your clients and/or make informed decisions, you need to understand what services you're running and the capabilities and costs of available services. Establishing a set of best practices for planning your future helps ensure that you can select the right services for the right business need.

About This Book

This book is intended to help you understand what it means to plan for a hybrid computing future. As more and more services move to the cloud you need to have the right information and the right approach so that you're prepared for whatever the future brings to your business. In this book, you discover what it takes to create a predictable approach to selecting services based on your enterprise's policies. Whether you're a business or a technical leader, this book provides guidelines for creating an environment that's collaborative between the business and technical sides of your organization. This type of partnership is powerful and ensures that you're ready when threats and opportunities come your way. This book also helps you understand how you can better predict spending for cloud services in a way that helps the business manage specific workloads in the best way.

Foolish Assumptions

The information in this book is useful to many people, but we have to admit that we did make a few assumptions about who you are:

- You're already using various cloud services and are looking for a way to have more predictability in your strategy for the future.
- You are creating a holistic approach to computing so your organization will be prepared for whatever new initiatives you need to respond to. You want to be prepared to select the right type of cloud service that corresponds to requirements such as flexibility, security, portability, and manageability in a cost-effective manner.
- You understand the potential value of an integrated approach to managing data across the hybrid cloud environment.
- Your organization is beginning to understand that all your computing resources are becoming a set of IT services that are designed with the modularity and flexibility to move your company forward efficiently and effectively.

Icons Used in This Book

The following icons are used to point out important information throughout the book:

Tips help identify information that needs special attention.

Pay attention to these common pitfalls of managing your foundational cloud.

This icon highlights important information that you should remember.

This icon contains tidbits for the more technically inclined.

Chapter 1

Understanding the Fundamentals of Hybrid Cloud Brokering

In This Chapter

- Understanding the hybrid cloud environment
- Looking at the role of cloud service brokering
- Getting to the seamless cloud as-a-Service model
- Changing IT dynamics with cloud brokering

The world of cloud computing is changing rapidly. Many businesses are using a variety of disconnected public, private, and data center services based on their immediate requirements. Individual business units are purchasing services from vendors without thinking about the long term implications of the services. Business leaders are beginning to recognize that they can no longer talk about individual computing choices in isolation. Leaders want to leverage the computing services whether they're in a public cloud or a private cloud or on-premises. Choosing the right deployment model depends on a variety of factors, including the need to scale up or down, availability, security and compliance, and, of course, cost. This hybrid computing world is transforming the way we think about procuring, deploying, and managing resources based on changing business needs.

Understanding the Hybrid Cloud Environment

A *hybrid cloud* is an environment that integrates traditional IT with a combination of public, private, or managed cloud services. In essence, a hybrid cloud becomes a virtual computing environment that may combine services in a public cloud with services from a combination of environments to deliver the appropriate service level, at a competitive price to meet emerging customer requirements. All services need to be managed as though they were designed to behave as a single unified environment.

While the IT organization is concerned about security, compliance, reliability, and price, the business user demands quality and availability of services and choice of provider. In reality, the actual delivery model of services is becoming invisible to the end-user. Users aren't concerned about whether they're accessing services on the cloud or on-premises; instead, they want access to their desired services at their convenience. In a hybrid computing world, it's possible to deliver services to the customer that best fits the business strategy.

In a hybrid cloud environment, everything needs to be connected so the end-user has a seamless experience. It's not enough to simply provide cloud services. Services need to be managed so they integrate the right data with the business rules and security. Also, depending on regulations and security requirements, workloads and data need to operate in the appropriate location according to company compliance policies.

Managing workloads

Managing workloads is core to an effective hybrid cloud approach. One of the fundamental differences between cloud computing and the traditional data center is the way these environments manage workloads. In a data center, all of the workloads are highly dependent on each other. On the other hand, in the cloud, resources are treated as a pool of resources that are independent of the physical location. These resources can be compute, storage, data and other IT services.

When evaluating computing services, it's important to understand the nature of the workloads, the level of services required by the business and the customers, and the overall costs.

Defining the cloud broker

A *cloud broker* is an environment that acts as an intermediary between various cloud services. A cloud broker provides self-service IT across a variety of hybrid cloud environments, managed services, and data center services.

A well-designed mature cloud broker provides a holistic model for a policy-driven approach. The cloud broker is intended to balance the conflicting needs of IT and business. IT needs visibility, compliance, security, and governance across the business. On the other hand, the business demands choice, speed, agility, and self-service. As organizations move from managing massive, integrated applications to modular services, change is required. Successful organizations must be able to move from simply managing physical "assets" to managing highly distributed services acquired from many different providers.

Cloud brokering is not a new concept. The initial cloud brokers were individual services and software vendors that negotiated deals with public cloud providers. However, a new generation of cloud brokers combines planning services with a software infrastructure to provide an end-to-end view of all your cloud and on-premises resources. The brokering service provides an infrastructure that has capabilities to evaluate a workload and determine the best environment for deployment. The broker then identifies a set of authorized services combined with business process and policy rules. After these services are in place, business units can freely use a self-service portal to procure the approved capabilities with the service level and security requirements authorized by both IT leadership and the business. A well-designed brokering environment provides the business with the choice and flexibility to use public, private, or data center services when needed. The environment can streamline the process of discovering, planning, managing, and governing computing services through a self-service portal.

Moving to cloud brokering is a journey that requires change in processes and best practices. Many companies turn to service organizations to help them take the first steps in moving to this different approach to managing IT. For example, you want to be able to discover and understand what software and services already exist within both the data center and in business units. You need to think about how you will connect third-party service with business workflow and policy. Leveraging best practices from service providers that have created blueprints and provide managed services helps you jump-start your efforts.

Recognizing the Importance of Cloud Brokering

In the world of hybrid cloud, it's important to control and manage the services that your users need to execute business requirements. In the days before cloud services became ubiquitous, the IT organization spent time planning for applications, capacity, and services so money was allocated for required services and so application and IT services were designed to meet customer needs. While this process was often very precise and well orchestrated, it was performed in a different time horizon. Today business moves at an incredible pace and can't wait weeks or months for procurement. While the IT organization typically maintains a predictable planning and capacity planning cycle, business units often operate with a different agenda. The business needs to be able to react quickly to changing customer needs and application requirements. Because of the slow pace of change within the IT organization, business units have begun to procure their own cloud services to meet an immediate need often assuming that the IT organization is not prepared to meet their needs. This had led to the creation of what is commonly called Shadow IT.

The initial reaction from the IT organization was to try to prevent business units from purchasing public cloud services. As with most technology transitions, it quickly became clear that business units would purchase and use the services they

needed to best address their priorities. The reality for IT was stark: either find a way to compromise or get left behind and become irrelevant. In reality, both sides of the divide had legitimate needs. The business must be able to choose and procure the right services it needs without delay. However, to ensure the governance and security of the company, the IT organization has to ensure that services have the appropriate levels of protection. Likewise, the services demanded by the business have to make financial sense. A CFO will not be pleased if there are huge unplanned expenses associated with third-party cloud services.

