SOC
IN THE CLOUDS

What is Cloud Computing?

Cloud computing has a complex and formal definition but let's look at a simplified version for ease in understanding.

Overall, **cloud computing** provides an operating model to deliver services like computing, storage, network, databases, platforms, and applications. It does so by using a service model on top of the usual data center's basic building blocks. Cloud computing allows for various levels of rapid deployment of these services through the internet.

If the hardware is managed and owned by an internal IT team it is known as a **private cloud**. If a company outsources all the management of the cloud infrastructure, it is a public cloud. Otherwise, a combination of both is a **hybrid cloud.**

The most common **cloud service providers (CSP)** are: AWS, Google GCP, or Microsoft Azure. These companies establish and manage private clouds.

Fast Facts

- **Public cloud**
  - Owned by: Cloud providers like AWS, Google GCP, or Microsoft Azure
  - Consumed by: Enterprises and individuals using a pay-as-you-go billing model
  - Responsible for: Managing, maintaining, and developing the computing resources pool shared between various clients
- **Private cloud**
  - Owned by: An enterprise that offers infrastructure and application platforms to internal consumers or developers
  - Consumed by: A single organization
  - Works by: Giving complete control to the company and scaling resources up and down as required
- **Hybrid cloud**
  - Defined as: A combination of public cloud and private cloud. A private cloud is always involved.
- **Multicloud**
  - Defined as: A cloud deployment model consisting of multiple clouds--private, public, or both.

Cloud Service Models

Moving forward, you'll want to be familiar with the four cloud service models that are most popular.

- **Infrastructure as a Service (IaaS).** IaaS refers to a public or private cloud deployment that's used to offer infrastructure components like:
  - Servers and storage
  - Networking hardware
  - The physical data center itself
- **Platform as a Service (PaaS).** PaaS refers to a kind of development platform that's used to deploy binaries and develop data applications or stores
  - Examples:
    - Google App engine--public, code deployment
    - AWS Elastic Beanstalk--public, code deployment
    - Azure App Service--public, code deployment
    - Heroku--public, code deployment
    - Cloud Foundry--private, code deployment
    - AWS Redshift--public, data mart development
- **Desktop as a Service (DaaS or IaaS + PaaS).** DaaS delivers managed virtual desktop infrastructure (VDI) as a service over the network.
  - Examples:
    - AWS Workspaces
    - Microsoft Azure DaaS
    - VMware
    - Horizon Cloud
    - Citrix Managed Desktops
- **Software as a Service (SaaS).** SaaS delivers software that's accessed online and usually through a subscription. It offers fully executed applications instead of development building blocks like IaaS or PaaS.
  - Examples:
    - Salesforce for CRM
    - Workday for HCM
    - Microsoft Office 365 for office productivity suite

Cloud Security

If you haven't heard this phrase yet, you'll be familiar with it before long:

> The provider is responsible for the security of the cloud, and the consumer is responsible for the security in the cloud.

This general rule of thumb provides valuable insight into the fundamentals of cloud cybersecurity.