



BUILDING A SUCCESSFUL ROADMAP TO THE CLOUD

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F R O S T  S U L L I V A N

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INTRODUCTION

Chances are your company has dabbled in the cloud. Perhaps you have moved the company Website to an on-demand cloud-based infrastructure service. Your developers may be testing their new applications in the cloud before releasing them. It's likely that your line of business colleagues subscribe to multiple Software as a Service (SaaS) applications, whether or not IT was involved in the decision.

However, no business ever dabbled its way to success. To maximize its investment and the value it gains from cloud solutions, every business—large and small—should start with a roadmap. A solid roadmap will not hasten the cloud 'journey': each enterprise should move at its own pace. Nor will it prescribe the 'right' way to enter the cloud and move along its path: each enterprise should make its own decisions on where and how to adopt cloud solutions to meet its needs.

What a roadmap will do is ensure that each cloud decision the company makes to solve today's needs will continue to pay off in the future.

But where to start? Developing a roadmap for your cloud strategy does not have to be daunting. It just takes a little planning, homework and collaboration. In this paper, we list the steps toward building a cloud roadmap, with focus on the value provided by IBM and its partners.



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WHY CLOUD?

The cloud is a flexible business model. Its general characteristics speak to a broad range of business challenges; and specific cloud services offered by different providers may vary widely in their ability to meet a company's needs. Businesses may turn to the cloud for any or all of the following benefits:

- **Deferral of capital expenses:** When budgets are tight, most businesses prefer to spend from the fungible operating budget rather than commit to capital investment in hardware with a long return on investment.
- **Faster time to market:** Cloud applications can be deployed in minutes, hours, or days, rather than weeks or months, enabling the business to respond more quickly to market changes.
- **Scalability of applications:** Cloud solutions accommodate fluctuations in usage without performance degradation, so the business does not have to over-engineer for peak usage.
- **Improvements in quality and consistency:** Applications that are built, tested, and deployed on

robust cloud platforms have fewer errors, because developers work from tried-and-true templates and can easily replicate the production environment.

- **Resilience:** Many businesses choose cloud solutions to support their business continuity and disaster recovery plans, ensuring compliance with regulations and best practices for data availability.

Each type of cloud service—public or private, premises-based or hosted, Infrastructure, Platform, or Software—responds to different needs. That is why there is no single cloud approach that is best for every enterprise. It is also why it's so important for each business to develop its own cloud strategy.

5 STEPS TO BUILDING A CLOUD ROADMAP

Here are guidelines to help businesses create a roadmap for their cloud strategies:

Communicate

Cloud adoption benefits the entire business, not just the IT department—and it's important to position it that way. Communicate your plans early and often among upper management and your line of business colleagues, emphasizing how they will benefit. Talk to the senior leadership team about how a corporate IT strategy based on the cloud can foster innovation and increase market responsiveness, while reducing capital investment. With line of business managers, show how the cloud can speed their application requests through IT, reduce time to market, and enhance collaboration. Evangelizing about the cloud can benefit your project in two ways. First, it can propel you to the front of the line for the budget you will need to sustain the project; and second, it will ensure cooperation from line of business managers as you consider which applications to move to the cloud. (In fact, you will probably have managers lining up to nominate their applications).

Inventory your Workloads

You won't be moving everything to the cloud, at least not for the foreseeable future. But you need to put some thought into which workloads should be migrated, and when. And you need to start with an inventory. This can be as big or small a job as you choose. Of course, IT already has lists of current applications it manages. But the inventory can be expanded to include workloads that are not currently automated or are partially automated—for example, business analytics functions performed on an ad hoc basis via spreadsheet in a functional department. By capturing such workloads, IT is in a better position to make decisions regarding the full scope of cloud options, including integration of software functionality.

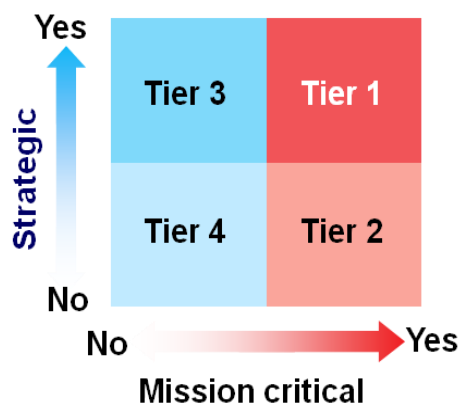
As you perform your inventory, pay particular attention to legacy applications that have become cumbersome or are performing poorly. These may be candidates for a complete redesign that can include refactoring for optimal cloud delivery. Similarly, certain applications that are currently running within the firewall may be redesigned so that some elements or functions continue to be run on-premises, while others can be refactored to run in the cloud.

Assess your Workloads

Cloud-suitability is a function of multiple subjective and objective criteria, including security, availability, accessibility, resiliency, and how the application interfaces with other workloads. IBM recommends that a good place to start is to assess how *critical* and how *strategic* the workload is to your business. Is it *mission-critical*; that is, can the business survive if the workload should be inaccessible for a week? Is the workload *strategic*; that is, does it generate significant value to the business? Plot your workloads into a chart, as illustrated in Figure 1. Most

businesses choose to start their cloud entry with Tier 4 workloads. As they move along their roadmap, they can apply their learnings to move workloads from the other tiers.