As cloud computing has matured, it's becoming clear that companies can leverage a variety of services to create a robust hybrid computing environment. To be effective, companies need to have a consistent and predictable way to manage this combination of on-premises and public cloud services. The cloud broker is an important element in ensuring that users are accessing the appropriate service at the most affordable prices. The balance between freedom and control will greatly benefit the business to innovate faster with consistency and predictability.

The cloud broker manages the hybrid cloud complexity

Cloud brokering has gained the attention of IT leaders because of the complexity that can quickly arise when an organization needs to manage a hybrid cloud environment. To help IT teams manage the complexity of hybrid clouds, they can use the follow key capabilities of cloud brokers:

- Provides visibility and control across many different service providers
- Minimizes Shadow IT by giving business users access to the IT services they want
- Enforces organizational policies and compliance
- Reduces the complexity of integrating IaaS, PaaS, and SaaS cloud provider offerings
- Makes it easier to support and manage a multi-sourced IT infrastructure

Preparing for the as-a-Service Model

The world of software is changing rapidly. The best way to ensure success is to provide a model that connects new and existing services together in ways that create new value (for example, new revenue streams). There is a fundamental difference between a traditional application and a service-based application. In the services model, a business process and its associated data are encapsulated as an entity with a well-defined API. A service typically is designed to be modular and reusable by a variety of applications. Some of these reusable services include customer payment service, check credit service, or access and identity services. A company might link together hundreds of these services to create an application to execute a business function. There are many emerging software applications that have been built in this way so changes can be made easily to meet the needs of changing process requirements. In essence, moving to an as-a-Service model represents the maturation of the IT environment. A well-run IT organization can codify the right set of services that are carefully vetted for both business and technical requirements. The IT organization can also buy well-designed third-party services that are necessary to support business units.

Over time more and more organizations will see the IT organization transition into a service provider broker for the enterprise. A mature organization can package a variety of services that offers choice to business units. The difference between this as-a-Service approach and conventional IT is that services can be designed to support the financial, security, and governance requirement of the company. For example, IT might offer business units a selection of five different Infrastructure as a Service (IaaS) offerings that could be used on a self-service basis. The service offered would be based on company rules such as security level and performance requirements. Likewise, the IT organization could offer an application development and deployment tool that would embed policy and various testing methodologies.

This approach to IT as a Service can become more sophisticated over time. For example, a business can create a data service intended to support tracking machine maintenance. In a cognitive application, there will be pre-defined data sets

that can be leveraged to do advanced analytics in a specific industry. In the case of maintenance data, it would be possible to understand which machines are out of compliance with routine maintenance requirements. In addition, IT will be able to offer business units cleansed and consistent data sets to be used across the company for fact-based decision making. In this model, IT becomes the lynchpin for providing scalable, governable, manageable, cost-effective, and predictable services to the company. Armed with management and visibility tools, IT can monitor the usage of IT to help the company monetize its IT assets.

Looking at How Cloud Brokering Changes IT Dynamics

As IT moves to a new level of maturity, the process of planning, monitoring, and managing IT services is changing dramatically. This comes at a time where businesses are being disrupted by new competitors with innovative models for attracting customers. Born-on-the-cloud competitors don't have to worry about legacy products or massive infrastructure. These nimble companies disrupt markets and even entire industries by offering new products and services at a competitive price point. This market dynamic means that well-established businesses have little choice but to change and innovate quickly or become obsolete. When faced with these market shifts, the new generation of IT leaders has the potential to be the agents of change.

Cloud brokering is becoming a critical enabler of this change model. The cloud broker model is based on leveraging best practices and offering a pragmatic and well-managed, high-coordinated approach to arming business leaders with the right tools, technology, and methodologies. Brokering offers a level of insurance against mistakes and oversights while at the same time providing well-orchestrated services based on company goals.

By creating a foundation of services that provides the best options for business users with the right level of service, security, governance, management, and monitoring, businesses can turn their IT organizations into IT service providers and strategic partners.

Chapter 2

Planning for the Hybrid Cloud

In This Chapter

- Describing the hybrid cloud
- Setting your computing goals and objectives
- Evaluating the costs of cloud services
- Integrating flexibility and modularity in your hybrid cloud environment

Cloud brokering is one of the essential elements in a hybrid cloud environment. However, you shouldn't simply get started by using a cloud broker in isolation. The cloud broker has to be an essential element of an overall hybrid cloud strategy. It is important to understand brokering in the context of both new, born-on-the-web applications and traditional enterprise applications. In this chapter, we provide an overview of the impact of this new generation of applications that are designed for the cloud combined with on-premises capabilities either in the data center or the private cloud.

Explaining the Hybrid Cloud

The hybrid cloud is not a single environment. Instead, it's a combination of resources including the traditional data center, a variety of public cloud services (including Infrastructure as a Service, Software as a Service, Platform as a Service, Process as a Service, and Data as a Service), as well as these public services managed for a single company either

within its own firewall or in a securely managed service. The hybrid cloud is intended to enable your business with best-fit computing services given your company's policy requirements and constraints.

The benefit of a hybrid cloud environment is clear: access best of all possible options when you need them and within your company's policies. Select the appropriate service for the specific need for not only a successful IT operation but also, more importantly, for your company's success. You may want some workloads and data to remain in the data center or a private cloud in a specific location while other services are best suited for a public cloud or a managed service.

However, creating an environment with so much choice comes at a price. It's required that all these elements operate predictably as though they were a single unified environment. You must have a platform that can manage all your computing resources predictably, economically, and safely. Without a plan, you won't be prepared for a future that includes uncertainty and change.

Setting Your Goals and Objectives

What are you trying to achieve with your computing environment? What would success look like? The traditional IT environment was built as a structured and architected environment that could stand the test of time. But the way you use your technology platforms is changing at a rapid rate. It's no longer acceptable to assume that a single platform or provider can meet the changing needs of business leaders. The business is increasingly faced with changing customer expectations and with emerging competitors that are turning traditional business strategies upside down.

What are your goals?

Simply having a goal of creating a well-run data center isn't good enough. Your goals have to reflect the demands and needs of the business units that you support. Therefore, your goals might be structured around some of these common objectives:

- The ability to deliver public or private cloud services that a business unit needs when it needs it
- The requirement to provide service levels to support customer expectations
- The expectation that your data will be protected, secure, and compliant
- That you provide a predictable environment that can be managed and monitored in terms of both performance and costs
- That IT costs can be accurately estimated and budgets can be planned to satisfy the financial expectations
- The IT organization recognized as a partner with the business providing the solutions and oversight the business demands in order to become a broker of IT services

Determining the planning process

After your goals are established, the hard work begins. How do you translate these goals into an action plan? Planning cannot be done in isolation; it has to be based on establishing specific steps that your organization can take to move forward.

