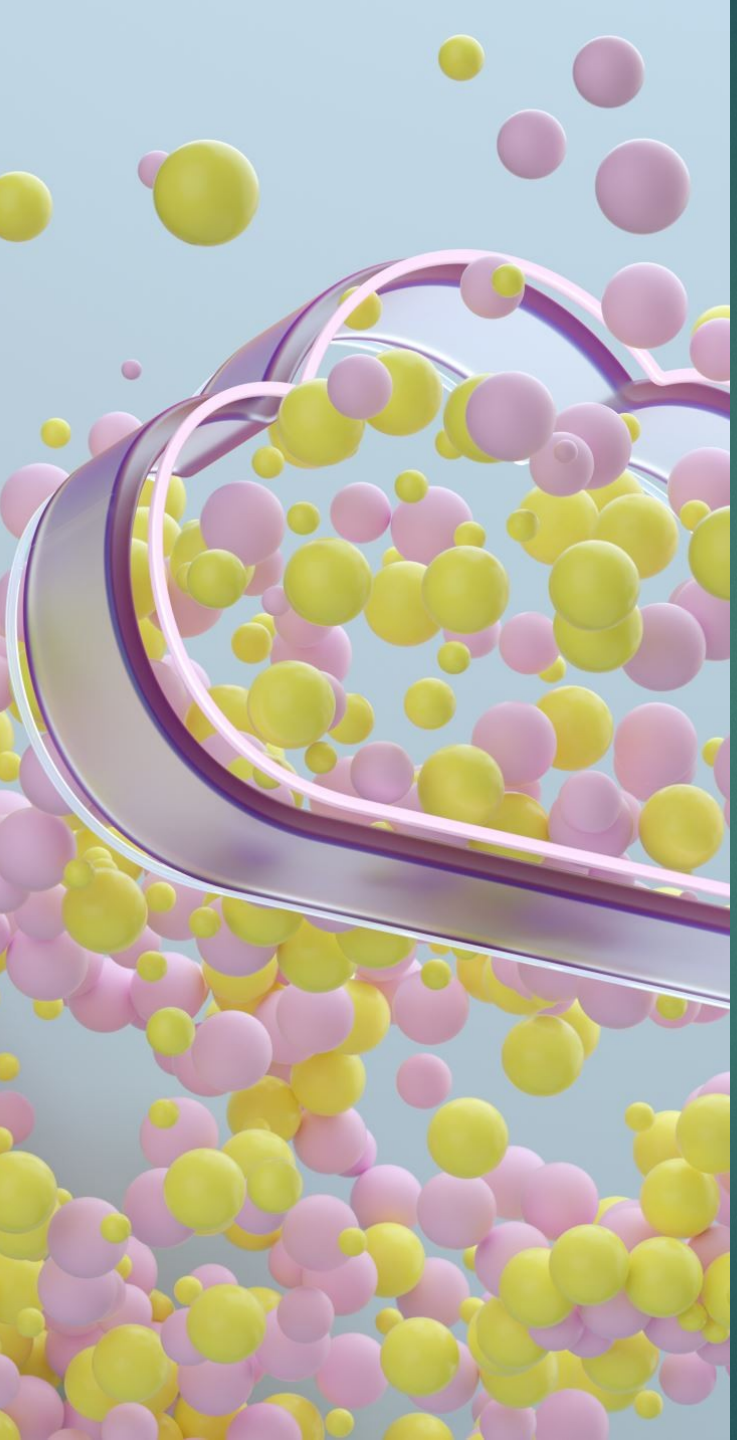
Data Information Systems Management

Cloud Systems

LECTURE 3 – CLOUD SYSTEMS

CHAPTER OUTLINE

1. The history of the Cloud
2. What is the Cloud
3. Difference types of cloud
4. What is visualization
5. What can the Cloud offer “As A Service”



A short history of cloud computing

- Refer to article on the ' Brief History of Cloud computing' from (Dataversity 2017)

The history of the Cloud

A not-so-misty history

The term 'cloud computing' was first used in 1996 by Compaq engineers. And by 1997, Steve Jobs was putting an 'i' in front of it (and it in front of consumers).

