Introduction to Cloud Computing – Part 2

This lesson continues the introduction to cloud computing.

We'll cover the following

Cloud service providers

As the need for cloud hosting expands, the cloud providers continually upgrade their product offerings to cover all the common infrastructural and technical requirements of the businesses today. As these cloud providers make money, they pour more money into their infrastructure to offer better products, competitive hosting rates, and so on. They enable their customers to focus on the innovation part and let themselves worry about the infrastructure part.

Hosting our service on a public cloud, like *AWS* or *Google Cloud* sounds fascinating but there are instances where primarily due to the data security reasons it's not feasible for businesses, typically in the financial, government, and the legal space, to move their data to a public cloud. They have to resort to local data processing and storage, running everything on-premises.

To provide a solution for this use case, cloud providers offer a service where they assist businesses to set everything up on their premises by extending the cloud provider's state-of-the-art infrastructure to their premises. Via this offering, a business can leverage the infrastructure of a third-party cloud provider without streaming any kind of data over to their platform. *Amazon Outposts* is one example of this.

Cloud service providers catering to a specific use case

We know that user experience and simplicity of use of product are key to the success of any business. Though, in the case of big cloud providers, businesses, not having much technical knowledge of the cloud, often find themselves overwhelmed with so many product offerings and solutions provided by these platforms.

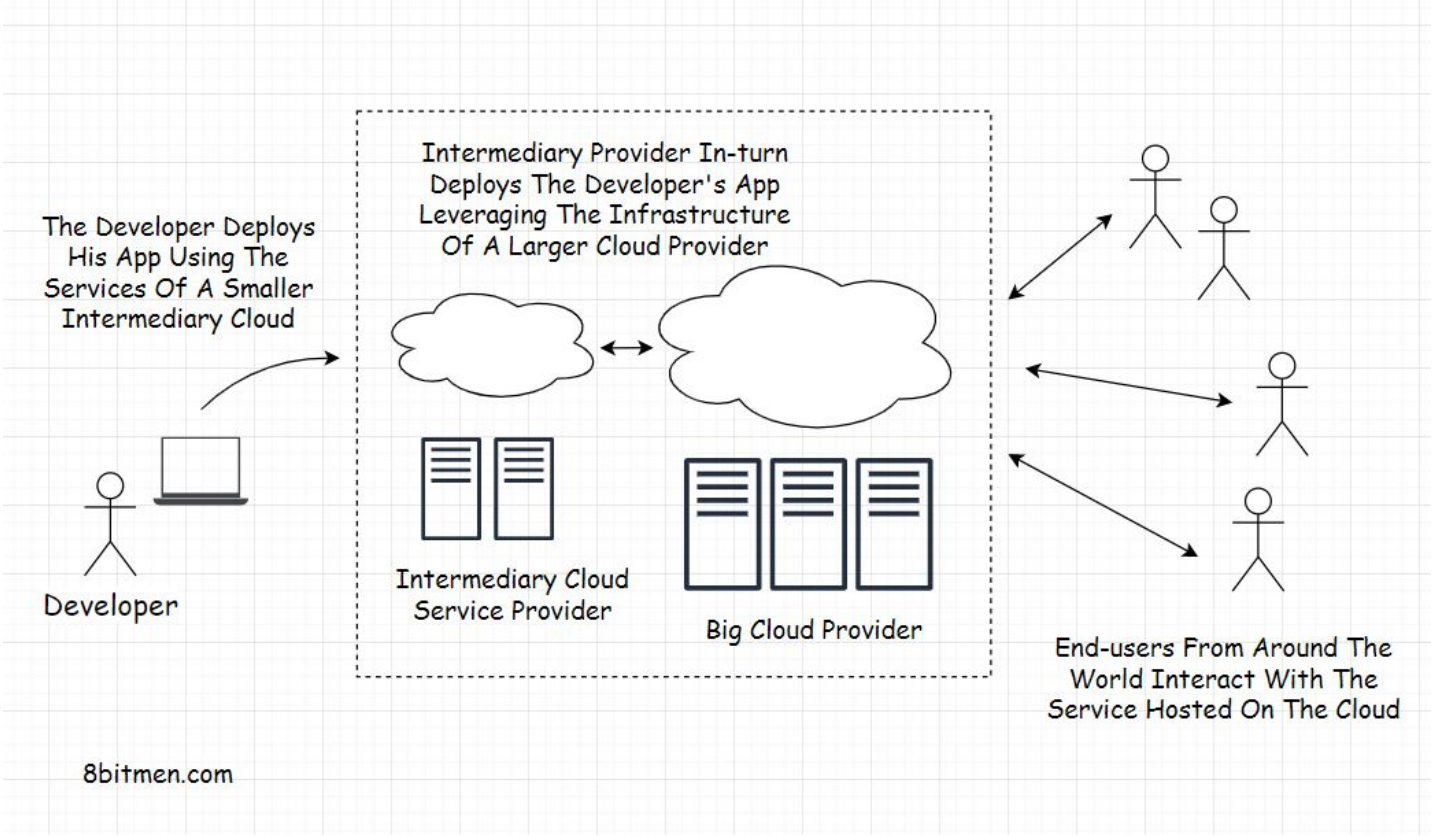
It's hard to pick the right product from a gamut of product offerings without having the technical expertise of the cloud. To pick the right cloud product, businesses have to either educate themselves or hire a consultant to do the job for them.

