Cloud Computing has transformed the way companies access, manage, and expand their IT resources. Among the many cloud services models, IaaS(Infrastructure as a Service), PaaS(Platform as a Service), and SaaS(Software as a Service) are the most popular. Each of these models provides different services, which are appropriate for various business requirements and technical capabilities.

In this article, we will learn the difference between **IaaS, PaaS and SaaS** with their use cases and you can also find which model is best for your business.

*IaaS, PaaS, SaaS*

**Table of Content**

* [SaaS](https://www.geeksforgeeks.org/difference-between-iaas-paas-and-saas/#saas)
* [PaaS](https://www.geeksforgeeks.org/difference-between-iaas-paas-and-saas/#paas)
* [IaaS](https://www.geeksforgeeks.org/difference-between-iaas-paas-and-saas/#what-is-iaas)
* [SaaS vs. PaaS vs. IaaS: What’s the Difference and How to Choose](https://www.geeksforgeeks.org/difference-between-iaas-paas-and-saas/#difference-between-iaas-paas-and-saas)

**SaaS**

Software as a Service ([SaaS](https://www.geeksforgeeks.org/software-as-a-service-saas/)) is the most user-friendly model, providing complete software applications hosted in the cloud. Instead of purchasing and installing software on individual devices, users can access applications over the internet. SaaS eliminates the need for businesses to install, maintain, or manage software themselves.

*In easy words “If you have no knowledge of coding, you can hire a third-party cloud service to build both the front-end and back-end of your application, along with handling their connectivity” this is SaaS.*

**Real-World Use Cases:**

Companies use **Salesforce**for customer relationship management (CRM), **Microsoft 365**for office productivity tools, and Zoom for communication and meetings. All of these are SaaS products, which require no installation or maintenance by the user.

**Characteristics of SaaS (Software as a Service)**

* Applications are ready to use, and updates and maintenance are handled by the provider.
* You access the software through a web browser or app, usually paying a subscription fee.
* It’s convenient and requires minimal technical expertise, ideal for non-technical users.

**Popular SaaS Providers:**

* Salesforce
* Google Workspace
* Microsoft 365
* Zoom
* Slack

**When to Use SaaS:** SaaS is ideal for businesses that needs ready-to-use software for communication or data management. It’s highly accessible, making it suitable for end-users who don’t have any technical knowledge to operate.

**PaaS**

Platform as a Service ([PaaS](https://www.geeksforgeeks.org/platform-as-a-service-paas-and-its-types/)) offers a cloud environment for developing, running, and managing applications without dealing with the complexities of maintaining the underlying infrastructure. It provides a platform that includes tools for app development, hosting, and runtime management. PaaS is aimed at developers who want to focus on building applications rather than managing hardware or operating system.

*In simpler terms, if you’re familiar with coding languages like .NET or PHP and know how to create databases, but you need a platform to work on, you can use the .NET or PHP platforms. By using your own coding skills, you can build a website or app on their platform.*

**Real World use Case:**

A software development company building a SaaS product can use Google App Engine or AWS Elastic Beanstalk to deploy their web application without worrying about setting up servers, networking, or storage.

**Characteristics of PaaS (Platform as a Service)**

* PaaS is like a toolkit for developers to build and deploy applications without worrying about infrastructure.
* Provides pre-built tools, libraries, and development environments.
* Developers focus on building and managing applications, while the provider handles infrastructure management.
* It speeds up the development process and allows for easy collaboration among developers.

**Popular PaaS Providers:**

* AWS Lambda
* Google App Engine
* Google Cloud
* IBM Cloud

**When to Use PaaS:** PaaS is a great choice for developers building web applications or mobile apps that require backend services like databases, authentication, and messaging. It Simplifies development by automating infrastructure management.

**IaaS**

Infrastructure as a Service ([IaaS](https://www.geeksforgeeks.org/infrastructure-as-a-service-iaas/)) is a cloud service model that provides virtualized computing resources over the internet. It delivers essential infrastructure components such as servers, storage, networking, and computing resources on a pay-as you-go use basis.

