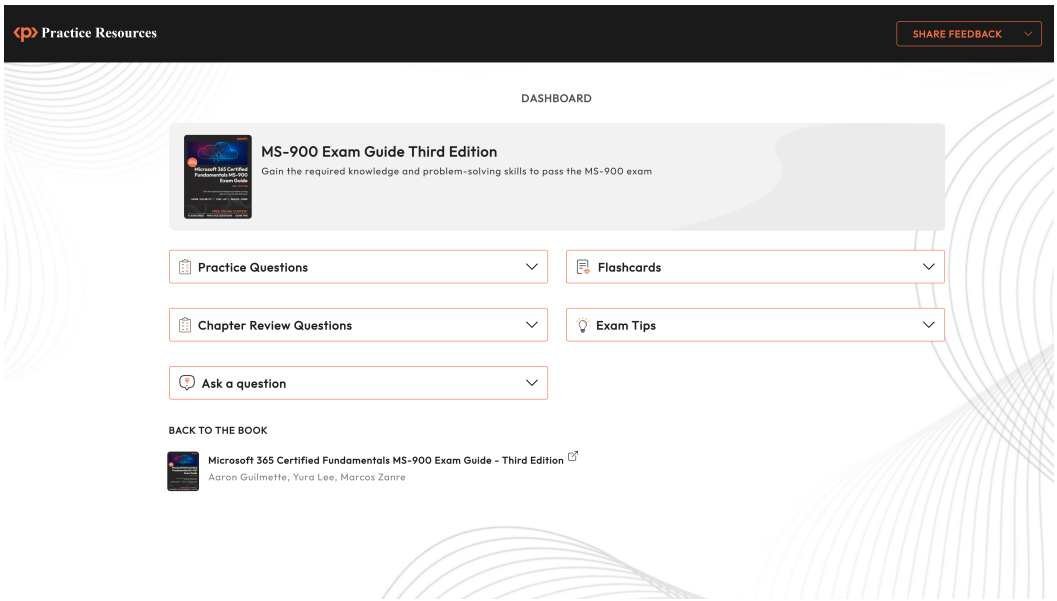
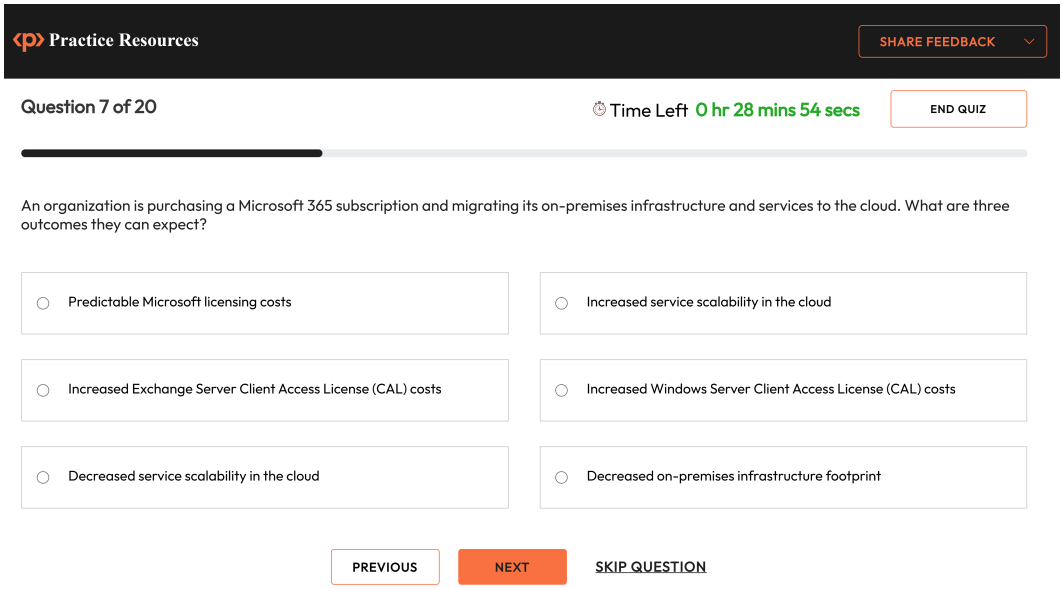
Make Practice a Priority

With this book, you get resources like Practice Questions, Exam Tips, Flashcards, and more. These can be unlocked immediately after purchasing your own copy using the unique sign-up code provided in the book.



