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*The Definitive Guide to*  
**Cloud Certifications**

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# Introduction

People love to say that tech careers are democratic. You don't have to come from an academic background—or any specific background at all—to rise the ranks to a CEO, CIO, or CTO position.

It's definitely true that many of today's big names got their starts in non-traditional ways. Steve Jobs dropped out of Reed College to travel in India and study Zen Buddhism. Bill Gates dropped out of Harvard, as did Mark Zuckerberg, Twitter founder Jack Dorsey, Spotify founder Daniel Ek, and many more. It seems like dropping out of an Ivy League school may be a prerequisite for tech success!

But, today, the situation has become far more complex. IT, development, operations, networking, and security have all changed beyond recognition. As an employee, unless you know somebody in the C-suite, businesses moving at today's pace can't afford for you to learn the ropes at their expense.

And things can be even more complicated if you're an employer. A potential employee is an unknown quantity. You have no way to verify that they know what they say they know—unless you require a skills test (which can be difficult to implement) or if they present some kind of certification.

Let's face it: Lots of credentials are a waste of time and money. So which ones are really worth it? This guide will help you make the most educated choices by analyzing and comparing some of today's top cloud certifications.

## *Read on if you are:*

**An employer** looking to find the best skills for your organization.

You need to know which certifications are most meaningful in terms of building your cloud "dream team," now and for the future.

**A skilled individual** working in technology (or aspiring to start). You are looking to advance your career and need to find out which credentials will truly help you now and when creating a meaningful path forward.

# Why Cloud Certification Matters

**There are a few common misconceptions about cloud certification, shared by individuals working in technology and employers.**

Many employees, for instance, believe that certification is a waste of time if they're already working in the industry. They may make the mistake of assuming that they can pick up cloud skills on the job, especially if they already have a degree in computer science, information systems, or a related field. Understandably, these individuals may ask why they should "waste" time and money getting certified when they can simply ask a coworker to share knowledge or learn from YouTube, vendor sites, knowledge bases, and tech forums on Reddit, StackExchange, GitHub, and elsewhere. Well, that may have been true at one time, but not in today's fast-moving cloud world.



## Why Cloud Certification Matters

Employers often make the same mistake, assuming that employees with a reasonably solid background can simply pick up the skills they need along the way. However, this assumption is a dangerous one. Training and certification are probably the fastest ways to gain expertise, establish a solid career foundation, and show openness to lifelong learning and continuous process improvement.

**Here are few more reasons certification beats other routes to acquiring expertise:**

In general, certification fosters best practices and innovation based on industry trends.

For employees who have been out of the industry or stuck in one job for a while, certification provides a path to update skills.

Hands-on learning has its limits (and may lead to developing bad habits). It can be overwhelming to tackle new tools without training.

Learning on the job may reinforce negative and even unsafe practices.

Clearly, certification doesn't have to be a waste of time if the person pursuing it can find a flexible program that allows them to build on and get certified as easily and quickly as possible.

But all of that is a big IF. So how can you, either as an employee or employer, pinpoint the credentials you really need?

# Types of Certifications

Just like choosing which vegetable to eat, when it comes to choosing certification type, there's no one right answer for every person or workplace. And just as with vegetables, cloud certifications come in a range of colors, flavors, and sizes. Or, rather, in several categories: cloud provider, general skill area, and level of expertise.

Most of the certifications below are grouped according to which major cloud provider (Azure, AWS, Google Cloud) offers them. Some are grouped within two specialized categories of cloud certification: DevOps or security.

If you're a skilled tech worker, it's important to understand one thing before weighing your certification options: Few employers will ask for certifications by name or include them in job listings. Sometimes, that's because they have become jaded—some certifications are simply too easy,

and the market has become flooded with them. In other cases, employers simply aren't aware of the distinctions between the various certifications.

You should definitely list your certifications, but also include as much hands-on experience as possible, such as student projects and other things you've worked on. The goal is to demonstrate that you have both theoretical experience and practical experience applying your knowledge and skills. Obviously, this will become far easier once you're actually on the job for a while.

If you're an employer, on the other hand, understanding which certifications are meaningful will help you choose what to look for when considering applications. You may even wish to start including desired certifications in your job listings.

