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Giving the first steps into the Cloud to your first AWS Certification

Suzana Melo Moraes | 06/Sep/2023

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Developer Relations Engineer at Wunderbar Network

- AWS User Group Leader, an AWS Community Builder, and a certified AWS Cloud Practitioner
- Auckland AWS Tools and Programming meetup organiser. FullStack Dev Group Auckland NZ and Cloud Native Auckland co-organiser.
- Full Stack developer graduated in New Zealand, after my 40s and having no previous tech background.
- Bachelor's in Communications with over 20 years of experience.
- Passionate for both areas, Web Development and Communications, I use my skills to increase the number of women and under-represented groups in tech, help graduates and juniors excel in their careers and support the growth of the tech scene in NZ.

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What is Cloud?

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What is Cloud?

Imagine you are on your computer, working on some critical files, and a meteor breaks your window and smashes your laptop.

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What is Cloud?

Imagine you are on your computer, working on some critical files, and a meteor breaks your window and smashes your laptop.

Can you think, “at least all my documents, photos and files are stored in the cloud”?

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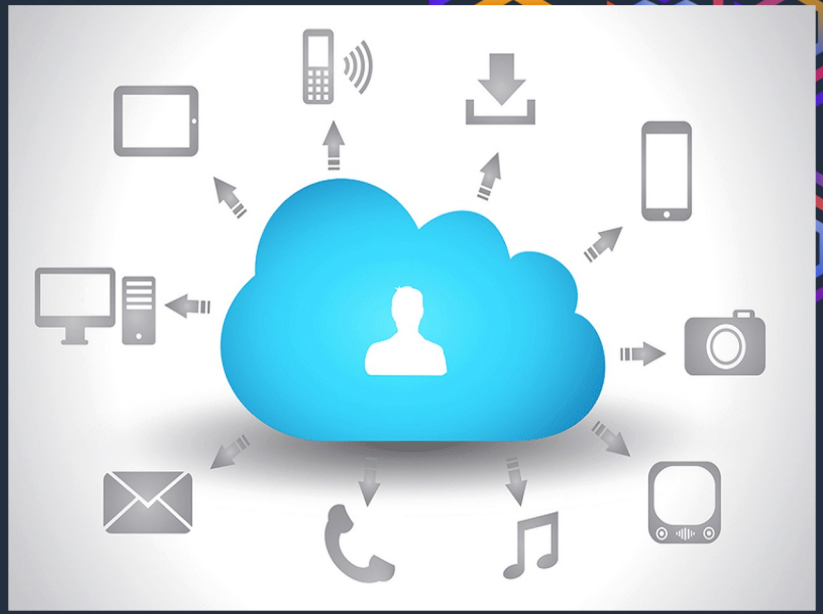
What is Cloud?

It’s like having a hard drive that you can access anytime when connected to the internet and perform a backup of your stuff if something happens with your device.



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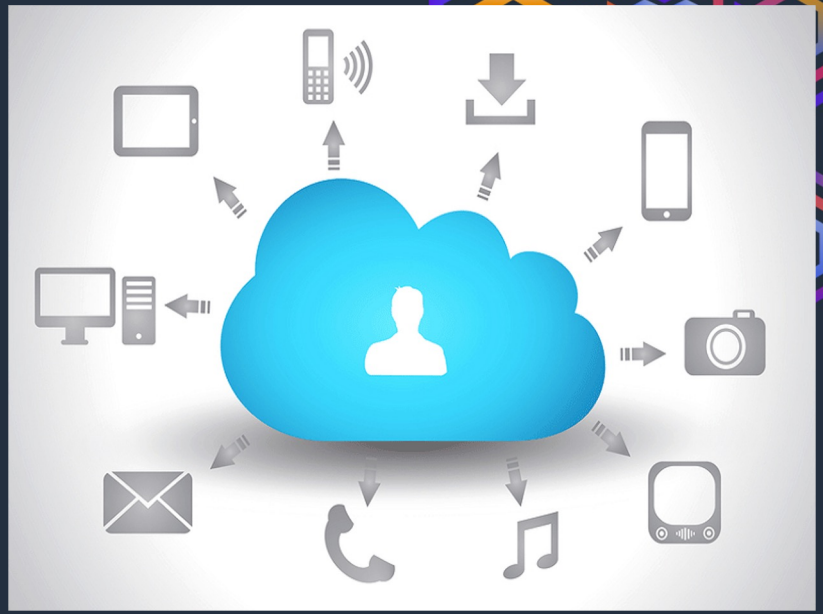
What is Cloud?

It’s like having a hard drive that you can access anytime when connected to the internet and perform a backup of your stuff if something happens with your device.