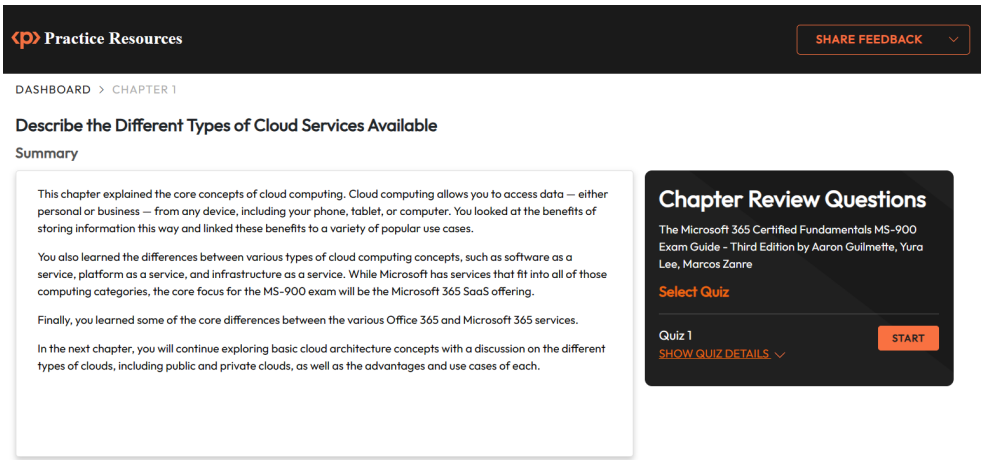
Practice Questions

These will help you simulate the exam environment. Use the timed practice questions on the platform to develop a habit of thinking quickly under pressure.



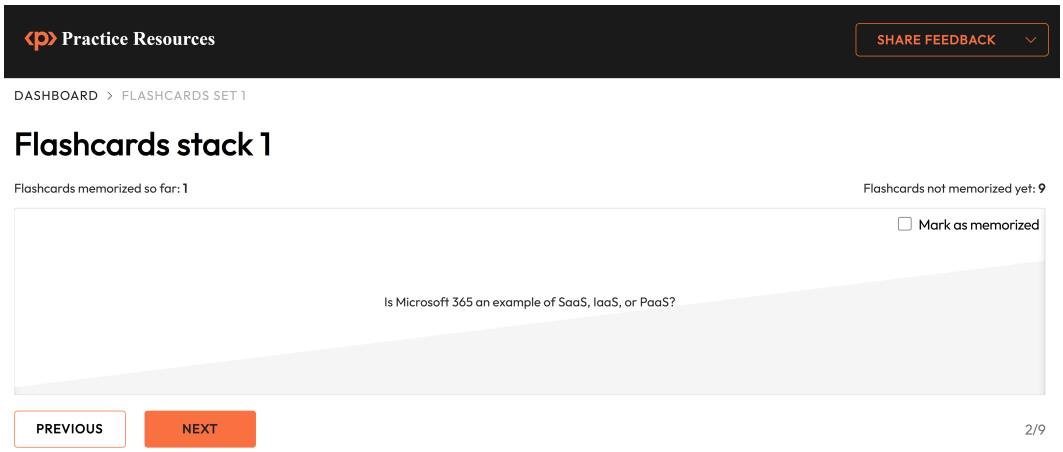
Chapter Review Questions and Benchmark Scores

At the end of each chapter, you'll find links to chapter review questions. These are designed to help you consolidate your learning from a chapter before moving on to the next one. Each chapter has a benchmark score, aim to match that score or beat it before picking up the next chapter.



