

Describe the benefits of using cloud services

1. Introduction

<https://learn.microsoft.com/en-us/training/modules/describe-benefits-use-cloud-services/1-introduction>

Introduction

Completed

In this module, you're introduced to some of the benefits that cloud computing offers. You learn how cloud computing can help you meet variable demand while providing a good experience for your customer. You also learn about security, governance, sustainability, and overall manageability in the cloud.

Learning objectives

After completing this module, you'll be able to:

- Describe the benefits of high availability and scalability in the cloud.
- Describe the benefits of reliability and predictability in the cloud.
- Describe the benefits of security and governance in the cloud.
- Describe the benefits of manageability in the cloud.
- Describe sustainability considerations and benefits in the cloud.

2. Describe the benefits of high availability and scalability in the cloud

Describe the benefits of high availability and scalability in the cloud

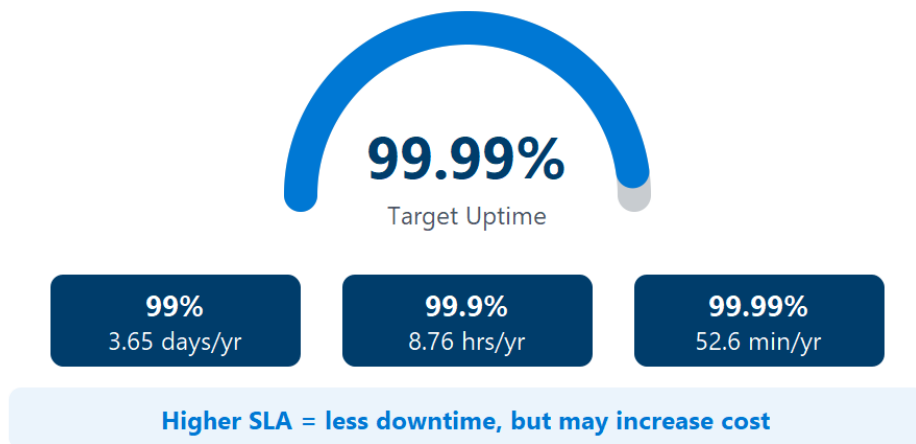
Completed

When building or deploying a cloud application, two of the biggest considerations are uptime (or availability) and the ability to handle demand (or scale).