The planning process for adopting a hybrid cloud strategy is not an academic exercise. It's an action plan that's focused on building a tight bond with line of business leadership. Planning needs to therefore focus on matching the IT strategy to the business strategy in order to support your company's overall digital strategy. During the planning phase, you need to take into account the following issues and understand how they may impact your hybrid cloud strategy:

- **Your industry:** How much is your industry changing now, and how much might it change in the next three years?
- **The competition:** What are the biggest threats and opportunities? Do you have new, unforeseen competitors on the horizon?
- **Deployment options:** How does the business want to access and leverage computing services, and how does the business know what its options are? What are the resources that should be on-premises, and which resources can live in the cloud?

- **Available services:** What types of application services are most needed to meet the strategic objectives of the business?
- **Financial implications:** What is the financial plan for the business, and does it match with the technology plan? How will shifting costs from a capital expense to an operating expense impact the bottom line?
- **Regulatory and compliance:** How do industry and government regulations impact where workloads should reside? What are the audit requirements?

Examining these issues in collaboration with business leaders helps you create a strategy and action plan that will serve the business well over the next few years. But always be ready for change. Partner with experienced service providers that can help you plan for the right starting points.

Planning based on type of services

The way you proceed with your action plan is influenced by the type of service your business needs. For example, there may be some key Software as a Service (SaaS) applications that a business unit may want to acquire. In other cases, there may be cloud-based data analytic services that will be valuable.

When planning for these services, work with the business to understand which organization is offering the service and the level of support you can expect. Think about the following questions:

- What is the reputation of the vendor offering the service?
- What level of security and compliance does it guarantee?
- How is data managed in these services?
- Can you store highly private data on-premises?
- When should you implement a service on-premises instead of a public cloud service?

Additionally, multiple business units may have contracts with the same vendors. Can you execute an enterprise agreement to take advantage of economies of scale? Can you negotiate volume discounts with your public cloud providers? While this is a long list of considerations, you should look into the best practices already understood by experienced consultants and service providers to give you guidance.

If you've done a thorough job planning your hybrid cloud strategy and have brought stakeholders from IT and the business together, you're off to a good start. All cloud services are not the same. Your planning process needs to include careful vetting. By planning in advance, you can save the company money and protect the business from potential security or business threats.

The value of leveraging experience

Too many organizations assume that when they're embarking on new, transformational initiatives that they need to start from scratch. However, there are processes, patterns, and blueprints they can leverage to help quickly move the project ahead. While each company and each business may have its own unique intellectual property (IP), there are common best practices that can streamline and expedite time to value. For example, there are blueprints that provide techniques for moving forward with hybrid cloud environments.

A good blueprint is a guideline based on the experience of hundreds of companies similar to yours. Blueprints may contain the business processes for moving an on-premises application to the cloud or techniques for moving data from one cloud to another. Likewise, leveraging patterns either of processes or data integration can provide a technique for implementing well-designed services that are built on tested and vetted modules.

The benefits of leveraging best practices in the context of planning a hybrid cloud are clear. You want your technical staff to focus on the elements of your hybrid cloud that are going to give you a competitive edge with customers rather than addressing routine problems. You want your staff focusing on creating innovative applications to drive new sources of revenue instead of routine tasks.

Budgeting for the Costs of Cloud Services

You need to factor costs into your planning process. Imagine that you are the CFO of a Fortune 500 company. You pride yourself on accurately forecasting the budgeting process. After all, you have a responsibility to shareholders to tightly manage the company's financials and prepare for potential surprises. Surprises are something that no executive wants. Therefore, imagine what happens when you discover that 15 different business units are using a variety of public cloud services to run large portions of emerging product lines. In the past, you never really paid attention. The bills were relatively small and weren't material to the business. But suddenly in the last six months things have changed. The bills for cloud services have gone from several thousand dollars a month to hundreds of thousands of dollars per month. This expense across all 15 lines of business now amounts to millions of dollars that have not been part of the budgeting process.

While you might think that this is an isolated incident, it is quite common for organizations to suddenly discover that the costs for acquiring public cloud compute and storage can quickly get out of control. For example, the public cloud is an excellent way to test the viability of a new customer-facing application. When the application goes into production, it might remain on the public cloud. Often a business unit working in isolation from centralized IT will deploy that application to millions of customers without a full understanding of the financial impact. If the application gains traction and quickly scales to support many users, cost can skyrocket. In addition, as the application grows more complex, it may be necessary to add additional services such as mirrored disks and security services. It does not have to work this way. Evaluate which public cloud services will offer the type of capabilities that match the business requirements.

As Infrastructure as a Service (IaaS) becomes ubiquitous and the market becomes more competitive, companies are beginning to leverage cloud brokers to help determine which cloud services provide the right service levels and capabilities at the best price.

Budgeting for IT becomes a lot more complex in the era of Shadow IT. It has become common for business units to purchase cloud services without the traditional approval workflows and corporate policies. Because the use of public cloud services has become the norm in many companies, there is no going back to a fully controlled environment. Therefore, it's more important than ever to have visibility into the cloud services being used and providing the tools to manage costs. Therefore, focus on the following best practices:

- **Create a chargeback mechanism.** You need visibility into what individuals and departments are spending and why. This gives you oversight into spending so you can control it.
- **Estimate your bills.** Doing this before you purchase cloud services can help you anticipate your costs.
- **Create pricing policies.** You can create a budget for what business units can spend on cloud services. You can set limits a monitor usage based on a cost dashboard.

Planning for Modularity and Flexibility

In this chapter, we have included many of the important factors that are critical to planning your hybrid cloud strategy. But in order to be successful with a hybrid cloud environment, the components or services need to be modular with well-defined APIs.

This approach takes advantage of emerging open-source technologies such as Docker and Kubernetes — technologies that enable the creation of micro-services. Micro-services form the foundation of modularity and allow your organization to build applications based on reusable modules — enabling the portability of workload across environments.

The adoption of DevOps techniques is helping developers work in collaboration with their counterparts in operations. Organizations that have implemented DevOps are able to continually update applications, add functionality, and ensure that applications are performing as expected. All these best practices can lead to new revenue streams and are the core of what's known as digital transformation.

Focusing on Digital Transformation

Digital transformation is not simply a technical exercise to create well-designed code. Instead, the objective of the planning process is to create a roadmap and blueprints that can help a company create IP to transform the way it delivers services to customers within the context of a broader digital strategy. It isn't enough to create disconnected applications and data services in the way that many organizations have done for decades. In this era of digital transformation, a hybrid cloud infrastructure plays an important role in the ability of organizations to change. Planning has to be done with the understanding that organizations need to be flexible and innovative to address challenges from new competitors that may upend the entire market without warning. Planning includes reusable modules, micro-services, and blueprints to help deliver innovative products and services that perform predictably.