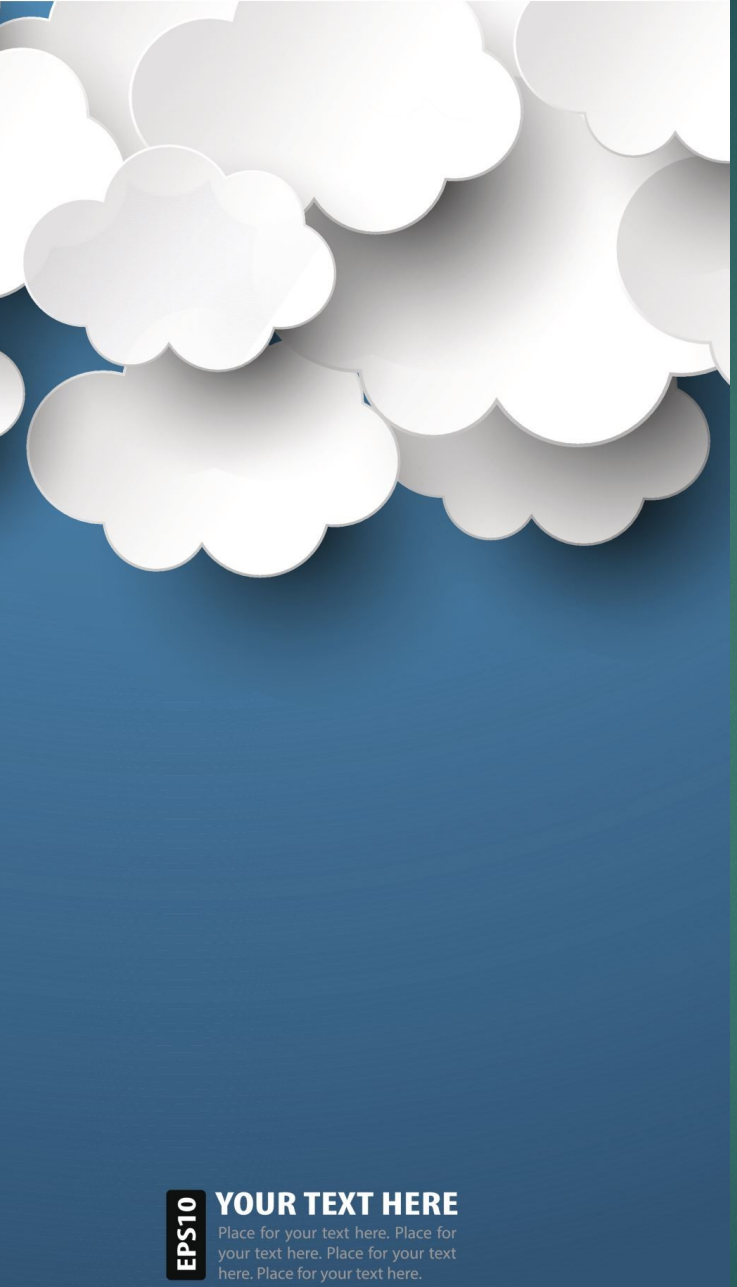
But the underlying concept of the cloud in the business space is much older than that. In fact, the idea of optimising computing performance by using a network of computers – rather than a single machine – to store, process, and share information, was hit upon in the 1950s.

In those days, 'mainframe' computers – the hubs of the operation - were elephantine, taking up whole rooms. Users in the rest of the building would log on to 'dumb terminals' that exploited the mainframe processing power.

These days the terminals, whether static or mobile, aren't so dumb, and instead of one massive mainframe in the basement, we rely on a global network of servers – computers and programmes that manage our resources and data – in what we now call 'the cloud'.

Except those servers aren't really in the cloud, they're on the ground. So, while the principle is basically the same today as it was back in the 1950s, it's on a much bigger scale, made possible and more effective by the 21st century introduction of high speed internet connections.

