

CLOUD MADE SIMPLE

By Jim Mortleman



WHAT IS CLOUD?

‘Cloud’ is a catch-all term used to describe computing resources delivered over a network, typically the Internet. When people talk about running applications and services ‘in the cloud’, they mean the hard work is carried out on computers elsewhere. Their own PC, laptop, smartphone, tablet or other device becomes essentially just a way to tell those remote computers what to do and then display the results. For example, if you run the popular app Shazam, which listens to a piece of music playing in the background and tells you the title and artist, on your phone, your phone doesn’t actually know all the tracks in the world – it simply records a snippet of the song and sends it over the Internet to Shazam’s cloud of powerful computers, where it is analysed and identified in seconds by comparing it against a vast database of tracks.

HOW DID IT COME ABOUT?

Two things prompted the growth of cloud as we know it today. The first was the widespread availability of low-cost, **broadband Internet** connections. This allowed large amounts of data to be moved quickly among computers anywhere in the world. The other was **virtualisation**, a technique that allows ‘virtual’ computers to be created at the touch of a button, independent of the hardware they’re running on. Where previously you had to allocate specific physical computers to particular applications



(which often led to resources being left idle or under-used for much of the time), ‘virtual’ computers can be scaled up and down in size dynamically. Depending on the amount of computing power you need at a particular time, a virtual machine might run across a number of physical computers or it might be one of many running on a single computer.

WHAT ARE PUBLIC, PRIVATE AND HYBRID CLOUDS?

A **public cloud**, often considered by purists to be the only ‘true’ cloud, is one run by a third party, much in the manner of a utility like electricity or water. Public cloud providers can deliver computing power and services ‘on tap’. These resources are measured, and potentially charged for, on the basis of how much or how little you use.

Public cloud providers typically manage large datacentres housing many linked computers, which are configured and run highly efficiently. Providers automatically allocate your virtual machines, and those of the their other clients, to the most appropriate hardware at any particular time. This means they can achieve unprecedented economies of scale and offer cost-effective and flexible services.

Some businesses prefer, or are required by regulation, to keep certain data and applications on their own hardware. A **private cloud** is one run by an organisation in-house on its own virtualised computers, or on dedicated hardware in a third-party provider’s datacentre. While private clouds are a more efficient way of managing IT resources than traditional in-house approaches, their smaller scale means they are never likely to be as cost-effective as public ones.



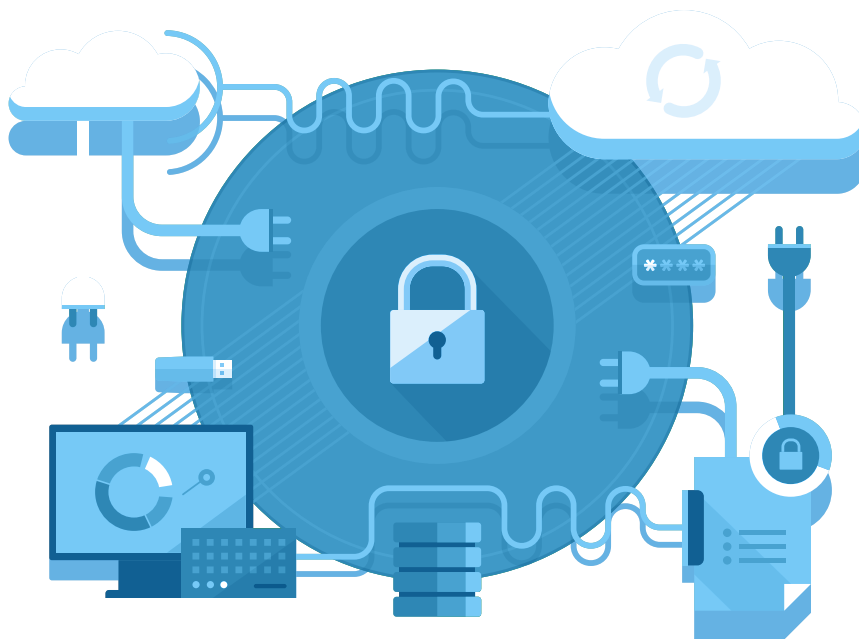
Hybrid cloud simply refers to a mixture of public and private cloud. This is rapidly becoming the standard approach for large organisations. Typically, firms might use the public cloud to develop and trial new applications and services, or to run standard business productivity software like email and word processing. At the same time, they’ll often use a private cloud for applications that handle sensitive data over which they need to have full control and oversight – such as confidential product designs, health records or personal financial details.