Chapter 3

Preparing for the As-a-Service Model

In This Chapter

- Explaining the IT supply chain
- Understanding policy-based management services
- Looking at blueprints and integration services
- Seeing the improved customer buying experience
- Presenting the unified buying experience

The world of IT is changing before our eyes. The traditional rules of how you build and deploy applications no longer apply. IT organizations are moving toward a model where they will offer a choice of IT services to stakeholders based on changing requirements, application developer preference, enterprise policies, and regulations. The new as-a-Service model is changing the dynamics of how IT services are procured and consumed. In the past, IT had worked in an asynchronous, unilateral process where a request for services came to the IT department; an assessment had to be made, and finally a service was designed, procured, and then deployed. This process is out of step with the pace of business.

Today, business users expect to receive services on demand. Business users are often unwilling to wait for multiple approvals and testing — hence the rise of Shadow IT. IT departments and the users they serve are moving from this asynchronous model to an IT supply chain. In this chapter, you discover what it means to offer your constituents a choice of services for the target workload for the target deployment environment. To offer IT services on demand, the supporting infrastructure must adhere to best practices and codification of policy and rules.

Failure to plan has consequences

Alabaster & Co. has been in business for decades. However, a few years ago this stable manufacturing company began to notice that it had new competitors coming out of nowhere. While Alabaster's customers were very loyal, it was clear that these emerging competitors were offering new ways of engagement at competitive prices. Customers were beginning to ask Alabaster for new engagement models. They wanted a mobile application that could scan bar codes so that the items they wanted could be ordered from the shop floor and/or review purchase history. Customers also wanted to get direct access to data in real time. They were also requesting that Alabaster provide them with new self-service options. Alabaster's business leaders wasted no time. Each business unit purchased a variety of applications to deal with requirements such as product management and customer support. Initially, everyone from the CFO to the CIO were pleased that the business was able to identify solutions that would meet customer expectations while minimizing the workload on the already busy to the IT organizations.

However, after a year, some problems emerged. The first indication of trouble came when the CFO and the Chief Information Security Officer (CISO) called an emergency meeting with the CIO. The CFO wanted to know why there was a sudden spike in spending for cloud services. While the CFO had budgeted for public cloud services, the costs were unpredictable and continually increasing. At the same time, the CISO expressed concern that customer data for its German subsidiary was being stored in a public cloud in the United States.

To solve the problem required teamwork. The CIO in collaboration with the CISO was able to put in place a set of policies that were implemented in a portal platform that ensured that the appropriate cloud services were used based on locality, security, and governance.

The Value of a Supply Chain

Traditionally, the concept of the supply chain has been applied to manufacturing. To be successful, a manufacturer had to create an ecosystem of participants to be successful. To create and manage a supply chain, the typical manufacturer needs to coordinate everything from parts suppliers to inventory, storage, manufacturing, and transportation of finished goods. The supply chain needs to be tightly coordinated

with customer demands and expectation. The manufacturer must find a balance between satisfying customers, keeping manufacturing costs low, and ensuring available inventory without excess. All the processes have to be tightly synced so the company is profitable, maintains service and product quality, and satisfies current and future customer needs. A well-designed supply chain is a system of organizations, people, processes, information, and resources that work in collaboration to successfully execute a company's product creation and delivery of products or services.

Defining the IT supply chain

So, you might ask, what does a supply chain have to do with delivering IT services to business units within a corporation? IT service delivery becomes a lot more complex in a hybrid cloud environment. Users want to be able to use the right service at the right time based on policy, cost, resiliency, accessibility, and security — as well as preference.

Therefore, IT leaders must create a unified process and centralized portal that brings together a variety of services — public clouds, private clouds, SaaS applications, managed services, data services, and services that reside in the data center.

Today's disconnected silos

Today many organizations leverage all types of services. However, in most cases, these services are offered in a disconnected fashion. One department may select an Amazon public cloud service while another might select SoftLayer, Azure, or Google. Yet another department has a combination of these public cloud services where it has developed its own unique applications and 15 different SaaS applications. Still other business units may use specialized industry-focused applications that reside on-premises.

In a world where each business unit is an island without the need to connect with other business units or partners, the status quo will suffice but to the detriment of budgets and potential innovation. In reality, there are too many connections between lines of business and partners that must be

coordinated in order to maintain strong and deliverable economies of scale. The only answer to this problem is to create an IT supply chain that links all of the elements of IT together in a coordinated and predictable manner that supports business change and agility.

So, what are the elements of the IT supply chain? They can be broken down into a series of platforms.

Accommodating a variety of application services

There isn't a single way that organizations are utilizing applications and application services in their IT supply chains. Therefore, a well-orchestrated IT supply chain must be able to accommodate many different application services and models. Most organizations have existing applications that the business depends on. In some cases, those applications should be left as is because they may include years of complex business rules. However, the business may gain flexibility and cost savings by moving other applications to different platforms. There is also a need to modernize aging applications by modularizing key services through containerization. When new applications are required, development organizations are increasingly looking to Platform as a Service (PaaS) environments. These platforms bring together all the required foundational services that support a variety of deployment models — for example, cloud or mobile. Many PaaS environments are based on important standardized tools and technologies. In addition, many companies are opting for Software as a Service (SaaS) applications that reside in the cloud. In most cases, companies will leverage a combination of PaaS, SaaS, and on-premises services to meet their needs.

Dynamic services required provides flexibility and predictability

The first step in an IT supply chain is creating a service catalog that includes heterogeneous cloud services and applications that can be selected, procured, and deployed according to codified processes. This set of dynamic services enables companies to bring together IT services with their definitions, terms of use, and operational and performance details. Through a service catalog, business services and processes will be defined and dependencies can be identified and managed. Various cloud services will be provided based on their codified APIs. There will be policy and business rules that dictate when and who can access different services. Creating

a dynamic service catalog makes it possible to create services that can be shared across the organization to take advantage of economies of scale, increase application quality, and enforce policies. Just like in a manufacturing supply chain, these dynamic services ensure that all the elements that make up a successful execution of processes are followed. This same approach applies to application creation and deployment. The dynamic service catalog can identify PaaS elements that are mandated for use. In addition, a variety of SaaS-based management tools can be used to discover, monitor, and manage hybrid cloud services that can be made available through the catalog.

Creating a plan for collaboration

A regional transportation management company is the established leader in its market. The company has built a strong reputation in the market and is known for its ability to efficiently support changing customer requirements. But as the company has begun to expand nationally, new challenges have emerged. The traditional ways of operating no longer work as well as they once had. Line of Business (LoB) managers demand faster response from the IT organization. Many developers have begun bypassing IT and provisioning more flexible public cloud services and applications. While the company is pleased with the speed that the hybrid cloud offers, management recognizes that if growth is to be sustained, it has to gain better control. At the same time, the company overall relied on-premises back office systems and private clouds to support core foundational applications. It was clear that this hybrid environment had to be managed in a way that was predictable and well managed.

