Cloud 101

First step to move towards cloud technology

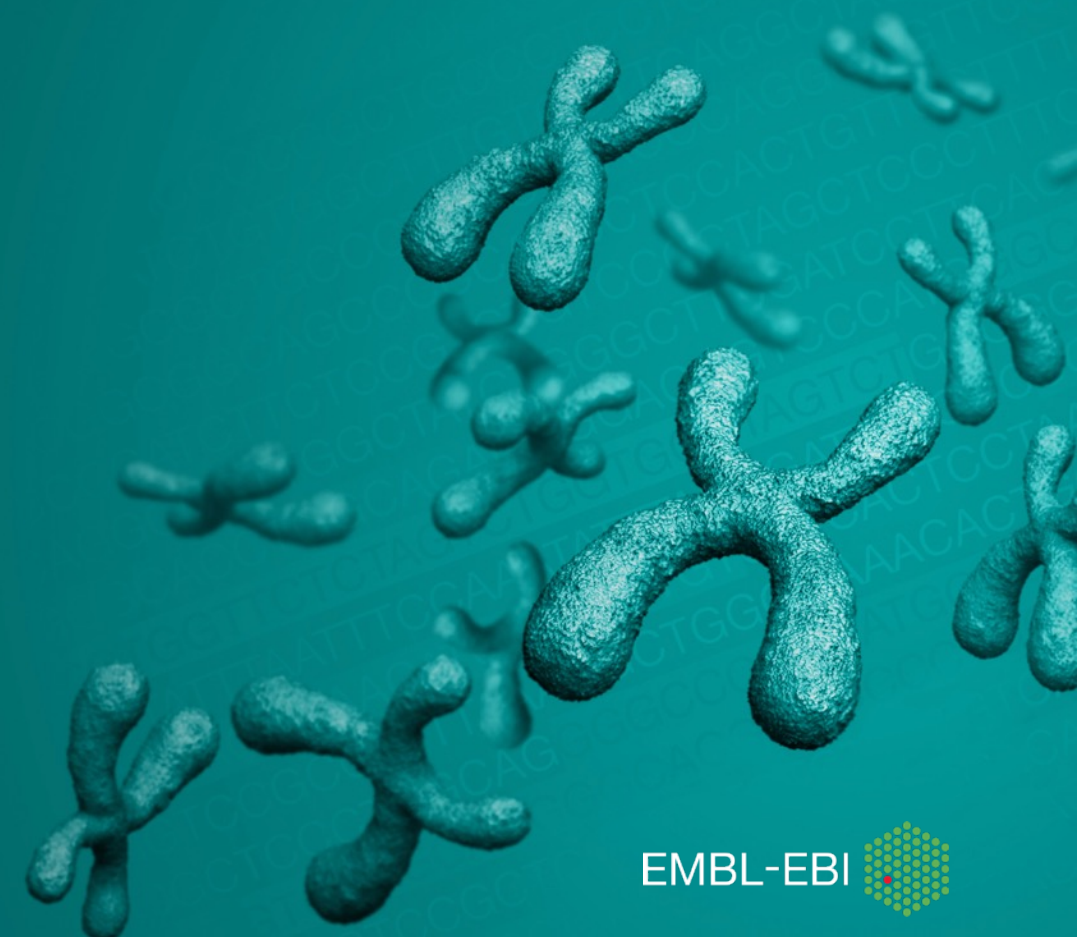C.D. Tiwari | @cdtiwari

Cloud Bioinformatics Application Architect

Technology & Science Integration,
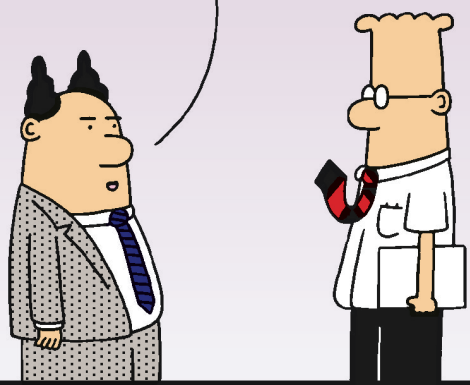
Technical Service Cluster

EMBL-EBI, Hinxton, UK

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Cloud 101

- ☐ What is cloud computing?