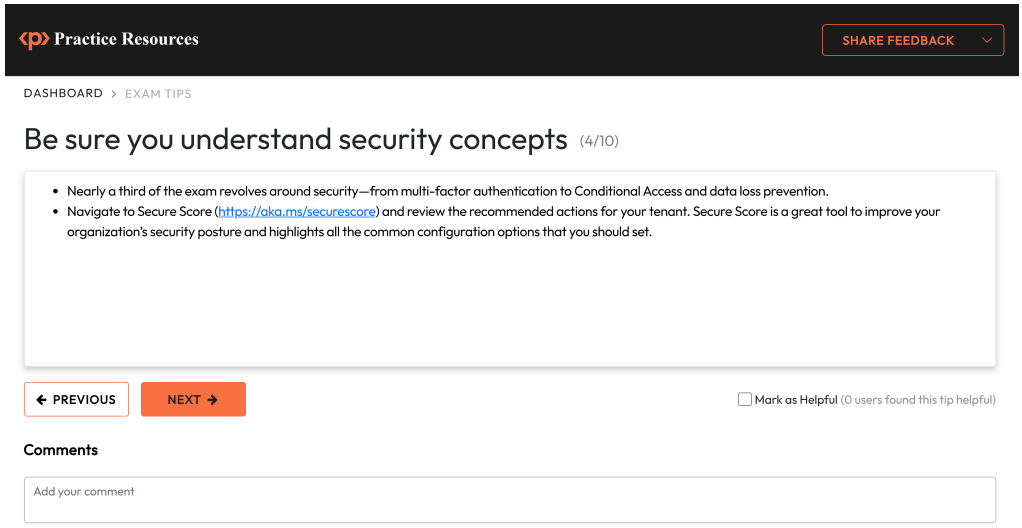
Flashcards

Use interactive flashcards to memorize key concepts.



Exam Tips

Use the exam tips on the platform to gain insights that can help you enhance your preparation strategy and maximize your chances of success.



Ask a Question

If you have any doubts, you can reach out to us via the platform. We will try our best to resolve any questions. Responses to any questions you ask will be posted in the "Resolved Questions" section of the website so that others can benefit from my answers as well. If you find any issues with the platform, the book, or any of the practice materials, you can click the **Share Feedback** button from any page and reach out to us. If you have any suggestions for improvement, you can share those as well.

> **Note**
>
> This section is exclusive to the sample copy and is not a part of the book. It is written for those who are looking to buy the book but have some questions regarding how the free online content works and how to make the most out of it.

About the MS-900 Exam

Microsoft 365 Fundamentals (MS-900) is a crucial certification in the field of cloud computing and productivity. This globally recognized credential validates your expertise, giving you a competitive edge and boosting your career prospects in the IT industry. Achieving MS-900 certification is pivotal for success, showcasing your proficiency in implementing Microsoft 365 services. This qualification is invaluable, establishing instant credibility in interactions with stakeholders, regulators, and customers.

The MS-900 exam focuses on the basic concepts and interdependencies between these services. This book will help you understand the basics of identity and authentication in Microsoft Entra ID (formerly Azure Active Directory) as well as ways to secure the identity platform. This book will also help you understand the core services of the Microsoft 365 platform and how personal and team productivity solutions can enhance work.

Who This Book Is For

Microsoft 365 Certified Fundamentals MS-900 Exam Guide, Third Edition, is targeted at Microsoft 365 service administrators and cloud technologists who want to prove their knowledge by passing this updated MS-900 certification exam. The qualified exam candidate should be able to demonstrate foundational knowledge of cloud concepts and the Microsoft 365 suite. Mastering the concepts tested in this exam provides a solid stepping stone to other, more advanced Microsoft certifications. You can learn more about this exam at `https://learn.microsoft.com/en-us/credentials/certifications/exams/ms-900/`.

What This Book Covers

This book is aligned with the revised syllabus of *MS-900: Microsoft 365 Fundamentals* and encompasses the following topics:

Chapter 1, *Describe the Different Types of Cloud Services Available*, begins by explaining the foundational cloud computing concepts and the benefits that customers can expect to take advantage of.

Chapter 2, *Describe the Benefits and Considerations for Using Cloud, Hybrid, or On-Premises Services*, expands your knowledge into areas such as public versus private clouds, as well as how hybrid and flexible work has changed the landscape.

Chapter 3, *Describe the Productivity Solutions of Microsoft 365*, explains the basics of what makes up the Microsoft 365 suite.

Chapter 4, *Describe the Collaborative Solutions of Microsoft 365*, goes beyond the individual productivity components of Microsoft 365 and introduces team collaborative features.

Chapter 5, *Describe Endpoint Modernization, Management Concepts, and Deployment Options in Microsoft 365*, provides a look at deployment and management options for Windows 10 and Windows 11 and introductions to Azure Virtual Desktop and Windows 365.

Chapter 6, *Describe the Analytics Capabilities of Microsoft 365*, introduces the new features of Viva Insights (formerly My Analytics), as well as core usage and the reporting functions of Microsoft 365.

Chapter 7, *Describe Zero Trust Principles for Microsoft 365*, explores the six pillars of the zero trust framework and how each is used to contribute to an organization's security posture.

Chapter 8, *Understand Identity and Access Management Solutions*, discusses identity concepts such as using Entra ID (formerly Azure Active Directory) in cloud and hybrid scenarios. This chapter also explores security features such as Conditional Access and multi-factor authentication.

Chapter 9, *Describe the Threat Protection Solutions of Microsoft 365*, introduces the Microsoft 365 Defender suite, which protects identity, messaging, apps, and endpoints. In addition, this chapter details the value and capability of Secure Score and automation in threat management.