High availability

High Availability

Maximum uptime, regardless of disruptions

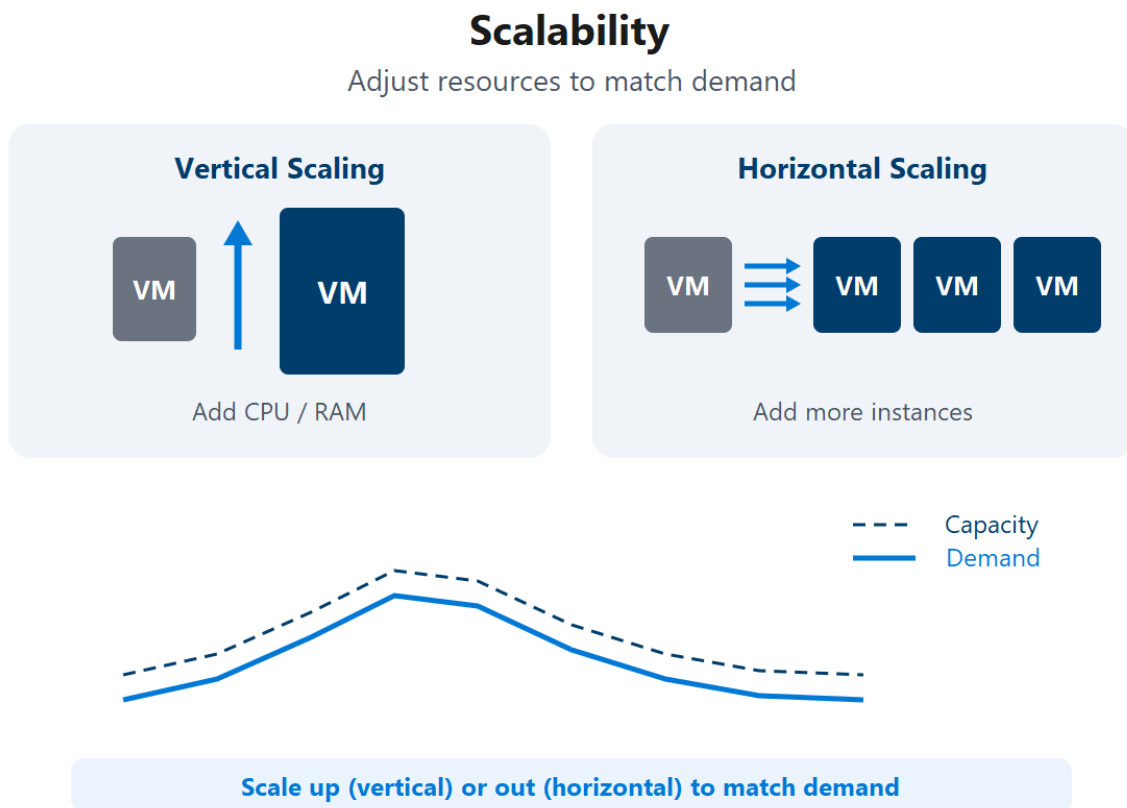


When you're deploying an application, a service, or any IT resources, it's important the resources are available when needed. High availability focuses on ensuring maximum availability, regardless of disruptions or events that may occur.

When you're architecting your solution, you need to account for service availability guarantees. Azure is a highly available cloud environment with uptime guarantees depending on the service. These guarantees are part of the service-level agreements (SLAs).

This short video describes Azure SLAs in more detail.

Scalability



Another major benefit of cloud computing is the scalability of cloud resources. Scalability refers to the ability to adjust resources to meet demand. If you suddenly experience peak traffic and your systems are overwhelmed, the ability to scale means you can add more resources to better handle the increased demand.

The other benefit of scalability is that you aren't overpaying for services. Because the cloud is a consumption-based model, you only pay for what you use. If demand drops off, you can reduce your resources and thereby reduce your costs.

Scaling generally comes in two varieties: vertical and horizontal. Vertical scaling is focused on increasing or decreasing the capabilities of resources. Horizontal scaling is adding or subtracting the number of resources.

Vertical scaling

With vertical scaling, if you were developing an app and you needed more processing power, you could vertically scale up to add more CPUs or RAM to the virtual machine. Conversely, if you realized you had over-specified the needs, you could vertically scale down by lowering the CPU or RAM specifications.

Horizontal scaling

With horizontal scaling, if you suddenly experienced a steep jump in demand, your deployed resources could be scaled out (either automatically or manually). For example, you could add additional virtual machines or containers. In the same manner, if there was a significant drop in demand, deployed resources could be scaled in (either automatically or manually).

3. Describe the benefits of reliability and predictability in the cloud

<https://learn.microsoft.com/en-us/training/modules/describe-benefits-use-cloud-services/3-reliability-predictability-cloud>

