MAKING THE MULTI-CLOUD MODEL WORK FOR YOU

Using clouds from multiple providers can be an appealing prospect for organizations looking to capitalize on the strengths of the various computing models. The added complexity, however, requires sound strategies for building and managing multi-cloud environments. BY TOM NOLLE
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If they aren’t already, most businesses of any significant size will soon be using public cloud services. The cloud is the perfect model to juggle issues with in-house technical support, agility of IT resources, and cost considerations. There are cloud providers that specialize in all of the common business/financial scenarios that could lead to compelling cloud business cases. In fact, that’s the problem for many users. Considering their own varied needs, and the growing specialization of cloud providers, many organizations are apt to choose more than one service provider.

Multiple clouds let you target each cloud offering optimally to each opportunity, but this setup also adds different things to the mix. It’s easy to lose control and, if you’re not careful, miss the whole value proposition. With the right precautions, though, the multi-cloud approach is not just the way of the future, it may well be the way of your future.

THE MULTI-CLOUD MODEL
It’s difficult to understand why businesses would think that a single cloud could optimally address their IT challenges. After all, each of the three models of cloud service targets a specific business case. Infrastructure as a service (IaaS) is VM hosting that targets capital cost and geographic presence, but doesn’t affect software licensing, technical support costs or business agility. Platform as a service (PaaS) adds software licensing benefits and reduces platform software support costs. Software as a service (SaaS) makes an application into a service, eliminating almost all of the traditional IT costs and activities.

Because businesses rely on personal productivity tools such as office suites and collaborative software, having some or all of the central server components of these tools hosted by PaaS can eliminate problems with software updates and synchronizing features across both desktop and central platforms. IT support efforts are reduced, and end users get better applications.
But the company’s core applications need a different kind of support from the cloud. Ideally, you’d have resilient applications that run even if local power is lost, and ones that can expand or contract their capacity depending on workload. For this, you’ll want cloud-bursting capabilities, and IaaS offers the most control, security and governance support. It’s like an elastic data center.

Some line departments have yet another need. Their workers may require customer management, analytics and data modeling, and other specialized functions, delivered anywhere in the world and kept current with regulatory requirements and productivity enhancements. SaaS has become the preferred delivery strategy for this kind of cloud service, and it’s particularly valuable in cases where the inertia of internal IT processes is simply too great to let the business keep pace with competition.

So which cloud is best for your company? There is no single choice that will be best, and attempting to settle on a single cloud model will create compromises that will dilute the benefits and business case.

If you believe in the cloud and its future evolution, if your business faces competitive or regulatory pressures, or if your company might be involved in a merger or acquisition, then you are a multi-cloud prospect.

Other factors could also make your company a potential candidate for the multi-cloud model. These would include dependence on multiple hosting platforms in the data center or widely distributed servers (rather than consolidated data centers).

Another driver is a loose business-unit structure, often arising when one company acquires another. Each of the business units from such deals is likely to have its own IT policies and drivers, and so each may come already with its...
own “ideal” cloud provider. In the long run, though, an organization will need to unite IT applications and services. That means multiple cloud choices must be united as well.

**WHAT’S DRIVING YOUR MULTI-CLOUD?**

The most important goals for a multi-cloud user are to avoid unnecessary complexity and contain costs. While most companies are long-term multi-cloud candidates, few will balance their applications and planning across all of their cloud choices. The first step in effective multi-cloud planning is to pick the primary cloud model for your business.

If you have a cloud commitment already, there is a good chance that your current provider (or one on which you spend the most, if there are several) is the primary provider for planning purposes. Most companies will focus early cloud deployment wherever the cost/benefit is greatest. More importantly, the type of service that this provider offers (SaaS, PaaS or IaaS) is the cloud model around which you should plan and integrate your multi-cloud environment.

If you’ve not yet committed to a cloud provider, you may have to assess your applications to decide what your primary cloud model would be. The first step is to look at the way that the three cloud models map to user applications and IT policies.

A more refined approach is to look at all of your potential cloud applications and assign them to a cloud model. This can be difficult without some base cost projections from which to work. As a baseline, you could start with the market-leading provider for each class in your geography (as an example: Amazon for IaaS, Microsoft for PaaS and Salesforce for SaaS). For each application, ask whether the market leader could support the application and what the rough cost of doing so would be. It’s best to look at SaaS first, then PaaS, and then IaaS. SaaS and PaaS will generally be more restrictive, but will they displace more of your current costs.

When you’ve tallied all of the applications and costs for each cloud model, the one with the largest total cost should become your primary cloud model for planning.

What do you do if most of your applications don’t go into the cloud, even the multi-cloud? In that case your primary cloud model is your own data center, and planning to resolve multi-cloud issues should be based on integrating the cloud with your data center.

**MULTI-CLOUD ISSUES: MANAGEMENT AND INTEGRATION**

Moving an application to a cloud may not be simple, but it’s widely discussed and fairly well understood. You pick a provider that matches your application features, compare the cost to your internal costs, and look at how you’ll integrate any workflows between the cloud application or component...
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and the rest of your IT processes. The integration step’s costs might vary by cloud provider, so you have to factor in those differences for a valid comparison.

Multi-cloud complicates this because you're choosing not one provider but several. The choice of one might affect the costs of the others because of differences in integration costs. You also have to consider the cost of managing multiple clouds and doing problem isolation if you have an application issue. Management and integration are the technical issues of multi-cloud. Finally, you have to look at potential problems in assigning applications to the right cloud in a multi-cloud business.

