

SkillsBuild Learning

An Introduction to Cloud Computing

Why does cloud computing matter?

Cloud computing 101

5 Minutes

What is cloud computing?

Cloud computing is the delivery of on-demand computing services such as servers, storage, databases, networking, software, analytics, and applications over the Internet. The "cloud" uses this network of **remote** servers hosted on the Internet to store, manage, and process data, rather than a **local** server or a personal computer.

What makes cloud computing so compelling today is that files, applications, or a part of a company's infrastructure, can reside on a cloud's remote server environment and be **accessed from anywhere**. This impacts everyone through everyday life activities, such as banking, email, media streaming, and ecommerce, all of which use cloud computing.

Why does it matter?

Cloud computing is quickly becoming the standard way for companies to access information technology (IT) infrastructure, software, and hardware resources.

A cloud computing model allows companies to choose not only the services needed, but where those services run and what vendors these companies purchase from.

Benefits

Companies are taking advantage of the cloud model because it promises:

- Improved efficiency
- Expanded innovation potential
- Revenue growth

What cloud computing services are available?

Cloud computing services cover many options now, from the basics of storage, networking, and processing power, through to natural language processing and artificial intelligence and standard office applications. Practically any service that does not require the user to be physically close to the computer hardware can now be delivered through the cloud.

Cloud computing underpins many services including Gmail, Netflix, Dropbox, entire software applications such as Office Online. Even using an application and taking picture of a check for deposit to your bank account works because of cloud computing.

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Learn the language of cloud

Know the terms

7 Minutes

The fundamentals

The **server** is the fundamental unit of cloud computing. A server can be physical or virtual:

- A **physical** server is a discrete, individual physical server.
- **Virtual** server instances are software-controlled slices of real physical servers that are shared among many users by a process called virtualization.



Did you know?

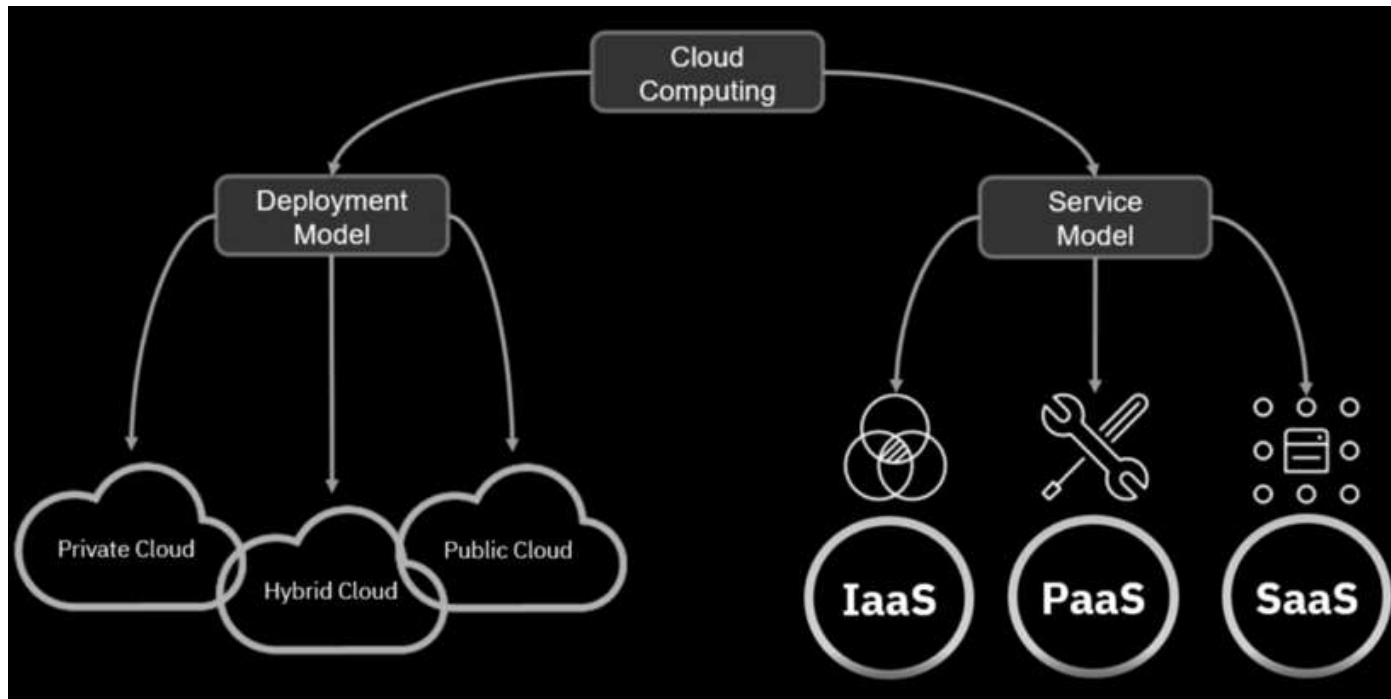
Cloud computing dates back to the 1950s. It has evolved through many phases, many of which IBM pioneered, including grid, utility, and on-demand computing.

