CLOUD COMPUTING
CONSULTING, ANALYSIS, TOOLS
**MOTIVATION**

Cloud computing enables companies and public authorities to utilize IT resources in a flexible and requirements-based manner while, at the same time, allowing them to reduce costs: however, most companies are still using their own servers that are connected via the in-house network. This obviously necessitates the procurement of servers, the installation of software and also the maintenance and updating of hardware and software. And that is not all, as security programs and solutions for backup concepts are also required. Special rooms are usually required to operate the hardware, which must be secured to prevent unauthorised access and include appropriate cooling mechanisms.

Hardware and software may only need to be purchased once, but they usually generate on-going costs as a result of update and maintenance requirements. Furthermore, maintenance is often so complex that specialised personnel are required, who generally only take care of the IT infrastructure, which means they are not available to carry out tasks related to the companies core area of activity. With cloud computing costs can be reduced significantly. And this enables companies (especially small and medium-sized ones) to concentrate on their core business. Despite the numerous chances, however, many users are still reluctant to accept this new technology, as they are afraid they will lose the control over their own data and become dependent on cloud service providers.

**CHALLENGES**

Those who wish to make the move to the cloud must first answer a number of questions regarding compliance and technical risks: can all legal requirements, above all in relation to data protection, still be complied with in the cloud? Will the data be protected against unauthorised access? Will the data of one customer be separated sufficiently from the data of the other customers? Will the customers be tying themselves to a specific provider over the long-term when moving to the cloud? What happens if the cloud provider becomes unavailable? Cloud users cannot generally subject a cloud provider to an audit, and they only have limited possibilities for checking information on the provider. Fraunhofer SIT supports companies in answering these questions and offers independent advice as well as the development of customised security modules and solutions.
**OUR OFFERINGS**

**For cloud users:**
- Analysis and comparison of cloud offers
- Consulting for the migration of processes into the cloud
- Secure storage design

Fraunhofer SIT can help to migrate securely into the cloud. Fraunhofer SIT reviews a company’s existing processes, analyses whether and how current security guidelines can still be met when moving to the cloud and will add new guidelines that may become necessary because of the migration. Our employees assess the security mechanisms of the cloud provider, formulate service level agreements and provide important tips regarding compliance with legal specifications, especially with regard to privacy. Once the preparatory work has been completed, the institute accompanies its partners during the practical implementation phase, which can include activities such as the reference-based implementation of security modules or support during negotiations with the cloud service provider.

**For cloud providers:**
Fraunhofer SIT supports companies with effective security tests and technology studies, which providers can use to establish clear proof of their security features for the benefit of the customers. In addition to this, the research departments of the institute develop security modules and testing tools for the secure management of cloud services.

**CUSTOMER BENEFIT**
- Manufacturer / Provider neutrality
- Rapid build-up of know-how
- Best practice security and technical excellence
- Risk minimization through user-friendly security
- Professional project management
- Sustainability through orientation on standards and state-of-the-art technologies
Information technology has already penetrated a large part of our everyday lives: whether it is a car, phone or heating – without IT, most of the equipment and facilities will be inconceivable. Particular companies use IT systems to organize their work processes effectively. Fraunhofer SIT is engaged in developing systems and applications for the protection of such systems against failures, attacks and manipulation.

Fraunhofer SIT has worked for companies in all industries. Many successful projects with international partners are impressive evidence of a trusting relationship. Our customers include the German Bank, SAP, German Telekom, BMW and the German Federal Office for Security in Information Technology.

OmniCloud
OmniCloud encrypts data before it enters the cloud and enables users to move from one storage service provider to another. It can be used with different backup systems and cloud storage services. A modular structure ensures a high level of flexibility as well as investment protection.
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