Chapter 10, *Describe the Trust, Privacy, Risk, and Compliance Solutions of Microsoft 365*, explores the key features of compliance, governance, and data protection in Microsoft 365, including sensitivity labels, Priva privacy management, auditing, eDiscovery, and retention policies.

Chapter 11, *Identify Microsoft 365 Pricing and Billing Management Options*, provides an overview of purchasing and billing scenarios for Microsoft 365 services.

Chapter 12, *Identify Licensing Options Available in Microsoft 365*, discusses the concepts of base and add-on licensing as well as methods for managing and assigning licenses.

Chapter 13, *Identify Support Options for Microsoft 365 Services*, introduces the process for obtaining support as well as the different included and add-on support options available.

To Get the Most Out of This Book

The Microsoft 365 platform is best experienced with either a laptop or desktop computer running a modern operating system, such as Windows 10 or later or macOS 10.12 or later. Additionally, modern browsers such as Microsoft Edge or a current version of Chrome, Safari, or Firefox are necessary for the Office 365 portal user interface to render properly. Older versions of Microsoft Internet Explorer may not work correctly.

An Office 365 tenant will also be required to follow along with some of the configuration examples. You can sign up for a trial tenant (no credit card required) at `https://www.microsoft.com/en-us/microsoft-365/business/compare-more-office-365-for-business-plans`. Some configuration options will require an Azure AD (Entra ID) Premium subscription, which you can obtain as part of a Microsoft 365 trial or by activating an Azure AD (Entra ID) Premium trial within the Azure portal (`https://portal.azure.com`) once you have obtained a trial Office 365 tenant.

Some examples may require various tools, such as the SharePoint Online Management Shell (`https://www.microsoft.com/en-us/download/details.aspx?id=35588`), the Microsoft Teams module (`https://www.powershellgallery.com/packages/MicrosoftTeams/`), or the Office Deployment Tool (`https://www.microsoft.com/en-us/download/details.aspx?id=49117`).

1

Describe the Different Types of Cloud Services Available

Microsoft 365 Certified Fundamentals MS-900 Exam Guide, Third Edition is for individuals looking to demonstrate their foundational knowledge of the considerations and benefits of cloud services and cloud models. This exam, revised in April 2023, primarily goes into the details of Microsoft 365 as a **software as a service** (**SaaS**) model, its implementation options, and its benefits. It also covers some fundamentals of cloud services.

The updated MS-900 exam features several new (and updated) exam topics, including the following:

- Expanded coverage of Microsoft 365 apps
- Re-branding and expansion of Workplace Analytics to Microsoft Viva solutions
- Microsoft Endpoint Manager
- The Microsoft Defender suite (Defender for Endpoint, Defender for Office 365, and Defender for Identity)
- Windows 365 Cloud PC and Azure Virtual Desktop
- The re-branding of Azure AD Premium security features as Defender for Identity
- Microsoft Sentinel
- Microsoft Priva

This book will start by discussing cloud computing concepts. It is critical to understand that cloud computing is not only prevalent in everyday use but also has potential impacts at the enterprise level. The shift to cloud computing changes how technology is acquired, deployed, secured, and managed.

This foundation will also set you up for success in further certifications, should you choose to take more related technology exams. After going through this book, you will be well positioned to not only pass this exam but also, more importantly, demonstrate basic knowledge of the Microsoft 365 platform.

You will start by looking at how cloud computing is already part of your daily personal use. Then, you will expand to enterprise scenarios.

This chapter will cover the following exam topics:

- What is cloud computing?
- Describe Microsoft SaaS, IaaS, and PaaS concepts
- Describe the differences between Office 365 and Microsoft 365

On to the basics!

What is Cloud Computing?

Cloud computing is everywhere. You probably use some cloud services regularly on a personal level. Maybe you stream shows or music on services such as Netflix or Spotify. Perhaps you share pictures with your friends and family on Facebook or Flickr. Maybe you've arranged for a transportation company to pick up a package from your house or use Yahoo! email to talk to your friends from college. You might even subscribe to a service such as Xbox Live or PlayStation Plus to stream games to your handheld devices and video game consoles. Each of these things is an example of a type of cloud service.

Enterprises also use cloud services regularly—many of them for the same types of tasks that you do on a personal level—just at a larger scale.

By the end of this chapter, you'll be able to clearly identify cloud computing services and provide some real-life examples. But, before we get too deep, let's talk about cloud computing concepts in general.

