ExamLabs

Microsoft Azure Architect Technologies Study Guide Exam AZ-303

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What Is Azure?

Azure, which is Microsoft's cloud offering, is a pay-as-you-go computing platform with tons of services. Azure is an ever-expanding set of cloud services to enable organizations to meet their business challenges. It offers the opportunity to build, manage, and deploy applications on a massive, global network utilizing your favorite tools and frameworks. You can find more details about Azure at https://azure.microsoft.com/en-in/overview/what-is-azure/.

What Is Cloud Computing?

Cloud computing is the delivery of computing services—including servers, storage, databases, etc.—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale. You pay only for the cloud services you use, which helps you lower your operating costs, run your infrastructure more efficiently, and scale as your business needs change. The following are the top benefits of cloud computing:

- Cost
- Speed
- Global scale
- Productivity
- Performance
- Reliability
- Security
- And many more, which we will cover in depth in this book

Types of Cloud Computing

There are three types of cloud computing available on the market: public, private, and hybrid. Before getting started, you should know which offering suits you or your company best.

Public

In simple terms, according to Microsoft, "Public clouds are the most common way of deploying cloud computing. The cloud resources (like servers and storage) are owned and operated by a third-party cloud service provider and delivered over the Internet. Azure is an example of a public cloud. With a public cloud, all hardware, software, and other supporting infrastructure is owned and managed by the cloud provider. In a public cloud, you share the same hardware, storage, and network devices with other organizations or cloud tenants."

These are a few high-level advantages of a public cloud:

- Lower costs—no need to purchase hardware or software, and you pay only for the service you use.
- No maintenance—your service provider provides the maintenance.
- Near-unlimited scalability—on-demand resources are available to meet your business needs.
- High reliability—a vast network of servers ensures against failure.

Private

A private cloud consists of computing resources used exclusively by one business or organization. The private cloud can be physically located at your organization's on-site data center, or it can be hosted by a third-party service provider. But in a private cloud, the services and infrastructure are always maintained on a private network, and the hardware and software are dedicated solely to your organization. In this way, a private cloud can make it easier for an organization to customize its resources to meet specific IT requirements. Private clouds are often used by government agencies, financial institutions, or any other mid- to large-size organization with business-critical operations seeking enhanced control over their environment.

The following are advantages of private clouds:

- More flexibility—your organization can customize its cloud environment to meet specific business needs.
- Improved security—resources are not shared with others, so higher levels of control and security are possible.
- High scalability—private clouds still afford the scalability and efficiency of a public cloud.
- More flexibility—the Azure stack can be downloaded into private data centers, which means your own private data center will be boosted by Azure's private cloud.

Hybrid

Often referred to as "the best of both worlds," hybrid clouds combine on-premises infrastructure, or private clouds, with public clouds so organizations can reap the advantages of both. In a hybrid cloud, data and applications can move between private and public clouds for greater flexibility and more deployment options. For instance, you can use the public cloud for high-volume, lower-security needs such as web-based email and then use the private cloud (or other on-premises infrastructure) for sensitive, business-critical operations such as financial reporting. In a hybrid cloud, "cloud bursting" is also an option.

The following are advantages of hybrid clouds:

- Control—your organization can maintain a private infrastructure for sensitive assets.
- Flexibility—you can take advantage of additional resources in the public cloud when you need them.
- Cost-effectiveness—with the ability to scale to the public cloud, you pay for extra computing power only when needed.
- Ease—transitioning to the cloud doesn't have to be overwhelming because you can migrate gradually, phasing in workloads over time.

Types of Cloud Services

Most cloud computing is categorized into four broad categories.

Infrastructure as a service (IaaS) is where you rent the IT infrastructure—servers and virtual machines (VMs), storage, networks, etc.—from a cloud provider on a pay-as-you-go basis.
Platform as a service (PaaS) refers to cloud computing services that supply an on-demand environment for developing, testing, delivering, and managing software applications. PaaS is designed to make it easier for developers to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure.
Software as a service (SaaS) is a method for delivering software applications over the Internet, on demand and typically on a subscription basis. With SaaS, cloud providers host and manage the software application and underlying infrastructure, and they also handle any maintenance, such as software upgrades and security patching.
Serverless computing focuses on building app functionality without spending time continually managing the servers and infrastructure required. The cloud provider handles the setup, capacity planning, and server management for you. Serverless architectures are highly scalable and event-driven.

These are the high-level classification of categories. All these categories are explained in more detail in the coming chapters.

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