Describe the benefits of reliability and predictability in the cloud

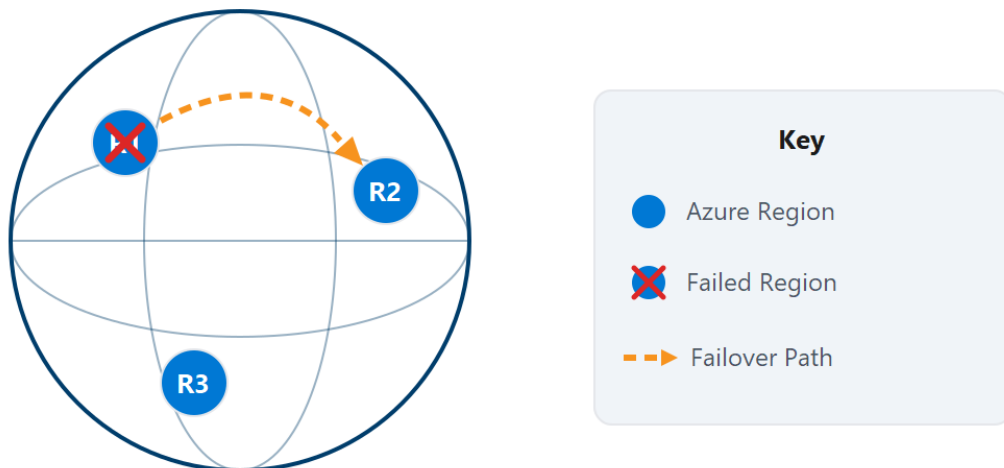
Completed

Reliability and predictability are two crucial cloud benefits that help you develop solutions with confidence.

Reliability

Reliability

Recover from failures and continue to function



Decentralized design across regions

If one region fails, others keep running

Pillar of the Azure Well-Architected Framework

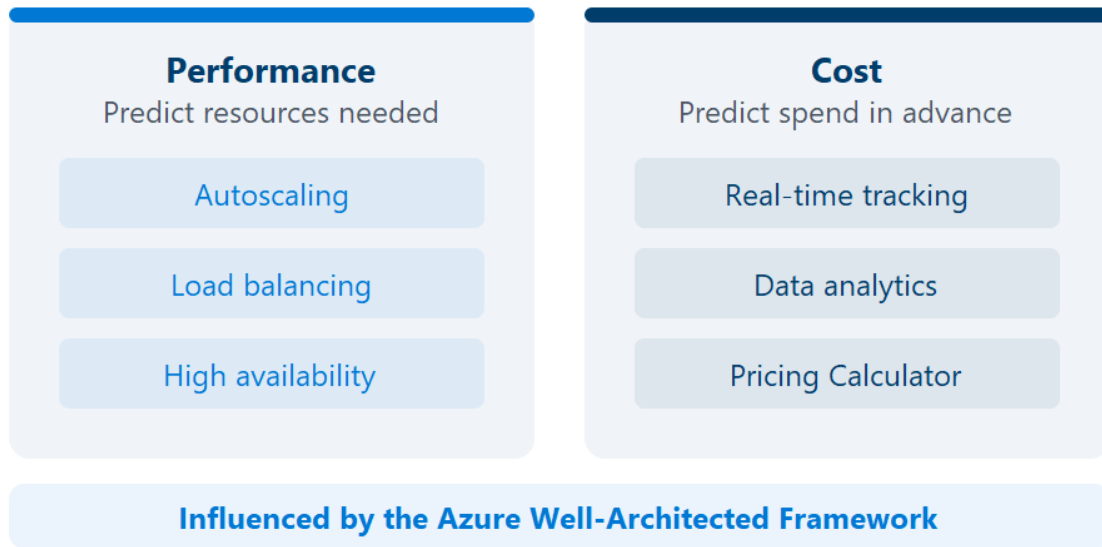
Reliability is the ability of a system to recover from failures and continue to function. It's also one of the pillars of the Microsoft Azure Well-Architected Framework.

The cloud, by virtue of its decentralized design, naturally supports a reliable and resilient infrastructure. With a decentralized design, the cloud enables you to have resources deployed in regions around the world. With this global scale, even if one region has a catastrophic event other regions are still up and running. You can design your applications to automatically take advantage of this increased reliability. In some cases, your cloud environment itself will automatically shift to a different region for you, with no action needed on your part. You'll learn more about how Azure leverages global scale to provide reliability later in this series.

Predictability

Predictability

Move forward with confidence



Predictability in the cloud lets you move forward with confidence. Predictability can be focused on performance predictability or cost predictability. Both performance and cost predictability are heavily influenced by the Microsoft Azure Well-Architected Framework. Deploy a solution built around this framework and you have a solution whose cost and performance are predictable.