When something is in the cloud, it means it's stored on Internet servers instead of your computer's hard drive.



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The Cloud

"The cloud" refers to servers that are accessed over the Internet, and the software and databases that run on those servers.

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Cloud servers are located in data centers all over the world.

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The Cloud

"The cloud" refers to servers that are accessed over the Internet, and the software and databases that run on those servers.

Cloud servers are located in data centers all over the world.

By using cloud computing, users and companies do not have to manage physical servers or run software applications on their machines.

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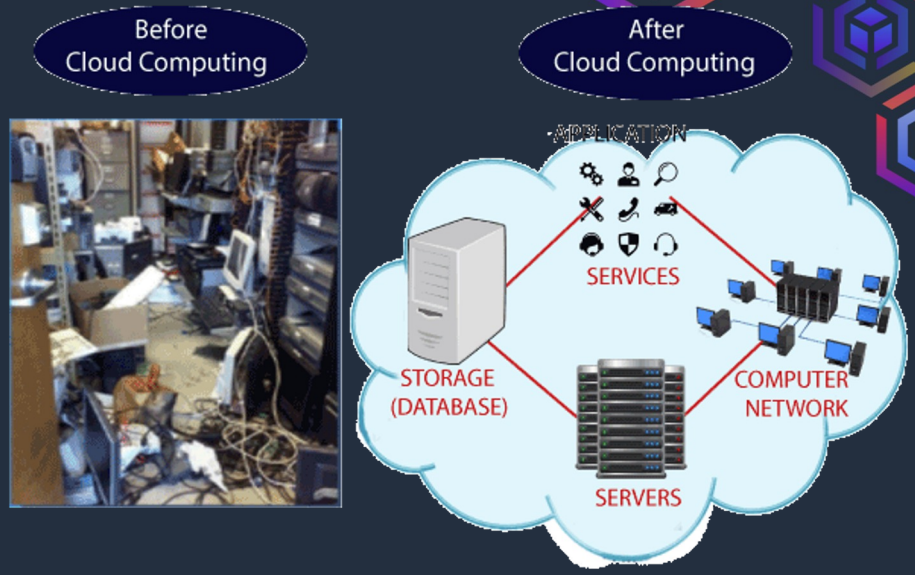
Before the Cloud

- Companies needed a physical space to host their servers and spent money on security and maintainability - having teams to care about the hardware and software.



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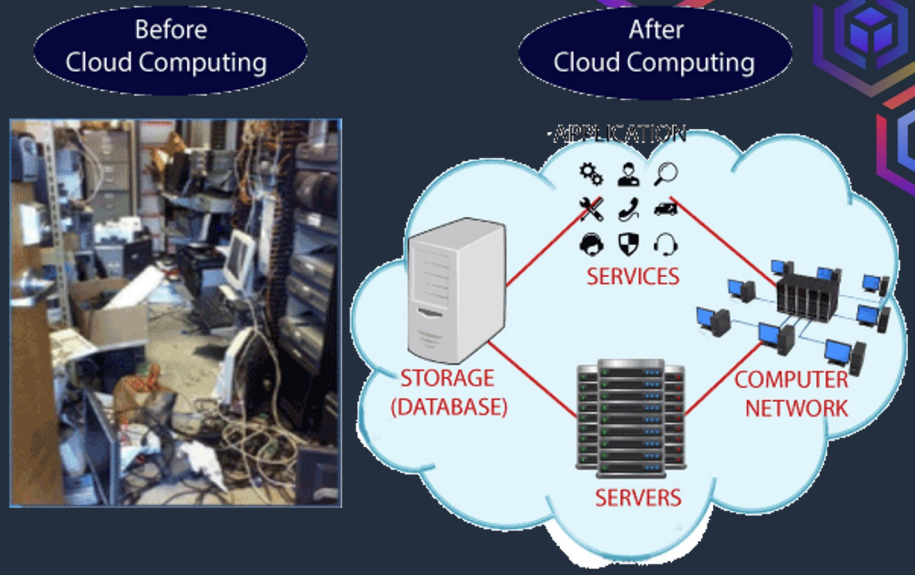
Before the Cloud

- Companies needed a physical space to host their servers and spent money on security and maintainability - having teams to care about the hardware and software.
- They also need to pay for the costs of the whole structure even when not using them.