- ☐ Why and who uses cloud computing?

- ☐ Types of cloud and its common cloud computing services and providers.

- ☐ How to use cloud computing

- ☐ Summary

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What is Cloud Computing...?

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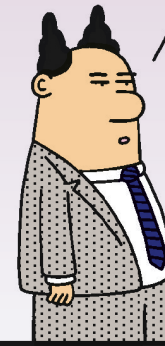
Cloud computing

- The "cloud" simply refers to a network of servers.

- It is the space in which information, software, applications, and services are housed and accessed.

- More importantly, cloud computing is the term used to describe the delivery of these products and services over a network or the Internet.

- When users employ cloud technology, they are usually accessing a remote network in order to perform a task more efficiently.

- However, cloud computing can take on a large number of structures and styles.

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Who uses cloud computing?

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Who uses cloud computing?

Businesses
- Online shopping
- Order food

Organisations
- Schools
- Universities
- Research

Individuals
- Mobile Phones

Governments
- National
- State
- Local

Common uses of cloud computing

- File storage and sharing

- File backup and disaster recovery

- Email services

- Database management

- Web site hosting

- Software and platform applications usage

- eCommerce

- Advertising

- Customer relationship management (CRM)

- Testing and development

- Popular media usage

- Renting services

- Short-term projects and periodic capacity-enhancement

- Editing documents

- Global collaboration

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Types of cloud

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Three types of cloud

Common cloud computing
services and providers

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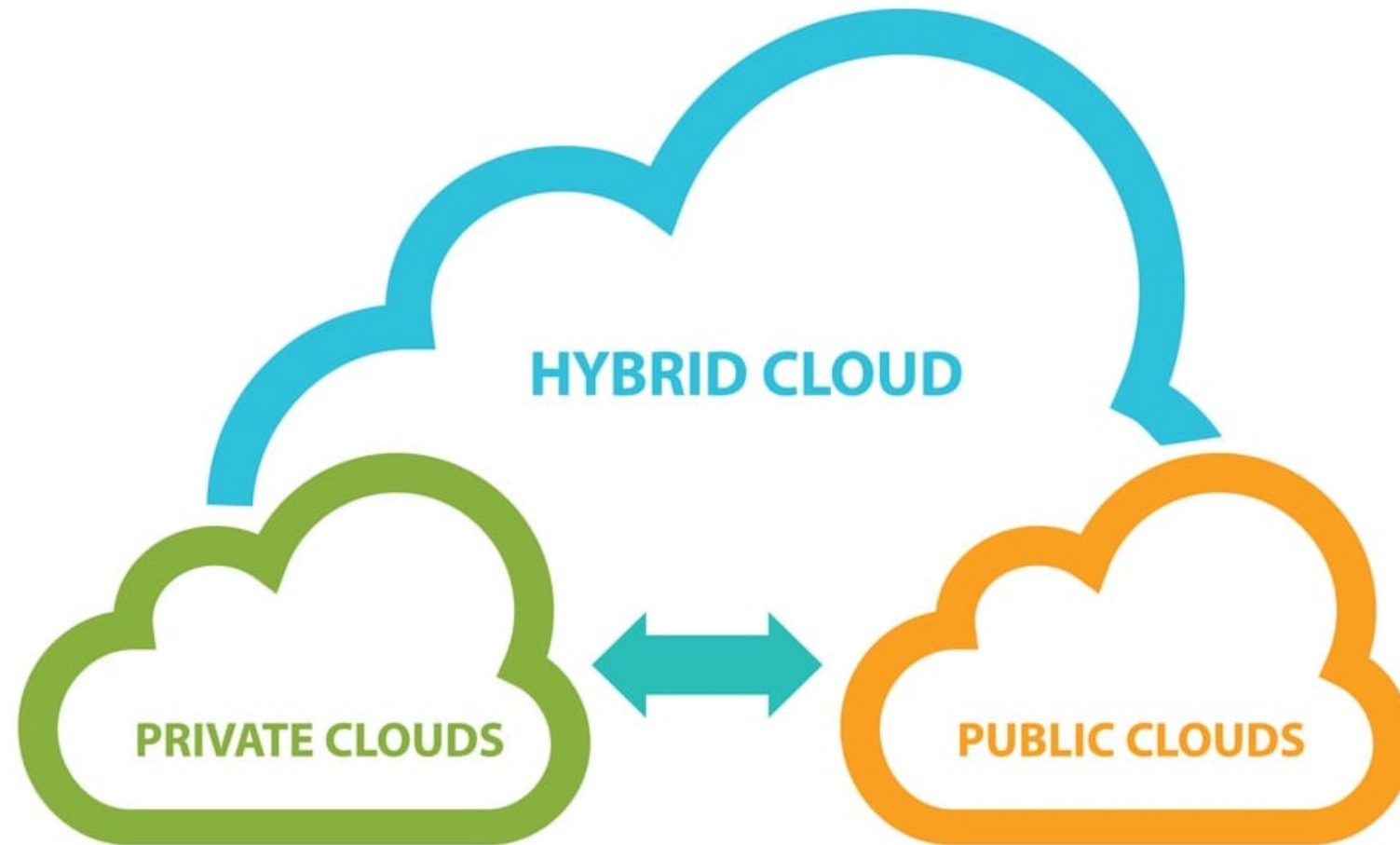
Cloud computing services as live example