*In the lists below, you'll find credentials at all possible levels of expertise:*

## Talk the Talk

Introductory certifications that provide a solid footing for working as part of a team that is creating the future of the cloud; allow certificate holders to show their value and potentially advance their careers

## Walk the Talk

Intermediate certifications that give holders a leg up so they can become a team or project lead; also helpful for prospective business managers and other stakeholders who require a higher level of tech literacy

## Lead the Pack

Advanced certifications that make holders an indispensable part of any business and prepare them to take the helm of an organization, including potentially in a tech executive role

*Today's top*

# CLOUD CERTIFICATIONS



*Microsoft Azure   Amazon Web Services   Google Cloud Platform   Security   DevOps*

While there are other valuable certifications out there, the following are the most popular in today's tech market.



# Microsoft Azure Certifications

Microsoft Azure is often overlooked, but it shouldn't be. Azure is actually the fastest growing major cloud provider today. It grew 51% in Q4 2021, which means that demand for people with Azure certifications is going to rise accordingly. For the many organizations reliant on other Microsoft tools, like Office 365, SharePoint, and Outlook, Azure offers seamless tight integration. And Azure is known for doing a great job with hybrid cloud support.

Azure certification is in high demand, since it can lead to so many careers, including in sales, support, and even the C-suite, where an intimate basic knowledge of the cloud can be invaluable, regardless of provider.

Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps

## Top 3 Azure Certifications

Here are today's three most popular Azure certifications.

### AZ-900 Microsoft Certified: Azure Fundamentals

AZ-900 is the gateway into Azure and a career in cloud, in general. For non-IT personnel and IT personnel with light skills, it offers an inexpensive, simple, and rewarding path to demonstrate knowledge of cloud concepts, core Azure services, and core solutions and management tools on Azure. It also shows expertise in general and network security features; identity, governance, privacy, and compliance features; and Azure cost management and service-level agreements (SLAs).

### AZ-104 Microsoft Certified: Azure Administrator Associate

AZ-104 is the quintessential “walk the walk” certification for network administrators who are already on the job and want to learn how to perform better on their core tasks. These tasks include managing Azure identities and governance, implementing and managing storage, and deploying and managing Azure compute resources, configuring and managing virtual networking, and monitoring and backing up Azure resources. Microsoft recommends at least six months’ hands-on experience administering Azure before attempting this exam.

### AZ-305 Microsoft Certified: Azure Solutions Architect Expert

Individuals considering AZ-305 certification should have definitely reached the “lead the pack” level, bringing advanced knowledge of IT, DevOps, and Azure administration. Skills covered in this exam include designing identity, governance, monitoring, data storage, business continuity, and infrastructure solutions. This certification prepares and qualifies key decision makers in an organization’s cloud transformation.

### Fundamentals

#### Talk the Talk

[AZ-900: Microsoft Azure Fundamentals](#)

[AI-900: Microsoft Azure AI Fundamentals](#)

[DP-900: Microsoft Azure Data Fundamentals](#)

### Associate

#### Walk the Walk

[AZ-104: Azure Administrator Associate](#)

[AZ-120: Azure for SAP Workloads Specialty](#)

[AZ-140: Azure Virtual Desktop Specialty](#)

[AZ-204: Azure Developer Associate](#)

[AZ-220: Azure IoT Developer Specialty](#)

[AZ-500: Azure Security Engineer Associate](#)

[AZ-700: Azure Network Engineer Associate](#)

[AI-102: Azure AI Engineer Associate](#)

[DP-100: Azure Data Scientist Associate](#)

[DP-203: Azure Data Engineer Associate](#)

[DP-300: Azure Database Administrator Associate](#)

Microsoft Azure

Amazon Web Services

Google Cloud Platform

Security

DevOps

### Administrator Associate

#### Lead the Pack

*Note that AZ-303 and AZ-304 are being replaced by AZ-305 in April 2022.*

[AZ-303: Microsoft Azure Solutions Architect - Technologies](#)

[AZ-304: Microsoft Azure Solutions Architect - Design](#)

[AZ-305: Azure Solutions Architect Expert](#)

[AZ-400: DevOps Engineer Expert](#)



## Amazon Web Services Certifications (AWS)

AWS is definitely the “big dog” of the cloud world. According to Statista, Amazon holds 33% of the global cloud market share as of Q4 2021, compared to only 21% for Azure and 10% for Google Cloud. Gaining skills on AWS can open doors to many early-career cloud positions, since these skills are so broadly applicable across multiple industries.

In fact, one of the few disadvantages when it comes to choosing AWS cloud for enterprises is the massive range of infrastructure and storage options it offers. In addition, as the major industry player, AWS doesn’t offer as robust support for multi-cloud environments as other major cloud providers, meaning it can be easy for businesses to become locked in.

Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

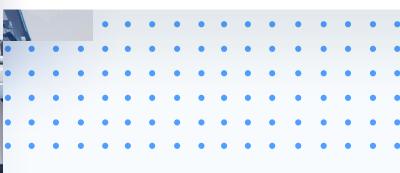
Security

DevOps

**AWS general certifications don't focus on a single technical role. Rather, they cover four key areas:**

- Cloud Concepts
- Billing & Pricing
- Security & Compliance
- Technology

Specific certifications focus more on career roles, such as the need to develop and maintain apps on AWS, which is very in demand.



## Top 3 AWS Certifications

Today's three most popular AWS certifications are:

### AWS Certified Cloud Practitioner

This certification is aimed at absolute beginners or those looking to validate previously acquired knowledge. AWS has now removed all prerequisites for its certifications, so for those with some experience, it's probably worth finding a more challenging certification. This is also a great certification for executives who want to understand the terminology used when discussing AWS at a high level.

Microsoft  
Azure

### AWS Certified Solutions Architect - Associate

This certification comes with bragging rights, as it requires prior experience or knowledge acquired through rigorous study and practice. Holders of this certification will be able to lead application development projects for internal or external B2B or B2C clients. They'll acquire a solid understanding of which AWS solutions come together to create an optimal solution.

Amazon  
Web Services

### AWS Certified DevOps Engineer - Professional

If AWS tools and services are at the core of your DevOps development, testing, and deployment practices, this certification will qualify holders to take the helm, solving problems in real time and leading the way in modern code-development practices. AWS suggests that engineers have two or more years of experience provisioning, operating, and managing AWS environments before pursuing this certification. They'll need a deep understanding of coding practices, architectures, security, logging, monitoring, and much more—all under AWS.

Google Cloud  
Platform

Security

DevOps

### Expert

#### Lead the pack

(AWS terminology: Professional, Specialty)

AWS Certified Security - Specialty

AWS Certified Database - Specialty

AWS Certified Data Analytics - Specialty

AWS Certified Advanced Networking - Specialty

AWS Certified Machine Learning - Specialty

AWS Certified Solutions Architect - Professional

AWS Certified DevOps Engineer - Professional

### Fundamentals

#### Talk the talk

(AWS terminology: Practitioner, Associate)

AWS Certified Cloud Practitioner

### Associate

#### Walk the walk

(AWS terminology:  
Professional)

AWS Certified Solutions  
Architect - Associate

AWS Certified SysOps  
Administrator - Associate

AWS Certified Developer -  
Associate

More information on this and

clarity can be found here:

[aws.amazon.com/certification](https://aws.amazon.com/certification)



## Google Cloud Platform Certifications (GCP)

GCP is growing almost as fast as Azure, and since there are fewer employees out there with GCP experience, those who have it can sometimes leverage it into greater earning potential. In fact, the [highest paid IT certification in 2021](#) was the Google Professional Cloud Architect certification.

With its emphasis on open source and DevOps, GCP makes an excellent choice for organizations looking to leverage the strengths of Google's offerings in big data, analytics, and machine learning. Perhaps because GCP is often a secondary cloud provider choice, exams for GCP certifications are said to be more difficult and comprehensive than those of other cloud providers. Questions on these exams tend to be based on actual use cases, rather than only familiarity with Google's product range.

### Top 3 GCP Certifications

These are today's three most popular GCP certifications:

#### [Associate Cloud Engineer](#)

This is a good first step toward becoming a Professional Cloud Architect, and it's also a valuable certification on its own. This is a nuts-and-bolts course that's great for almost everybody in a development or IT role, as it focuses on the available types of tools and core services and setting up your environment.

#### [Professional Cloud Architect](#)

This is an elite credential that can open the doors to the upper echelon of cloud careers, along with top salaries. This certification offers a broader perspective than most, meaning applicants will need familiarity with a wide range of cloud tools, services, and concepts before attempting the exam. However, it does not demand a great deal of deep hands-on familiarity with all topics covered. This certification requires knowledge about designing, managing, and provisioning cloud solution architecture, building in security and compliance, and a number of related topics.

#### [Professional Data Engineer](#)

When it comes to AI/ML and analytics, Google still has a significant lead over other cloud providers and a well-earned reputation for excellence.

[According to Google](#), certification as a Professional Data Engineer teaches students how to design, build and operate powerful big data and machine learning solutions using Google Cloud Platform. This certification path is not easy, but it does prove mastery of this highly in-demand field.

