



TIP SHEET

Key Differences Between Infrastructure as a Service, Platform as a Service, and Software as a Service

Intro – The cloud is a major point of interest for everyone, from small businesses to the largest of enterprises, but it also remains a broad concept that can be tricky to understand for those not familiar with the offerings. As a business begins to entertain the idea of switching to the cloud, it is important to understand the cloud service offerings available to best suit your needs. Although there are more as-a-service types up and coming, there are three main service types that lay the foundation of modern cloud services: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). We will discuss what they are, shared responsibility, when to use them, and the benefits of each.



Infrastructure as a Service (IaaS)

Infrastructure as a Service is the most flexible cloud service. It provides the maximum amount of control of your cloud resources. In this model, the cloud provider is responsible for maintaining the hardware, physical security, and internet connection in the datacenter.

You are responsible for everything else; installing and configuring an operating system, network configuration, maintenance, database and storage configuration, etc. IaaS provides the same technologies and capabilities as a traditional datacenter without having to physically maintain, manage, or purchase all of it. Smaller companies may prefer IaaS to avoid the large upfront cost of purchasing and creating hardware and software. Larger companies benefit from IaaS if they prefer to retain complete control over applications and infrastructure, and only want to pay for what they need, scaling up or down cloud infrastructure for their business.

There are many benefits to IaaS, including: the most flexible cloud computing model offering high scalability; ease of automating deployment, storage, network, servers, and processing power; hardware purchases can be consumption based or as needed; and clients retain complete control of their infrastructure. Microsoft Azure provides IaaS solutions through Azure IaaS, Azure Virtual Machines, Azure Disk Storage, Azure Networking, Management and Governance, Hybrid Cloud Solutions, and more!

Responsibility		SaaS	PaaS	IaaS	On-prem
Responsibility always retained by the customer	Information and data	Customer	Customer	Customer	Customer
	Devices (Mobile and PCs)	Customer	Customer	Customer	Customer
	Accounts and identities	Customer	Customer	Customer	Customer
Responsibility varies by type	Identity and directory infrastructure	Shared	Shared	Customer	Customer
	Applications	Customer	Customer	Customer	Customer
	Network controls	Customer	Shared	Customer	Customer
	Operating system	Customer	Customer	Customer	Customer
Responsibility transfers to cloud provider	Physical hosts	Microsoft	Microsoft	Microsoft	Customer
	Physical network	Microsoft	Microsoft	Microsoft	Customer
	Physical datacenter	Microsoft	Microsoft	Microsoft	Customer

■ Microsoft
 ■ Customer
 ▬ Shared



Platform as a Service (PaaS)

Platform as a Service lives in between renting space in a datacenter (IaaS) and paying for a complete and deployed solution (SaaS). PaaS delivers a framework for developers that they can build upon and use to create customized applications.

In this arrangement, the cloud provider maintains the physical infrastructure, physical security, internet connection, as well as, operating systems, middleware, development tools, and business intelligence tools that comprise a cloud solution. In this sense, PaaS provides a complete development environment without the hassle of maintaining the development infrastructure. Utilizing PaaS is very beneficial and sometimes necessary for businesses, for example, PaaS can streamline workflows when multiple developers are simultaneously working on a development project. PaaS is especially beneficial when wanting to create customized applications; it provides great speed and flexibility to the entire process while greatly reducing costs and challenges that arise when rapidly developing or deploying an application. Some more advantages PaaS offers include scalability, high-availability, significant reduction in the amount of coding needed, and automation of business policies. Microsoft offers many PaaS solutions, to name a few, Azure Active Directory (Azure AD), Azure Cognitive Search, Azure HDInsight, Azure App Service, Azure SQL Database, and Azure Cosmos DB.



Software as a Service (SaaS)

Software as a Service, also known as cloud application services, is the most complete and commonly used utilized cloud as-a-service option for businesses. With SaaS, you're essentially renting or using a fully developed application.

SaaS puts the most responsibility on the cloud provider and the least on the business client. The cloud provider is responsible for everything within the datacenter as well as providing highly available internet-based applications for businesses. Although SaaS is the least flexible of the three cloud solutions, it's also the easiest to start up and requires the least amount of technical knowledge or expertise to fully deploy. Email, financial software, messaging apps, and connectivity software are all common examples of SaaS. This arrangement is ideal for small companies or startups that don't have the capacity or capital to develop or purchase their own software applications. SaaS provides the quickest solution if you do not require customized applications or frequent use. Due to its web delivery model, SaaS eliminates the need to have IT staff download and install applications on each computer. The cloud provider manages all technical issues, data, middleware, servers, and storage, providing streamlined maintenance and support for businesses.

SaaS also has other benefits to businesses: reduced costs compared to traditional models; highly scalable based on specific needs; instant benefit from new software releases or upgrades; and ease of use with configurations based on best practices. Microsoft allows you to connect and use cloud-based applications over the Internet via Azure Portal. Some of these SaaS offerings are Data catalog, Power BI Embedded, Azure DevOps, Visual Studio App Center, Azure Sentinel, IoT Central, and Azure Orbital.

