Cloud Computing Fundamentals

Learn the Latest
Cloud Technology and Architecture
with Real-World Examples and Applications

By

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1.1. What We'll Cover and What We'll Avoid

If you've read anything about the cloud or cloud computing, there is a phrase you may have already encountered. It's a few words some people use to describe the cloud. If you haven't seen this phrase yet, you'll probably see it soon. You might see it on a laptop sticker, a tee shirt, or a coffee mug. It says:

"There is no cloud. It's just someone else's computer."

It's become quite popular. You can find dozens of products with this saying on it.

Fig 1.1.1: Some products with the saying "There is no cloud. It's just someone else's computer" on them

This phrase is short and memorable, and there is an element of truth to it. But there's also a problem. **It completely misses the point**. It puts our attention on the wrong thing. Let's be honest, this isn't an objective and neutral definition. It's a bit of an insult. It's a little dig and dismissive.

"*Hmmm… the cloud. What's the big deal? It's just someone else's computer.*"

Now to be clear, my issue is not that I need everyone to be polite and respectful about it. If you want to poke fun at any technology, be my guest. And if you're coming into this with some criticisms, doubts or just feeling completely unsure about all this cloud stuff, that's perfectly fine. What I'm going to suggest is that an oversimplification like this one just isn't useful here.

It doesn't help because this can encourage you to trivialize and underestimate how important the cloud already is and definitely how important it's becoming. There's a recent Gartner report that talks about yearly revenue of commercial cloud services. It's now on track to hit $330 billion by 2022 for some perspective. See Fig 1.1.2.

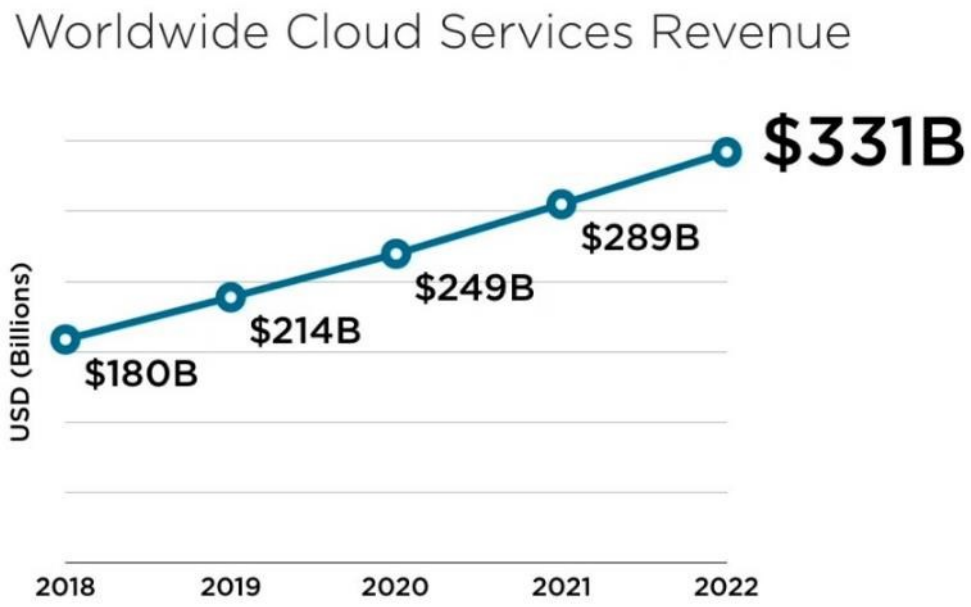

Fig 1.1.2: Yearly revenue of commercial cloud services (Gartner: April 2019)

If that was the revenue of just one business by itself, it would still be the fourth or fifth biggest business on the planet. There is real substance here, Yes, this term cloud can sometimes seem vague or ambiguous, so let's deal with that.

Is cloud a technology buzzword with a lot of hype? Yes, it is, but there's good reason for all that hype. Not just one good reason but many. But to get a little deeper into those reasons, the benefits of cloud, and even the risks and challenges of it, we need to get clear on some terminology, some jargon.

1.1.1 Types of Cloud Computing

There are basically two ways to categorize cloud computing as it is ever growing: **Cloud Deployments** and **Cloud Services**. These are further divided as shown in Fig 1.1.3.