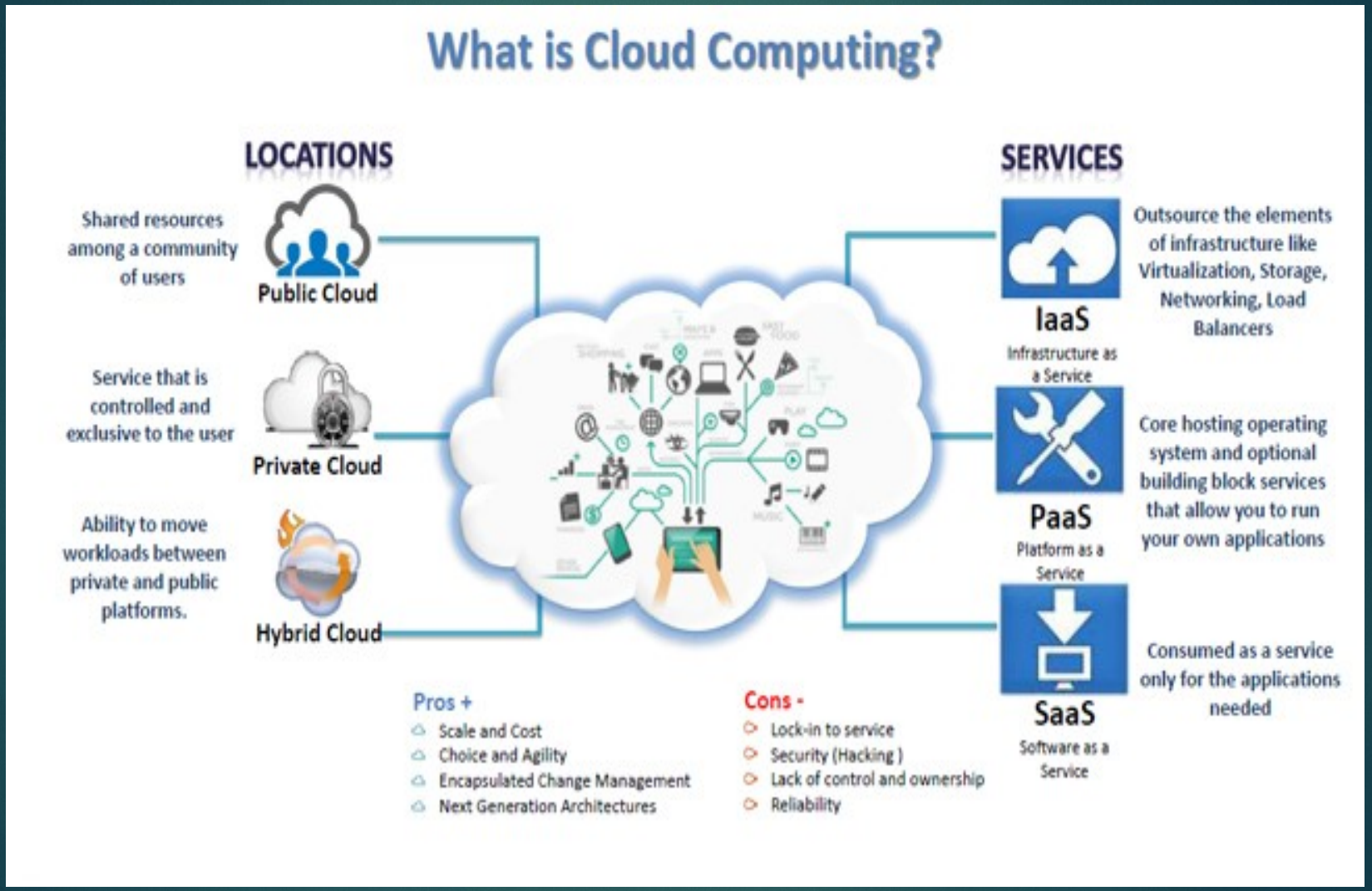
So, if all of these devices are always online – and with good connections to the internet – should we run our software and data online too? The cloud answered that question with a big fat 'yes' – and brought with it brand new opportunities for your business.