Pizza as a Service

Common cloud computing services

Common cloud computing providers
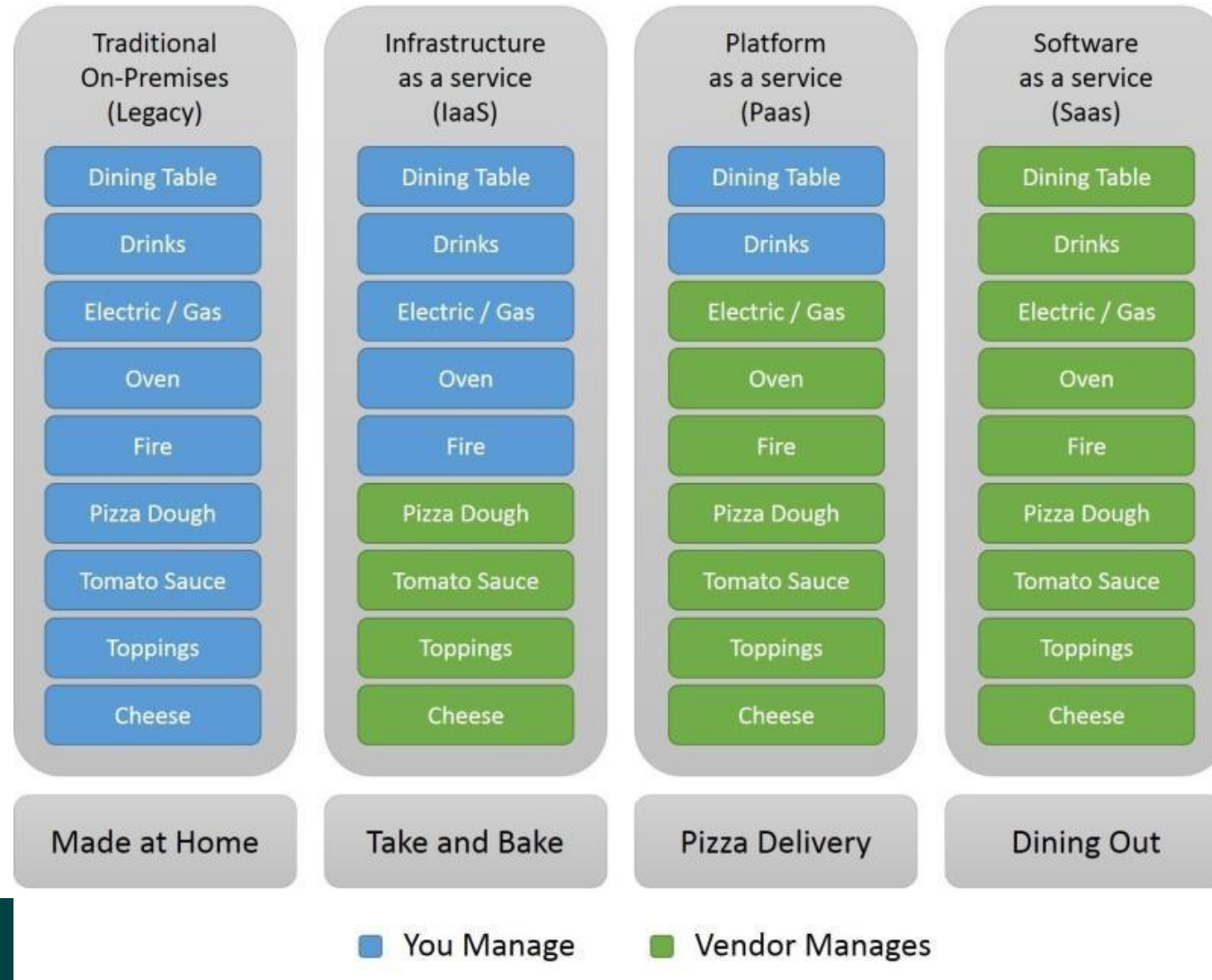