Performance

Performance predictability focuses on predicting the resources needed to deliver a positive experience for your customers. Autoscaling, load balancing, and high availability are just some of the cloud concepts that support performance predictability. If you suddenly need more resources, autoscaling can deploy additional resources to meet the demand, and then scale back when the demand drops. Or if the traffic is heavily focused on one area, load balancing will help redirect some of the overload to less stressed areas.

Cost

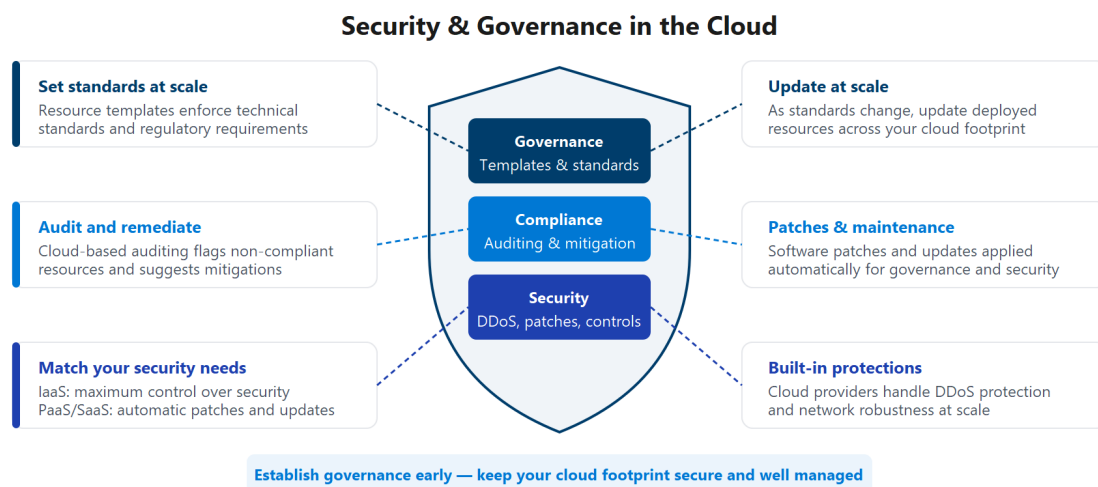
Cost predictability is focused on predicting or forecasting the cost of the cloud spend. With the cloud, you can track your resource use in real time, monitor resources to ensure that you're using them in the most efficient way, and apply data analytics to find patterns and trends that help better plan resource deployments. By operating in the cloud and using cloud analytics and information, you can predict future costs and adjust your resources as needed. You can even use tools like the Azure Pricing Calculator to get an estimate of potential cloud spend.

4. Describe the benefits of security and governance in the cloud

Describe the benefits of security and governance in the cloud

Completed

Whether you're deploying infrastructure as a service or software as a service, cloud features support governance and compliance.



Tools such as templates help ensure that deployed resources meet your technical standards and regulatory requirements. As standards change, you can update resources at scale. Cloud-based auditing helps flag resources that are out of compliance with your baseline and provides mitigation strategies. Depending on your operating model, software patches and updates may also be applied automatically, which helps with both governance and security.

On the security side, you can find a cloud solution that matches your security needs. If you want maximum control of security, infrastructure as a service provides you with physical resources but lets you manage the operating systems and installed software, including patches and maintenance. If you want patches and maintenance taken care of automatically, platform as a service or software as a service deployments may be the best cloud strategies for you.

Cloud providers are typically well suited to handle things like distributed denial of service (DDoS) attacks, making your network more robust and secure.

By establishing a good governance footprint early, you can keep your cloud footprint updated, secure, and well managed.