What is the Cloud

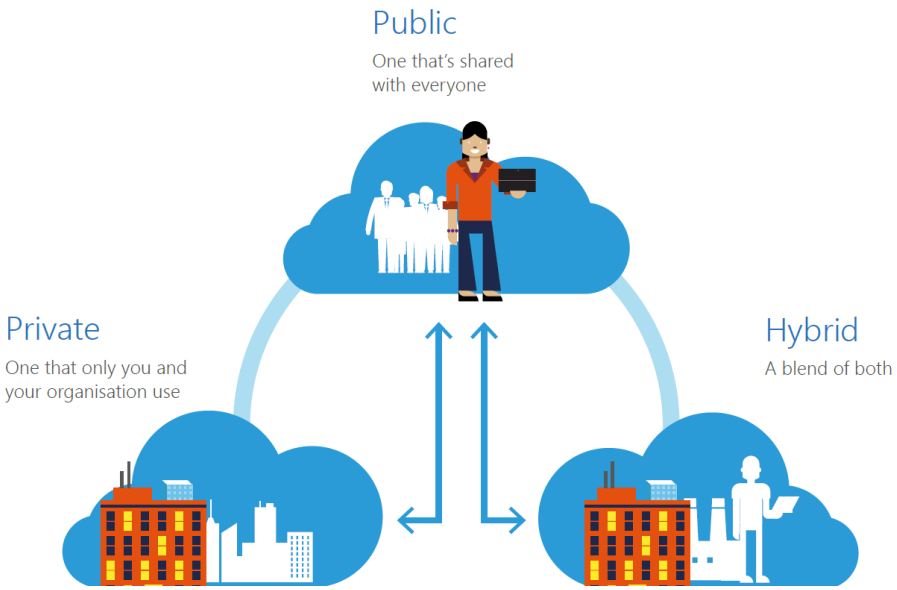
Gartner defines the cloud as “ a style of computing in which scalable and elastic IT -enabled capabilities are delivered as a service using Internet technologies”

What is the Cloud



Types of Cloud

- Different types of cloud (According to Microsoft)



Elasticity Versus Scalability

Cloud Elasticity :
The Elasticity refers to the ability of a cloud to automatically expand or compress the infrastructural resources on a sudden-up and down in the requirement so that the workload can be managed efficiently. This elasticity helps to minimize infrastructural cost. This is not applicable for all kind of environment; it is helpful to address only those scenarios where the resources requirements fluctuate up and down suddenly for a specific time interval. It is not quite practical to use where persistent resource infrastructure is required to handle the heavy workload.
It is most used in pay-per-use, public cloud services. Where IT managers

Cloud Scalability :
Cloud scalability is used to handle the growing workload where good performance is also needed to work efficiently with software or applications. Scalability is commonly used where the persistent deployment of resources is required to handle the workload statically.

Elasticity Versus Scalability

- (Geekforgeeks.org 2022)

Cloud Elasticity	Cloud Scalability
Elasticity is used just to meet the sudden up and down in the workload for a small period of time.	Scalability is used to meet the static increase in the workload.
Elasticity is used to meet dynamic changes, where the resources need can increase or decrease.	Scalability is always used to address the increase in workload in an organization.
Elasticity is commonly used by small companies whose workload and demand increases only for a specific period of time.	Scalability is used by giant companies whose customer circle persistently grows in order to do the operations efficiently.
It is a short-term planning and adopted just to deal with an unexpected increase in demand or seasonal demands.	Scalability is a long-term planning and adopted just to deal with an expected increase in demand.