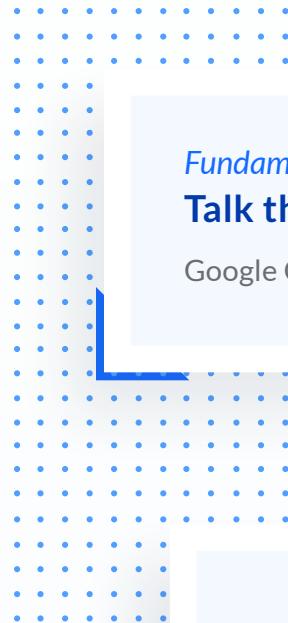
Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps



*Fundamentals*  
**Talk the talk**

Google Cloud Digital Leader



*Associate*  
**Walk the walk**

— Google Certified  
Associate Cloud Engineer



*Expert*  
**Lead the pack**

GCP Cloud Security Engineer  
GCP Machine Learning Engineer  
GCP Cloud Network Engineer  
GCP DevOps Engineer  
GCP Cloud Developer  
GCP Cloud Architect  
GCP Data Engineer



Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps



# Security Certifications

With more and more companies migrating essential business operations to the cloud, cloud-based information systems infrastructure is increasingly the target of attacks, including serious threats like ransomware and crypto-jacking. In addition, the threat of data breaches has introduced a slew of new regulatory compliance tasks and responsibilities that all fall within the auspices of cloud security.

In many cases, such as the high-profile [Capital One attack in 2019](#), breaches are largely the result of misconfiguration—often by security personnel who don't fully understand how to use the cloud infrastructure they're responsible for securing. In fact, the U.S. National Security Agency lists [untrained or neglectful customer cloud administrators](#) as one of today's leading threat actors. It recommends training that is specific to the relevant cloud service provider for everyone responsible for creating or modifying cloud service policies.

Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps

## Top 3 Security Certifications

The three most commonly pursued certifications in this category are cloud-vendor platform agnostic, meaning they don't pertain to any single cloud provider.

### [Cloud Security Alliance's Certificate of Cloud Security Knowledge \(CCSK\)](#)

This certification is a more obscure offering because it's both vendor agnostic and introductory, but an emphasis on security is valuable for individuals in a wide range of positions. In fact, it's not really a technical certification at all, but instead geared towards executives, security architects, and others (such as those working in risk management) who need to develop a comprehensive understanding of cloud threats and best practices. This is a great certification for multiple members of the same team to take simultaneously in order to ensure that everybody's speaking the same language.

## CompTIA Security+

CompTIA offers some of the most recognized tech certifications, including a range of security-related options. Security+ builds on the more general A+ certification and leads to the CySA+ certification (formerly CSA+). This certification recognizes baseline skills for core security functions and an IT security career. CompTIA also offers a parallel Network+ certification.

A CompTIA Security+ certification or equivalent may meet the required security standards of a variety of regulatory organizations, such as certain U.S. Department of Defense contractor standards, which demand a rigorous approach to security.

## Certified Information Systems Security Professional (CISSP)

This certification is offered by the International Information System Security Certification Consortium (ISC)<sup>2</sup>. One of the oldest listed here, it was created in the 1990s in response to a need for a standardized, vendor-neutral program. This elite certification requires five years' experience working in information security, which makes it a gateway to many senior network security careers.

Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps

# Top Cloud Vendor Platform-Specific Security Certifications

Azure, AWS, and GCP also offer security-related certifications.

The three most popular are:

— Google Certified Professional Cloud Security Engineer

— AZ-500: Azure Security Engineer Associate

— AWS Certified Security

### Other notable vendor-specific security certifications include:

- AWS Certified Security
- Microsoft Certified Azure Security Engineer Associate
- Google Certified Professional Cloud Security Engineer
- Microsoft 365 Security Administrator Associate
- BCS Certificate in Information Security Management Principles (CISM<sup>3</sup>)

- Foundation Certificate in Cyber Security
- Preparation for the (ISC)<sup>2</sup> CISSP Certification
- Certified Information Security Manager (CISM): Part 1 – Foundations
- Certified Information Security Manager (CISM): Part 2 – Domains
- General security certifications?



## DevOps Certifications

DevOps is intrinsic to the cloud world, and yet there are few hard-and-fast qualifications or certifications that indicate a person has the necessary expertise for a specific position. At the very least, each DevOps certification requires a solid grasp of the basics, such as coding in scripting and programming languages, QA testing, and infrastructures like cloud services and databases. But DevOps neither begins nor ends at that point. There are many other skills and tools required, including version control, containerization, CI/CD, and monitoring tools.