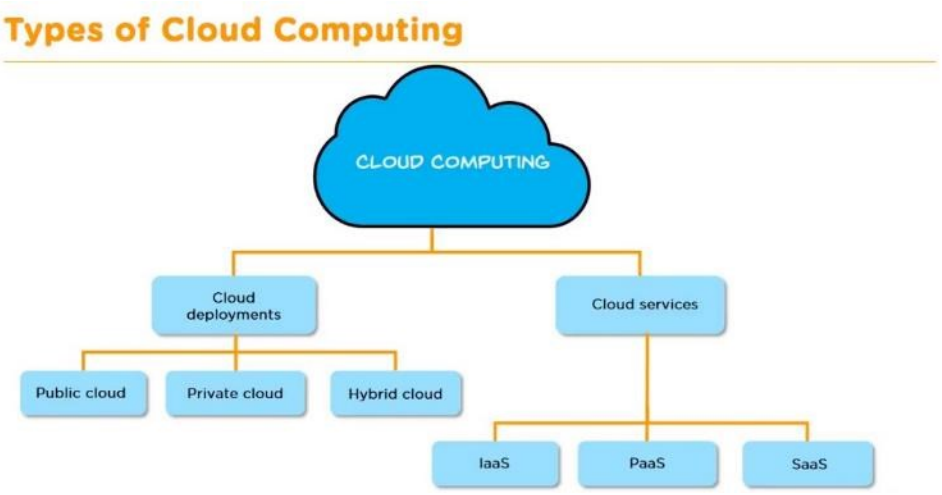

Fig 1.1.3: Types and sub-types of cloud computing

Some different phrases and acronyms we can't avoid here are…

- **Software as a service**
- **Infrastructure as a service**
- **Platform as a service**
- **Virtualization**
- **Multitenancy**

…and so much more!

We'll talk about how clouds can be deployed, mainly by **public clouds**, **private clouds**, **hybrid clouds**. We will also examine the **risks of cloud computing** and lots more. We'll cover the current marketplace and see a lot of the different companies offering cloud services. We will also cover how to recognize and understand what it is these companies actually provide.

But we need to begin at the beginning. What exactly do we mean when we say the cloud or cloud computing? Can we even be exact about those terms? Cloud computing can be defined in various ways. For example, according to 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*".

Another way it's described is…

Cloud computing is a computing service you traditional did local (on-premises), now performed remotely, across the internet (off-premises).

Some might put it simply as…

Cloud computing is on-demand computing resources, delivered to you over the internet.

However, this book will be more than just defining and understanding a few pieces of technical jargon. I want to take you far beyond that, so you can actually feel comfortable with cloud computing, feel fluent when you're talking about it and even get some hands-on experience.

This will help you to intentionally widen how you think about it. Here's what I mean by that. As we go through it, I'll ask you to consider cloud computing from a *personal* (individual) perspective. How could you just yourself get more out of this? What are the products and tools? What are the ways of thinking?

But then we'll widen that perspective and think about how this could apply to your *team* because that will be different. We'll then widen that perspective and think about your *organization*, their different roles and what they'd want. Then we will be able to push that viewpoint outwards to think about how this could solve issues for your *clients* or *customers*.

Fig 1.1.4: Cloud computing applies to individuals, team, organization, clients or customers

It's from doing this, from combining some technical understanding with an intentional awareness of the different audiences, their reasons and their motivation can we get a real sense of what cloud computing is, why it's become so important over the last few years and how you could use it in different situations. It’s only from doing this that you will be convinced **there *is* a cloud and it is *much more* than just someone else's computer**.

1.2. A few Reasons for Using Cloud Computing

When I first started teaching about cloud computing, I realized one of my big challenges is I'd go over one or two examples. My students would often be just a little bit too quick to say, okay, I'm good, I got it. I understand now.

That can be an issue because, unlike some technologies, cloud computing is not something that can be explained well with just one or two examples. In fact, that's a very good way to get the wrong impression about it. But let me unpack that statement because, let's face it, usually when you want to know more about a technology, it is pretty helpful to just go over one or two examples.

So, you might wonder, why do I say that's not the right way here? Well, good question dear reader. Let's imagine I've gathered four volunteers together, four people who've told me they're already well-informed about cloud computing and work with it every single day and they're in different roles. Fig. 1.2.1.

I have a student, an IT professional, a software developer and a chief information officer. Then I ask them to explain cloud computing to me, assuming I know nothing about this, and to just give me a simple explanation in a few words the main benefit of it. What do they use it for?

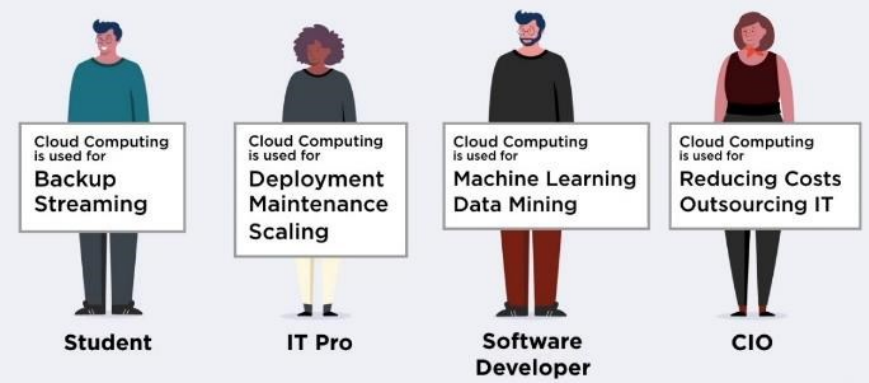

Fig 1.2.1: Four people with different explanations of what they use Cloud computing for

The **student** says…

"Well, I use the cloud to back up all my stuff. So, my documents, photos and videos are all safe and I'll get them anywhere I need them. Oh, and, I use it for streaming music and movies too. That's a cloud thing."

The **IT professional** says…