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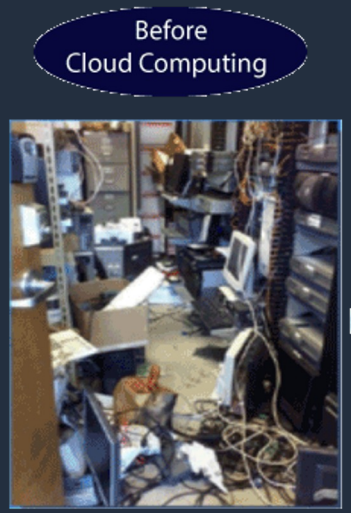
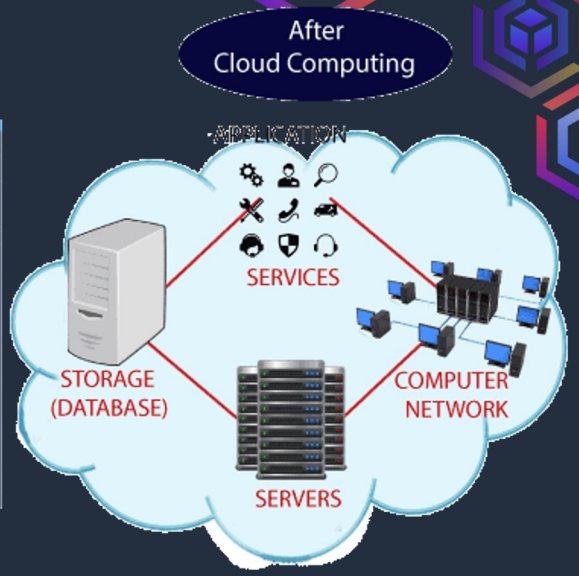
Before the Cloud

- Companies needed a physical space to host their servers and spent money on security and maintainability - having teams to care about the hardware and software.
- They also need to pay for the costs of the whole structure even when not using them.
- Tiny chances of recovering data loss on-premises setups against robust disaster data recovery of cloud computing systems.





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A bit of history - Before the Cloud

1950 - Large-scale mainframes with high-volume processing power.
Multiple users could access the same data storage layer and CPU power.

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A bit of history - Before the Cloud

1950 - Large-scale mainframes with high-volume processing power. Multiple users could access the same data storage layer and CPU power.

1970 - Virtual machine(VM) - Mainframes to have multiple virtual systems, or compute environments, on a single physical node/hardware.

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Virtualization -> Hypervisor -> Cloud computing

Each VM hosted guest operating systems that behaved as though they had their own memory, CPU, and hard drives, even though these were shared resources.

Hypervisor - a virtual machine monitor or VMM, is software that creates and runs virtual machines (VMs).

-> allows one host computer to support multiple guest VMs by virtually sharing its resources (e.g., memory and processing).

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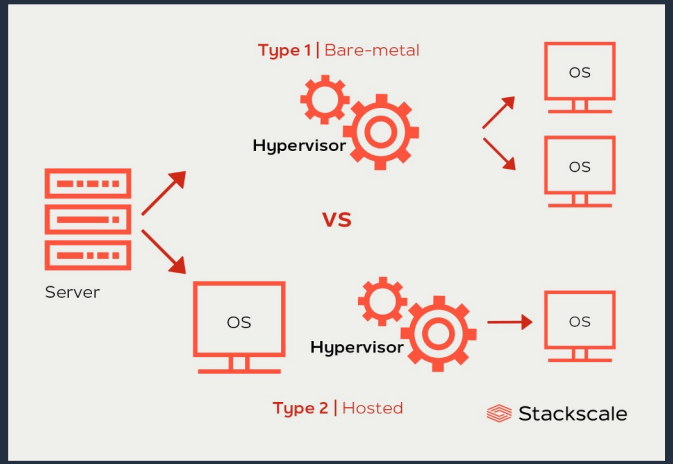
In his 1973 thesis, "Architectural Principles for Virtual Computer Systems," the computer scientist Robert P. Goldberg classified two types of hypervisor:



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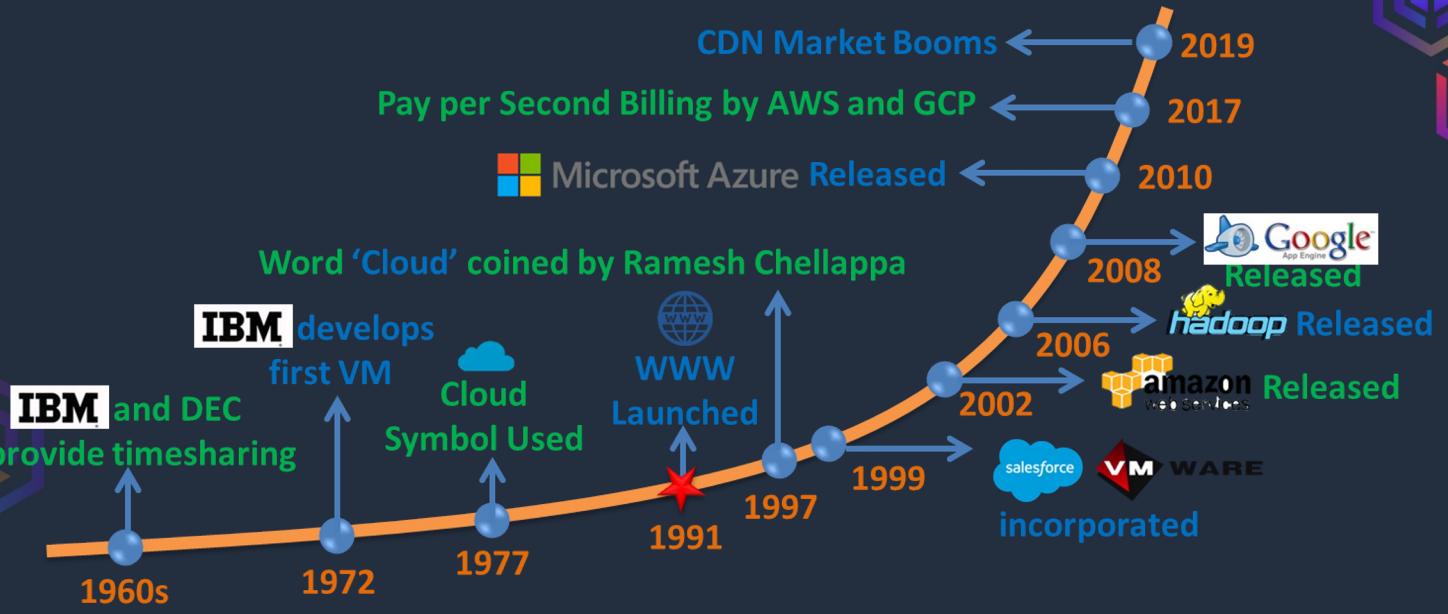

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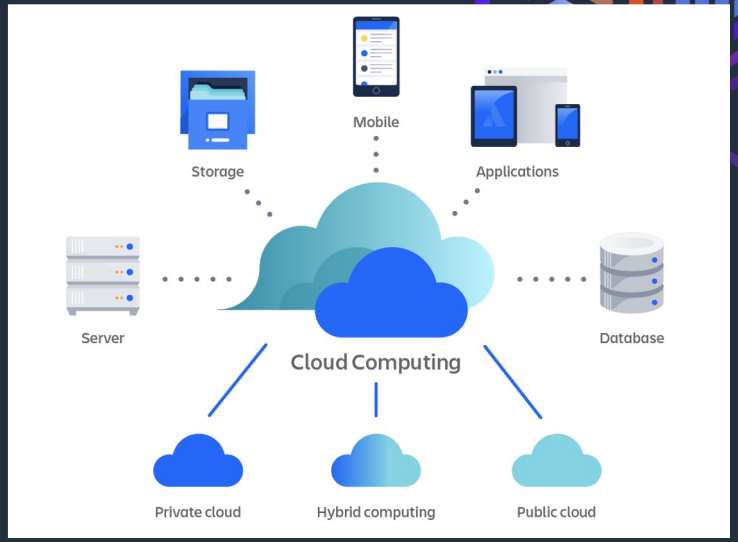
Cloud Computing



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Cloud computing

Wikipedia

Cloud computing is the **on-demand** availability of computer system **resources**, especially data storage and computing power, without direct active management by the user. Large clouds often have functions distributed over multiple locations, each of which is a data center.

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Cloud computing is the **on-demand** delivery of IT **resources** over the Internet with **pay-as-you-go** pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS).

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IBM

O**n-demand** access, via the internet, to computing **resources** - applications, servers (physical and virtual servers), data storage, development tools, networking capabilities, and more - hosted at a remote data center managed by a cloud services provider (CSP).
The CSP makes these resources available for a monthly subscription fee or **bills them according to usage**.

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Cloud computing

On-demand - ready for you when you need

Resources - technology services, such as computing power, storage, and databases

Pay-as-you-go - pay for what you use

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Cloud computing

Costs of on-premises resources:

- Buy and pay for how many you need.
- Need for a physical data center.
- Make sure that they are secured and powered up.
- And, once you have this structure, you are stuck with all of that. Using it or not.

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Some companies decided to make the cloud benefits accessible to users who didn't have an abundance of physical servers to create their cloud computing infrastructure -> pay-as-you-go

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Cloud computing

Announcing Amazon Elastic Compute Cloud (Amazon EC2) - beta

Posted On: Aug 24, 2006

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers. Just as Amazon Simple Storage Service (Amazon S3) enables storage in the cloud, Amazon EC2 enables "compute" in the cloud. Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use.