5. Describe the benefits of manageability in the cloud

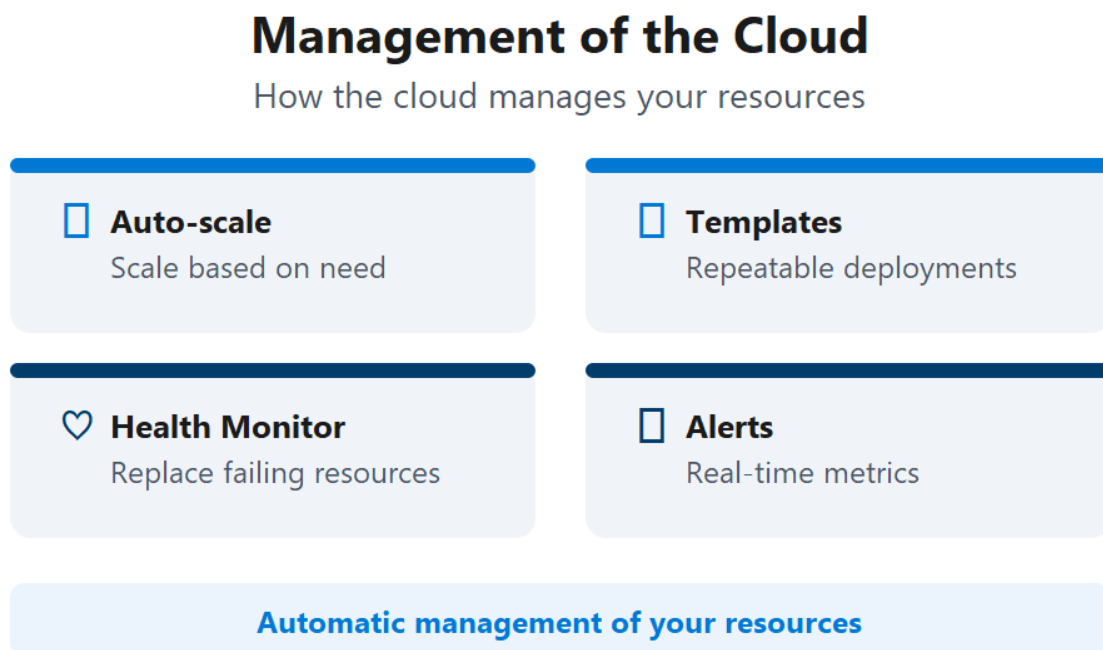
<https://learn.microsoft.com/en-us/training/modules/describe-benefits-use-cloud-services/5-manageability-cloud>

Describe the benefits of manageability in the cloud

Completed

A major benefit of cloud computing is the manageability options. There are two types of manageability for cloud computing, and both are excellent benefits.

