

newsletter

Cloud Computing

A significant development in the IT environment is the transfer of data and applications into the Internet (cloud computing). This technology represents a paradigm shift for the utilisation of IT and has the potential to change companies' IT in a permanent way. As a result of this development, companies and their IT service providers have to deal with a changed risk profile with regard to both IT security and liability considerations.

Conceptual background information

Cloud computing is the term used when talking about the transfer of IT service to the Internet. According to Forrester Research's definition, the term stands for a pool of abstracted, highly scalable and administered IT infrastructure that provides client applications online and enables billing for IT services on a pay-per-use basis.

The cloud concept (the Internet is usually visualised with a cloud diagram) is to be understood here as a synonym for a hardware and software setup that does not have an exact physical location; its availability is spread around the whole world via the Internet. The transfer process deployed to set up cloud computing is not limited to the use of hardware (servers and computer networks) only; in particular, it also includes the operation of software applications and the storage and management of data.

There are three distinct service categories in cloud computing:

- **Software-as-a-Service (SaaS)**
Availability of software applications via the Internet, eg online word processing programs
- **Infrastructure-as-a-Service (IaaS)**
Availability of IT infrastructure via the Internet, eg storage and archiving systems
- **Platform-as-a-Service (PaaS)**
Availability of a complete IT platform as a service, comprised of hardware and software

A further distinction arises from the clouds' organisational and ownership structure, ie the difference between private and public clouds. For private clouds the user group is closed. In this model, users and service providers are within a joint organisational or corporate structure. Public clouds are public and open to a large number of users. In practice, many companies usually use both forms in combination; such setups are referred to as hybrid clouds.

Background

The first ideas to provide data processing resources via a global IT network emerged back in the 1960s. Cloud computing developed on the basis of these initiatives, deriving its characteristics along the way from numerous other concepts such as grid computing and application service provision. Cloud computing was not possible until availability and virtualisation technologies had been developed enough to enable such services.

In private settings, a lot of people have already been using cloud computing for some time now. The numerous Internet-supported services such as e-mail and web office solutions are examples of this.

Meanwhile, as an alternative to traditional IT, companies are increasingly transferring their applications, data and infrastructure to the computer centres of IT service providers such as IBM, Microsoft, Google and telecom companies.

According to assessments by market observers, it is to be expected that the number of companies using cloud computing will increase sharply in the next few years. Although this area's current market volume is still only moderately sized in comparison with the entire IT market, it is one of the areas with the highest growth rates and greatest potential.

The projected worldwide turnover in the cloud computing service market in 2010 will amount to approximately USD 70 billion, according to estimates by Gartner, a market research company. The turnover in this segment in 2014 is projected to already reach USD 150 billion.

Opportunities

The main argument for the use of cloud computing is based on companies noticing more and more that they can use the high scalability of cloud models in order to expand their IT functions quickly while saving resources and costs at the same time.

That means in particular that IT capacity can be variably adapted to actual needs at short notice, leading overall to optimal use of computer centre capacities and the entire IT infrastructure. In addition, this technology allows for variable billing models, such as payment on the basis of the actual use of IT services. With today's IT user behaviour gravitating more and more towards mobility, the ability to access services and data as soon as an internet connection is available represents yet another key plus.

For IT service providers, cloud computing improves the utilisation of their IT infrastructure's capacities (eg utilisation of computer centres) and makes it easier for them to provide their services (eg software applications) to their customers.

Challenges

Although cloud computing offers a lot of new opportunities regarding the use of IT, businesses wanting to migrate towards cloud computing – particularly large companies with complex IT structures – face a series of challenges. The core issue in this regard is guaranteeing the integrity and confidentiality of migrated data as well as the security of processes performed via software applications. In particular, storing and processing personal data should be viewed as critical issues, as ensuring that the use of cloud computing complies with data protection law is not unproblematic.

In addition, companies' increasing dependence on their respective cloud computing provider due to the migration can be a major disadvantage. Switching to another provider, eg due to insolvency of the service provider, may be unavoidably costly and complicated because of multi-layered dependencies and possible incompatibilities (lock-in effect). It should likewise not be underestimated that outsourcing processes and technologies and the related reduction of well educated staff result in the loss of important know-how in the long run.

Conclusion

It should be expected that the impact of cloud computing will go far beyond the IT industry, significantly changing the way we use the Internet and prompting many companies to develop their IT in this direction in the next few years, in light of the prospective technological and economic advantages. However, companies implementing cloud computing have to deal with multiple technical and organisational challenges. Risk exposures arising from outsourcing as well as the virtualisation of IT systems crop up together in connection with cloud computing. With respect to availability, data protection and backup, companies are confronted with new risks.

They need to deal with these risks by means of contractual, organisational and technical measures (eg suitable encryption and authentication methods). It is therefore crucial to select a dependable and trustworthy cloud provider.

Information for the underwriter

Companies using IT and their IT service providers need to optimally utilise the advantages that cloud computing has to offer in terms of resources and costs, while still maintaining a high standard with respect to security, availability and data protection. For smaller and medium-sized companies in particular, the use of cloud computing can even raise the level of security, as they usually have limited resources at their disposal in the area of IT security. Cloud computing is developing and spreading very quickly, but cyber crime is keeping pace. Public clouds are particularly vulnerable to cyber attacks by malware and phishing.

In terms of insurance protection against IT risks, cloud computing means that risks are increasingly relocated from companies to their IT service providers, who will in future have to bear the IT risks of many companies. Problems, disruptions and failures of IT infrastructure (hardware and software) at the cloud computing provider will then have a considerably greater potential to cause damage to third parties and give rise to liability claims. In the recent past, there have already been incidents of unavailability and data losses with cloud service providers. The ever higher degree of virtualisation and complexity of cloud computing environments makes it necessary for companies to expand the scope of IT risk analyses and makes new demands of underwriters as well, in terms of risk assessment.

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