Costs of on-premises resources:

- Buy and pay for how many you need.
- Need for a physical data center.
- Make sure that they are secured and powered up.
- And, once you have this structure, you are stuck with all of that. Using it or not.

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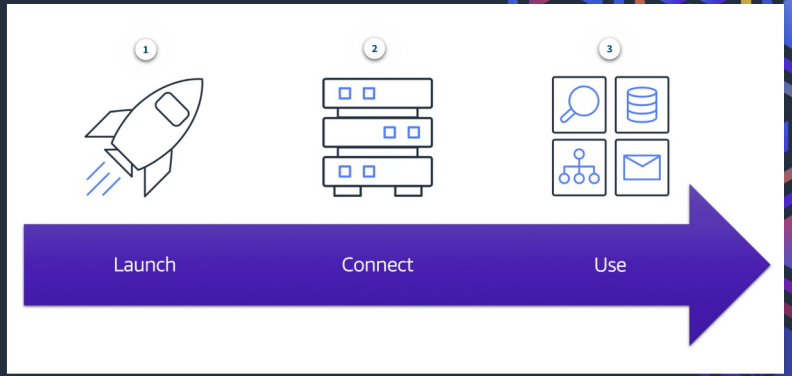

Amazon (EC2)

A service that lets you run virtual servers in the cloud

Elastic Compute Cloud - You control the configuration:

Operation system: Windows, Linux…

What you can run: internal business applications, web apps, databases

Size: Resizable - vertical scaling

Network and security: public or private access, who can access what.

Type: what is more important? Memory? Storage? Do you need the instance for a general purpose or compute optimized?

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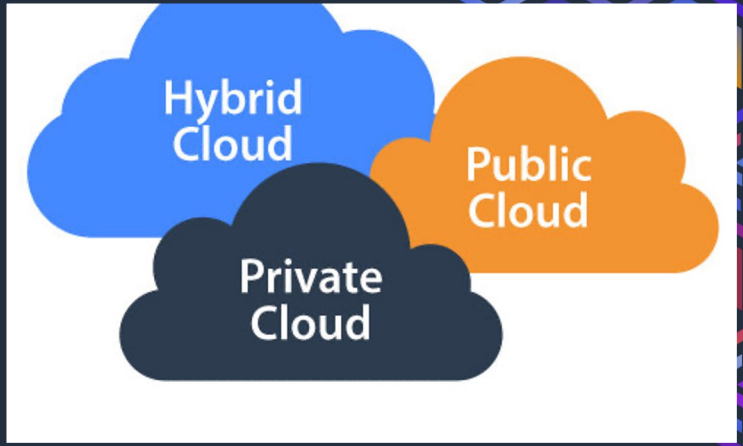
Cloud Deployment Models



Cloud - fully deployed in the cloud and all parts of the application run in the cloud.
Hybrid - combines public and private clouds
Private - deploying resources on-premises - a dedicated environment for one user or customer

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Storage services

Object, file, and block storage

Amazon Simple Storage Service (S3)

Object storage with industry-leading scalability, availability, and security for you to store and retrieve any amount of data from anywhere.

Amazon Elastic File System (EFS)

A simple, serverless, elastic, set-and-forget file system for you to share file data without managing storage.

Amazon Elastic Block Store (EBS)

Easy to use, high-performance block storage service for both throughput and transaction-intensive workloads at any scale.

Amazon File Cache

High-speed cache for datasets stored anywhere, accelerate cloud bursting workloads.

Data migration

AWS DataSync

Online data transfer service that optimizes network bandwidth and accelerates data movement between on-premises storage and AWS storage.

AWS Snow Family

Offline data transfer devices with built-in security and logistics features for simplified data migration.

Disaster recovery and backup

AWS Elastic Disaster Recovery (DRS)

Minimize downtime and data loss with fast, reliable recovery of on-premises and cloud-based applications using affordable storage, minimal compute, and point-in-time recovery.

AWS Backup

Fully managed, policy-based service to centrally manage and automate data protection, compliance, and governance for applications running on AWS.

Hybrid cloud storage and edge computing

AWS Storage Gateway

Hybrid cloud storage service that gives you on-premises access to virtually unlimited cloud storage.

AWS Snow Family

Edge compute, data collection, and data transfer services with security and end-to-end logistics for mobile and rugged deployments.

Managed file transfer

AWS Transfer Family

Simple and seamless file transfer to Amazon S3 and Amazon EFS using SFTP, FTPS, and FTP protocols.

