Create a Data Center as a Service to Execute Your Cloud Strategy

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Analyst(s): David J. Cappuccio

The evolution of data center services will likely include the use of multiple cloud as-a-service providers. By logically determining what service, when to implement them and with which provider, I&O leaders and CIOs will become providers of outcomes, not just "iron."

Key Findings

- Data centers deliver services to the business, but where those services originate is changing rapidly.
- As-a-service environments simplify provisioning of specific services, but can increase overall complexity in governance and service management for IT service and support.
- As the market evolves, increased use of as-a-service offerings will exacerbate both IT support issues and management of SLAs.

Recommendations

- Prepare IT staff to support increased complexity by upgrading skills and software tools to do so properly.
- Include as-a-service models as an option for all but core systems as part of your overall strategy.
- Become a service provider of outcomes, not just the IT infrastructure.

Strategic Planning Assumption

By 2018, 70% of enterprises worldwide will base the majority of their services on an as-a-service model, compared to 10% in 2015.
Analysis

Data center and IT planners today are struggling with conflicting priorities — keeping the systems running to support the business, while embracing the cloud computing model to enable the business and provide a faster, more agile set of services. Often, the most confusing aspect of this situation is understanding what "the cloud" is, and which of the myriad variations are appropriate for an enterprise or business unit to adopt.

Using the public cloud for noncritical work, like test and development, is becoming commonplace for many enterprises, but companies often struggle with moving to the next level — placing production or important back-office systems in a public cloud environment. This has opened the door for vendors to begin offering as-a-service products that focus on specific enterprise workloads.

As-a-service offerings are proliferating rapidly, and the choices for enterprise planners seem to increase weekly. Early in the cloud era, there was software as a service (SaaS), and then infrastructure as a service (IaaS), followed by platform as a service (PaaS). Now, however, there are dozens of choices, from unified communications as a service (UCaaS), to business process as a service (BPaaS) and disaster recovery as a service (DRaaS), to name just a few (see the Acronym Key and Glossary Terms section for a more extensive list).

Some of these services are true cloud offerings that support self-service provisioning, quicker time to market, elasticity of usage and metering; that are shared across many users; and that are accessible using standard Internet technologies. Others are more traditional and offer fixed licensed services by the user or the enterprise, versus rented services (for example, usage-based). For data center planners, the longer-term solution should not be an overall generic cloud strategy, but rather a strategy based on individual use cases developed at the application or service level.

Data Center as a Service

In a perfect world, at least from the perspective of many business leaders, IT and the data center would be essentially a very agile provider of service outcomes, rather than the owner of the infrastructure. In this world, "infrastructure" as we know it becomes relevant only as a support vehicle, rather than the control point for what services get delivered. In essence, we need to create a data center as a service (DCaaS) model, where the role of IT and the data center is to deliver the right service, at the right pace, from the right provider, at the right price. IT becomes a broker of services.

Deciding to embrace a DCaaS model is the easy part — and getting there is not as difficult as one would imagine. Making key short-term decisions can lead to a long-term strategy that incorporates the best of as a service and the cloud without compromising IT’s overall goals to both protect and enable the business. In this manner, IT can enable the use of cloud services across the business, but with a focus on picking the right service, at the right time, from the right provider, and in such a way that underlying IT service and support does not get compromised.
Create a Strategy of Outcomes

Rather than creating a generic cloud-first strategy, successful CIOs and IT leaders should focus on exploiting the benefits of those as-a-service providers that offer specific business outcomes. These providers should be viewed in the same manner that IT has viewed any external service provider over the years, from the perspective of performance, service levels, ease of use, pricing and manageability. Moving a service to the cloud may sound intimidating, but when cloud vendors are approached like any other external service provider, the discussions and decisions made are all based on business outcomes rather than technologies. Conceptually, rather than moving a service to the cloud, the focus should be on integrating the cloud into services offered to the business.

Similar to any application migration, the focus should be on the following key steps:

1. **Focus on an application/service with the least risk first.** Unless your staff is well-versed in dealing with cloud-based applications, vendors and support, the initial foray into using as-a-service offerings should be low-key, with minimal risk, and with a focus on ease of migration, performance monitoring, support structures and staff training. As time goes on and your staff gets comfortable with the new structure, additional services can be added to support specific business problems, from the current vendor or from others.

2. **Learn how to be a broker.** An emerging role within IT is the broker of services. As IT begins to expand its use of cloud services, it will quickly become apparent that the complexity and diversity of these services, service levels, contracts, support agreements and key performance indicators (KPIs) need to be managed differently than traditional IT. Not every service will require a broker between the user and the provider. Some services (especially at a business process level or higher) will be handled by business units. However, the following scenarios will drive the need for an intermediary, or broker:
   - When the service involves more business-proprietary algorithms and data
   - When the service involves corporate intellectual property and compliance requirements
   - When alternatives to the service are available
   - When service-level management requires operational involvement
   - When the service needs to be integrated and managed with other services

Moreover, there is value in centralizing and simplifying access and information about preapproved services, even for services that can be managed directly by the business unit.