The CEO set up a planning team that included LoB leaders, the CFO, the CIO, and the CISO. Together they came up with a plan that would protect the integrity of the business and provide the required type of services needed by the business combined with the needed level of oversight. Each constituent represented its group's point of view. For example, the CFO wanted to have a clear and predictable understanding of spending; the LoB leaders wanted the freedom to select whatever services would help them meet their business unit goals; and the CIO and the CISO wanted to leverage both public and private services with the right policy and controls to protect the company. Leveraging a cloud brokering approach combined with managing the overall hybrid environment helped the company become more manageable and predictable.

Hybrid cloud management services provide uniform process management

One of the most difficult challenges for IT organizations is to provide users with a consistent level of service across the hybrid computing environment. This can be complicated because IT has no control over SaaS applications that run in the public cloud. Service levels can be impacted by everything from a poor performing cloud application to a faulty router or a network that cannot accommodate increasingly complex workloads. IT also has the responsibility to make sure that regulatory requirements are followed across the company.

Enabling all the services needed by users to behave in a consistent and predictable way has many challenges. For example, if you were using a single public cloud service, you will have access to a billing application that monitors and meters your usage and creates bills. However, if you take advantage of six or seven different services, you'll want a single consolidated billing service across all those platforms. Likewise, make sure that company business rules and compliance policies are enforced across all of the platforms. For example, there may be a service that you selected to build a pilot application. However, once you decide to deploy the application you may choose an environment that fits your organization's availability, compliance, and security requirements.

Therefore, you want the ability to manage and monitor the service when it is in the pilot stage and then easily move that application to another service during production. You want to maintain the same levels of oversight that you had when the application was in development. In addition, you need to understand how your workloads are behaving, how users are interacting with them, and whether you need more capacity or better performance for changing needs. You'd expect the same flexibility and service if you were a manufacturer setting up a supply chain with a variety of suppliers.

Brokerage services allow for better planning and execution

From an operational perspective, the brokerage services focus on the people, organizational, process, and policy requirements of the IT supply chain. As we discuss in Chapter 1, cloud brokerages help IT organization create a platform that allows business units to select the right set of services based

on workload requirements, as well as security, compliance, regulatory, and cost considerations. The brokering service leverages the service catalog and the management services to create a well-designed and responsive platform based on your company's defined goals, objectives, and processes. With the brokering service, a company can first plan based on business and technical requirement and then purchase the services needed based on the business objectives and budgeting constraints. After these goals are met, the company can then have a uniform approach to managing the catalog of available services. A cloud broker can help an organization keep track of the services in a hybrid cloud environment.

Why Policy-Based Hybrid Cloud Management Services Matter

The head of infrastructure for a large company is often in a difficult position. He or she may try to work closely with business units to ensure that they are getting the right infrastructure to execute on their business initiatives. But the task isn't easy. On one hand, the infrastructure leader has to make sure that the IT resources that the company has procured are used effectively and meet the performance and security needs of the business. At the same time, the leader has to work with the reality that Shadow IT is present in nearly every organization — business users are using unauthorized cloud services to complete their jobs. Keeping everyone happy isn't easy. In addition, the CFO wants to make sure that there's a predictable budget for IT spending, including across business units.

The CISO puts pressure on the leader to make sure that workloads are managed in the right way so customer and company data is secure and compliance and regulatory mandates are met. It might seem like a no-win situation for the beleaguered head of infrastructure services, but if the organization creates an environment where business units can select the services that they want based on an underlying policy engine, you can achieve the right balance of allowing business units the freedom to select the services that match their need without compromising the integrity of the business. At the same time, company policies can be enforced across the organization by

only exposing services that are appropriate for specific workloads and use cases as well as role-based access control. This combination of flexibility with control can transform IT into a true services broker to the business.

Blueprints and Integration Services

Creating an effective and pragmatic hybrid cloud environment requires that you leverage best practices and have reusable, codified techniques for helping users integrate disparate corporate data. We have paired these two concepts together because they are critical to creating predictable services based on lessons learned from how other organizations have been successful.

Leveraging blueprints

A *blueprint* is a set of automated techniques and processes for orchestrating a set of cloud services based on best practices. In essence, the blueprint is an architectural approach to building a hybrid cloud. A *solutions blueprint* is a standardized architectural framework that includes techniques for managing services for a hybrid cloud environment. A solutions blueprint includes fully tested standards and best practices. In addition, a blueprint also includes pre-defined architectural elements that have been used repeatedly. The blueprint creates a reference architecture and set of services needed to bring disparate elements together to operate in a repeatable, predictable and scalable fashion. By leveraging solution blueprints, business units can leverage best practices to bring together the pre-selected services and test processes to not only operate a hybrid cloud but to also manage the environment over time.

Integration services

Integration is at the heart of creating an effective hybrid cloud environment. Integration is a critical element for both data services and micro-services. In a hybrid cloud environment, the ability to access, connect, aggregate, and analyze data

across the organizations is imperative. Typically, each business unit uses either on-premises applications or SaaS applications that leverage and produce data related to that specific unit. In many cases, business units are protective over their data and don't want to share it with other teams. However, there are large overlaps of data and companies are uncovering new opportunities by removing data silos.

For example, a single customer might have business relationships across multiple lines of business. Likewise, a vendor may have relationships with different lines of business. Therefore, there is both a demand and a requirement from business leaders to be able to analyze data across the entire organization to analyze potential opportunities or to strike enterprise contracts with suppliers. Data as a Service and data integration services must be adaptive so the right data can be integrated or linked in order to increase the knowledge of customers buying patterns and requirements.

Integration doesn't stop with infrastructure, services, and data. As the technology to containerize code and business processes expands, it's now possible to create modular services that can be used in a variety of applications. By leveraging these well-tested and curated services, an organization will be able to create new value without writing applications from scratch.

Improving the Customer Buying Experience

Customers are no longer satisfied to buy as they have in the past. Customers want to access data and services 24/7 from whatever device they choose. In addition, customer expectations are continually increasing, and they have zero tolerance for poor experiences. You want your customers to be able to do business with you in a fluid and flexible manner. Your customers want to be able to access information as easily on their mobile devices as they do on a laptop, on the telephone, or in a retail location. Customers want to know that you can respond to their needs on their timetable — not yours.

The Unified Buying Experience

Today, many people take for granted that music can be purchased in a matter of seconds via an online application like Apple's iTunes store. In fact, iTunes learns what music you enjoy and will suggest titles that you might like based on your preferences. The iTunes store has become a one-stop portal for music regardless of the artist (in most cases), studio, or genre of the music. While this may be the norm today, in earlier decades if you wanted to purchase music, you either had to seek out a store that stocked your preferred music or searched several websites until you found your title of choice. Customers like the iTunes model because it is self-service. Selected music can be purchased as a downloadable MP3 or can be stored in the cloud. The consumer also has the flexibility to purchase a single song from an album rather than purchasing an entire album. While the idea of consumers purchasing music hasn't changed, the entire buying experience has been transformed.

