

CLOUD COMPUTING BASICS

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Cloud Computing

Simply put, cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale. With cloud-based services, we rely on remote servers rather than on-premise servers for our technological infrastructure. Rather than keeping files on a proprietary hard drive or local storage device, cloud-based storage makes it possible to save them to a remote database. As long as an electronic device has access to the web, it has access to the data and the software programs to run it. Cloud computing is the future of enterprise applications and solutions.

Types of Cloud Computing

There are four main types of cloud computing: **private clouds, public clouds, hybrid clouds, and multi-clouds**. There are also three main types of cloud computing services: **Infrastructure-as-a-Service (IaaS), Platforms-as-a-Service (PaaS), and Software-as-a-Service (SaaS)**.

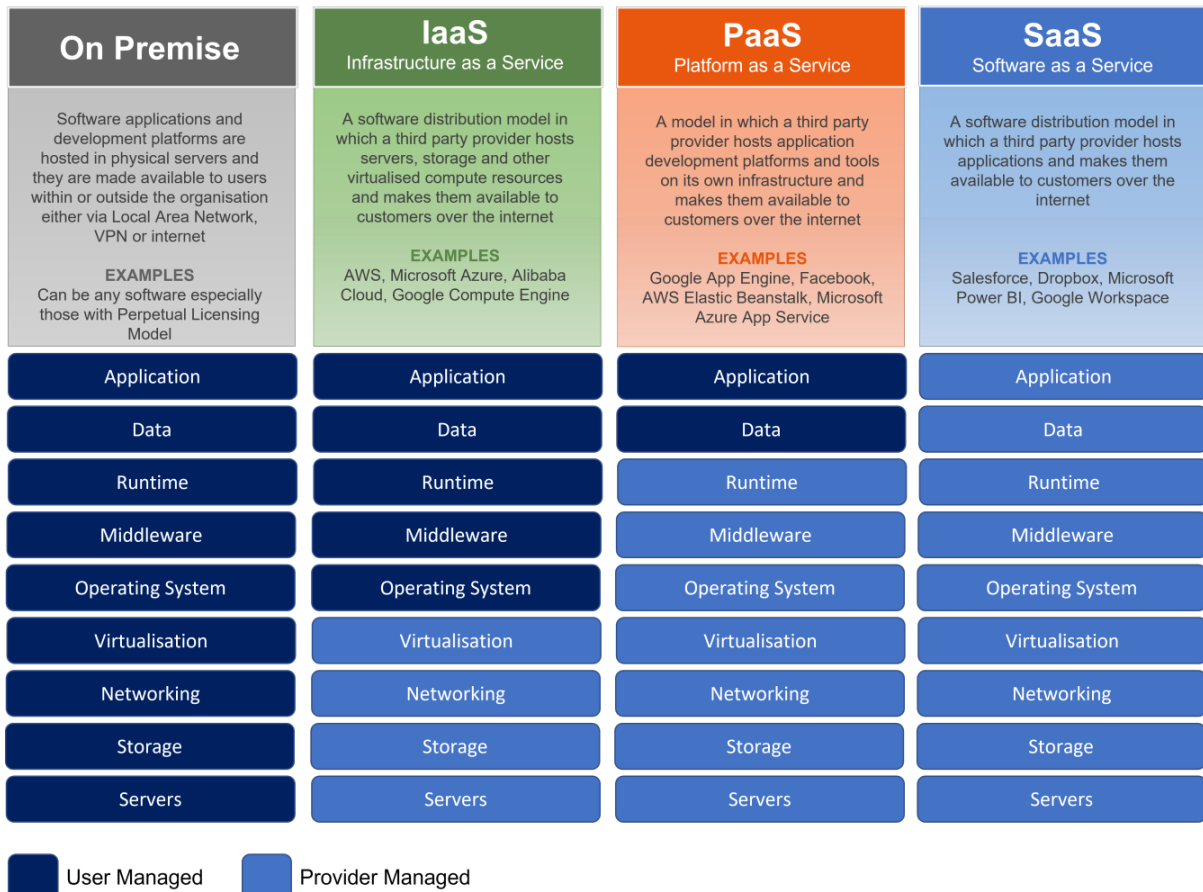


Diagram : Comparison between On Premise, Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS)

Agility, Mobility and Speed are no longer luxuries in the post-pandemic business world. These characteristics will determine whether your business survive or extinct.

Benefits of Cloud Computing

Cost Savings

Cloud computing is a cost-effective solution for storing large amounts of data on the Internet. The traditional IT infrastructure includes applications, runtimes, security, integration, databases, servers, virtualisation, storage, networking, and more. Instead of maintaining all of this by yourself, with associated operations and maintenance expenditure, you can rely on a cloud provider to handle operations and maintenance for you, allowing you to focus on your core business. You migrate everything to the cloud, and the cloud provider will handle the rest.

Paying for cloud computing is very simple, just like when you pay your utility bill, you pay only for what you use. In general, there are two types of payment: **yearly/monthly**

subscription or **pay-as-you-go**. Put simply, cloud computing's flexible billing can help you save a lot of money. It also allows you start almost instantaneously at the point of need without having to worry about heavy upfront capital expenditures.

Security

Many organisations have security concerns when it comes to adopting a cloud-computing solution. After all, when files, programs, and other data aren't kept securely onsite, how can you know that they are being protected? If you can remotely access your data, then what's stopping a cybercriminal from doing the same thing?