UK Governments 14 Principles cloud of security

- UK Governments 14 Cloud security principles

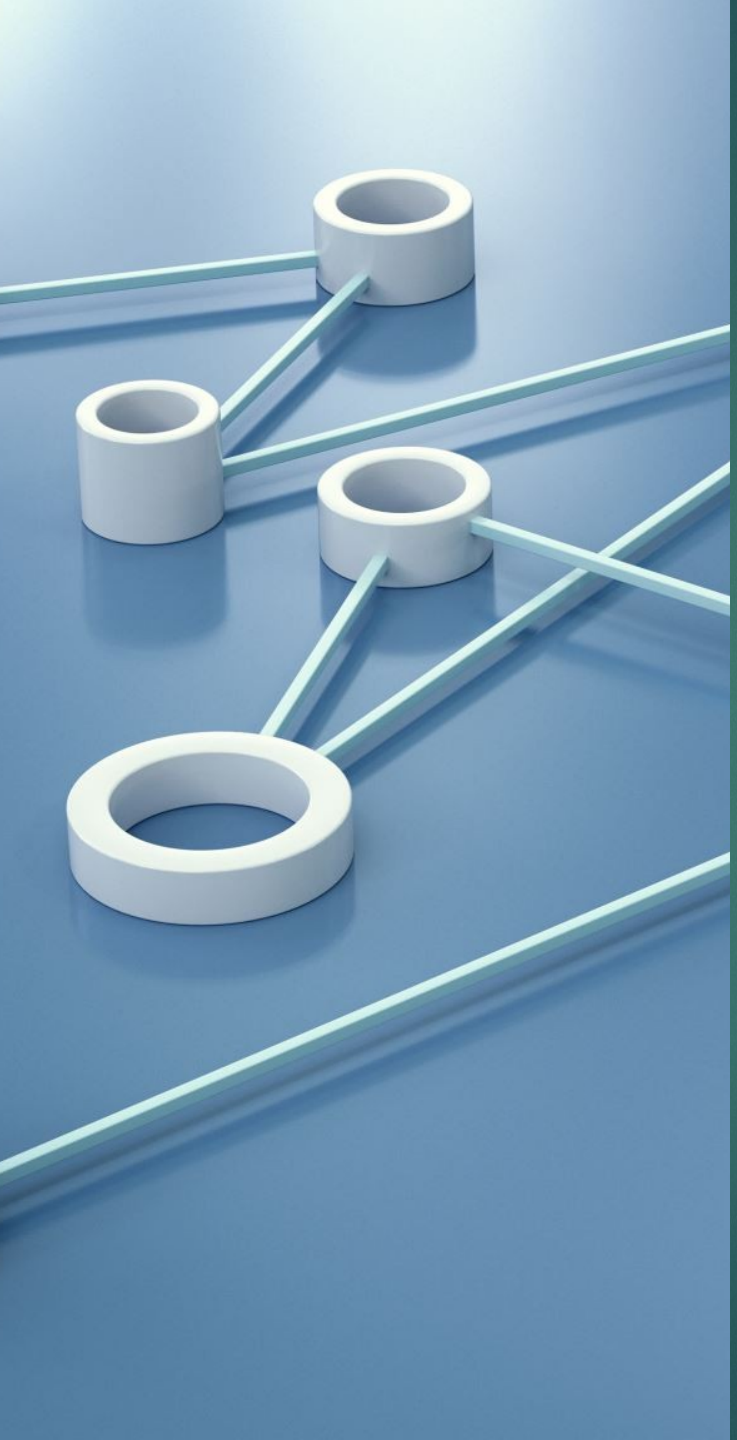
What can the Cloud offer “As A Service”

Here are seven different types of cloud computing and a little bit about what they offer to businesses:

- **Web-based cloud services.** These services let you exploit certain web service functionality, rather than using fully developed applications. For example, it might include an API for Google Maps, or for a service such as one involving payroll or credit card processing.