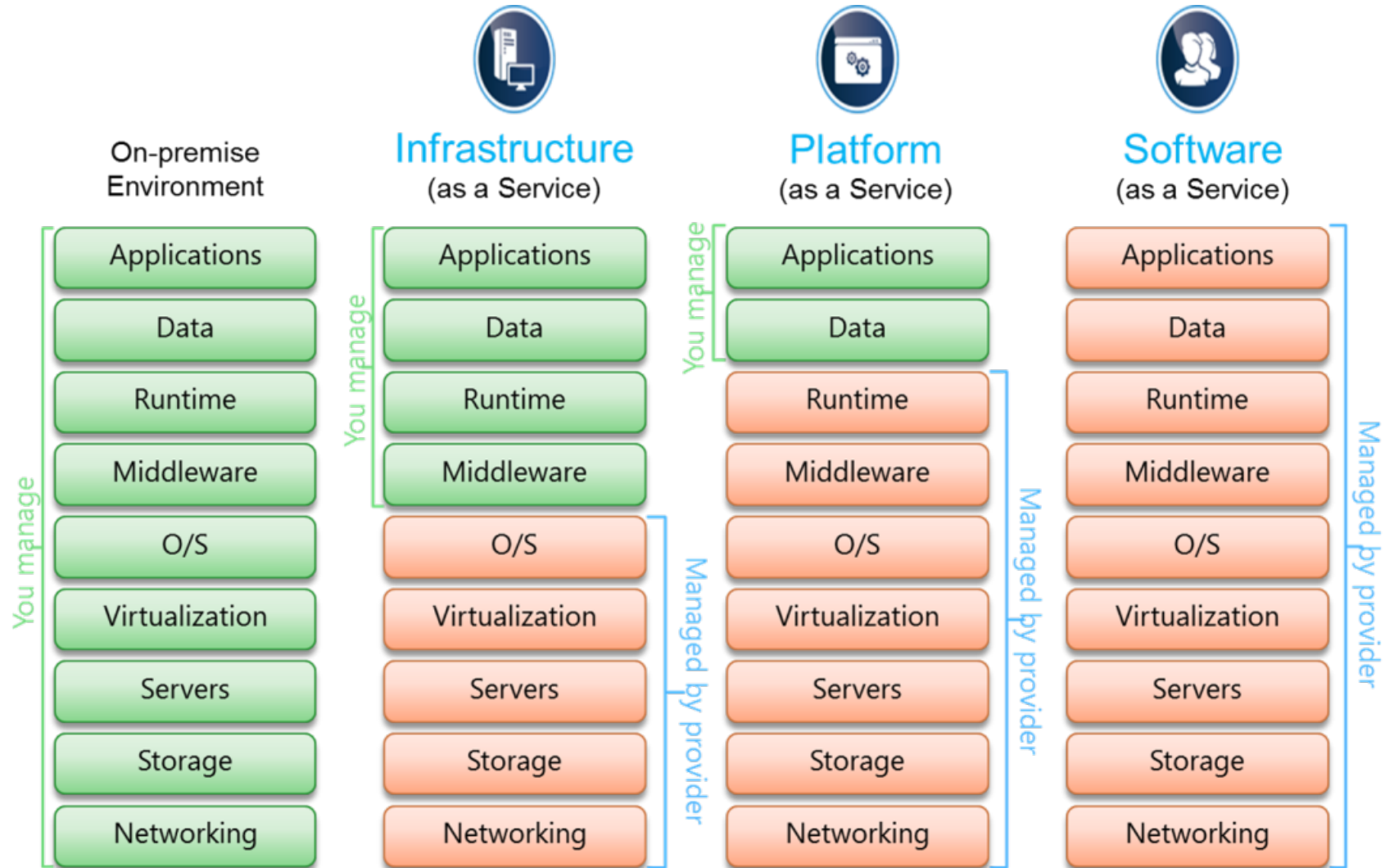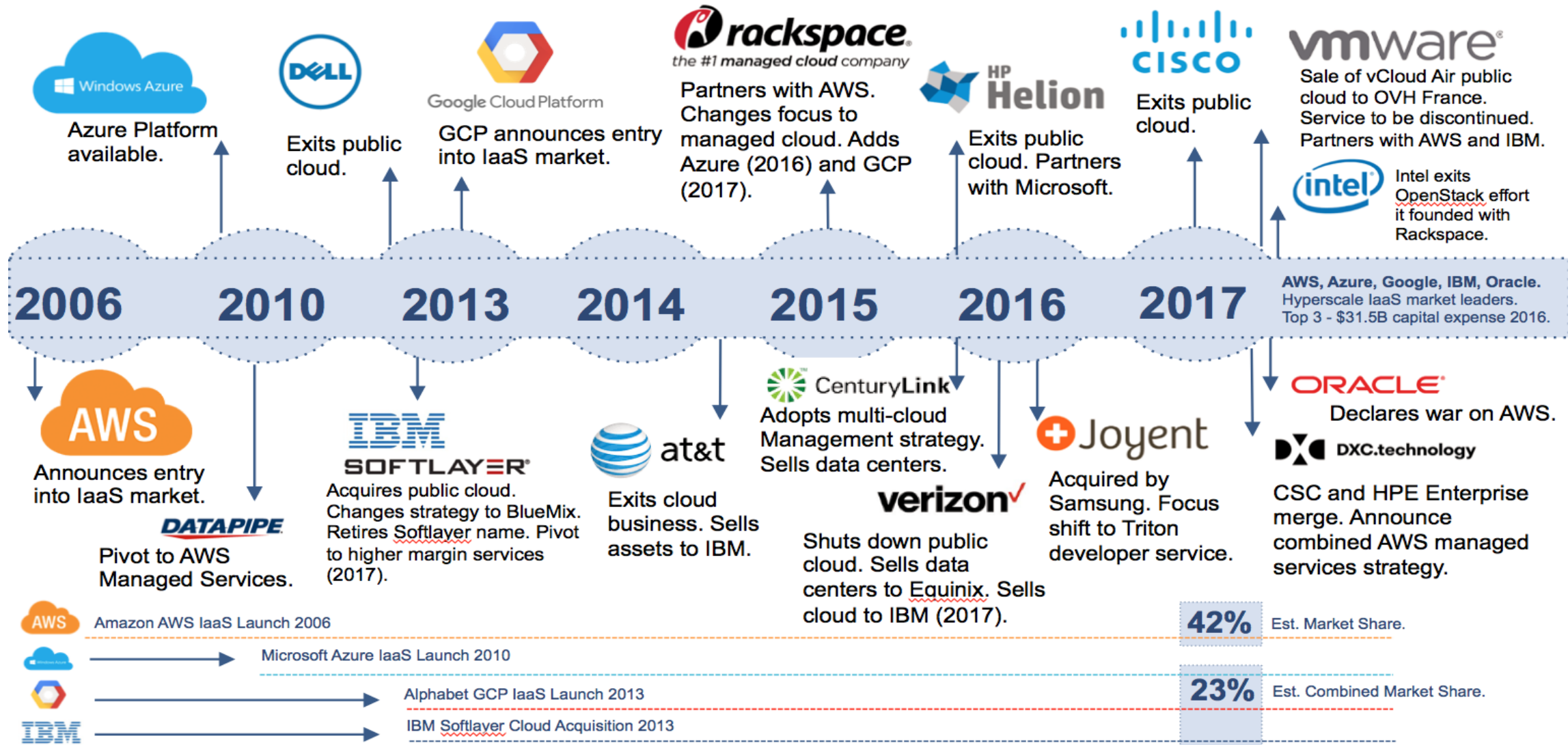