Brokers are crucial — not only for managing the use of cloud services for increasingly critical functions, but also for reducing lock-in and inefficient use of cloud providers. Cloud providers are not motivated to ensure efficient use of their services, to enable portability of functions or data, or to make their services work easily with other cloud services. Rather, cloud providers are motivated to create direct relationships with users and to avoid intermediaries that could reduce inefficient usage and customer lock-in. Thus, enterprises need brokers to fill the gap — starting with manual efforts, but gradually moving to more technology-based approaches.
3. **Prove the value of new services.** This can be a critical determinant in the upcoming implementation of additional services. When business units use public cloud services to improve agility or time to market for new applications, they focus on value based on business outcomes. But, when internal IT begins to use as-a-service providers as an alternative to traditional steady-state on-premises applications, the value focus shifts toward operating costs. Before migrating to an as-a-service provider, IT should have a clear understanding of what the current and upcoming operational costs are for that particular service if left unchanged. This information then becomes the benchmark for the new service, which can be used as a baseline to compare against the as-a-service providers' costs. Communicating the impact of a new service from an operational cost perspective is an effective means for IT to educate business leaders on what value IT continues to bring to the business, above and beyond day-to-day operations.

**Upside Benefits**

If implemented appropriately, the use of as-a-service providers by IT for select services can create an extremely flexible IT service portfolio that, over time, will become increasingly agile in its approach to new services, use of service providers and responsiveness to business needs. A strong broker culture will enable less reliance on single providers, and open up greater opportunities as new services (and providers) become available.

Costs can be reduced somewhat, but a strong monitoring and governance process must be in place to validate the benefits and to ensure that only the services that are needed are continuously being used. Also, capital costs can be deferred by the judicious use of external services to offload some workloads from a traditional data center, thus freeing up needed space and facilities resources for other production or legacy workloads.

**Things to Watch Out For**

A key mistake many organizations make is creating initiatives where migration to the cloud is the long-term objective. Cloud services should be seen as a key component in IT’s arsenal for delivering services to the business, but not the only component. Data center strategies that are truly effective will focus on the applications and services being delivered, not on the infrastructure or technology being used. Thus, for most organizations with diverse workloads, a hybrid or enterprise-defined data center (EDDC) approach will be needed.

Staff training and staff incentives must change to adapt to the new realities. As more services are delivered to the business via external providers, the IT skill set will morph from a strictly vertical-technology focus to one of end-to-end understanding and support. This is a huge cultural shift for many IT organizations and will force a move away from the firefighter structure many have today, where each technology stack has its best and brightest staff, and incentives are paid for reaching the top of that stack. New incentives need to be created that support the best of IT looking across stacks, so that future performance issues (no matter where they are located) can be easily identified and tracked.

Creating a broker function within IT can easily be overlooked as individual services are brought online, often by different business units. One cautionary note is that if the broker function is
assigned to the procurement team (since it often was the brokers of multisourcing agreements and was responsible for managing SLAs and contracts), it will focus on cost and service levels. These functions are but a subset of the broker functions that IT will need to perform in an EDDC (see Note 1) environments, where many vendors are providing services, interacting with each other, sharing data stores, and billing on seat-based, enterprise licenses, and “by the drink” services (that is, pay for use). IT brokers will also need to focus on alternative providers (in case the market changes or performance of one provider is not up to standards), and on the migration strategies between those providers.

There is an increasing need for enterprise workload monitoring tools that can see beyond the boundaries of the data center. These tools should track networks, applications and services; support workload dependency mapping across public and private infrastructures; and expose (and visualize) end-to-end workloads and workflows in near real time. Ideally, these tools will also map directly to business processes (or risk) to give IT a clear view of the impact of performance or downtime on the business as part of the problem resolution process. We have begun calling this market "composable infrastructure management tools," since the tools will need to evolve as the market evolves, and as the complexity of EDDC environments increase (see Note 2).

As enterprises move toward EDDC environments, one of the key pain points will be operational processes and tools. IT operations management (ITOM) and IT asset management (ITAM) tools, such as application performance monitoring (APM), workload automation/IT process automation, asset management and network management, have evolved to provide IT operations with sophisticated control of on-premises equipment and applications. We have become great at managing silos; however, staff tends to see the world from the construct of silos of servers, storage, networking, virtualization, applications and others.

In an EDDC environment, with a hybrid mix of sourcing and architectures, the physical location of an asset (or process) will not be as clearly defined. However, its attributes, performance, KPIs and cost will have a growing impact on how IT delivers services to customers. At the end of the day, IT remains responsible for that end-user experience, and will need tools to actively monitor and manage any process, anywhere, at any time (see Note 3).
**Acronym Key and Glossary Terms**

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<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>BPaaS</td>
<td>Business Process as a Service</td>
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<td>CaaS</td>
<td>Communications as a Services</td>
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<td>DaaS</td>
<td>Desktop as a Service</td>
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<td>DCaaS</td>
<td>Data Center as a Service</td>
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<td>DRaaS</td>
<td>Disaster Recovery as a Service</td>
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**Gartner Recommended Reading**

*Some documents may not be available as part of your current Gartner subscription.*

"How to Grow the Enterprise-Defined Data Center"

"The Future of the Data Center in the Cloud Era"

**Note 1 Enterprise-Defined Data Center**

The enterprise-defined data center (EDDC) is a logical construct of many parts and services, some owned by the organization, some not, but all linked together with a common cause — delivery of compute services to customers.

**Note 2 Composable Infrastructure Management**

Composable infrastructure management involves tools designed to monitor end-to-end workflow across devices, subnets, domains, data centers and/or service providers. It’s focus is on performance, KPI metrics, optimization, dependency mapping, problem identification/resolution, cost, and, most importantly, the visualization of the end-to-end process and its relationship to the business.

**Note 3 Representative Vendors Starting to Address Composable Infrastructure Management**

- Cirba
- FixStream
- iQuate
- New Relic
- ScienceLogic
- SignalFx
- ThousandEyes
- Vapor IO