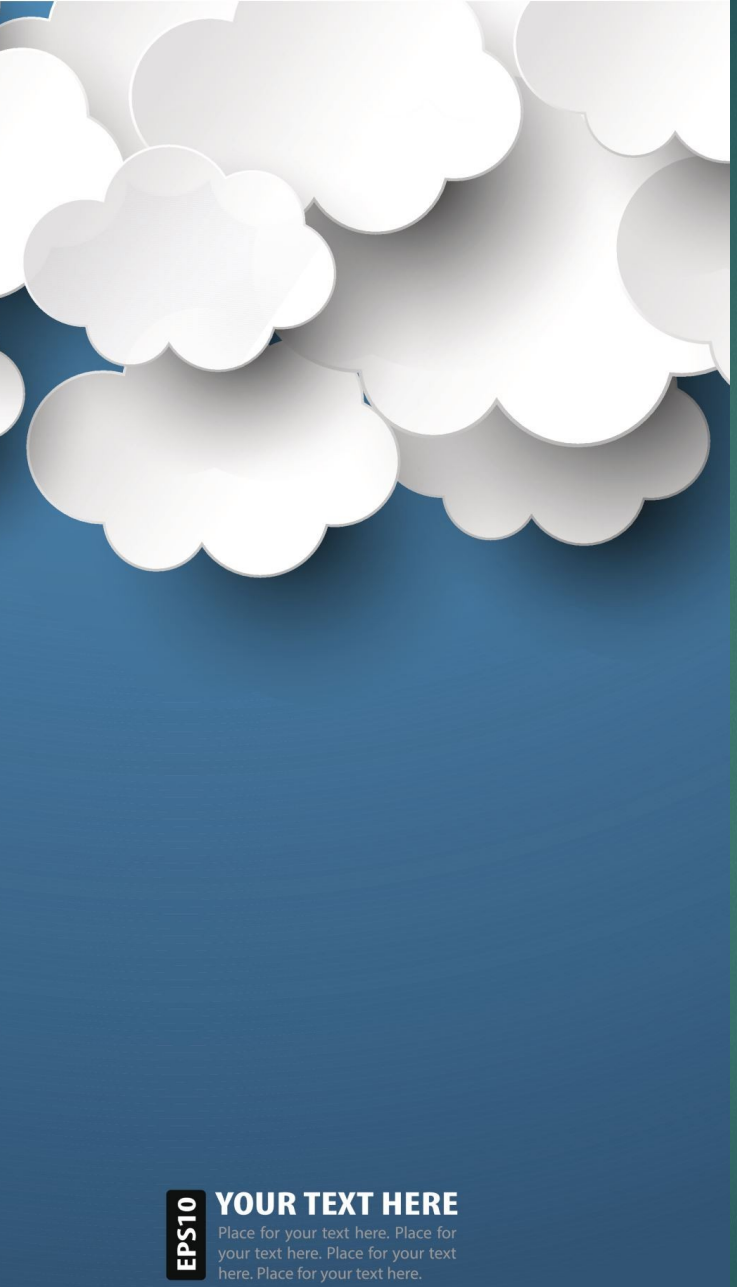
- **SaaS (Software as a Service).** This is the idea of providing a given application to multiple tenants, typically using the browser. SaaS solutions are common in sales, HR, and ERP.

- **Platform as a Service.** This is a variant of SaaS. You run your own applications, but you do it on the cloud provider’s infrastructure.



What is the Cloud?