Figure 1: IBM Workload Assessment Tool



	Tier 4	Tier 3	Tier 2	Tier 1
Application Class	Not strategic or mission critical	Strategic but not mission critical	Mission critical	Key – Most critical
Typical distribution	55%	20%	20%	5%
Availability required	Low 95% or less	Medium 95-98.5%	High 98.5-99.7%	Very high Never down
Support effort	Best effort	Business hours	24*7	24*7
Monitoring	No monitoring	Basic server	Infrastructure	Application level

Source: IBM

Match the Workloads to the Cloud Service, and Start the Migration

The flexible cloud model offers many solution environments, with tradeoffs in cost, performance, and functionality. Virtualized public cloud options are the least expensive. Hosted private clouds offer a higher degree of security and performance control. For high-performance or low-latency applications, a bare metal cloud will likely provide the best price-performance. A hybrid cloud may be the right option for workloads that draw from multiple sources, including the on-premises private cloud. For application development, a Platform as a Service offer may be the best option. With a range of solutions in the market, choose a provider with the broadest, most flexible portfolio and with performance service level agreements that meet your needs.

Using the output from your workload assessment, determine which workload or workloads you will migrate first. For example, in IBM’s Workload Assessment Tool, shown above, most companies start their migration efforts with workloads that fall within Tier 4—that is, the least strategic and mission-critical. This is a sensible place to start, given that customers are eager to start exploring cloud computing with a minimal amount of risk of business disruption. For each workload you choose to migrate, use the provider’s on-line toolkit to build the workload as a virtual machine. Then upload it into the provider’s cloud.

Manage your Cloud

The cloud is not a set-it-and-forget-it venture. Be sure your provider offers a robust set of management tools that allow you to optimize your cloud. Make sure you understand how you're using your cloud. Regularly review usage reports, either to bill back individual departments or simply to ensure efficiency. Better yet, select a cloud provider with management tools that extend into your traditional IT environment as well, either directly or by supporting standards that allow the cloud tools to snap into your current console. That way you can manage your entire environment consistently, thus streamlining administrative functions and maximizing the value to the business.

SELECTING A CLOUD PARTNER

For companies that have limited resources or expertise to devote to the cloud roadmap, the smart choice is to choose a cloud provider to partner with early in the roadmap process. That way, the cloud partner can help you understand your options, assess your workloads, and manage the migration. To help you develop your cloud strategy, the cloud provider should have extensive knowledge of cloud adoption patterns and share best practices for cloud assessment. Furthermore, the cloud provider must provide a breadth of offers that fits your cloud roadmap.

For many businesses, IBM and its extensive network of cloud-certified partners are the choice to help them get started on their cloud journey. Drawing on decades of experience managing corporate data centers, IBM and its partners can provide professional services engagements to help you build a cloud strategy, assess your workloads, assess your security risk and resiliency plans, migrate to cloud, and even provide ongoing management and monitoring of cloud services. Enterprises can also enroll in IBM's Cloud Assessment Workshops. IBM can also help you optimize your on-premises data center, with private cloud and virtualization products and services that integrate with your new cloud environment.

IBM offers a broad portfolio of hardware, software, services, and integrated solutions to help businesses develop, implement, and manage an optimal cloud environment. To get started, a business may turn to the range of on-demand services available on the SoftLayer infrastructure, which is now part of the IBM Cloud portfolio. With the IBM Cloud bolstered by the SoftLayer infrastructure, your business can:

- **Construct your secure, scalable enterprise cloud using any combination of dedicated, virtualized, and bare metal servers, thus maximizing** cost-efficiency without compromising security, availability, and performance.
- **Augment your investment in your on-premises data center**, by creating a hybrid cloud that optimizes resources while offering scalability and flexibility.
- **Leverage the pre-integrated IBM Software Catalog**, which hosts a broad set of trusted IBM software and business partner applications, including software from Rational, WebSphere, Lotus, DB2, Informix, Cognos, InfoSphere and Tivoli. The software catalog can enhance your existing and new workloads, helping your business raise the bar on productivity and efficiency. Use the software catalog to support functions such as collaborative development, extended storage, big data analytics, and business intelligence.

Thanks to the SoftLayer API, which supports over 1200 function calls, and IBM's support of the OpenStack open standards community, you can be sure your IBM Cloud services will interoperate across multiple environments. As a result, you can be confident that IBM and the SoftLayer portfolio will grow with your business, accommodating future as well as current IT needs.

THE LAST WORD

Whether enterprises are just getting started in the cloud or are looking to expand their usage beyond one or two workloads, it pays to have a solid roadmap in place. The roadmap will ensure they maximize the value they derive from workloads in the cloud—in terms of productivity, cost reduction, and enhanced functionality. It will also protect their investments, enabling them to expand their capabilities and build on the foundation they have chosen. To help develop the roadmap, enterprises would do well to turn to the IBM Cloud portfolio, including the broad range of cloud services from SoftLayer, an IBM company. IBM and its network of business partners offer the expertise, broad portfolio, and cloud tools to get enterprises started on their “cloud journey” and continue along the path as they grow.

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For more information about IBM's broad cloud computing portfolio, visit ibm.com/cloud.

For information on IBM Strategy and Design Services for Cloud Infrastructure, visit <http://www-935.ibm.com/services/us/en/it-services/strategy-and-design-services-for-a-cloud-infrastructure.html>

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