What does this process of buying music on iTunes have to do with brokering and buying cloud services? Actually, a lot. Today, line of business leaders demand the flexibility to leverage cloud-based services without the bureaucracy and red tape of having to obtain approvals and waiting for the procurement process. When a new business service is required, businesses need to move fast. Therefore, a model that allows for a vetted and curated self-service process allows businesses to quickly change. It allows IT to have the necessary oversight in terms of business rules and policy without becoming a roadblock to the business.

This self-service model does not stop with provisioning compute or storage. When business units need to create new applications, they have the ability to leverage a tested and vetted catalog of services to quickly assemble new services. Whether the business requires a data service or a microservice, the IT supply chain can become the one place where services are readily available. Indeed, having the equivalent of an iTunes store for the as-a-Service model has the potential to streamline IT so it operates as a unified approach to facilitate the way customers can buy the right services at the right time to solve the right problem.

Chapter 4

Positioning the IT Organization as the Broker of Services

In This Chapter

- Looking at the changing expectations of the business
- Understanding how IT becomes a service broker
- Making the change from IT to an integrated services model

Line of business (LoB) executives have made it clear: They want access the IT resources they need in the manner that best suits the task at hand. Traditionally, the IT organization has been slow to recognize the changing needs of customers and the business units they serve. But change is underway and progressive IT leaders are creating a new model of servicing their constituents in a way that protects the security of the company while providing the maximum amount of flexibility, resiliency, and scalability.

But this transformation requires organizational change. The IT organizations must collaborate with business leaders, understanding both their short- and long-term needs and goals. Business leaders have to understand the policies and constraints that IT organizations face. This level of collaboration elevates the IT organization into a strategic partner with the business. In addition, the CFO is a key player in this relationship. The CFO requires both IT and the business leaders' participation and transparency in order to manage costs in a predictable manner.

In this chapter, you learn what it means to position your IT department as a broker of services for internal constituents. These IT services may be internally developed or offered through partners, cloud vendors, and others suppliers.

The Way Business Views IT Services

Imagine that you're starting a new company in a well-established market such as consumer-packaged goods. Large conglomerates have dominated the market for decades. There has been plenty of consolidation. Even five years ago, it would have been almost impossible to try to upend the retail grocery market.

However, with the advent of cloud-based IT services, an emerging company can challenge market incumbents. Today, a variety of different business models exist that are well established and range from the superstore that sells everything from boxes of cereal to a company offering customized clothing optimized for the tastes and size of an individual. Many companies are transforming the way services are offered by creating online platforms that optimize data that matches customer needs with product or service offerings. These online services that live in the cloud make it possible to disrupt well-established markets. Today, emerging companies will deliver pre-packaged ingredients designed by master chefs to help you create meals as if you were a professional.

Armed with Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) these disruptive companies can quickly create new applications combined with a self-service interface that delivers a differentiated customer experience. The rapid entrance of new market competitors makes it difficult for traditional companies to compete with a business-as-usual attitude. Companies that can't adapt are faced with being outsmarted by companies that leverage cloud technologies to forge business models that disrupt companies, markets, and even industries.

In many ways, new, born-on-the-cloud companies have an advantage over market leaders. These new companies do not need to integrate legacy applications and systems with years of business logic. Meanwhile, many larger, well-established companies are slower to define and deploy their digital transformation strategy. In addition, developers for these large enterprises are often focused on keeping the lights on instead of creating new, innovative offerings.

In essence, cloud native businesses take advantage of a virtual catalog of services that they can purchase from a variety of vendors. These companies can act as their own broker. They do their homework and find the most cost-effective service that helps your company get up and running quickly.

Preparing to be an IT Service Broker

How does an established business hope to compete with nimble upstarts? For established companies to be ready to become IT service brokers, they must change the way they approach the following three areas:

- **Change the dialog among IT leaders, business leaders, and financial leaders.** Often there are political battles between the IT organization that wants to control all IT services and the business unit that wants the freedom to do whatever is expedient. The financial leaders want to have oversight with an eye toward budgeting and spending.
- **Change the way IT services are managed and offered to the business.** IT has to create access to the type of public and private services that the business wants to use. However, under the covers there needs to be a set of management services — a set of business rules and policies that ensures that the business gets efficient access to the right services with the right controls in place. If the business sees that IT offers complete flexibility, it will be more likely to view the IT organization as a strategic partner.

Transforming a publishing company to an IT service broker

The publishing world is undergoing a massive transformation. Customers want to be able to access new content in the way that's most convenient for them. In the past, publishing companies made deals with authors, edited and printed books, and finally distributed books to stores. The world has changed. Major publishers now offer eBooks in the cloud, and start-ups have entered the market offering self-publishing options and new innovative ways of purchasing books.

A global information services and publishing company was under enormous financial pressure. Various departments were using different managed cloud service providers. There were no standards and no way to monitor what was going on across business units. Security and service level agreements (SLAs) were different from one service to the next. There was no way to track performance of the cloud services. Finally, costs were spiraling out of control and continually increasing.

Making matters worse, the publishing company was public and therefore had to project revenue and profit to shareholders. The CFO was frustrated because it was almost impossible to get an accurate accounting for the previous quarter and impossible to project future spending on cloud services. Making matters worse, the company had suffered a breach and customer data was stolen. A draft of a new manuscript was also leaked due to the breach.

Sometimes, you can use a crisis to make lasting changes. The CFO convened a task force consisting of business leaders from all the company's divisions, the head of digital strategy, and the CIO. The team worked out a plan. The business units explained which public cloud services were best suited to their needs; the digital strategy team explained what it needed both in terms of innovative delivery models and application development and deployment. This team also had selected several SaaS applications and managed services that allowed its team to create innovative solutions. The CIO explained the need for a predictable process for managing and viewing a variety of metrics, including performance, workflow, and costs. The CIO committed to providing all business units with a dashboard customized to their individual requirements. Most importantly, the CIO and the overall IT organization committed to a consistent and predictable service level across the organization. The IT leadership also provided a sophisticated security environment to help keep enterprise data safe.

The team left the meeting understanding that there was a lot of work to do. The representatives committed to train their own teams in the new process. The task force created a center of excellence, working with hybrid cloud experts to help create a secure, flexible, and manageable hybrid computing environment.

- **Change the economics of IT services.** The CFO has to partner closely with the IT organization. When both groups understand budgetary constraints, they can create a set of services backed by policy rules that ensure that the business uses the services in a way that protects the financial plans of the company. IT needs to be able to plan and optimize resources across many different customer requirements. IT needs to implement the compliance requirements dictated by laws. Security professionals must ensure that customer data is safe from intruders. Business units need to be able to gain access to the services they need when they need them. These leaders no longer accept long waits to gain access to IT resources. The prevalence of Shadow IT has been largely driven by the fact that business users want easy, self-service access to services that can help get their job done. You can read more about Shadow IT in the later sidebar "How did Shadow IT get out of control?"