Originally, you could think of cloud computing as being like shared computer infrastructure on college campuses. Students and faculty would use terminals to connect to a mainframe or minicomputer and each user would share the resources of a large system, sometimes reserving time slots when they could run their computations. In today's terms, though, cloud computing tends to refer to using internet-connected devices to consume services provided elsewhere.

Cloud computing has dramatically changed the way technology is being used. A few years ago, you might have used portable USB devices or an external hard drive to store or back up your documents, pictures, or music files. You always had access to your data—as long as you were carrying that physical device.

Today, you may use a cloud storage service such as OneDrive for documents, images, and other files. You may be using a certain amount of storage at no cost, and perhaps you can purchase more at a small price. Cloud capabilities allow you to reduce or eliminate the need for physical storage items such as hard drives. So long as you are connected to the internet, you can access your data.

Let's switch gears to the enterprise level and see how cloud computing fits there.

Describe Microsoft SaaS, IaaS, and PaaS Concepts

Cloud computing allows users to access applications and data quickly and efficiently using a service provider's data storage space and computing power. When a service provider builds out a network of computing devices, storage, or applications, a customer can pay to use these resources instead of having to build an infrastructure of their own. You could say that it is like the customer renting these resources from the service provider.

Infrastructure as a Service

Microsoft Azure is an example of **infrastructure as a service** (**IaaS**), where customers can design and build entire computing environments using the service provider's hardware, software, network, and storage resources.

Once built, a user can access these resources from anywhere, using any supported internet-connected device. Cloud computing allows organizations to outsource operational tasks such as updating servers and maintaining storage to service providers.

All computer-based services require a combination of computing power, network connectivity, storage resources, and applications. At the most basic level, you need a way to host the servers that run your apps, a way to connect your servers so that applications can exchange data, and a storage medium where your data resides.

IaaS is a model that allows you to configure those resources in the cloud. *Figure 1.2* depicts the core pieces that an IaaS offering typically provides—namely, the physical aspects of data center infrastructure:

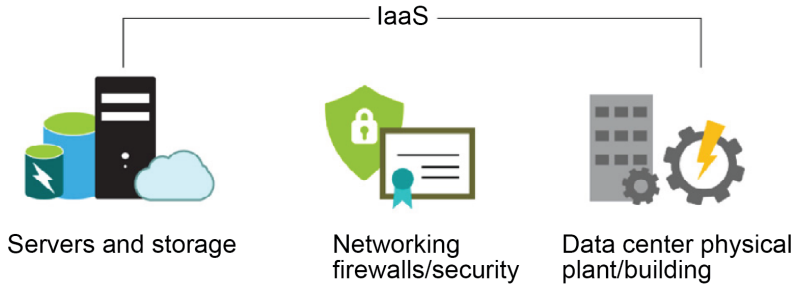


Figure 1.1 – Core offerings of IaaS

Every application has IT infrastructure supporting it—servers, network switches, routers, firewalls, and data center buildings. An organization's IT department is typically responsible for most of this. When using traditional on-premises or private cloud deployment models, organizations typically have their own hardware. They provision real or virtual server infrastructure (on that physical hardware) to help support their applications and services.

When using an IaaS platform, the IT staff are responsible for maintaining network connectivity to the service platform and the configuration of virtual infrastructure that's provisioned on the platform. The organization is no longer responsible for the physical hardware that hosts virtual machines or applications. In fact, with some IaaS service providers, even the operating system updates are handled as part of the contract.

Organizations might choose an IaaS scenario because they have custom-developed applications that they want to deploy without having to invest in their own equipment, or simply because the application they want to use doesn't have a public cloud service offering available. Customers can use IaaS to build entire data centers, complete with virtualized servers and applications, and manage configuration settings at a very fine-grained level.

Fundamentals of IaaS

For more information on the fundamentals of IaaS, visit `https://azure.microsoft.com/en-us/overview/what-is-iaas/`.

IaaS is frequently used to provide disaster recovery or site resilience at a low cost since it doesn't require upfront investment to obtain equipment. Customers also frequently use IaaS environments for development and testing scenarios due to the ability to rapidly build, destroy, and redeploy virtual infrastructure, as necessary.

Other popular uses for IaaS include the following:

- High-performance computer clusters or grid computing
- Website hosting
- File storage
- Big data analytics with custom tooling

Real-World Examples

Microsoft Azure Virtual Machines (`https://azure.microsoft.com/en-us/services/virtual-machines/`) is an example of an IaaS service.

