**Cloud computing**

**Definīcija un Pielietojums**

Skaitļošanas spēka, datubāžu, aplikāciju un citu IT servisu (monitorings, komunikācijas, satura piegāde) piegāde caur attālinātu platformu caur internetu, izmantojot pay-as-you-go monetizāciju.

Pielietojums

Infrastruktūra (serveri, skaitļošanas servisi)

Platformas (PaaS) – platforma izstrādātājiem būvēt aplikācijas un servisus caur internetu. Piekļūst caur browseri

Private un Hybrid cloud

Lielo datu analīze (statistika, prognozēšana utt)

Failu glabāšana

Backupošana

Lētāk, vairāk iespēju, elastīgums, optimāla resursu utilizācija

**Vēsture**

1963. gads DARPA (derence advanced research projects agency) $2mil projekts MIT Project MAC – tehnoloģija kura atļauj datoru izmantot 2 vai vairāk cilvēkiem vienlaicīgi.

1969 – ARPANET primitīvs internets

Late 1990s – Ramnath Chellapa no Emory Universitātes, definē cloud computing jeb mākondatošanu kā

“datoru paradigma, kurā datošanas robežas noteiks ekonomiskie limiti, nevis tehnoloģiskās limitācijas”

1999 – Salesforce sāk pardot programmatūru pa internetu

2002 - Amazon web bāzētie veikalu servisi.

2006 – Amazon Web Services – servisi citām mājas lapām (piemēram storage, computation, kā arī EC2- izīrēt virtualizētus datorus individuālām vajadzībām). Reālais sākums tam ko mūsdienās saprot ar cloud computing.

2007 – IBM, Google, MIT u.c. apvienota serveru ferma

2011 – IBM SmartCloud, Apple Icloud

2012 – Oracle Cloud (IaaS, PaaS, SaaS)

**Pamattehnoloģijas**

**SOA** - this element of cloud technology allows organizations to access cloud based computing solutions with features that can be modified on demand, as business needs change. Service Oriented Architecture allows independent web services to communicate with each other via the Internet in real time, providing the flexibility that is required to rapidly reconfigure the service delivery for a specific cloud computing offering. SOA places the responsibility and costs of development, deployment and maintenance of web service components on the web services provider, which allows a web services consumer to access various web services with out the expense or overhead that is associated with traditional methods of IT services delivery. SOA is a powerful technological component of cloud computing because it facilitates centralized distribution and component reuse, which significantly drives down the cost of software development and delivery.

**Cloud Virtualization** is another important aspect of a cloud system that facilitates the efficient delivery of cloud computing services. The implementation of virtual computing resources in the cloud, that mimic the functionality of physical computing resources, serves as a flexible load balancing management tool that allows for the swift adjustment of computing services delivery on demand. Virtualization technology provides organizations with a tool that promotes high levels of availability, scalability and reliability; in terms of the cloud systems or cloud computing technology that an enterprise can access to meet its information technology needs. Virtualization is also a very important component of cloud computing technology for the purposes of disaster recovery and fail-over support.

**Darības princips**

Front-end - klienta sistēmas vai tīkli, kā arī aplikācijas, kas nepieciešamas, lai sadarbotos ar mākoņdatošanas sistēmām. Lietotāja interfeiss.

Back-end – datubāzes, serveri un to vadības sistēmas, tai skaitā virtualizētā infrastruktūra.

**Mākoņdatošanas veidi**

**IaaS (Infrastructure as a Service)** – deals with raw computing capacity. IaaS is the most basic service, and provides a server, or servers, in the cloud, along with storage. IaaS customers are often tech companies that typically have a great deal of IT expertise. The goal is to have access to computing power, without the responsibilities of installation or maintenance.

**PaaS (Platform as a Service)** – supports writing software for computer systems that need it. This Cloud-based service lets businesses write software for integrating existing applications, or develop custom applications. PaaS environments are equipped with software development technologies, such as .NET, Python, Ruby on Rails, and Java. When the code is finished, the service provider will host it, making it available to other internet users. Currently, PaaS is the smallest part of the Cloud Computing market, and has been used by businesses wanting to outsource part of their infrastructure.

**SaaS (Software as a Service)** - provides software. This part of the Cloud is the largest and most developed. It is a program, or a suite of applications, available within the Cloud, rather than a computer’s hard drive.

**Jaunākie sasniegumi**

* **Bez-servera skaitļošana** – cloud provider runs the server and dynamically manages the allocation of machine resources. Pricing is based on the actual amount of resources consumed by an application.
* Hibrīd- un Multi-mākoņu risinājumi – Dažādi individuāli risinājumi, kuros tiek apvienoti tradicionāli IT risinājumi ar mākoņa iespējām.
* Konteinerizācija – Resursu sadalīšana pēc iespējas mazākos un savstarpēji neatkarīgos “konteineros” – katrai applikācijai savs konteineris, katram lietotājam savs utt.
* AI platformas – specializēts mākoņdatošanas veids, kurā specializēta infrastruktūra tiek pārdota vai izīrēta tieši mašīnmācīšanās un mākslīgā intelekta vajadzībām.

**Kopsavilkums – priekšrocības un trūkumi**

Pēc slaida

**Salīdzinājums ar alternatīvām**

Pēc slaida