To learn more, read **A Brief History of Cloud Computing** (<https://www.ibm.com/blogs/bluemix/2017/01/cloud-computing-history/>).

Cloud deployment and service models

Companies are adopting a variety of cloud deployment models. These range from private clouds, to public clouds, to a mix of both. These clouds offer a variety of delivery models, ranging from fully-run and managed at the company's environment, to a fully-hosted, third-party implementation.

The following graphic provides a list of popular terms associated with the a cloud computing deployment model and a service model.



Know the language of cloud!

[Click to explore these essential cloud computing terms and definitions.](#)

On premises and off premises



Often people talk about private and public cloud and confuse it with **premises**. For example, they think that public cloud is off premises, while private cloud is always on premises. **The last part of this sentence is incorrect.**

On premises refers to a solution installed and hosted in house, and that usually is supported by a third party. The on-premises private cloud, also known as an "internal cloud," is hosted in a company's own data center. It provides a more standardized process and protection, but is often limited in size and scalability.

Off premises is a solution on dedicated hardware that happens to be in a different physical location than the end users. System administrators have all the same remote access to the servers as they would with an on-premises solution, it's just not on premises.

Private cloud



A **private cloud** is on-premises or off-premises cloud infrastructure operated solely for an organization and managed by the organization or a third party.

Public cloud



A **public cloud** is available to the general public or a large industry group and is owned by an organization selling cloud services.

Hybrid cloud



A **hybrid cloud** is traditional IT and public or private clouds, or both, that remain separate, but are bound together by technology that enables data and application portability.

Software as a service (SaaS)



SaaS refers to a model of software deployment where software, including business processes, enterprise applications, and collaboration tools, is provided as a service to customers. The underlying hardware and operating system is irrelevant to the end user, who accesses the service using a web browser or app. SaaS is often a subscription purchased on an annual or per user basis.



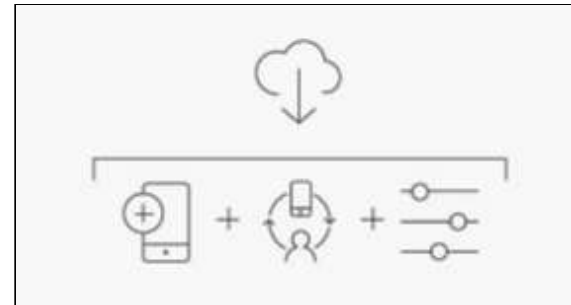
One way to remember ...

When you hear **SaaS**, think hosted applications such as email or Slack.

Platform as a service (PaaS)



PaaS refers to the delivery of a computing platform that allows users to develop, run, and manage new web-based (cloud) applications without the concern of infrastructure, operating systems, code, storage, and more. So, the organization manages the data and application resources, and the vendor manages all the other resources.



One way to remember ...

When you hear PaaS, think development tools, database management, and business analytics.

Infrastructure as a service (IaaS)



IaaS is the delivery of infrastructure and architecture elements, such as hardware, software, servers, and storage, while also providing backup, security, and maintenance. All computing resources are provided in a virtual environment so that multiple users can have access.

IaaS is attractive to companies that want to build applications from the ground up or migrate existing applications from a company's data center to reduce IT costs.



One way to remember ...

When you hear **IaaS**, think servers, storage, and networking resources.

Multicloud



Multicloud is the use of more than a single public cloud, a strategy that allows enterprises to choose specific services from various public clouds. In other words, multicloud refers to a mix of public IaaS environments, such as IBM Cloud, Amazon Web Services, and Microsoft Azure, allowing companies to avoid locking in to any one cloud provider.

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Where do you see cloud at work?

Everyday cloud

3 Minutes

Cloud computing, or simply "the cloud," is the delivery of on-demand computing resources over the Internet on a pay-for-use basis.

So how does everything become a service through the cloud?

Here are some examples of cloud computing in everyday life:



Banking: A bank uses a private cloud to build new online and mobile banking services faster and across multiple devices and platforms in response to customer demand.



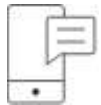
Automakers: An automaker uses cloud-based services to turn driver and vehicle data into actionable insights for predictive maintenance and to guide drivers to the most efficient traffic routes.



Retail: A retail chain uses a cloud platform to incorporate new mobile and cloud apps with previously existing systems, creating an enhanced atmosphere for customer interaction online and in-store.



Manufacturing: An appliance manufacturer uses cloud with analytics and sensors to automate diagnostics and improve customer service, leading to more effective repair visits.



Public safety: Public safety officials use a cloud-based emergency alert app that speeds the delivery of potentially life-saving information directly to citizens' mobile phones.

CHECK THIS OUT!

Review the **IBM Cloud Blog** (<https://www.ibm.com/cloud/blog>) to learn more about cloud computing and examples of IBM Cloud services at work.

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Show what you know about cloud computing

5 Minutes

How much do you know about **cloud terminology and concepts**?

Play **Show What You Know** to assess your knowledge!