Matching applications to the right cloud is much like picking a provider, so let’s deal with those issues first. If you followed the sequence of matching features and benefits across cloud service types and then within them, you’ll identify cloud provider choices that have distinct sets of capabilities. You’ll also identify how to use these capabilities. As new applications become candidates for the cloud, apply this matrix of features and benefits to ensure that you pick the service that fits the application best.

In this application-to-service mapping, be sure to watch for the essential apps most often linked to SaaS. Because SaaS requires little internal technical support and often little central oversight, your business units may push applications into SaaS—even when that model isn’t the most economical option, or when integration problems will arise between the SaaS-hosted applications and other IT (in or out of the cloud). A multi-cloud user must ensure that all applications undergo at least a feasibility review before a platform is chosen.

To eliminate the problem of complexity of management when using multiple cloud providers, make them look like a single provider.

Technical management of the cloud is a step many users miss. It’s rare that a company can shift its entire business to a cloud service all at once. Normally each application is hosted individually, which means that data flowing between applications requires proper connections.

Identifying the source of each problem is also a technical management requirement. If every one of your cloud providers is independent, you’ll have to use different techniques for each of them and somehow introduce top-level problem determination to get cloud issues directed to the proper provider.

There’s a simple trick to eliminate the problem of complexity of management when using multiple cloud providers: make them look like a single provider. Cloud services have a set of APIs that let users deploy and manage their applications, and also a set of formats through which applications and data can be loaded and extracted. Look at
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your cloud provider candidates’ APIs and formats and see whether they offer at least one compatible subset. By using this, you can control all of your clouds with the same tools.

**Organizations with strong in-house technical support may be able to use DevOps tools such as Chef and Puppet to deploy apps.**

Even if the best cloud providers don’t have compatible formats and management APIs, there’s still hope. A cloud management tool can give you a standard set of interfaces and capabilities across all your multi-cloud choices. Right-Scale is probably the most commonly used multi-cloud management tool and it works with nearly all of the popular cloud services. Cloudify is an alternative; it’s a cloud PaaS-like tool to automate cloud deployment.

Organizations with strong in-house technical support may be able to use DevOps tools such as Chef and Puppet to deploy applications on all public cloud choices. These tools can also support applications that stay in your data center. Check the current range of public clouds supported carefully, as new ones may be added, and, in a few cases, less-used clouds may no longer be supported.

Don’t forget the issue of integration, the stitching of workflows in and out of your clouds. Cloud providers themselves offer some help here, and many third-party tools are available from a wide variety of sources. If your applications are primarily from a vendor like IBM, Microsoft, Oracle or SAP, check with the application vendor first to see which tools they can provide. Ask your cloud providers for suggestions as well.

Whichever tools you pick to help organize, deploy and connect your multi-cloud environment, be sure the vendors that provide them have a track record of following cloud and business trends. You don’t want future choices in cloud services constrained by your current cloud management and integration tools.

**SELECTING PROVIDERS**

The next step is to determine whether picking a provider other than the market leader would offer you better overall application benefits.

Start with your mapping of application requirements to cloud service features, the mapping you did to assign applications to a cloud service model. If there are multiple cloud provider choices for that model, check each against the features and benefits you’ve identified to see if a different provider choice (or a second one within the category) could help you. Multiple providers within a single cloud service type, like IaaS, can be justified if you have applications that differ widely in what they need from the cloud, particularly in reliability or geographic scope of service.
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When looking within a cloud service type, such as IaaS, for candidate providers, it’s more complicated to make the comparison. Differences in features and costs are likely to be subtler. Beware of changing your provider choice based on a small difference in cost; it might not hold up over time.

Integration and management costs can cancel out price differences among providers, and in some cases these costs could even destroy the cloud business case.

Be aware that all of the market leaders in the three cloud service models offer a variety of options—not just the cloud model for which they’re primarily known.

In your review of cloud providers within each cloud service model, pay particular attention to the features offered to create application images, deploy them, manage and move them, and link workflows through them. If these facilities are not comparable among provider choices, you may need to estimate the cost and complexity risk and then factor those into a comparison.

As a final point, be aware that all of the market leaders in the three cloud service models offer a variety of options—not just the cloud model for which they’re most known. If you find your cloud future dominated by PaaS, but you still have some IaaS cloud needs, check your PaaS vendor to see if they offer IaaS. That offering could simplify management and integration while also lowering costs. Make sure that these secondary cloud service models have been in place for some time, though. Some providers may dabble in new areas and then cut the service if it doesn’t pay off for them.

THE FUTURE CLOUD IS IN YOUR FUTURE

There are compelling benefits to multi-cloud scenarios, but the biggest benefit may be yet to come. Cloud providers are already quite specialized, because it makes good business sense for them to pick a niche where they can be valuable and profitable. Over time, providers will continue this focusing process and provide better features and costs for smaller segments of the cloud market. There will be more candidates for multi-cloud environments in the future as these new focus points align in new ways with your particular business needs.

Over time, cloud service prices will likely continue to fall. This will open new application opportunities that are best supported with multiple, application-tuned cloud services. To compensate for base price declines, cloud providers will offer add-on services, particularly in IaaS clouds, that act as cloud-provided functional extensions to applications. Today, most of these services are used by internal IT teams building cloud applications. In the future, third-party
applications will be supplied in growing numbers to exploit the benefits of these services. You can see examples already from cloud giant Amazon.

The combination of these pricing and feature changes will multiply the number of clouds needed to generate an optimum cloud strategy for an organization. While some service providers will develop inter-cloud features and tools, the cloud user must navigate this increasingly complicated cloud space and make it work at the business level.

Everyone faces the difficult-to-predict future, but those who plan for it face it more effectively. That’s true with the cloud, too. Multi-cloud trends are already clearly visible, and dealing with selection and management of a multi-cloud environment now will make the future of the cloud easier to grasp.

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