Azure Platform available.

Exits public cloud.

GCP announces entry into IaaS market.

Partners with AWS. Changes focus to managed cloud. Adds Azure (2016) and GCP (2017).

Exits public cloud. Partners with Microsoft.

Exits public cloud.

Sale of vCloud Air public cloud to OVH France. Service to be discontinued. Partners with AWS and IBM.

Intel exits OpenStack effort it founded with Rackspace.

| 2006 | 2010 | 2013 | 2014 | 2015 | 2016 | 2017 | AWS, Azure, Google, IBM, Oracle. Hyperscale IaaS market leaders. Top 3 - $31.5B capital expense 2016. |

Announces entry into IaaS market.

Pivot to AWS Managed Services.

Acquires public cloud. Changes strategy to BlueMix. Retires Softlayer name. Pivot to higher margin services (2017).

Exits cloud business. Sells assets to IBM.

CenturyLink — Adopts multi-cloud Management strategy. Sells data centers.

Shuts down public cloud. Sells data centers to Equinix. Sells cloud to IBM (2017).

Joyent — Acquired by Samsung. Focus shift to Triton developer service.

ORACLE — Declares war on AWS.

DXC.technology — CSC and HPE Enterprise merge. Announce combined AWS managed services strategy.

Amazon AWS IaaS Launch 2006 — **42%** Est. Market Share.

Microsoft Azure IaaS Launch 2010

Alphabet GCP IaaS Launch 2013 — **23%** Est. Combined Market Share.