Transitioning from IT to an Integrated Services Model

After you understand what needs to change, it is important to understand what actions your organization needs to take to become the virtual resource to the business.

The survivors in IT leadership are those who are moving their teams to an IT as a Service organization. These leaders are able to look at the technology services, the business requirements, and the economic imperatives as an integrated approach to meeting the needs of the company. Successful IT leaders are not concerned with adopting services from third-parties rather than home-grown solutions. Instead they want to offer solutions that meet the business goals while ensuring consistent performance, security, and costs regardless of the source of the service.

How the integration model changes IT

When IT leaders understand that accountability and measurement are components of their jobs, it will change the way IT

is organized and managed. IT leaders have to have concrete answers to the following questions:

- What IT services should be managed inside the data center?
- What services should be moved to a managed service because the service provider has the expertise and economic leverage to provide the service more efficiently than the IT organization?
- What are the metrics that the management team agrees are required to meet the needs of customers across business units?
- How will you measure and monitor performance, security, and compliance across the enterprise?
- What framework is in place integrate components from the right service provides so that it can be managed and measured in a coherent way?

How did Shadow IT get out of control?

The term *Shadow IT* has become widely used over the past five years. More and more business units have stopped trusting IT to deliver the applications and IT services needed to innovate and get their jobs done. Public cloud companies made it simple for a developer to use a credit card and buy a compute instance and spin up an image. Bypassing IT made perfect sense in an era where IT was a rigid organization concerned with the procurement of physical assets. Some IT concerns were imperative, such as ensuring the viability of the existing infrastructure. However, in many situations, IT was focused on maintaining its own power instead of addressing the urgency expressed by business leaders. IT leaders found themselves in a difficult position. On one hand, they needed to make sure that data was secure and that existing resources were used to the benefit of the overall enterprise. On the other hand, their standard operating procedures were often out of steps with the frantic pace of business. IT had no choice but to step back and let the business make the rules. As with any change, there were unanticipated consequences: Financial managers had no visibility into departmental spending on third-party IT services. There was a lack of data integration and that was no way to manage all these services that now represented the new world of IT.

Establishing IT as a cloud broker

To answer the challenge of Shadow IT, many IT organizations are transforming themselves into a broker of IT services. What does this mean? It means that IT creates an overall management and oversight organization that matches business needs with financial constraints. The IT organization becomes the manager and controller of a catalog of services that match the specific technical requirements of the business. This catalog becomes the centralized point to implement and manage decisions. Therefore, the IT service broker is charged with selecting a wide range of services, including a variety of cloud services, the appropriate managed services, and data and integration services — all aligned to the required security levels and defined business processes.

The IT service broker brings all these elements together so they can be measured and monitored based on the business goals. For example, there may be specialized IaaS offerings that provide industry- specific compliance offerings or enhanced security. These services might be needed when an application includes sensitive customer data or company trade secrets. In other situations, a company might want a set of software development services that can operate in the cloud and on-premises. In another case, there may be specialized data movement service that will be needed to meet the needs of a special customer-facing opportunity.

Increasingly analytics and data management services are being made available as cloud services. These can be extremely important when organizations are performing sophisticated analysis regularly but don't want to invest in the on-premises resources.

The IT organization can provide a valuable service. First, IT is the only organization that can have a holistic understanding of all the assets that the company owns. Some applications and data are rarely, if ever, used. These rarely used (and sometimes idle) applications are costly to maintain and manage. Other applications contain critical data and processes that are foundational in operating the business. IT can be ready to act as a broker and therefore a partner to the business when they have a full assessment of the existing resources they manage. This assessment process prepares IT to understand what it does well and what it needs to do to broker resources for its constituents.

Defining what the business needs today and in the future

Businesses need cloud services in order to compete in today's IT as a Service economy. Competing in a dynamic market means that the business needs immediate access to IT resources. The cost of cloud resources has become an increasingly important concern for many organizations. In the early days when a business unit provisioned public cloud services, the costs were relatively low. But as businesses begin to deploy important applications on a cloud service, the cost of provisioning more and more resources can easily climb to unanticipated heights. Therefore, the IT organization can gain insights and detailed information on the costs of services and allow the business to select the most economical resource that fits its requirements.

This new style of IT as a broker of services does not happen overnight. It requires working with solution provider or third-party consultants with deep expertise in transforming IT into a services model. It requires that IT acquires new skills to be able to understand the new architecture of a service-oriented approach to IT. It requires that IT professionals look beyond a single application or a single server and think about the set of internal and external services that will create a new brokering environment. The new role of IT demands that professionals view themselves as the brokers, monitors, and protectors of IT assets no matter where those assets reside, how they're managed, and how they're designed. At the end of the day, the primary responsibility of IT is to be the organization that can ensure that IT services deliver the optimal customer experience.

This is a journey that can begin with a set of small steps that can get you started. For example, beginning by understanding what internal and external service are being used within your company helps you understand the type of services that are used for different purposes. After you understand where you are today, you can plan a series of strategic steps to make your planning and execution predictable and understandable. Get ready by learning new skills. Understand the type of billing and invoicing that are offered by cloud providers and how those processes interact with your internal processes. These steps help you get started more quickly.

Chapter 5

Getting Started with Cloud Brokering

In This Chapter

- Planning based on your business
- Buying services based on your plan
- Managing cloud services
- Preparing for the future

The world of computing is changing dramatically with the advent of cloud computing platforms. Business leaders demand the ease of use of cloud services combined with the control and security of the traditional IT environment.

In this chapter, we explain what it means to begin transforming your IT organization so it offers the flexibility of the public cloud environment but in a planned and controlled manner. You can answer some of these questions: How does an organization get started with this transition? What are the most important factors that ensure that business units achieve their goals of creating the right services for the right purpose at the right time? How does IT help the business predict quality, control, and cost management in a consistent manner?

Start with Planning

In Chapter 2, we discuss the necessity for a well-conceived planning process. Planning is necessary as more companies begin their strategy to achieve digital transformation. Digital transformation means that IT services are at the core of how businesses are able to connect and manage the customer experience in a way that increases value and keeps customers engaged.

