



Don't Let Cloud Computing Rain on Your Parade

Diving Deeper to Wring the Value Out of Cloud



“When the surface is wavy, dive deeper for quieter waters.”

— Kristin Armstrong
Two-time Olympic
cycling gold medalist

The number is 116,000,000. Conduct a Google® search on “cloud computing” and you’ll receive over a hundred million results. There is so much buzz around cloud computing, so much noise, that – playing off Kristin Armstrong’s quote – the surface of cloud as an IT subject is wavy, constantly changing. It’s often difficult to see below the surface so that you can navigate a clear path for you and your organization through the waves of cloud options, opinion, expertise, and advice.

But there are quieter waters. There are important decisions beneath the public-vs.-private-vs.-hybrid debate that can help you chart the most applicable, the most pertinent course in cloud computing. To get oriented, let’s start with this premise: cloud-oriented architecture is actually an evolution of service-oriented architecture. Cloud may be the new black, but as-a-service is foundational, a prerequisite:

- **Infrastructure-as-a-Service** (IaaS) is delivery of computing, storage, and networking as a service to be consumed by various workloads as needed. The customer is responsible for the stack from the operating system upwards.
- **Platform-as-a-Service** (PaaS) delivers the infrastructure elements delivered by IaaS, the operating system, and possibly the runtime environments and database instances. The customer is responsible for the applications and database connections.
- **The ever-popular Software-as-a-Service** (SaaS) provides all aspects of PaaS and the application stack. The customer is responsible for processes and value inputs to the system. SaaS is based on a specific set of functions, (e.g., CRM, ERP, etc.). The customer buys the application as a service and will have limited degrees of customization.

Remember these old friends? They are still absolutely applicable and extremely important in planning your use of cloud computing.

Wear Your Service Shoes to Walk on the Cloud

If you think about your workloads and capture the requirements for each, you should find yourself using a familiar checklist that reflects an as-a-service-orientation. As an exercise, pick one of your existing workloads or a new one you are about to tackle, and ask yourself if the solution you are considering meets these requirements:

- ✓ **On-Demand** – The consumer (including business units) should be empowered to request from a predefined catalog populated with the correct business-related services.
- ✓ **Ubiquitous Access** – Services should be accessible from a web browser irrespective of the location of the service.
- ✓ **Rapid Elasticity** – Resources supporting the services should be able to quickly and easily scale up or down as needed.
- ✓ **Measured Service/Billing** – Cost allocation should be based on usage. Payment collection should depend on the deployment model.
- ✓ **SLA Management and Health Checks** – While not a direct characteristic of cloud, this is a requirement of any service-based delivery model, and will be used for things such as capacity planning, availability etc.
- ✓ **Resource Pooling** – The workloads are abstracted from the infrastructure on which they run. Resources can be “pooled” (i.e., spun up or down), capacity added or reduced, and unused infrastructure turned on or off.

These requirements are fundamental building blocks for supporting today’s workloads; you must take them into account in deciding on the cloud deployment model. This is why we believe an as-a-service-approach is still foundational.

Yes, You Will Still Have to Choose a Cloud Deployment Model

With as-a-service as your foundation, cloud deployment selections should be easier and more effective. However, you will still need to decide, based on your business requirements, which deployment model is best for your particular workloads:

- **Private** – Provides the capabilities of a cloud environment within the confines of an organization’s network and is therefore only accessible to the organization concerned.
- **Public** – Provides the capabilities of a cloud environment to multiple users and organizations, and must support multi-tenancy, common standards, and public accessibility. Resources are delivered with a chargeback model, and customers are charged on a per-use basis. (This includes community cloud services deployed for a closed community of businesses belonging to the same market vertical or sharing the same common interest.)
- **Hybrid** – Takes elements of the public and private cloud models and provides an integration point between both. This allows the flexibility of being able to use on-premise resources as well as public cloud resources.

Let’s look at some examples that illustrate how using an as-a-service approach has helped a variety of organizations in different situations make decisions about which cloud model to choose.

Example One: Who Would You Say Needs the Most Security?

Imagine an organization that manages IT hosting services for federal agencies and members of the intelligence community. It’s a good guess that security, privacy, and resiliency would be high on their requirements list.

In this scenario, the hosting provider would deliver the computing, storage, and networking as a service. And, for obvious reasons, the intelligence organization would be responsible for the stack from the operating system upwards.

Which as-a-service model would you recommend for this combination? That’s right – IaaS. And that is exactly what this hosting provider chose. They wanted to take their existing colocation and managed hosting service offerings to the next level: to provide virtual on-demand compute resources to all their federal and intelligence community customers.