To address this inconvenience there are many cloud providers that operate on a smaller scale and cater to specific use cases, like offering a platform only for hosting static sites or a platform focused on building serverless apps.

These providers have simple, easy to use, intuitive interfaces with a limited set of products. There is not so much of a learning curve to deploy our services on these platforms. They offer competitive hosting rates, freemium plans, and so on. They also provide the users custom tools for the platform-specific use cases, streamlining deployments.

It's hard for big cloud providers to drill down and write extensive custom tooling for every specific use case simply due to the range of services they offer.

The providers that operate on a smaller scale either rent out private data centers or they build their platform on top of a big cloud platform like AWS, extending their infrastructure.



A few examples of these small cloud providers are *Netlify, Zeit, and Heroku*.

Decentralized cloud

Besides these big centralized cloud providers, we also have decentralized cloud providers like *IExec*, *Golem*, etc. They provide a peer-to-peer, blockchain-powered cloud infrastructure to the businesses for host their services on.

The upside of decentralized cloud platforms is that they pretty much offer you infinite computing power at low rates. That means anyone with a server or even a laptop can plug in their hardware to the decentralized, peer-to-peer computing grid and augment its computing power, making some money simultaneously.

Alright, time for a quick look at the history of the cloud. How and when did it all start? It's pretty interesting... trust me.

History of cloud

Companies in the computing hardware business, like *IBM*, have been renting out computing power via its worldwide data centers to banks and other big corporations since the beginning. *IBM* made it big with its mainframe servers.

In the year *1999*, Salesforce started delivering their software over the web and

became a pioneer in cloud computing. Their service was a *SaaS (Software as a Service)* targeting enterprise customers.

In the year *2006, Amazon* released its *Elastic Compute Cloud EC2*. This was the first cloud computing service available to indie developers and small companies. A couple of years later, in *2008, Google* released a beta version of *Google App Engine*. *Google App Engine GAE* is Google's *Platform as a Service* offering. That year *2010, Microsoft* jumped in with its *Microsoft Azure* cloud platform. In the same year, *Rackspace*, with *NASA*, launched an open-source cloud software called the *OpenStack*.

OpenStack became pretty popular with businesses that wanted to run their services on the cloud but needed everything to be on-premises.

Then, in *2011, IBM* came out with its cloud platform called the *IBM SmartCloud*. The following year *Oracle* launched *Oracle Cloud*.

Amazon and *Google* entered the market with a general-purpose computation offering. *Amazon Web Service (AWS) * had the first-mover advantage, and it still holds its ground today. Presently, has the biggest market share in cloud computing with other players trying to play catchup. AWS has gained the trust of businesses over the years by providing top-notch service and continual innovation.

Speaking of the term *cloud,* it's actually more of a branding term and helps with the marketing, as it sounds cool. *"Hey!! I have my app running on the cloud."* For a not so technical person, the word "cloud" seems approachable and it won't intimidate them, as opposed to saying, *"Hey why don't you run your application using distributed systems?"*

Wait... What Systems?

However, from a technical standpoint, *cloud* doesn't mean anything. Maybe we see the whole *World Wide Web* as one big cloud and the cloud service providers offer their services over the World Wide Web. So, this can be credited for the origin of the word "cloud."

Behind the scenes, it's the sophisticated distributed systems running on commodity hardware in massive data centers all around the globe that power services running on the cloud. We will go through each and everything in the course step by step.

Before that, let's talk about the technical and business reasons for why we should

Before that, let's talk about the technical and business reasons for why we should be deploying our applications on the cloud as opposed to running them on traditional, on-prem hardware in the next lesson.