IBM Softlayer Cloud Acquisition 2013

https://www.srgresearch.com/articles/microsoft-google-and-ibm-charge-public-cloud-expense-smaller-providers

* https://medium.com/@dougpollei/there-can-be-only-one-37667ff80647

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How to use cloud computing

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Cloud Native

"A cloud native app is architected specifically to run in the elastic and distributed nature required by modern cloud computing platforms," -Mike Kavis (MD, Deloitte)

Cloud Native strategy is about scale and resilience: "distributed systems capable of scaling to tens of thousands of self healing multi-tenant nodes" - CNCF

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Cloud native architecture principle

DevOps:

Collaboration between software developers and IT operations automating the process of software delivery and infrastructure

Continuous Delivery:

Ease of release as soon as developed, without wait
Deliver faster, frequently with less risk

Microservices:

An architectural approach to developing
Collection of small services with distributed business capabilities

Containers:

Efficiency and speed
Freedom of dependencies of application environments

DEVOPS

CONTINUOUS DELIVERY

CLOUD-NATIVE

MICROSERVICES

CONTAINERS

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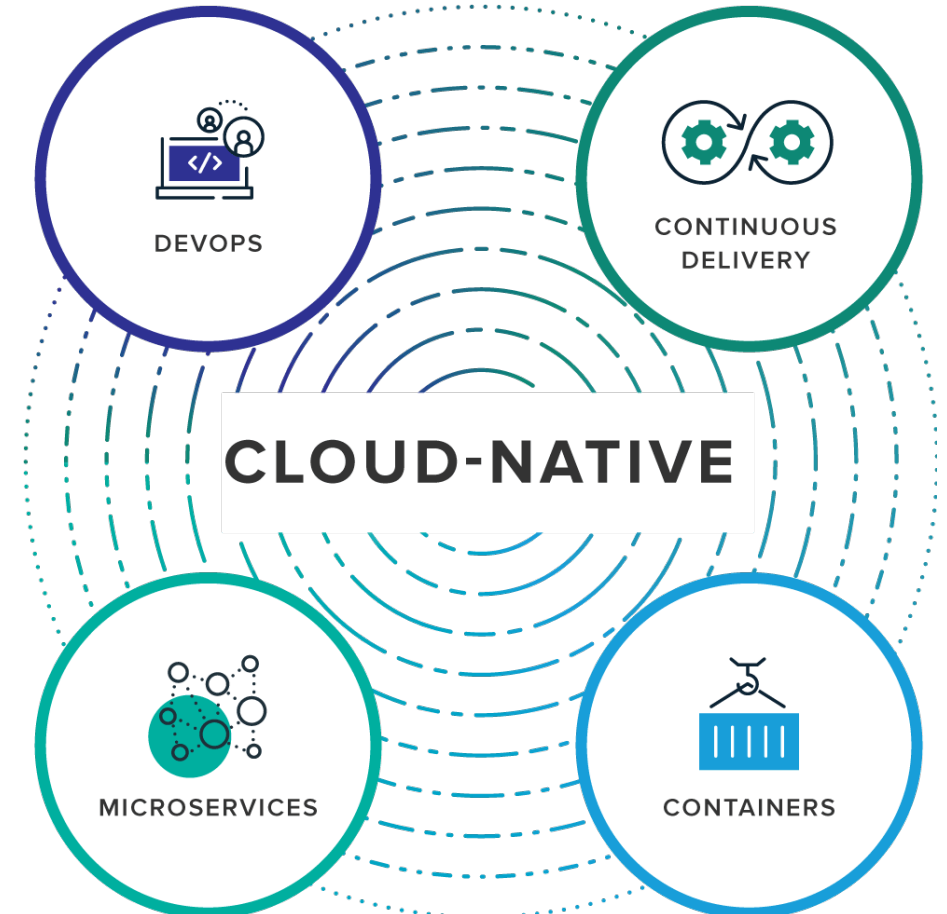
Summary

- The cloud is a distributed network of compute/storage resources.

- Three types of cloud: public, private, and hybrid.

- Clouds give you 'infinite' scalability, flexibility, access to varied/specialised resources.

- Cloud computing: (Infrastructure | Platform | Software) as a Service

- Need to understand your computing model to make efficient use of resources, money.

- Cloud Native Architecture - a shift in mindset, but worth the effort.

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