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Database services

Database type	Use cases	AWS service
Relational	Traditional applications, enterprise resource planning (ERP), customer relationship management (CRM), ecommerce	Amazon Aurora, Amazon RDS, Amazon Redshift
Key-value	High-traffic web applications, ecommerce systems, gaming applications	Amazon DynamoDB
In-memory	Caching, session management, gaming leaderboards, geospatial applications	Amazon ElastiCache, Amazon MemoryDB for Redis
Document	Content management, catalogs, user profiles	Amazon DocumentDB (with MongoDB compatibility)
Wide column	High-scale industrial apps for equipment maintenance, fleet management, and route optimization	Amazon Keyspaces
Graph	Fraud detection, social networking, recommendation engines	Amazon Neptune
Time series	Internet of Things (IoT) applications, DevOps, industrial telemetry	Amazon Timestream
Ledger	Systems of record, supply chain, registrations, banking transactions	Amazon Ledger Database Services (QLDB)

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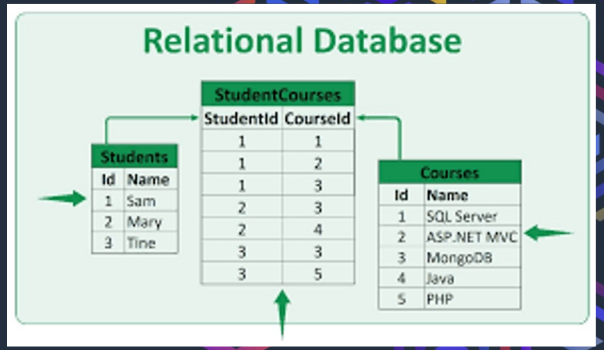
Relational and nonrelational databases



Relational - data is stored in a way that relates it to other pieces of data and uses use structured query language (SQL) to store and query data. E.g. PostgreSQL, MySQL, Oracle.

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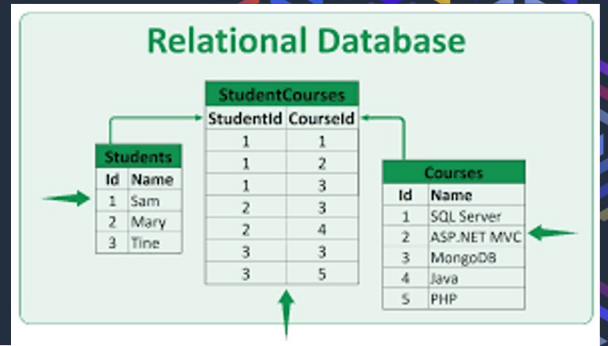
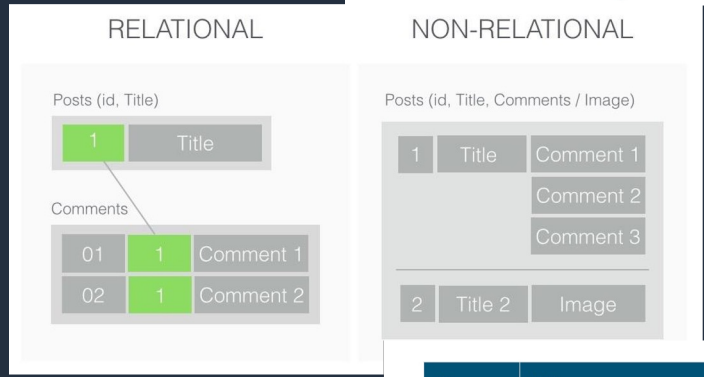
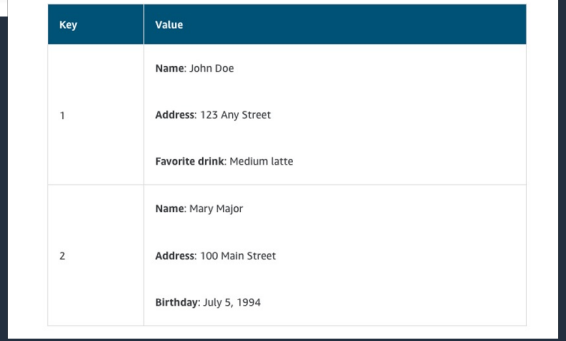
Relational and nonrelational databases

Relational - data is stored in a way that relates it to other pieces of data and uses use structured query language (SQL) to store and query data. E.g. PostgreSQL, MySQL, Oracle.

Nonrelational - use structures other than rows and columns to organize data. With key-value pairs, embedded documents, or graphs. The data is organized in item collections (index keys), and items have attributes (values). E.g. DynamoDB.







Key	Value
1	**Name**: John Doe **Address**: 123 Any Street **Favorite drink**: Medium latte
2	**Name**: Mary Major **Address**: 100 Main Street **Birthday**: July 5, 1994

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Why Cloud computing?