IaaS providers typically bill customers based on a usage model—how many resources are configured and whether they are activated or in use. For example, you may provision a virtual machine with two virtual processors, 8 GB memory, and 100 GB disk storage, and the provider will charge you a fixed fee per time unit (minute or hour) if it is active. Just like the lights in a house, if you keep the virtual infrastructure turned on all the time, you will accrue more charges.

In some cases, however, organizations don't want or need to manage the underlying virtual hardware and networking. That's where **platform as a service** can help.

Platform as a Service

Layering on top of IaaS, **platform as a service** (**PaaS**) allows you to use pre-built services and simply plug in your data or code. Most Azure-based products and services are actually PaaS offerings—things such as Azure Cognitive Search, HDInsight, Azure SQL Database, and Azure Cache for Redis.

Whereas IaaS provides you with an almost *bare-metal* experience, PaaS offers a slightly abstract environment for developing and deploying cloud-based applications. In a PaaS model, the cloud service provider will provide all the things that IaaS does, plus operating systems, middleware, and any development or runtime tools that are necessary.

PaaS can be valuable to developers within an organization since the platform can provide services such as database management, development tools, scheduling, load balancing, and business analytics. Depending on the type of PaaS being used, developers may not need to be familiar with scaling or redundancy and availability concepts, as they might be managed by the service provider or implemented by simply selecting a few options on the platform.

Figure 1.3 shows how PaaS provides a superset of features to IaaS. PaaS offerings include everything from IaaS, and then typically add operating system management and automation, deployment, and development tools:

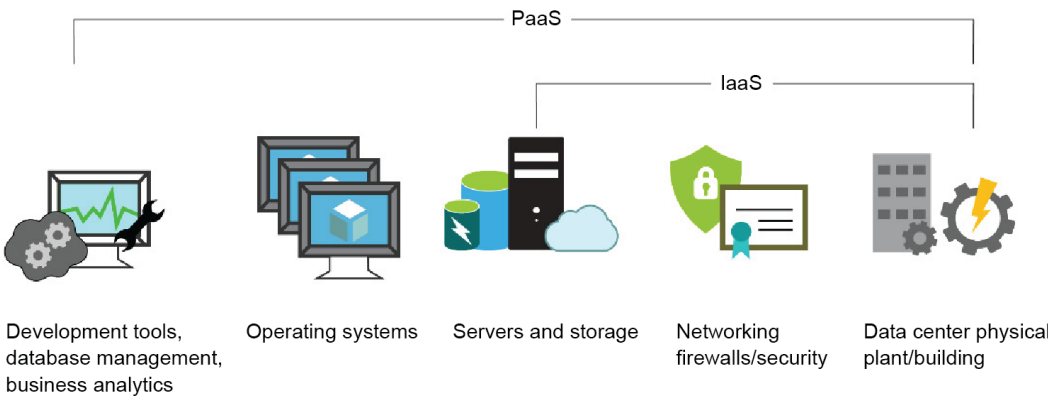


Figure 1.2 – Core offerings of PaaS

The application development life cycle includes the stages of building, testing, and deploying. PaaS enables developers to shorten their release cycles by utilizing tools that have already been made available on the platform. Developers don't need to spend time troubleshooting their infrastructure—they can simply build and deploy code iteratively and let the provider handle everything else.

Some popular use cases for PaaS include the following:

- Multi-platform testing
- Analytics
- Sophisticated development tools
- An **integrated development environment** (**IDE**) to support rapid build and deployment

> **Further Reading on PaaS**
> For more information on PaaS, visit `https://azure.microsoft.com/en-us/overview/what-is-paas/`.

Microsoft Azure Kubernetes Service (`https://azure.microsoft.com/en-us/services/kubernetes-service/`), Azure Cognitive Search (`https://azure.microsoft.com/en-us/services/search/`), Azure Content Delivery Network (`https://azure.microsoft.com/en-us/services/cdn/`), and App Service (`https://azure.microsoft.com/en-us/services/app-service/`) are examples of some of Microsoft's PaaS offerings. These are tools, services, and platforms that developers can integrate into their product offerings.

Like IaaS, PaaS is also billed through a consumption model. Depending on your service provider, you may have access to billing calculators that help you estimate what the monthly charges will be based on the number of environments you have running, the amount of data you process, and other metrics.

While IaaS and PaaS offer a lot of functionality and flexibility to build things the way you want, there are also scenarios where it doesn't make business sense to deploy and maintain infrastructure and applications.

Software as a Service

Software as a service (**SaaS**), another type of cloud computing concept, solves the business value problem by providing ready-to-use environments and services that organizations can start using immediately, with little or no configuration.