Management of the cloud

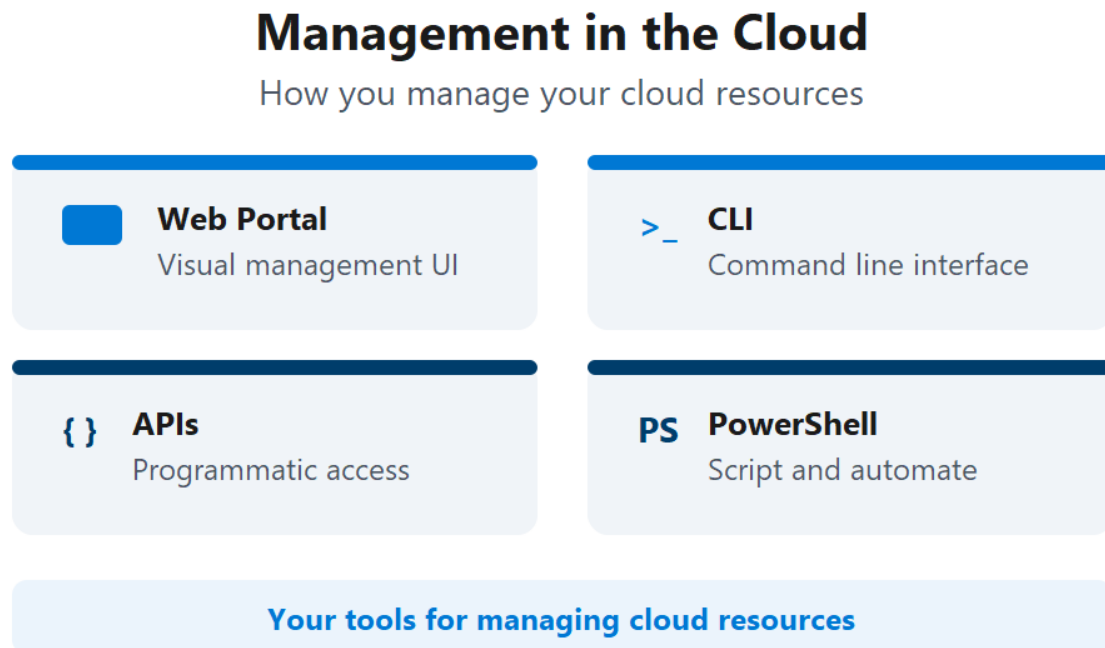


Management of the cloud speaks to managing your cloud resources. In the cloud, you can:

- Automatically scale resource deployment based on need.
- Deploy resources based on a preconfigured template, removing the need for manual configuration.
- Monitor the health of resources and automatically replace failing resources.

- Receive automatic alerts based on configured metrics, so you're aware of performance in real time.

Management in the cloud



Management in the cloud speaks to how you're able to manage your cloud environment and resources. You can manage these:

- Through a web portal.
- Using a command line interface.
- Using APIs.
- Using PowerShell.

For example, an operations team can deploy resources from templates, monitor health in the portal, and automate recurring tasks with CLI or PowerShell scripts. This combination reduces manual effort and helps maintain consistent configurations.

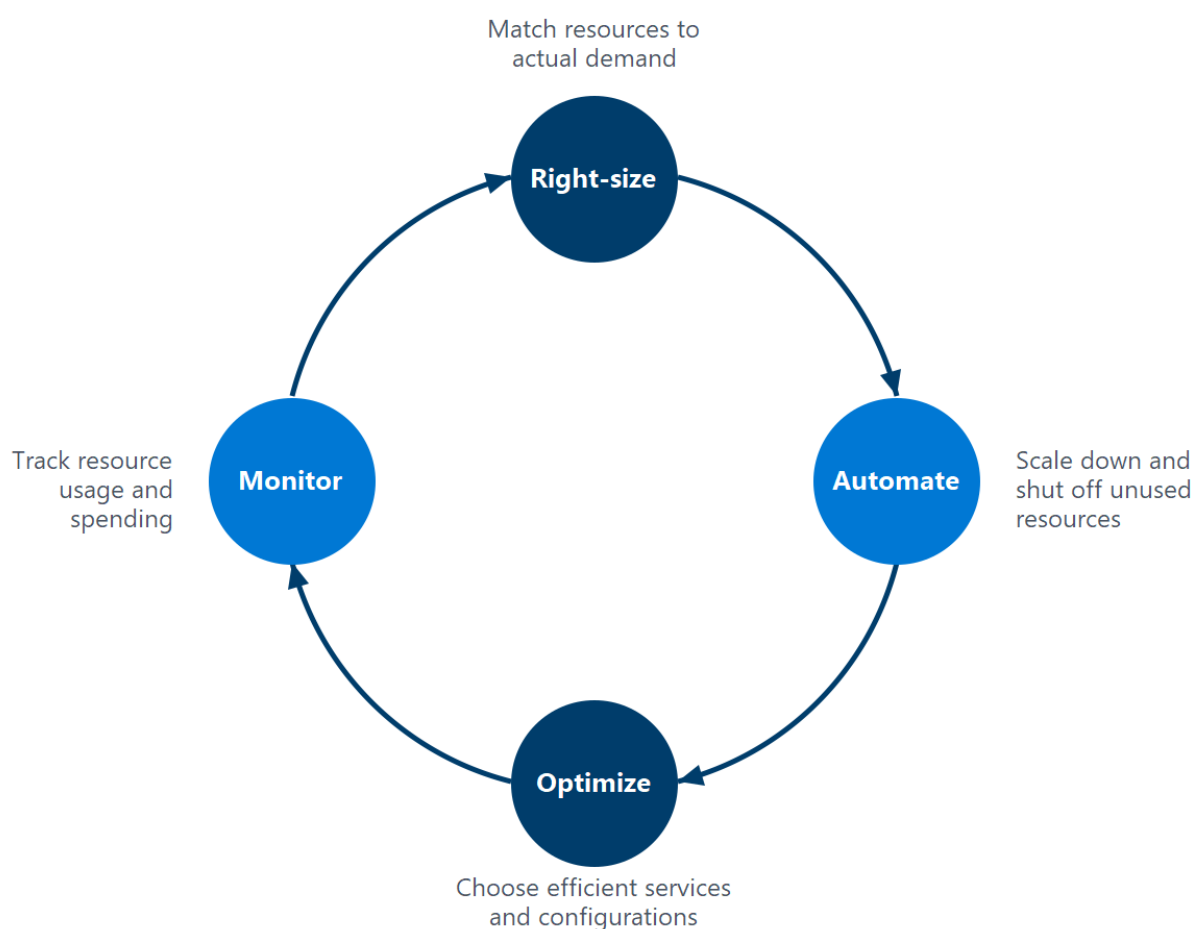
6. Describe sustainability considerations in the cloud

