

What is a Networked Information System

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1 Introduction

“So it is clear that what an Information System is, is not clear.” [5]

This paper gives a short overview as to what a networked information system is. Section 2 define an information system based on a definition from 1995. You will see that nowadays an information system represents most software. If the software is connected in any way over the network you can call it a networked information system. One good example of a networked information system is a cloud. The reasoning is written at the beginning of section 3. This paper also gives a specification of the different types of services of a cloud.

2 Information System

This section defines what an information system is, based on a book [4] which is witten in 1995.

Information systems can be split up into three main operation steps which work together to pick up data, converting the data into a useful form, helping the user to make better descisions or to minimize organisation costs.

Input: This part is responsible for the input of the raw data. How this step works in detail is not defined. It could be everything which produces data.

Processing: After collection the raw data will be transformed into information. Information is evaluated or combined raw data that are most useful.

Output: After the processing of the raw data, information is used for reports, forecasts or to optimize processes.

Feedback: Feed back the output to the user, to improve the quality of input.

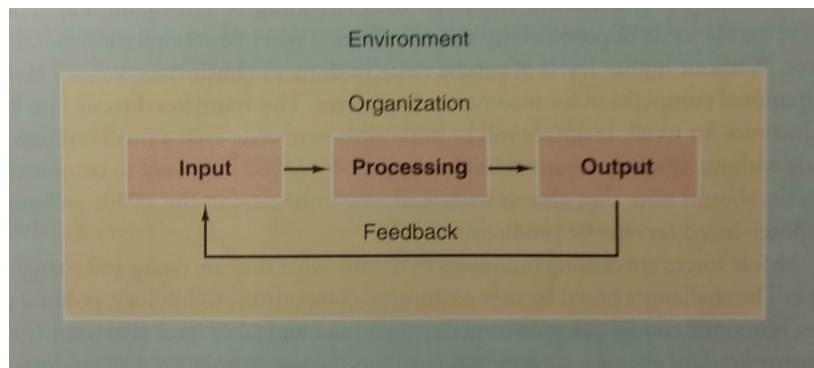


Figure 1: Operation steps of an Information System [4]

3 Cloud

The cloud is an example of a networked information system. The three operation steps are similar to the definition in chapter 2. You can see the steps in Figure 1. There are several ways in which you can input the data. It is possible to do this with a PC, Phone, Notebook etc.

The processing step will start inside of the cloud. After that, the cloud returns some data back to the user as output. This section is limited to the analysis of the various services which a cloud offers. The services of a cloud can be represented as a layer model.

^[1] In the following sub-section the general advantages of cloud services are listed. After that the document describes the services. The information in this section is based on an article ^[3] and on a book ^[2].

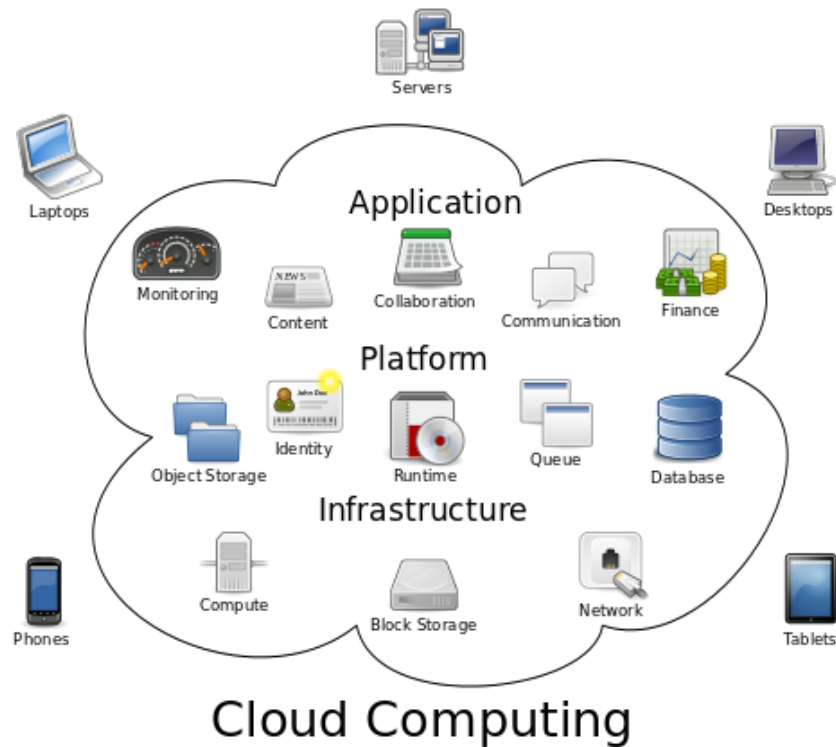


Figure 2: Elements of Cloud Computing

3.1 Advantages

Dynamic: It is easy to manage different needs on demand. The virtual machines in a cloud are very flexible.

Availability: The layer model abstracts the hardware from the virtual machine. If the provider has to update the hardware, the VM can be moved to a different system.

Access: Most providers support the use of the services through a web browser over the network. Therefore you have access nearly everywhere on the earth and the access isn't limited to a personal computer.

3.2 Services

In the following section the three main services provided by the cloud are described and have been ordered top-down.

3.2.1 Software as a Service (SaaS)

SaaS provides the use of different types of software over the network through a web browser. There is no need to know how to install a software and there is also no need of high computing power or a huge free space on the local machine because everything is done in the cloud. There are two different types of SaaS:

- **Application:** A fully usable application
- **Application Service:** A Service which should be combined with an other application, e.g. a login service.

Most of the applications can also be used with smartphones or other devices. The next difference to traditional software is the pricing model. Normally a company has to pay for the licence, for the services and for the software updates. With SaaS the pricing model is on-demand. This means that the user only pays a charge based on the use of the software. It needs time to deliver and install the new updates in the traditional way but with SaaS, the provider pushes an update directly on the server which is faster.

Examples ^[1] Google Maps, Google Docs, OpenID, Salesforce.com

3.2.2 Platform as a Service (PaaS)

PaaS provides a platform/environment for developers to create new applications. The customers have access to their development environment over the network via a web browser. There is no need for a fast computer and there is also no need to have all of the software installed. They can develop on different PCs and in different locations. It is also no problem to work together on software projects. The tools which are supplied by the provider should always be up to date. Normally the provider adds new features or tools.

The provider can share the physical infrastructure for a huge range of customers, because not every customer needs 100 percent of the computing power permanently.

In the following there are some examples of services which the provider can supply: operating systems, databases, storage, hosting, server-side scripting environment...

Developers can concentrate on their work and not get distracted by setting up features like security, backup or recovery.

Examples ^[1] Google App Engine, Microsoft Azure, Facebook Platform, Edge-Platform

3.2.3 Infrastructure as a Service (IaaS)

Infrastructure as a service can virtualize and abstract the access to hardware for users. The IaaS provider supplies a set of resources which can be accessed across the internet. The products range from providing memory-space to high-performance computers. The users don't need to manage the hardware, everything should be outsourced to the IaaS provider. If there is a need for more/less computing power or more/less space on the harddisk, the user can increase/decrease it with one click.

Examples ^[1] Amazon - Elastic Compute Cloud, Google File System, Google Big Table, Bluelock - Virtual Cloud Computing, IOgen - Mongo DB

4 Conclusion

Finding a clear definition as to what networked information systems are was very hard, because the term isn't easily defined. I only found one book relating to the topic of information systems; however this was not up-to-date. Nowadays, the term is out-of-date, due to it being such a general notion like software. Perhaps the new definition of what networked information systems are could lead to the cloud.

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