We are now at a crucial point. Now, more than ever, Cloud computing is vital to helping businesses and people deliver on and realize the promise of digital transformation.

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The agility and flexibility that cloud technology enables means opening up new ways of working, operating, and doing business.

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The agility and flexibility that cloud technology enables means opening up new ways of working, operating, and doing business.

With cloud computing, resources are available in minutes, which means companies can respond to new market developments much more rapidly.

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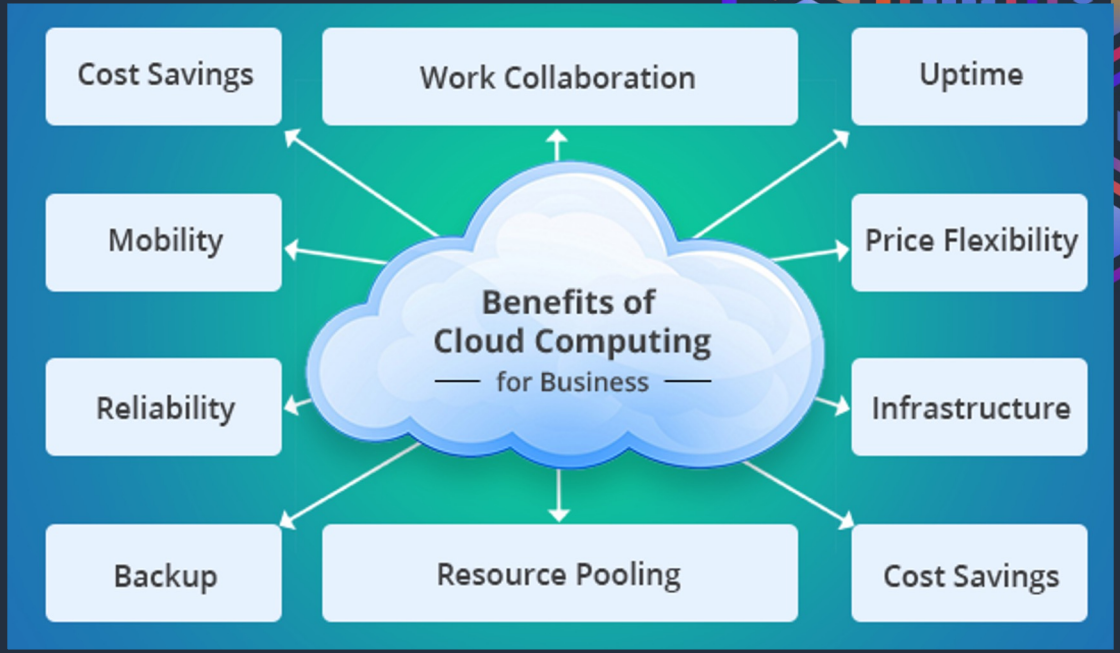
Benefits of Cloud Computing

1. Flexibility
2. Cost Saving & Investment
3. Disaster Recovery
4. Global Scale
5. Performance
6. Scalability
7. Document Control
8. Security



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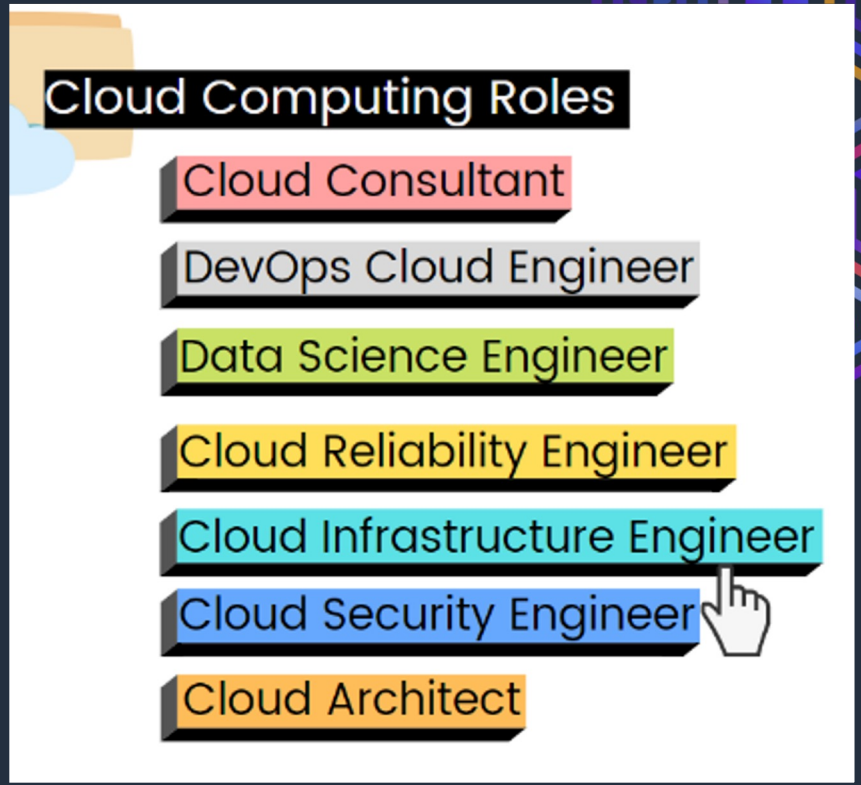
Cloud Computing Careers