With both IaaS and PaaS offerings, organizations have a lot of fine-grained control over building, configuring, and deploying infrastructure and applications. With SaaS applications, all the low-level infrastructure and configuration management pieces are further abstracted from administrators and users.

SaaS products are fully deployed applications that are updated and managed by the service provider. When using SaaS applications, administrators usually don't have as many configuration options available to them or control over the architecture and deployment. The boundaries of what they can manage are well defined by the service provider. The diagram in *Figure 1.4* shows how the delivery of applications is managed by the cloud service provider:

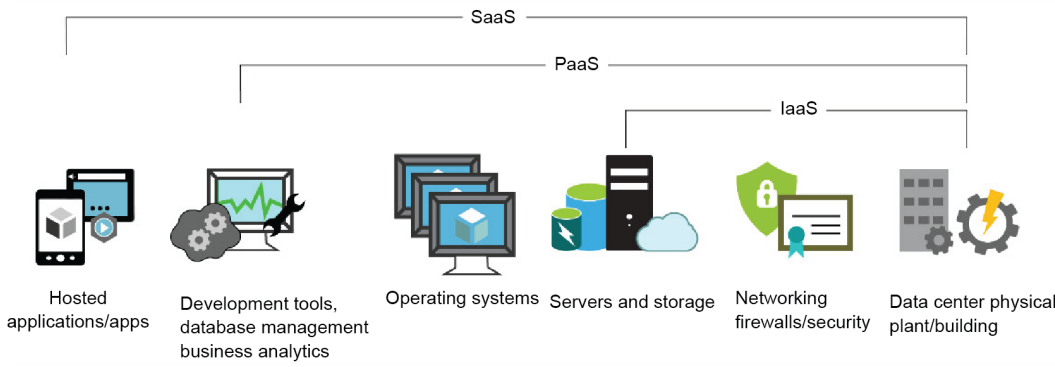


Figure 1.3 – Core offerings of SaaS

SaaS Fundamentals

To learn more about SaaS, visit `https://azure.microsoft.com/en-us/overview/what-is-saas/`.

Users typically only need an active internet connection to access SaaS applications.

Microsoft 365 services such as Exchange Online and Teams are examples of SaaS services. Dynamics 365 is another Microsoft SaaS solution.

SaaS applications have a shared infrastructure platform and software base, and each subscribing organization is segmented into its own space (frequently referred to as a **tenant**). SaaS applications are frequently designed as multi-tenant service offerings.

In this type of architecture, each subscriber organization has a logical, software-defined boundary that prohibits accessing other subscribers' tenants. Other software technologies may be deployed to further insulate and isolate tenants from one another, such as data encryption or network access controls configured inside the tenant.

Serverless Computing

Serverless computing is a bit of a misnomer. After all, the code and applications your business requires still have to run on *something*. With serverless computing, developers are fully isolated from the concepts of hardware and operating system management. Instead, the platform itself handles dynamically provisioning and allocating resources.

With serverless computing, code can be directly deployed to runtime environments without the developer having to manage anything except their code. Similar to other cloud service models, such as IaaS or PaaS, serverless computing offers organizations pay-per-use capabilities in an extremely cost-efficient model.

With IaaS or PaaS, you may pay to have environments running, even though they might not be fully utilized. Serverless computing, on the other hand, can frequently be purchased at a per-execution level, meaning that if your application isn't processing, it's not accruing costs.

Azure Functions (`https://azure.microsoft.com/en-us/services/functions/`) and Amazon Web Services Lambda (`https://aws.amazon.com/lambda/`) are two commercial examples of serverless computing.

Depending on the business requirements (such as operational agility, regulatory, and financial), organizations may wish to leverage one or more of these cloud service scenarios. SaaS and serverless computing options are frequently the most cost-effective (with a flat fee and transaction-based pricing) overall.

Now that you are familiar with cloud computing concepts in general, you are ready to explore the features of the Office 365 and Microsoft 365 platforms.

Describe the Differences between Office 365 and Microsoft 365

When Microsoft originally entered the marketplace with its cloud-based offerings in 2007, only core services such as identity (Azure Active Directory), email (Exchange Online), and collaboration (SharePoint Online) were available.

Each of these services could be purchased separately or they could be purchased together in a bundle—originally referred to as **Business Productivity Online Suite** (**BPOS**). BPOS was later rebranded as **Office 365**. The Office 365 product family grew to include the traditional Office application suite (familiar applications such as Word, Excel, PowerPoint, and Outlook) as well as instant messaging and telephony features (Skype for Business).