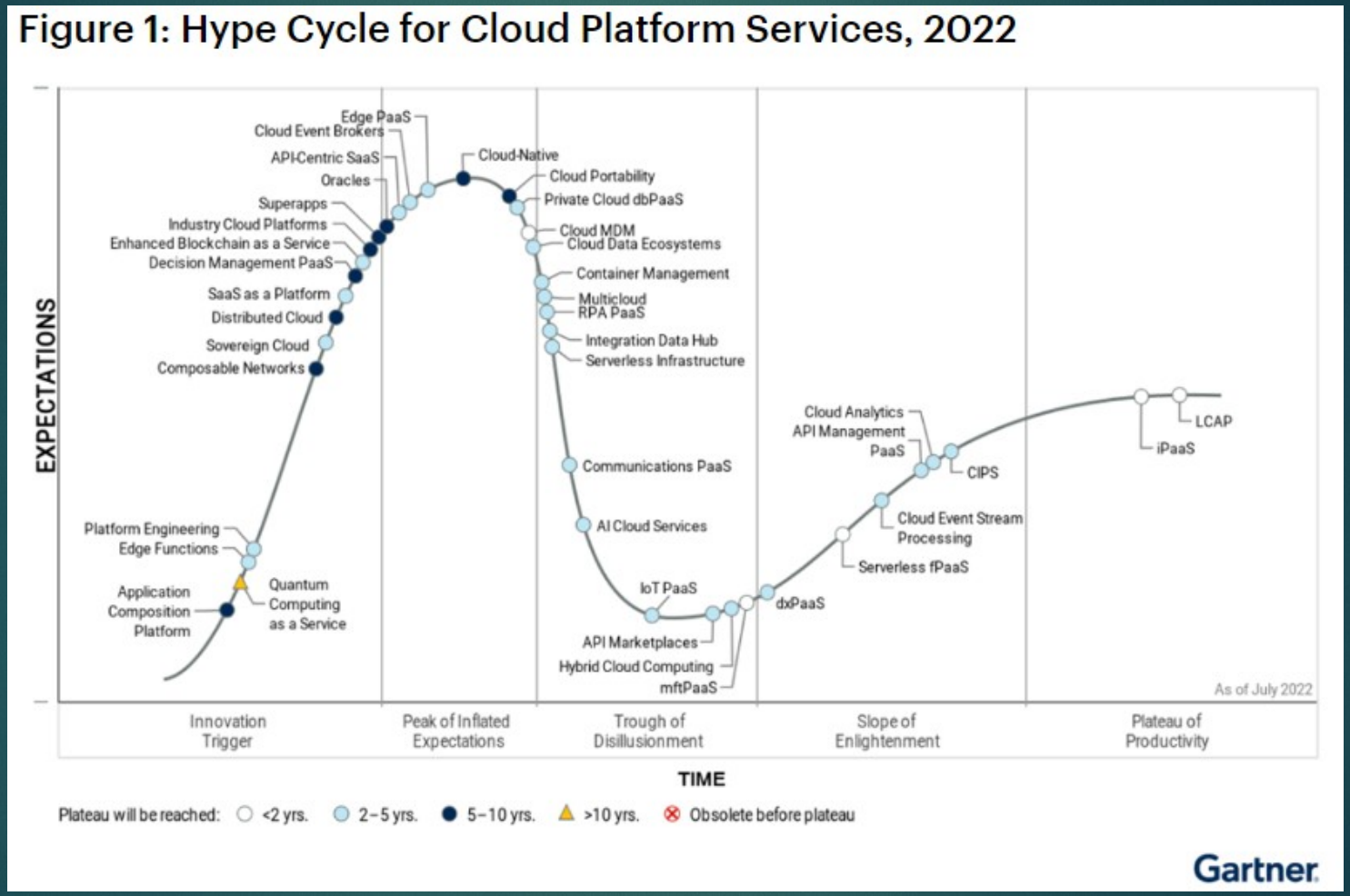
- **Utility cloud services**. These are virtual storage and server options that organizations can access on demand, even allowing the creation of a virtual data centre.
- **Managed services.** This is perhaps the oldest iteration of cloud solutions. In this scenario, a cloud provider utilizes an application rather than end-users. So, for example, this might include anti-spam services, or even application monitoring services.
- **Service commerce.** These types of cloud solutions are a mix of SaaS and managed services. They provide a hub of services which the end-user interacts with. Common implementations include expense tracking, travel ordering, or even virtual assistant services.