AAS, PAAS, SAAS... WHAT'S ALL THIS AAS ABOUT?

You can't talk about computing for long without coming across an acronym or three. Since 'cloud' was such a catch-all term, the industry needed a way to delineate the different cloud services it could offer. So it tacked on an ungainly 'as a service' after anything it could deliver from the cloud, then abbreviated it.

IaaS refers to **infrastructure as a service**, i.e. basic computing power and storage. This is like renting a computer that expands and contracts according to your needs. You still need to configure everything yourself, but you only pay for what you use and there's no big capital outlay.

PaaS, or **platform as a service**, is a slightly higher level of cloud service, where you also have some sort of pre-configured system on which you can quickly build and deploy your own applications and services.



SaaS, or **software as a service** is the next level up, where you get to 'rent' use of specific, pre-written applications. Unlike buying packaged software, you don't have to worry about installing or updating anything. Examples include Google Apps for desktop productivity and Salesforce.com for customer relationship management.

As the cloud market matures, providers are offering ever higher-level services and you might come across a stream of other aaSes, including **DaaS** (confusingly used for both desktop as a service and data as a service), **SECaaS** (security as a service), **BPaaS** (business process as a service) and **BDaaS** (big data as a service). Don't be daunted. Essentially these are all just specific types of **SaaS**.

HOW CAN THE CLOUD BENEFIT MY BUSINESS?

If you're a small business or start-up, the cloud is ideal because you can get all the IT resources you need without having to buy, install or maintain any operational hardware or software. With SaaS, for instance, you can instantly have access to all the applications you need to run your business - email, productivity software, ecommerce systems, accounting, customer relationship management and the rest – for a regular, predictable cost. You can also use IaaS and PaaS to develop and trial your own, compelling cloud-based products, services and applications quickly and cost-effectively, then easily scale them to meet customer demand.

If you're a larger business, you can similarly use the cloud to become more agile and cost-efficient. When the time comes to refresh various systems and applications, consider whether a cloud-based alternative can do the same job just as well. That way you can eliminate both the capital expenditure involved in buying and installing a new system, plus the ongoing maintenance costs for that system. This allows you to divert IT resources into activities that add more value for the business, such as developing innovative new products and services. And by taking advantage of the speed and scalability of IaaS and PaaS systems, you can also greatly speed up development cycles. Many large businesses have cut development times from months to weeks, or even days, by doing this.

AVOIDING PITFALLS

As with any procurement, you need to research the market with due care. Providers' pricing and discount structures vary considerably, so it can be hard to compare like with like.

The market is growing at more than 50 percent per year, and is saturated with providers large and small, old and new. Until it becomes more mature and stable, it's hard to say whether particular cloud services will flourish and persist. Always be sure it's easy to move your data and applications to another provider should the need arise. Some PaaS systems, for example, use proprietary technologies that leave you effectively locked in to a particular provider's system and roadmap, since moving would involve rewriting many of your applications.