Specifically, they wanted to utilize the US government’s 2010 mandate that agencies take full advantage of cloud computing benefits. To make this happen and to match their customer needs with the right cloud model, they needed to first make their as-a-service decision. For that they partnered with expert resources in VMware’s vCloud, NSX, and other VMware cloud solutions to design, validate, and implement the solution.

Now their customers are using their hosted public and private clouds with confidence.

Example Two: Fueling a Transformation

When we buy gas, we don’t think much about the dispenser and point-of-sale system, or the intelligence enabling the service. But our next example company certainly does. They are largely responsible for the innovations that contribute to the look and functionality of the modern service station in nine countries on five continents.

Top off that wide scale with the fact that they were spun out of their parent company and had to establish their own corporate infrastructure within six months or pay substantial financial penalties, and you start to understand their challenges. Imagine creating an entire infrastructure, authentication, email, voice, and applications from the ground up for ten locations in nine countries in that amount of time.

Succeeding required a level of coordination and agility that would not have been possible with a traditional data center build-out. To assist, they chose not only IaaS as the foundation for the applications, but also PaaS for SharePoint, email, and database services. They also urgently needed backup and recovery, especially prior to undertaking such a large-scale migration. For this, they chose Backup-as-a-Service (BaaS).



Overall, the universal access and rapid elasticity of public cloud met their needs to begin the heavy lifting of the divestiture, but the key decisions were made long before.

Example Three: Your Favorite Coffee Shop Chain

Consider a typical small to medium-sized business with a limited IT budget and rapid growth. They have the standard business needs of collaboration, planning, email, web presence, point-of-sale, and disaster mitigation. They keep track of their loyal customers. They have a popular web site where aficionados post favorite coffee photos. At headquarters, they have a small overworked team. They've also heard the buzz about cloud and how it will save them time and money.

In our first two examples, we highlighted the sophistication cloud provides in complex scenarios. But this example of a growing coffee shop chain illustrates how cloud can help with the daily grind of an expanding business. How would the company transition to cloud, though? Such a transformation can sound very intimidating.

Yes, a complete shift in IT infrastructure would be disruptive and might not provide the best results for this company. But a hybrid approach would enable them to leverage existing investments and still implement an appropriate public side to their cloud solutions. Again, the as-a-service decisions should provide guidance:

- The staff would like to access their company email from anywhere, anytime, but not manage the infrastructure. Therefore, SaaS in a public cloud is likely the best answer.
- A review of their disaster recovery (DR) plan showed their DR site was in the same town, prompting another easy choice: Move to disaster recovery as-a-service (DRaaS) in a public cloud for a truly geo-dispersed DR process.
- The infrastructure for business intelligence (BI) and big data analytics are beyond the budget and expertise of this growing business. But such capabilities are essential in a highly competitive retail arena. Leveraging a PaaS approach is the answer, since the company would need only provide a data feed into the public cloud and the questions they want to ask.
- And the rest of their infrastructure? They were already heavily virtualized, but this is only part of the solution. By taking advantage of automation, they were able not only to automate a lot of tasks that were consuming the IT staff's time, but also to "burst" to the cloud during peak times. Instead of provisioning a new server, installing the application stack, and then rolling it into production, they now have a system that will do all that work, and intelligently place it either on-premise or in the cloud.

Next Steps

For a complimentary workshop to assess your cloud requirements and readiness, and provide tailored implementation proposals, roadmaps, and financial justifications, please contact your Dell sales representative or visit www.dell.com/services.

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Two-time Olympic cycling gold medalist

This hybrid approach enables the company to drive efficiency in their data centers, and still implement new technologies that will grow as their business grows.

At the End of the Day

In these scenarios, the IT decisions were based on a perspective that lies beneath the cloud hype – one that first considers the best as-a-service fit. It's worth repeating: There are important decisions beneath the public-vs.-private-vs.-hybrid debate that can help you chart the most applicable, the most pertinent course in cloud computing.

Kristin Armstrong was a Junior Olympian in swimming, a distance runner in college, and then a triathlete. She spent hours upon hours practicing, sweating, pushing herself beyond her limits until 2001, when at the age of 27 she was diagnosed with osteoarthritis in both hips and told that she would no longer run at an elite level.

That didn't stop her. It just changed her perspective. In her words, "It's not only moving that creates new starting points. Sometimes all it takes is a subtle shift in perspective, an opening of the mind, an intentional pause and reset, or a new route to start to see new options and new possibilities."

And so she changed her focus to only cycling. And at the 2008 Summer Olympic Games in China, Kristin experienced the biggest achievement of her career by winning the gold medal in the women's road time trial competition a full 25 seconds ahead of the silver medalist.

We think Kristin's story is the perfect analogy: a change in your perspective, with a new focus on your as-a-service requirements, might just make your cloud choices a little easier and a lot more effective, too.