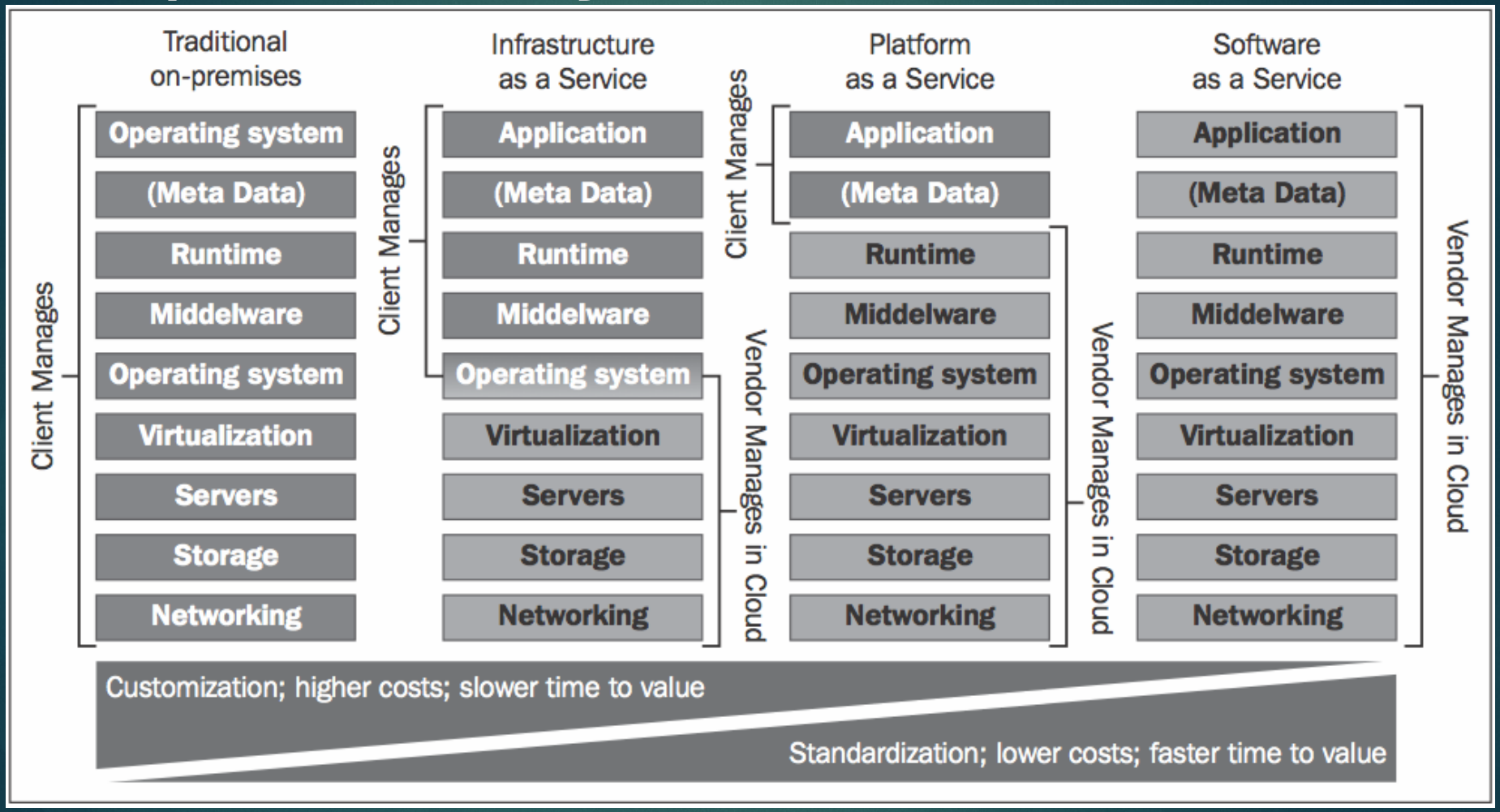
What is the Cloud

- **Infrastructure as a Service (IaaS)**. Provision of vitualised computing resources over the Internet.
- **Integrated Platform as a Service (iPaaS).** Is a platform for building and deploying integrations with the cloud and between the cloud and enterprise.

Hype Cycle for Cloud Computing 2022



Cloud Computing – Shared responsibility



Current trends in Cloud Computing

A rise in managed cloud services

It’s no secret that cloud adoption is on the rise across many organisations. There are estimates that the cloud computing market will surpass a global value of $1trn by 2028.

A recent PwC survey found that Irish businesses have grown more reliant on cloud-based services and third-party providers in recent years because of the Covid-19 pandemic.

Jake Madders, director of the UK cloud hosting provider Hyve, believes more organisations will utilise a cloud hybrid approach for 2023.

“For SMEs looking ahead, the use of outsourced managed cloud services is envisioned to become an increasingly routine practice in the near future,” Madders said.

Silicon republic 2023