Generally, any cloud-related job that focuses on development will require programming

Some positions do not

There are many ways to upskill, gain new knowledge, or even migrate to other areas in the Cloud



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AWS Cloud Practitioner

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What is that certification?

Exam overview

Category	Foundational
Exam duration	90 minutes
Exam format	65 questions; either multiple choice or multiple response
Cost	100 USD
Test in-person or online	Pearson VUE testing center or online proctored exam
Languages offered	English, Japanese, Korean, Simplified Chinese, Traditional Chinese, Bahasa (Indonesian), Spanish (Spain), Spanish (Latin America), French (France), German, Italian, and Portuguese (Brazil)

The AWS Cloud Practitioner exam tests your foundational understanding of AWS Cloud concepts, services, and terminologies.

Four main domains: Cloud Concepts (26%), Security and Compliance (25%), Technology (33%) and Billing and Pricing (16%).

You don’t need to achieve a passing score in each section.
You need to pass only the overall exam.

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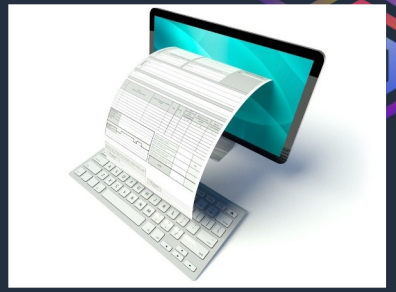
Exam main domains:

Cloud Concepts:
Benefits of the cloud
The aspects of the AWS Cloud economics
Cloud architecture design principles

Security and Compliance:
Shared responsibility model
Cloud security and compliance concepts
AWS access management capabilities

Technology:
Cloud deployment models
Methods of operating in the cloud
AWS global infrastructure and core services



Billing and Pricing:
Pricing models for AWS
Account structures of billing and pricing
Resources for billing support and support plans

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AWS CloudUp

This program is suited to all women who want to understand more about working in the tech industry and learn some AWS Cloud foundational skills. No technical or IT experience is required.
This program is free and includes exam vouchers sponsored by AWS valued at $100 USD each for AWS Cloud Practitioner Certification.

AWS CloudUp for Hāpori Wāhine Program

For Women in New Zealand

Learn with our Community!

FEBRUARY 27, 2023

aws training and certification

Register today

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AWS re/Start

Amazon Web Services (AWS) re/Start is a global programme delivered in Aotearoa, New Zealand in collaboration with Te Pūkenga.
It is a 12-week, full time programme that aims to increase the number of Māori and Pasifika in the IT sector, as well as help people impacted by COVID-19.

AWS re/Start skills development and training programme

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The 12-week, fulltime programme will prepare you for a career in cloud computing and connect you to industry through an internship placement during study. You will learn about Linux, Python, network and security systems, and relational databases. You will also develop practical career skills such as interview preparation and CV writing. The programme covers the cost of the AWS Certified Cloud Practitioner Certification exam, so you can validate your cloud skills with an industry-recognised credential.

The skills you gain can help prepare you for the AWS Certified Cloud Practitioner Certification.

For more information please email the Programme Manager.

Email the AWS re/Start Programme Manager

aws re/start

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Study & practice with AWS

AWS Certified Cloud Practitioner

Cloud Quest Video Game

AWS Training and Certification

AWS Cloud Essentials

AWS Certified Cloud Practitioner Exam Questions

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Where to learn more of it for free?
https://github.com/suzanamelomoraes/AWSfree

Udemy:
Starting your Career with AWS
https://www.udemy.com/course/how-to-start-a-carrer-in-cloud-computing-with-amazon-aws/

EDX:
AWS Cloud Practitioner Essentials
https://www.edx.org/course/aws-cloud-practitioner-essentials

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Resources: AWS, IBM, Wikipedia, Investopedia, VSkills, Cloudflare, Simplilearn, Accenture, Cloud Guru, Guru99

Suzana Melo Moraes

Developer Relations Engineer | Web3-JS-Node.js | Organiser of Auckland...

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