

# Cloud Computing: A Technological Paradigm

Cloud computing delivers computing services via the internet, providing on-demand resources, scalability, and a pay-as-you-go model.



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# Key Characteristics of Cloud Computing

1

## On-Demand Self-Service

Users can provision and manage computing resources as needed without requiring human intervention from the service provider.

2

## Broad Network Access

Services are accessible over the network and can be accessed through various devices like laptops, smartphones, or tablets.

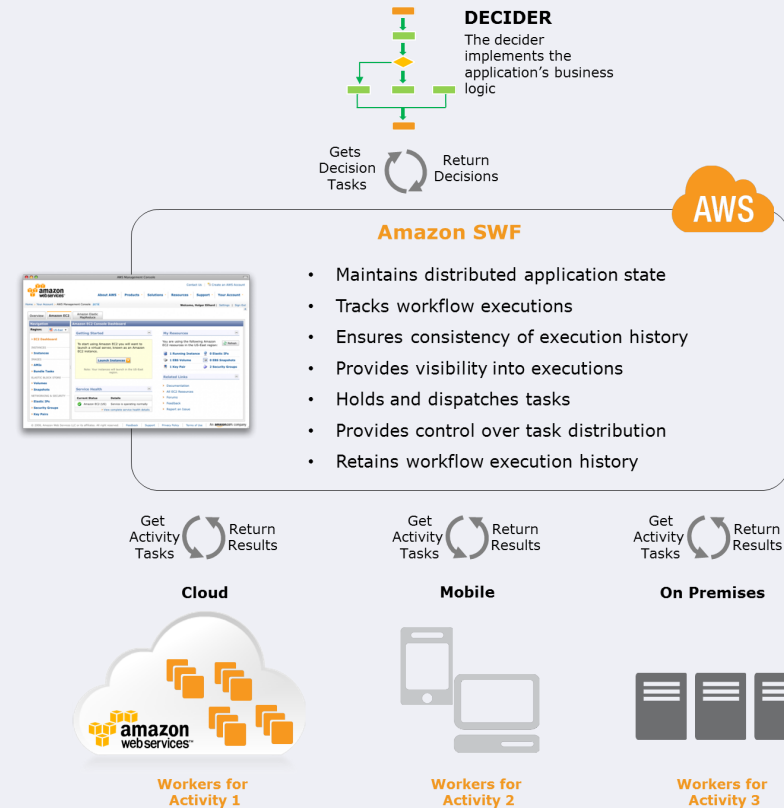
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## Resource Pooling

Computing resources are pooled and shared among multiple users, allowing for efficient utilization and optimization of resources.

# Example of Cloud Computing: Amazon Web Services (AWS)

Amazon Web Services (AWS) is a comprehensive cloud services platform provided by Amazon. It offers a wide range of services, including computing power, storage, databases, machine learning, analytics, and more.





# Scenario: Deploying a Website on AWS

1

## Compute Services (Amazon EC2)

Use Amazon EC2 to launch virtual servers (instances) in the cloud to run web applications and services.

2

## Storage Services (Amazon S3)

Utilize Amazon S3 to store and retrieve any amount of data, including your website's static files such as images and HTML documents.

3

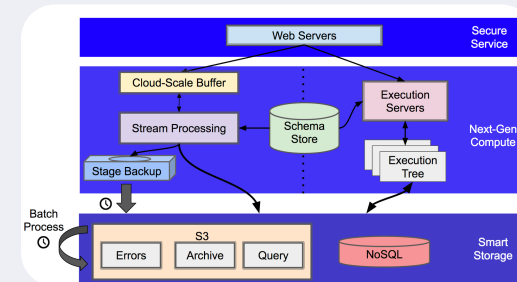
## Content Delivery (Amazon CloudFront)

Improve content delivery with Amazon CloudFront, a content delivery network (CDN) that ensures low latency and high transfer speeds.

# Database Services and Scaling on AWS

If your website requires a database, Amazon RDS (Relational Database Service) provides managed database solutions, such as MySQL, PostgreSQL, or SQL Server.

AWS Auto Scaling allows your application to automatically adjust its capacity based on demand, adding more resources to handle increased traffic.



# Identity and Access Management (IAM) on AWS

## Secure Access Control

Manage access to AWS resources securely, controlling permissions and access levels.

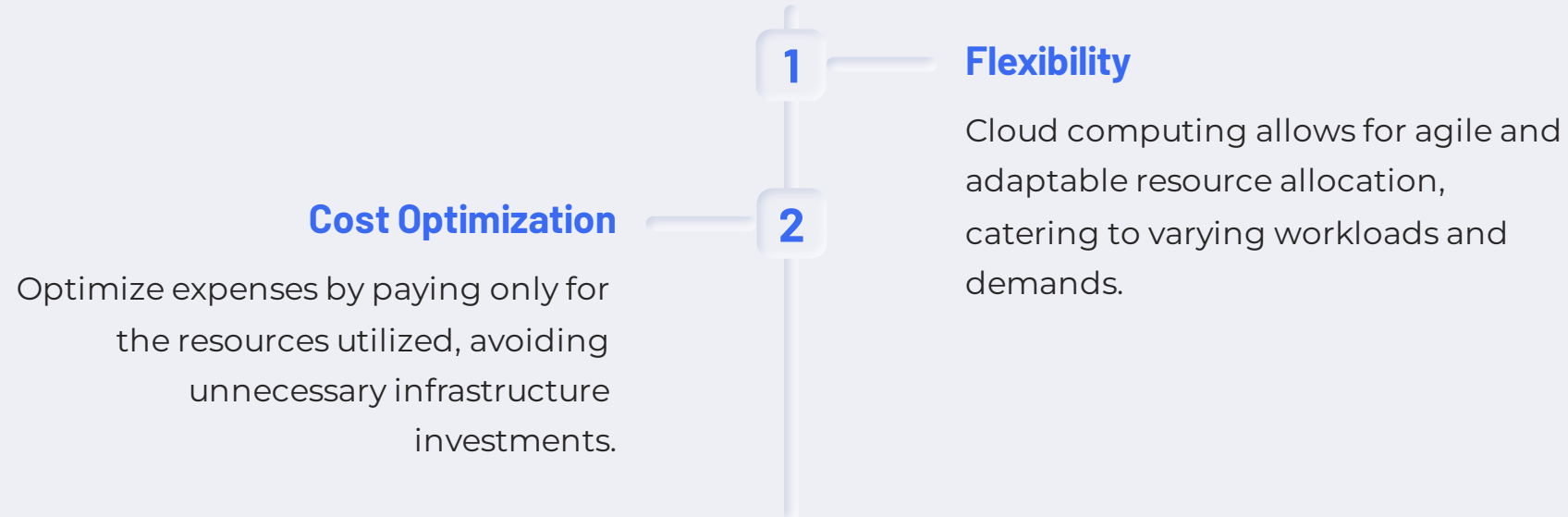
## Resource Protection

Protect your resources with fine-grained permissions and extensive authentication mechanisms.

## Policy Management

Set policies to define who can access specific resources and what actions they can perform.

# Cloud Computing: Flexibility and Cost-effectiveness



# Impact of Cloud Computing on Modern Businesses





# Future Trends and Innovations in Cloud Computing

1

## Edge Computing

The integration of edge computing with cloud services to enable low-latency processing and real-time data analysis at the network edge.

2

## Serverless Computing

The rise of serverless architectures, allowing developers to focus on building code without managing server infrastructure.

3

## Quantum Computing

The exploration of quantum computing's potential in enhancing computational capabilities and solving complex problems.