How do start your planning so you can embrace digital transformation? Clearly, this can't be achieved in a vacuum. One of the best ways to start your planning process is to set up a core team that includes representatives of the key stakeholders. This should include the following members:

- **CFO or a representative of financial management:** Financial management must be comfortable that the business leaders can accurately forecast their IT budgets with some degree of accuracy. There will obviously be changes when unanticipated events occur, but Finance needs to be able to budget and plan for the future.
- **Line of Business (LoB) leaders:** LoB leaders must share their strategy and goals with the core team. Are there new products and services being developed? Are there new partnerships that will impact the development or deploy of new applications? Are there emerging competitors that will force LoB leaders to rethink how they deliver value to customers? By sharing this thinking, the rest of the organization can anticipate the types of services the business will need.
- **IT leaders:** All key leaders in IT need to be included beginning with the experts who are developing and deploying applications and those who have responsibility for managing the overall environment. It is also important to include the Chief Information Security Officer (CISO) who's responsible for maintaining the security of systems, environments, and data. In addition, many organizations have a Chief Compliance Officer (CCO) responsible for making sure that data and applications meet industry and corporate regulations and compliance mandates and compliance for the company.
- **Strategy Leadership:** While strategy may not impact IT in the next six months, these strategic changes need to be built into the underlying IT framework.

Assessing readiness for change

Before you convene this core team, do your homework. What is the current state of your IT environment? How are IT services implemented in various business units? What outside services are used? What is the state of important core applications that manage transactions and other vital services? These questions are important because they reveal several things.

First, they let you know how stable the overall IT environment is. They also indicate how siloed the applications and data are within the overall company. You also get an accurate picture of how modular and flexible IT assets are.

An overall assessment reveals the level of maturity of your IT capabilities across the company. A high level of maturity means that your company has already begun to modularize IT services so they can be used in different situations without having to start from scratch. Maturity also means that the company has a roadmap for managing data across business processes and data.

Few companies in the market have reached the level of maturity that they would like. Typically, organizations are approaching this transition to a service based approach to computing in an incremental fashion. Cloud brokering is a pragmatic way to start your journey forward to a modular and flexible IT services environment.

Assessing your applications

In addition to assessing your overall environment, you have to take stock of the applications that run the business today. This inventory includes traditional applications that operate in the data center and those on-premises applications that operate in business units and new applications that run in the public cloud. You need to understand the health of each application. All applications won't benefit from a cloud deployment model. But certain applications can be much better managed in a public or private cloud environment.

Selecting the right cloud service

In many business units, developers or business leaders will simply select the public cloud service that they're most familiar with. That might not always be the right decision. Therefore, a coherent planning process is required to make sure that you select the right type of cloud service. For example, some cloud services are more expensive than others. Making matters worse, these vendors are continually changing their price structures and ways that they bundle services based on competitive situations. Different clouds also are intended for different levels of security, availability, and performance.

Buying Services Based on the Plan

After planning, you set about the process of buying the right services to meet your changing business needs. What type of budget do you have? What are the greatest issues articulated by the CFO? What are the needs of the business to satisfy customers? What are the market challenges that drive the creation of new applications and new business services? The conclusions of your planning team will lead you to select services that best match your company's business objectives.

Understanding your suppliers

When you understand what your company needs to satisfy customers, you have to make sure you have vetted your suppliers. A cloud brokering service ensures that you procure cloud services from vendors that meet your security, reliability, performance, and service level requirements and help you avoid vendor lock in. A brokering service also lets you compare prices in a more accurate manner.

Establishing a clear procurement process

Most users want a self-service portal to compare and select the services they need when they need them without having to deal with excessive burocracy. Using a cloud brokering service orchestrates all the necessary services and will abstract and automate the approval and procurement process. Cloud brokerage manages which roles in the company are allowed to use which services under which conditions. It may send users to a different cloud service than they have used in the past because the project requires a higher level of compliance than a previous project. All this happens without the user being aware of the workflow.

Managing the Hybrid Cloud Environment

You are on your way to creating a well-managed hybrid cloud environment. You have a good understanding of your applications environment today and have a plan for making the changes to your environment to increase agility of your IT services. You know what services you need for the future and how to estimate costs. Now your challenge is to have a clear plan to manage your environment on an on going basis. This means keeping all services running based on your required level of services and understanding your costs today and in the future.

In order to maintain cost control over your environment, you have to understand what you're being charged for. How are various workloads being managed in cloud services? Are those costs stable, or are they suddenly rising? Do you know why this is happening, and are you in a position to make the right changes to better control your IT services. In some cases, higher costs might be justified because additional safeguards have been added. In order cases, the application itself may be gaining traction with more and more customers accessing that application. In these circumstances, the higher costs may be well justified.

Planning Based on Your Needs

Throughout this book we provide you with different scenarios about what it takes to be a successful IT organization in an ever-changing world. Your starting point is dictated by the nature of your industry and how you address challenges. You will plan very differently if you are a startup where all your IT services are created on the cloud and are managed in a single cloud or with several different cloud services. If you're an established company, your planning process is going to be very different and more complex. We cover both of these scenarios and examine what the challenges and opportunities are for each in this section.

Tracking and managing spending

To be successful, companies have to be able to manage all the capabilities they're using to create value for customers. In a perfect world, businesses would spend whatever they needed to get the job done. In fact, this was often the attitude of business developers only a year ago. They believed that they could ignore the costs of services as long as they delivered the applications they promised to build. The reality is quite different. Organizations have to be able to justify their spending in line with business financial plans. It is necessary to consolidate and manage bills using a tool like a cloud broker.

Automating the billing process

When you are procuring services from a variety of cloud service providers, the overhead can be very high. Many organizations waste a tremendous number of resources reconciling bills to make sure they're only paying for the services they use. The best cloud brokers can aggregate bills across all the cloud service providers, update budgets, and export bills to financial systems.

Preparing for the Future

Cloud brokering offers organizations a systematic and proactive technique for controlling the way cloud services are benefitting the company. This is *not* a short term fix; rather it's a methodology and pragmatic set of operational tools. By combining the ability to plan, buy, and manage the right cloud services, you'll be better prepared for a future that will demand that you are ready for change. Planning is key, but you don't have to do it alone.

Partner with consultants and service providers that have a concrete understanding of best practices and well-tested techniques for creating a cloud broking approach. This movement to cloud brokering helps you team with corporate management to have predictable spending and manage security and governance.

IT organizations are transforming themselves into services organizations

The movement to cloud brokering offers a pragmatic way to support the demands of business users. Cloud brokering helps IT organizations supply business users with the services they demand with the right levels of freedom, governance, and control. In the world of hybrid cloud, it is important to control and manage the services that your employees need to execute business requirements.

- ***Develop a hybrid cloud strategy* — establish a roadmap and goals**
- ***Create a governance strategy* — protect your company's critical data**
- ***Provide flexibility* — enable business users to leverage a variety of cloud services**
- ***Evolve IT* — help the IT organization become the linchpin to provide scalable, governable, manageable, and cost-effective services to the business**
- ***Become an agent for change* — allow your company to be nimble in the face of competitive pressures**

Open the book and find:

- **How to become a services provider**
- **How to manage costs**
- **How to move to self-service IT**
- **Ways to position your company for digital transformation**
- **Why cloud brokering is important for your business**
- **Advice on planning a hybrid cloud environment**
- **Tips for moving away from disconnected silos**

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