Many people come to DevOps with a background in computer science, but that alone is not enough—in part because DevOps is more of a practice than a single tool or platform. In addition, every organization works with a completely different stack of DevOps solutions. The field of DevOps is moving very quickly and frequently undergoes turbulent change, so while these positions are in demand and can command a respectable salary, employees and employers need to stay up to date on new ways of working.

While some of the provider-specific cloud certifications listed above touch on aspects of DevOps, there are a few that are specifically geared towards DevOps positions. Some are cloud-vendor platform agnostic, while others stick to the tools available through one particular cloud platform.

Microsoft  
Azure

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps

## Top 3 DevOps Certifications

Today's three most popular DevOps certifications happen to be cloud-vendor platform agnostic.

### The DevOps Institute's DevOps Foundation (DOFD)

This course is ideally suited for developers, testers, or others in technical positions who are looking for an in-demand DevOps career. For those already familiar with most cloud and DevOps concepts, this will cement your understanding of industry-standard terminology, best practices, and core principles.

Microsoft  
Azure

### Certified Kubernetes Application Developer (CKAD)

Almost every job description out there for developer, DevOps, and software architect positions requires proficiency in Kubernetes. This is a basic certification offered by the Linux Foundation, a nonprofit technology consortium. Aimed at individuals who are planning to use Kubernetes as an orchestrator for development purposes, it demonstrates proficiency in basic installation, configuration, and management of production-grade Kubernetes clusters, as well as related concepts like network, security, troubleshooting, and real-world use cases.

Amazon  
Web Services

Google Cloud  
Platform

Security

DevOps

### HashiCorp Certified: Terraform Associate

Terraform, an IaaS platform, is rapidly becoming one of the must-haves in many organizations' cloud stacks. This is due to how simple the tool makes it to configure and deploy infrastructure, as well as its ability to work with all major cloud providers. While many people claim they are proficient in Terraform, those claims are often exaggerated, making certification an excellent way to prove expertise. If you are a developer, this certification provides an added comfort level and familiarity with best practices, ensuring you are a valuable addition to any team.

## Top Cloud Vendor Platform-Specific Certifications

From among the offerings of the major cloud providers profiled earlier, several stand out when it comes to DevOps-related certifications. Here are the most popular, all of which provide a significant career path in DevOps:

- AWS Certified DevOps Engineer Professional
- Microsoft Certified Azure DevOps Engineer Expert
- Google Professional Cloud DevOps Engineer

## Cloud Academy: Your Path to Career Success

It's not easy sifting through the alphabet soup of cloud certifications, and new courses and paths are emerging every few months. It can be hard to tell them apart, to know which certifications have replaced others, and, more importantly, to decide which ones you need for your own career development or on your cloud team.

**To help with this, Cloud Academy offers a wealth of industry knowledge and experience, including:**

- A free consultation with a Learning Coach to help you figure out where to get started
- A massive content library to fill in the gaps in your knowledge and skills
- 500+ labs for hands-on experience with leading technologies, from AWS, Azure, Google Cloud, and others
- Exam simulations so you can be sure you (or your employees) are ready before taking an exam
- Comprehensive learning roadmaps that ensure you get where you need to go

With an ear to the ground across the entire cloud realm, Cloud Academy's only business is understanding the needs of tech companies and personnel—and matching those needs to training that is relevant, straightforward, and pays off in business gains. We've built our reputation working with leading employers in cloud fields, so we know what skills companies are looking for—today and into the future.

Cloud Academy doesn't just offer courses: We open doors. Find out how simple it can be, get started today with a free trial.

[For Me](#)

[For My Team](#)



**Cloud Academy is the tech skills intelligence platform that restores a two-way investment between employer and employee. Our unique software-as-a-service provides a single source of truth for tech talent management – from pre-hire and onboarding, to development and retention. This one-of-a-kind solution combines content and technology to help organizations overcome skill gaps and tech professionals to learn and advance more efficiently.**

Cloud Academy is trusted by leading companies to deliver continuous learning solutions across enterprise DevOps, software development, data science, Amazon Web Services, Microsoft Azure, Google Cloud Platform, microservices, containers, cloud security, and more. From the fundamentals to advanced scenario training, Cloud Academy empowers organizations with the skills, critical thinking, and hands-on experience needed to thrive in a digital world.

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