For one thing, a cloud host's full-time job is to carefully monitor security, which is significantly more efficient than a conventional in-house system, where an organisation must divide its efforts between a myriad of IT concerns, with security being only one of them. And while most businesses do not like to openly consider the possibility of internal data theft, the truth is that a staggeringly high percentage of data thefts occur internally and are perpetrated by employees. When confronted with cyberattacks, CEOs often look at technology defenses rather than looking at people in their organisation. The fact is that two thirds of cyber breaches result from employee negligence and malicious acts and 90% of cyber breaches originate from some type of human error or behaviour. When this is the case, it can actually be much safer to keep sensitive information offsite.

The key to this amped-up security is the encryption of data being transmitted over networks and stored in databases. By using encryption, information is less accessible by hackers or anyone not authorised to view your data. As an added security measure, with most cloud-based services, different security settings can be set based on the user.

Scalability & Speed

When you suddenly need more computing power to your website or applications, you can scale up quickly and easily: almost instantly. For example, E-commerce websites may experience sudden traffic peaks during Black Friday, which could overload your infrastructure and impact the usability of your website. Imagine the traffic surge during an 11.11 sale. Downtime has a dollar value, and E-commerce sites cannot afford to lose customers due to system failures. With the scalability of cloud computing, when you face a sudden traffic peak, you can automatically allocate more compute resources to keep your website or application stable and responsive. If the physical server which hosts your application experiences an error, your applications will be migrated to another working server with no intervention on your part.

Cloud computing allows you to deploy your application or website in multiple regions around the world with just a few clicks. As a result, while you are reducing costs for

infrastructure deployment, your customers could have a better user experience with lower latency.

Flexibility & Elasticity

When you face a sudden spike in traffic, you may need more resources to help you handle the heavy demand placed on your application. Cloud computing makes it possible to scale up quickly: you don't need to order and provision physical equipment, which is slow and complicated. When your demands drop, you can scale your infrastructure back down to meet actual demand: no need to pay for resources you don't need. This is one of cloud computing's key advantages: elasticity. You use (and pay for) only what you need. This also helps in curbing wastages on procuring additional resources that you do not need.

Backup

If your organisation isn't investing in a cloud-computing solution, then all of your valuable data is inseparably tied to the office computers it resides in. This may not seem like a problem, but the reality is that if your local hardware experiences a problem, you might end up permanently losing your data. This is a more common problem than you might realise. Computers can malfunction for many reasons, from viral infections, to age-related hardware deterioration, to simple user error. Or, despite the best of intentions, they can be misplaced or stolen.

If you aren't on the cloud, you're at risk of losing all the information you had saved locally. With a cloud-based server, however, all the information you've uploaded to the cloud remains safe and easily accessible from any computer with an internet connection, even if the computer you regularly use isn't working.

Disaster Recovery

One of the factors that contributes to the success of a business is control. Unfortunately, no matter how in control your organisation may be when it comes to its own processes, there will always be things that are completely out of your control, and in today's market, even a small amount of unproductive downtime can have a resoundingly negative effect. Downtime in your services leads to lost productivity, revenue, and brand reputation.

But while there may be no way for you to prevent or even anticipate the disasters that could potentially harm your organisation, there is something you can do to help speed your recovery. Cloud-based services provide quick data recovery for all kinds of emergency scenarios, from natural disasters to power outages.

With your data stored in the cloud, you can store data across multiple regions for redundancy and reliability. Most service providers support data recovery almost in real time to ensure high availability of your data.

Consistency

In a cloud-based system, all documents are stored in one place and in a single format. With everyone accessing the same information, you can maintain consistency in data, avoid human error, and have a clear record of any revisions or updates. Conversely, managing information in silos can lead to employees accidentally saving different versions of documents, which leads to confusion and diluted data.

Mobility

Mobility is no longer a luxury in the modern business world. In fact, many businesses were threatened with extinction when the world went into full lockdowns during the recent pandemic. Cloud computing allows mobile access to corporate data via smartphones and devices, which is a great way to ensure that no one is ever left out of the loop. Staff with busy schedules, or who live far away from the corporate office, can use this feature to keep instantly up to date with clients and co-worker. Through the cloud, you can offer conveniently accessible information to sales or technical staff who travel, freelance employees, or remote employees, for better work-life balance.

Productivity

If your business has two employees or more, then you should be making collaboration a top priority. After all, there isn't much point to having a team if it is unable to work like a team. Cloud computing makes collaboration a simple process. Team members can view and share information easily and securely across a cloud-based platform. Some cloud-based services even provide collaborative social spaces to connect employees across your organisation, therefore increasing interest, engagement and productivity.

Sustainability

With ESG being the talk of town and incorporated into all levels of businesses, it is worth a mention that hosting on the cloud is more environmentally friendly and results in less of a carbon footprint. Real sustainability requires solutions that address wastefulness at every level of a business.

Cloud infrastructures support environmental proactivity, powering virtual services rather than physical products and hardware, and cutting down on paper waste, improving energy efficiency, and (given that it allows employees access from anywhere with an internet connection) reducing commuter-related emissions. It also helps

organisations prevent wastages in procuring unnecessary servers or compute resources as cloud infrastructures allow scaling up and down at the point of need.

Insights & Analytics

As we move ever further into the digital age, it's becoming clearer and clearer that the old adage "knowledge is power" has taken on the more modern and accurate form: "Data is money." Hidden within the millions of bits of data that surround your customer transactions and business process are nuggets of invaluable, actionable information just waiting to be identified and acted upon. Of course, sifting through that data to find these kernels can be very difficult, unless you have access to the right cloud-computing solution.

Many cloud-based storage solutions offer integrated cloud analytics for a bird's-eye view of your data. With your information stored in the cloud, you can easily implement tracking mechanisms and build customised reports to analyse information organisation wide. From those insights, you can increase efficiencies, build action plans and make data-driven decisions to meet organisational goals.