COURSEWARE

Professional Skills

Agile Fundamentals

Jira

Git

Databases Introduction

Java Beginner

Maven

Testing (Foundation)

Java Intermediate

HTML

CSS

Javascript

Spring Boot

Selenium

Sonarqube

Advanced Testing (Theory)

Cucumber

MongoDB

Express

NodeJS

React

Express-Testing

Networking

Security

Cloud Fundamentals

- Cloud Concepts
- Cloud Benefits
- Cloud Enabling Technologies
- Cloud Security
- Comparing Cloud service models: IaaS, PaaS, SaaS

Cloud Benefits

Contents

- Overview
  - Scaling in/out
  - Cloud provider competencies
  - High availability
  - Agility
- Tutorial
- Exercises

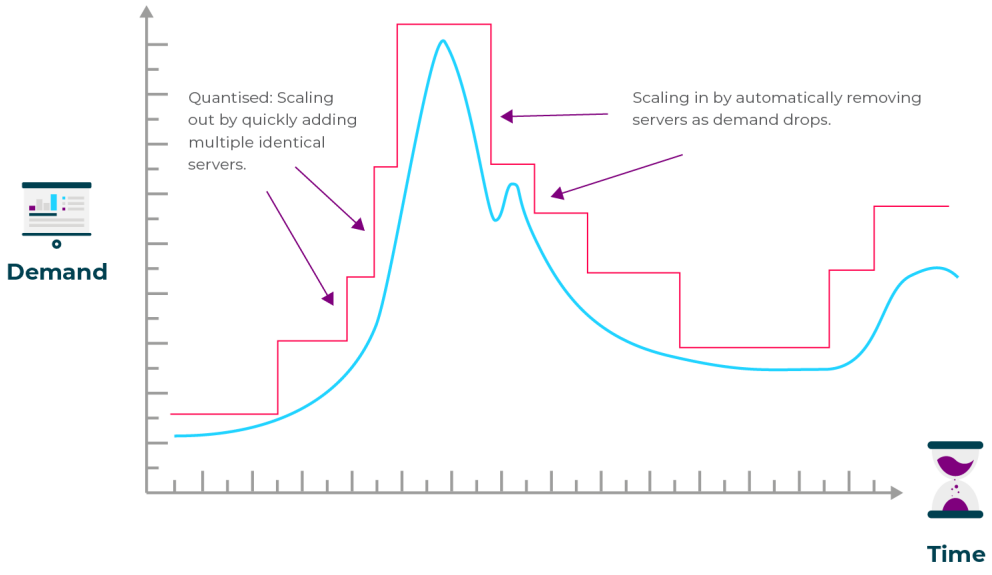
Overview

In this module, you will learn about the benefits that are presented through cloud technologies.

Scaling in/out

Scaling in and out is a reference to your services automatically reacting to the amount of work they need to do and
if the resources available are not enough to automatically get more, once the workload decreases the resources are
released as well.

- Scale Out
  - Cope with spikes in demand (expected and unexpected)
  - Scale out from zero, for batch processing
- Scale in
  - In response to lower demand
  - Automatically based on time of day (peak hours)
  - Lower costs
    In the picture below we can see how there is always just a bit more computational power than the demand requires.
    Also based on the amount of users coming to the service there is an increase in the resources required, once the peak
    time is over then the resources are released.



Cloud provider competencies

Another major benefit is allowing customers to take advantage of the competencies of the cloud service provider.

- Infrastructure-as-a-Service (IaaS)
- Platform-as-a-Service (PaaS)
- Software-as-a-Service (SaaS)
- Public Cloud
- Private Cloud
- Hybrid Cloud
- Regions and Availability zones

AWS Foundations

AWS Intermediate

Linux

DevOps

Jenkins Introduction

Jenkins Pipeline

Markdown

IDE Cheatsheet

- Operating a Data centre is complex and many costs and issues need to be considered:
  - Security, certifications, audits
  - Hardware specifications, warranties, installation, disposal
  - Operating Systems and platform licenses
  - Network configuration and security
  - Software has to be self managed

If you were to host your own server, depending on how powerful you will be making it, there are all the previously
mentioned costs involved to think of before doing so, as you might be spending thousands of pounds before you will
be able to get your server working.

High availability

Running an application in a variety of physical locations was previous so expensive that only the largest
organisation could really consider it, and usually only for the most critical of functionality.
With the cloud, the idea of High Availability is essentially free:

- Same cost to deploy to multiple data centres
- Fewer single points of failure
- Lower latency, high availability

A good example of high availability would be a game server.
When you play online games you usually choose the server that is as close to you as possible, as this reduces the
latency and makes it better for you to play. Similarly, if a company has a web application which is generating
revenue for it, you would like to deploy it closer to where your clients are to make the user experience better
with the hope of attracting more customers with your provided service.

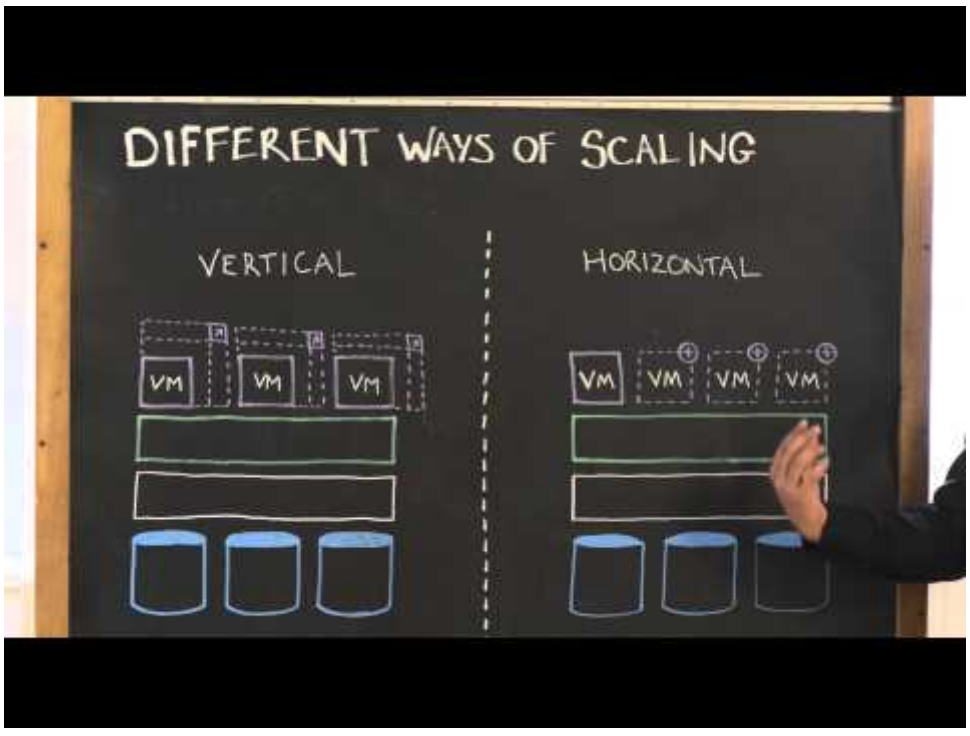
Agility

Using the cloud tends to increase agility.
We'll see many case studies, later on in this course, where faster time-to-market was one of the major benefits of an
organisation's move to the cloud.
Faster provisioning for (e.g.) new projects.
Faster introduction of new services:

- In DevOps for example; agile creation, testing and deploying of services
- Continuous Delivery/Deployment

Tutorial

Watch the video below about the types of scaling.



Exercises

There are no exercises for this module.