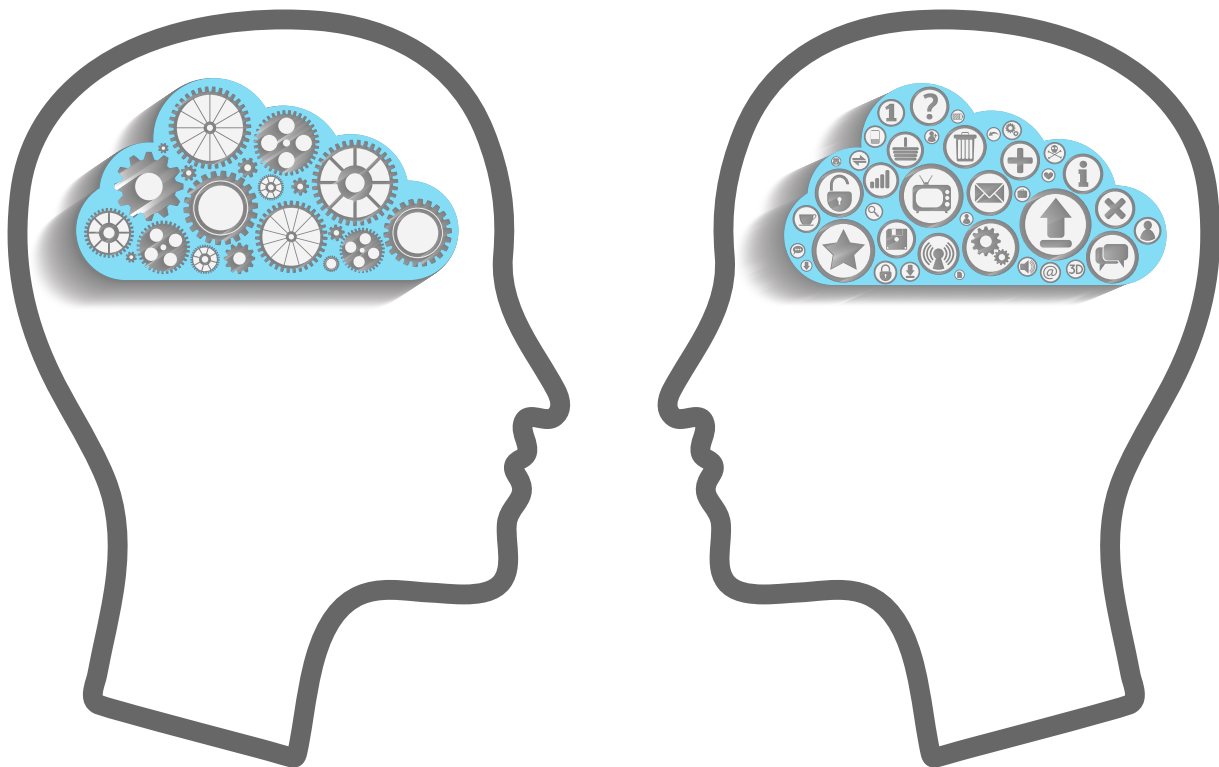
If you plan to use cloud infrastructure to deliver an application or website, ensure you have the flexibility to adjust memory (RAM), processor power (CPU) and storage in line with demand (and without incurring significant additional charges). Otherwise a sudden peak in usage could slow the system down to an unacceptable level, which is hardly going to impress your customers (and defeats one of the main reasons for moving to cloud in the first place – i.e. quick and easy scalability).

DON'T JUST CHANGE TECHNOLOGY, CHANGE YOURSELF

Finally, remember that – particularly for more established businesses – to get the most out of a move into the cloud, you may need to review and amend your existing company culture and processes.

For instance, given that many organisations cite increased agility as a prime reason for considering cloud, you need to ensure your staff have the ability to take advantage of the speedy, self-service capabilities that cloud can offer. If staff still have to go through lengthy sign-off and approval processes before being allowed to fire-up virtual machines and experiment with new applications and services, then you're unlikely to realise your ambition to become more innovative and dynamic.

But with the right, light-touch processes in place, and a willingness from the top to the bottom of the organisation that you're going to make the most of this exciting and dynamic new technology landscape, you could soon be soaring high with cloud success.





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