

POSSIBILITIES PROVIDED BY THE CLOUD TECHNOLOGY BASED ON SOME SPECIFIC EXAMPLES

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—Abstract —

Information became a vital element of the company strategy, it is an important resource, and it represents value, as well as power, both at small enterprises, as well as at large multinational corporations, provided that the information processing is adequately performed. Those businesses which are able to obtain, process, evaluate and utilize available information gain great advantage against their competitors. It is necessary to appropriately manage the large and fast changing data sets in order to utilize the value it may represent. With the growing prevalence of electronic data processing the key challenge is not the collection of sufficient data, but rather the selection, production and displaying of information

at the right time and place to efficiently support the planning, analysis, coordination of business activities and related decision making.

Currently there is a transformation in the market of the integrated systems, because the in-the-box products are declining and the cloud-based systems gain more share.

The purpose of this study is to examine opportunities for SMEs because for them cloud based systems could be highly beneficial, allowing to avoid the sourcing and maintenance of servers and costly implementation of the integrated systems. Instead, they can utilize a less capital intensive cloud technology. The public works of services also gains more importance, which may be a source of new opportunities for companies with smaller capital.

We conclude that the ease of swathing to the new technology, its' cost effectiveness and speed could result in the restructuring the software market, including the key players, because the inadequate strategy change of the US software industry may provide larger space to the European and Asian software companies.

Key Words: cloud, cloud technology, information management, ERP, SaaS

JEL Classification: M15 - IT Management

1. INTRODUCTION

The number of devices able to connect to the internet is rising rapidly. The circle of these devices is also growing, as beside smartphones, tablets and computers, more and more television sets and cars have access to the network. Therefore, the incredible amount of data stored on IT devices, mobile phones, tablets, computers, servers is growing ever faster, and the time needed for duplication is decreasing in a drastic way. Information uploaded on Facebook and other community sites, multimedia contents circling on the internet and the ccommunication between computers have brought about unprecedented changes. According to statistics, 90% of the amount of information existing in the world today was created in the last two years. In 2012, Big Data has become the most frequently used term within the field of IT. This is the enormous amount of data, the size of which can double up every year. Therefore, it is important that this sizeable data has to be

stored in the safest possible way, so that non-authorized intruders have not even the slightest chance to access it.

The biggest problem is that the incredible amount of information is not gathering in organized, analyzable databases, but in e-mails, messages on community sites, movies and other multimedia contents, phone calls and peer-to-peer data.

From the population's side, the increase of the world's IT expenses will be generated by the spreading of tablets, whereas from the side of enterprises, the excitement will be made by the expenses paid out for the management of the Big Data.

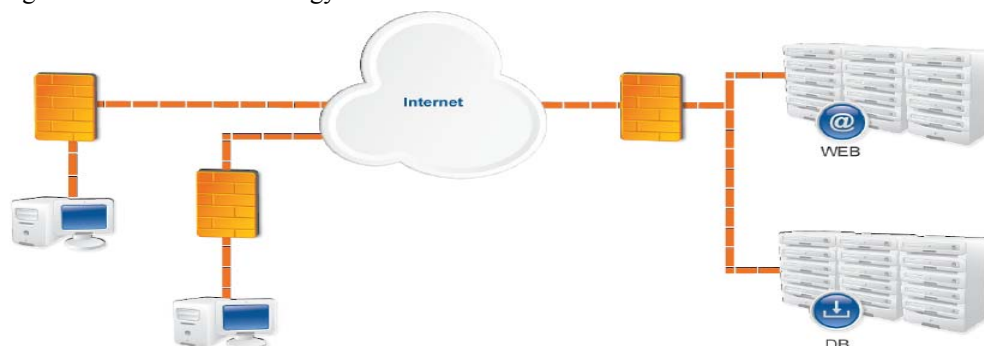
The new information and communication technologies promise

- higher speed during the communication processes of the economy,
- higher quality during processing and forwarding information,
- higher degree of the individualization of the information with task orientation, enterprise orientation and user orientation. [HERDON et al. 2011]

Frequently asked questions in connection with the cloud technology

- Where is the data physically?
- Who has/ who might have access to our data?
- Who had access to the data?
- Which country's laws apply?
- To what extent can we trust the provider?
- Do I really have the same database as my competitors? (The Figure 1. shows that yes but this very-very safe)

Figure 1: The cloud technology



Source: own construction

From our topic's perspective, we are talking about a collective activity, which is enabled by services on the internet. Enormous masses got used to being able to

make use of useful services very easily on the internet, without paying attention to where, on whose computer, the software operates. Enterprises are more careful, they take the risks into account, but seeing the available profit and the massive popularity, more and more of them give in and open their gates up. [McAFEE 2006]

Advantages of the cloud technology:

- Easier operation
- Low initial expenses
- High availability
- Cheaper

Disadvantages of the cloud technology:

- Enormous bandwidth requirement
- Security is questionable? One thing is for sure: security is still not a product or a service!