The **Microsoft 365** suite was introduced to include additional subscription-based components, such as Windows and the Enterprise Mobility + Security suite (Microsoft Intune and Azure Active Directory Premium) security features.

Today, both Office 365 and Microsoft 365 suites are available, each with varying subscription levels.

Table 1.1 shows a comparison of some of the core features and services available between Office 365 and Microsoft 365:

Services/Features	**Office 365**			**Microsoft 365**			
	E1	**E3**	**E5**	**F1**	**F3**	**E3**	**E5**
Microsoft 365 Apps (Desktop)		X	X			X	X
Microsoft 365 Apps (Web)	X	X	X		X	X	X
Exchange Online Kiosk (2GB mailbox)				X			
Exchange Online Plan 1 (50GB mailbox)	X				X		
Exchange Online Plan 2 (100GB mailbox)		X	X			X	X
Inactive Mailbox support		X	X			X	X
Microsoft Teams	X	X	X	X	X	X	X
Microsoft Teams Live Events		X	X		X	X	X
Microsoft Teams Webinars		X	X		X	X	X
SharePoint Online Kiosk (2GB)				X	X		
SharePoint Online P1 (1TB)	X						
SharePoint Online P2 (1TB+)		X	X			X	X
Planner	X	X	X	X	X	X	X
To-Do	X	X	X		X	X	X
Microsoft Lists	X	X	X	X	X	X	X
Microsoft Bookings	X	X	X	X	X	X	X
Microsoft Forms	X	X	X		X	X	X
Microsoft Stream	X	X	X	X	X	X	X
Power Automate	X	X	X		X	X	X
Power Apps	X	X	X		X	X	X
Power Virtual Agents	X	X	X		X	X	X
Power BI Pro			X				X
Viva Insights	X	X	X			X	X
Viva Connections	X	X	X	X	X	X	X
Viva Engage	X	X	X	X	X	X	X

Services/Features	Office 365			Microsoft 365			
	E1	E3	E5	F1	F3	E3	E5
Microsoft Forms	X	X	X	X	X	X	X
Entra ID P1 (Formerly Azure AD P1)				X	X	X	
Entra ID P2 (Formerly Azure AD P2)							X
Intune P1				X	X	X	X
Windows Autopilot				X	X	X	X
Windows Hello for Business				X	X	X	X
Defender for Cloud Apps Discovery				X	X	X	X
Defender for Cloud Apps (Full)							X
Office 365 Cloud App Security			X				X
Data Loss Prevention (email & files)		X	X			X	X
Data Loss Prevention (Teams chat)							X
Azure Information Protection P1				X	X	X	
Azure Information Protection P2							X
Manual Sensitivity Labels		X	X	X	X	X	X
Automatic Sensitivity Labels			X				X
Basic Message Encryption		X	X	X	X	X	X
Advanced Message Encryption			X				X
Content Search	X	X	X	X	X	X	X
eDiscovery, including hold and export		X	X			X	X
eDiscovery Premium			X				X
Retention Policies		X	X			X	X
Insider Risk Management							X
Power Apps	X	X	X		X	X	X
Power Automate	X	X	X		X	X	X
Power Virtual Agent	X	X	X		X	X	X
Windows 10/11 Enterprise					X	X	X
Azure Virtual Desktop					X	X	X

Table 1.1 – Office 365 and Microsoft 365 feature comparison

Microsoft organizes subscriptions in tiers, with each higher tier offering more features and capabilities.

Further Reading

Microsoft is continually updating the services and features included with each plan. For the most up-to-date information, see `https://www.microsoft.com/en-us/microsoft-365/enterprise/office365-plans-and-pricing`. A full comparison table is available on Microsoft's enterprise plans and pricing page: `https://go.microsoft.com/fwlink/?linkid=2139145`.

Summary

This chapter explained the core concepts of cloud computing. Cloud computing allows you to access data—either personal or business—from any device, including your phone, tablet, or computer. You looked at the benefits of storing information this way and linked these benefits to a variety of popular use cases.

You also learned the differences between various types of cloud computing concepts, such as software as a service, platform as a service, and infrastructure as a service. While Microsoft has services that fit into all of those computing categories, the core focus for the MS-900 exam will be the Microsoft 365 SaaS offering.

Finally, you learned some of the core differences between the various Office 365 and Microsoft 365 services.

In the next chapter, you will continue exploring basic cloud architecture concepts with a discussion on the different types of clouds, including public and private clouds, as well as the advantages and use cases of each.