Cloud

LEERDOELEN DOCUMENT
SEM PLASMEIJER

Contents

1. Cloud services

1.1 Scalibity and Elasticity

Cloud scalability or elasticity is the ability to add or remove CPU usage, memory or storage resources based on automatic metrics or manual changes based on demand. Automatic elasticity is usually provided by the cloud service provider as they can monitor their service. To achieve their scalability cloud providers often scale horizontally by spinning up new virtual machines to delegate resources to. The reason this is important to cloud services is simple, it's a cost saving operation. Spinning down VMs when the usage rate is low allows for the service to save money.

1.2 Virtualization

Virtualization is the act of running a single but mostly multiple virtual machines on a single hardware. This idea is the reason cloud computing works, the sharing of physical hardware. Each instance inside a machine can be its own OS, application or even a virtual infrastructure network.

1.3 Mangement

Depending on how you want to manage the resource and security of your cloud service you want to investigate what kind of cloud services you want to use. Public cloud services like AWS manage, arrange, and provide the resources to your application, private cloud services are the opposite where you can control the data and resources yourself. This does come with a higher cost of maintenance. You can also opt into a hybrid model where you separate different parts of your application and host them on different cloud services which can communicate.

1.4 Vendor lock-in

Vendor lock-in is created when your software relies on a single service without abstraction or interfaces to handle your business and logic layers. This might lead to difficulty switching cloud services later down the line. A similar effect can happen when a part of the system already relies on a different product that's not part of the cloud service but will make using a different service more difficult than necessary.

1.4.1 services
- Data storage
- Data analysis
- Monitoring & Logging of your running applications and resource usage
- Identity & Access management
- Container Orchestration
- Virtual machines management
- Database solutions
- Autoscaling

1.5 Cost

Like discussed earlier in 1.1 cost saving is usually done through scaling the service up and down or shutting it down completely when usage is zero. Careful development and rigorous code evaluation should be done to make sure a configuration is installed correctly so that new VMs don't start to early or spin up 100% CPU usage when not needed. The opposite is also true for business cases where the service is not available when needed.