Describe sustainability considerations in the cloud

Completed

Cloud computing can support sustainability goals when teams actively optimize how resources are deployed and used.

Sustainability in the Cloud



Right-size, automate, optimize, and monitor — sustainability in action

Why cloud can improve efficiency

Cloud providers operate at large scale, which can improve resource utilization compared to many isolated on-premises environments. In Azure, you can also reduce waste by matching deployed resources to actual demand.

Sustainability-aligned cloud practices

Examples of practices that support sustainability and cost efficiency include:

- Scaling resources down when demand decreases
- Turning off or deallocating resources that are not in use
- Choosing efficient services and configurations to reduce overprovisioning
- Using governance and monitoring to track usage trends and optimize deployments over time

For example, a development environment that runs only during business hours can be automatically shut down overnight and on weekends. This practice reduces unnecessary consumption while still meeting team needs.

At a fundamentals level, sustainability in the cloud is closely tied to good operational habits: right-size, automate, monitor, and continuously optimize.

7. Module assessment

<https://learn.microsoft.com/en-us/training/modules/describe-benefits-use-cloud-services/6-knowledge-check>

Module assessment

Completed

8. Summary

<https://learn.microsoft.com/en-us/training/modules/describe-benefits-use-cloud-services/7-summary>

Summary

Completed

In this module, you learned about some of the benefits of operating in the cloud. You learned about high availability and reliability, and how those work to keep your applications running. You also learned about how the cloud can provide a more secure environment and support sustainability goals. Finally, you learned that the cloud provides a highly manageable environment for your resources.

Learning objectives

You should now be able to:

- Describe the benefits of high availability and scalability in the cloud.
- Describe the benefits of reliability and predictability in the cloud.
- Describe the benefits of security and governance in the cloud.
- Describe the benefits of manageability in the cloud.
- Describe sustainability considerations and benefits in the cloud.

Additional resources

The following resources provide more information on topics in this module or related to this module.

- [Build great solutions with the Microsoft Azure Well-Architected Framework](#) - A Microsoft Learn course that introduces you to the Microsoft Azure Well-Architected Framework.

Explore with Copilot

Tip

Try one of these prompts in Copilot Chat:

- "Evaluate an on-premises system and map cloud improvements for availability, scalability, reliability, security, and manageability."
- "Design a KPI dashboard to measure whether cloud adoption is delivering the expected technical and business benefits."
- "Analyze tradeoffs where cloud benefits may be limited, including cost, governance complexity, and sustainability constraints."