Types Of Cloud Services

How do cloud offerings differ?

Mohan is listening to the representative at the recruitment booth. "Using what we created from our initial SaaS product, we were able to launch our PaaS offering this year!" The representative seems very excited about this achievement. "So what do you think?" he asks Mohan. Mohan has no idea what a PaaS or a SaaS is. 'What is this guy talking about?' Mohan wonders.

Many types of businesses are moving into the cloud. It can be difficult to distinguish between what each cloud provider is offering. To assist with this issue, we can group cloud offerings into service model categories. Using these categories makes it more clear what a company is offering to its customers. These categories include:

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)

While there are more "as a Service" acronyms, the trio of SaaS, PaaS, and IaaS are the most well-established. Let's dive deeper into each type!

Software as a Service (SaaS)

Bloopee's latest offering is an application where users upload and share pet photos. Customers drag and drop the photos they want to share and organize them on a beautiful web interface. On the back end, Bloopee makes use of cloud storage to store billions of cat photos.

Software as a Service or SaaS offerings are cloud applications that are available over the internet. SaaS applications don't need installation on customers' computers. The data storage and processing in these applications happens in the cloud.

Benefits:

Some benefits of utilizing SaaS include:

- Access to powerful functionality provided by other businesses
- No need to install, configure, or update these web-based SaaS applications

Challenges:

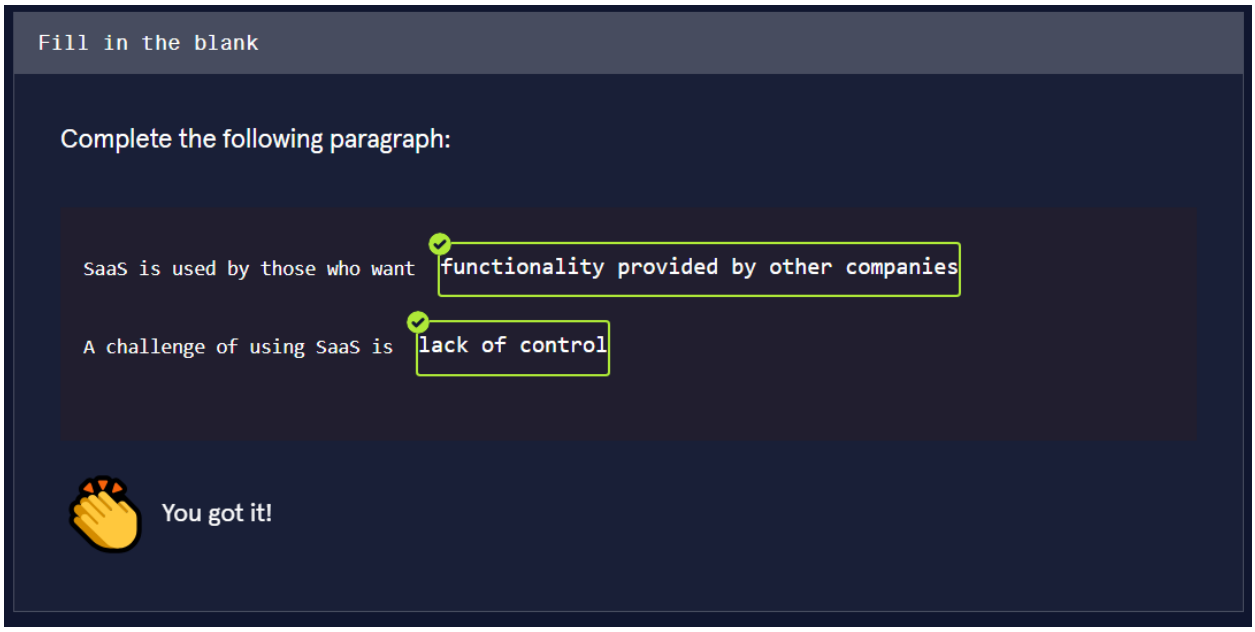
Challenges when using SaaS include:

- A lack of control over application management and configuration
- It can be difficult to port information from one SaaS application to another
- Reliance on the provider for security and access to the application

Examples:

Some common examples of SaaS applications include:

- Dropbox
- Gmail
- Google Docs



We use SaaS when we want functionality provided by other businesses. What if we have functionality that we want to provide? The remaining categories allow us to deploy our applications within the cloud. Let's take a look at Platform as a Service.

Platform as a Service (PaaS)

Renee is an entrepreneur with a fantastic application who wants it to be capable of dealing with millions of users. She has knowledge in creating applications, but infrastructure is outside her comfort zone. She decides to make use of Bloopee's newest offering, BloopDeploy. BloopDeploy takes

care of all Renee's server, storage, and networking needs. Renee provides her application, and BloopDeploy configures it for mass usage!