Unlike traditional on-premises data centers, IaaS enables businesses to rent physical resources without managing hardware directly. This flexibility allows businesses to scale up or down based on their needs, making it ideal for startups and large enterprises alike.

*In simpler terms, if you know how to code and already have a platform to build your app, you’ve created the entire application. However, to host it, you need storage, networking, and infrastructure on the backend. In this case, you can simply use cloud services to get the required infrastructure.*

**Real World Use Cases:**

A tech startup might need to scale its infrastructure quickly as traffic spikes. Using IaaS, such as [Amazon Web Services(AWS)](https://www.geeksforgeeks.org/introduction-to-amazon-web-services/) or [Microsoft Azure](https://www.geeksforgeeks.org/what-is-microsoft-azure/), they can easily increase their server capacity without investing in expensive hardware.

**Characteristics of IaaS (Infrastructure as a Service)**

* IaaS is like renting virtual computers and storage space in the cloud.
* You have control over the operating systems, applications, and development frameworks.
* Scaling resources up or down is easy based on your needs.

**Popular IaaS Providers:**

* Amazon Web Services
* Microsoft Azure
* Google Compute Engine
* Digital Ocean

**When to Use:**IaaS is best for businesses that require complete control over their infrastructure. It’s commonly used by networks architects, IT Teams, and Businesses with custom infrastructure needs.

**SaaS vs. PaaS vs. IaaS: What’s the Difference and How to Choose**

| **Basis Of** | **IaaS** | **PaaS** | **SaaS** |
| --- | --- | --- | --- |
| **Stands for** | Infrastructure as a service. | Platform as a service. | Software as a service. |
| **Uses** | IaaS is used by network architects. | PaaS is used by developers. | SaaS is used by the end user. |
| **Access** | IaaS gives access to the resources like virtual machines and virtual storage. | PaaS gives access to run time environment to deployment and development tools for application. | SaaS gives access to the end user. |
| **Model** | It is a service model that provides virtualized computing resources over the internet. | It is a cloud computing model that delivers tools that are used for the development of applications. | It is a service model in cloud computing that hosts software to make it available to clients. |
| **Technical understanding.** | It requires technical knowledge. | Some knowledge is required for the basic setup. | There is no requirement about technicalities company handles everything. |
| **Popularity** | It is popular among developers and researchers. | It is popular among developers who focus on the development of apps and scripts. | It is popular among consumers and companies, such as file sharing, email, and networking. |
| **Percentage rise** | It has around a 12% increment. | It has around 32% increment. | It has about a 27 % rise in the cloud computing model. |
| **Usage** | Used by the skilled developer to develop unique applications. | Used by mid-level developers to build applications. | Used among the users of entertainment. |
| **Cloud services.** | Amazon Web Services, sun, vCloud Express. | Facebook, and Google search engine. | MS Office web, Facebook and Google Apps. |
| **Enterprise services.** | AWS virtual private cloud. | Microsoft Azure. | IBM cloud analysis. |
| **Outsourced cloud services.** | Salesforce | Force.com, Gigaspaces. | AWS, Terremark |
| **User Controls** | [Operating System](https://www.geeksforgeeks.org/what-is-an-operating-system/), Runtime, Middleware, and Application data | Data of the application | Nothing |
| **Others** | It is highly scalable and flexible. | It is highly scalable to suit the different businesses according to resources. | It is highly scalable to suit the small, mid and enterprise level business |

**Basic Example to Explain the Difference between IaaS, PaaS, SaaS**

Suppose you are hungry and you want to have a meal:

**SaaS(Software as a service):**You Order Food and Eat. You don’t have to worry about cooking, ingredients, or the kitchen.

**PaaS(Platform as a Service)**: If you want to bake a Cake. Someone provides you with a **ready-to-use kitchen** (oven, mixer, basic tools) and maybe even some basic ingredients. You just focus on **baking the cake itself**.

**IaaS(Infrastructure as a Service):**Renting an Empty Kitchen Space**:** You want to cook a complicated dish. You **rent an empty**kitchen space. You have to bring all your own appliances (stove, fridge), buy all your **ingredients**, and do all the **c**ooking and cleaning yourself.