A Platform as a Service or PaaS solution simplifies creating and deploying cloud applications. PaaS solution tools guide customers in the creation, testing, and deployment of applications. The applications that we create using PaaS or IaaS (coming up next) can be used to create SaaS applications of our own!

Benefits:
The benefits of using a PaaS solution include:

- Low management of application infrastructure
- Lower cost than hosting an application ourselves
- Simple integration of other cloud services
- Automatic scaling to meet traffic demands

Challenges:
Customers of PaaS solutions may struggle with:

- Limited customization options
- Difficulty moving applications between platforms

Examples:
PaaS offerings by the top cloud providers (Amazon, Microsoft, and Google) include:

- AWS ElasticBeanStalk
- Azure App Service
- Google App Engine

Companies and entrepreneurs use PaaS when they want to deploy a cloud application without managing its infrastructure. But there are situations in which we want more customization. The next service category is the most flexible.

Infrastructure as a Service (IaaS)

BloopDeploy wasn't able to meet Tanika's business needs. Her application required intensive machine learning. Even the fastest BloopDeploy option was too slow. She needed more control over her application's infrastructure. Tanika signed up for BloopYourCloud, Bloopee's IaaS offering.

BloopYourCloud presented Tanika with much more fine-grained control over her infrastructure. She was able to manage clusters of machine learning servers in Bloopee's data centers. She optimized the management

software to further reduce costs. Tanika was able to get the combination of power and price she desired to make her business thrive.

An Infrastructure as a Service (IaaS) solution provides customers with indirect access to cloud infrastructure. Customers of IaaS manage the infrastructure via tooling and APIs. IaaS customers do not have direct physical access to the hardware but have more control than with SaaS or PaaS. This allows IaaS customers to virtually administrate the infrastructure.

Benefits:
Using an IaaS solution offers benefits such as:

- Services are more customizable than PaaS solutions
- Access to scalable and reliable infrastructure
- Cost can be tailored to the needs of cloud infrastructure

While the flexibility of IaaS may be an advantage to some, it has its downsides.

Challenges:
Difficulties with using IaaS include:

- More complex configuration and management of services
- Possible extensive training to create secure and cost-effective services

Examples:
Popular IaaS offerings include:

- Google Compute Engine
- Azure Virtual Machines
- Amazon EC2 (Elastic Cloud Compute)

Companies use IaaS when they want more control over their application infrastructure. IaaS is for those who have specialized needs and expertise in infrastructure management.

We've now covered the three main "as a Service" categories. Let's take a look back on what we've learned.

Free response

Vorpal is designing a new cloud-based application for managing construction projects. However, the company is unsure of whether they want to go with a PaaS or IaaS based solution. In your opinion, what would be the key deciding factors?

Your response

. The need of control over the servers and processing capabilitites. . The need of control over database servers.

Our answer

Whether Vorpal goes with a PaaS or IaaS solution for their application depends on the balance of simplicity versus flexibility they want to have in their application. Going with a PaaS solution will likely simplify the development of the application and make it easier to integrate with cloud infrastructure. However, this will reduce the amount of control they have over the application. Using a PaaS solution, Vorpal's product will have to conform to a more limited set of options. However, the infrastructure supporting Vorpal's application will not require management. If Vorpal decides to go with the IaaS approach, they will have the opposite problem. The infrastructure will be able to be tailored to the needs of the application. IaaS approaches are heavily customizable. However, this greatly increases the complexity of application management and development. Vorpal will be responsible for doing much more configuration and management. These responsibilities will require more knowledge and training of Vorpal's staff.

If Vorpal's applications' needs are met nicely by a PaaS option, and they are not interested in application management, the PaaS solution is an excellent choice. However, if Vorpal is looking for a very customized solution, and they are willing to take on additional infrastructure management responsibilities, IaaS will be appropriate. Vorpal will have to decide which of these options makes the most sense for this application.

Why This Answer?

This answer defines the choice in terms of the benefits that each service category provides, as well as their challenges. It makes it clear that a PaaS solution offers simplicity but can be restrictive, as well as an IaaS solution being flexible but complicated.

Review

In this article, we discussed three cloud service offering categories:

- Software as a Service (SaaS) provides application software over the internet.
- Platform as a Service (PaaS) simplifies creating applications within the cloud.
- Infrastructure as a Service (IaaS) allows for the creation of customized offerings.

We use these service categories to discuss the type of product a cloud-based company is offering. Understanding the differences between each category is an important step towards cloud fluency!