Reasons why it is really worth:

- There is a lot of competition
- The expected success curve is steep
- It means a periodical load
- Outstanding user experience
- As a result of constant development, the „SaaS” model gradually gets integrated into the company’s profile, and, from an optional alternative, the Cloud platform becomes a primary target.
- As another result of the above mentioned development, there is a shorter reaction time for new developments

2. MATERIAL AND METHODOLOGY

The present study focuses on the issues of information management in the Hungarian and international small- and medium-sized enterprises’ segment. It also depicts the future and describes the acceptance of the possible alternatives.

The success of the research is fundamentally influenced by the chosen method, therefore we applied both primary and secondary research during our work.

PRIMARY RESEARCH

From the methods of qualitative research, we used individual deep interviews. The individual interviews meant one-on-one conversations with the chosen interviewees. These conversations were about a given topic, among a given theoretical plain, but altogether uncontrolled ones.

Within the sample, we chose and interviewed exclusively the middle and upper leaders and developers of companies that have Hungarian plants, but are owned by Hungarians and foreigners. As for their sizes, all of the companies belong to the group of small and medium-sized enterprises.

SECONDARY RESEARCH

Secondary data is that gathered by somebody else – not in order to solve the given problem. This data is important from the perspective of the research, because if the information is from a reliable source, and at the same time it is also up-to-date, it will help in the followings, when (MALHOTRA, 2009):

- Identifying the problem,
- Better defining the problem,
- Approaching the problem,
- Shaping the research plan,
- Answering the questions of the research (MALHOTRA, 2009)






As a secondary research, we used the database of EUROSTAT.

3. RESULTS

Enterprises face a serious decision, when they are considering the maintenance and development of their present expensive network infrastructure, or the introduction and operation of cloud-based systems. A further alternative is the hybrid technology, which includes the advantages of cloud-based systems and local storage. According to our research and the consulted experts, the latter might become the accepted and successful technology of the near future, the golden mean. In case of the instability or the interruption of the internet connection, the work can be continued smoothly from the data stock of one's own, at the same time, as soon as the connection is settled again, the advantages of the cloud technology are again available.

One of the largest software company, Microsoft offers the following solutions:

Figure 2: Offered solutions by Microsoft

Service	Product
Correspondence	
Video conference and internal Instant Messaging	
Teamwork websites, intranet	
Websites, extranet	
System supervision of computers or mobile devices 'seen rarely' by the system administrator	

Source:

http://www.microsoft.com/hun/hibridfelho/reszletek/?WT.mc_id=PS_Hibridfelho_Search-Solution_Hibridfelho_video

It is worth to take a closer look on letter exchanges. According to the consulted system administrators, the use of Exchange servers means a lot of problems. Many users complain about their reliability and their high operation expenses. Moreover, they require serious professional supervision. The main motivation for the switch of such systems to cloud-based technologies is to increase of the time of availability.

Cloud or server:

Expert supervision, reliable or redundant internet access, saving strategy, RAID-block and uninterrupted electricity source are all vital parts of the server-based technology.

Such solutions do not pay off for small enterprises, and we might come across the problems of RAID blocks falling apart, backups unable to reset and internet

connection being interrupted. Not to mention the shortage of experts in the field of Exchange server maintenance.

During our research, we came to realize that the switch takes a short time. The worries in connection with the limits of bandwidth come shortly to an end, as the giant file attachments reach their goals via file sharing programs instead of letter appendices. As a consequence, the constant flow of e-mails does not mean a problem even in the case of companies with a large number of users.

The surface of system administrator settings is also available on the web; furthermore, data saving is not the problem of the companies either, which so far has been recoverable only in some cases, even though it has existed.

Risks of the cloud:

- Regulation and organization:
 - Dependence
 - Loss of control
 - Problems of matching
 - Problems because of shared resources
 - Ending of Cloud service
 - Buying Cloud provider
 - Interruption of transport chain

- Technology:
 - Exceeding resources
 - Isolation failure
 - Abuse of key authorization
 - Support of management interface
 - Overhearing of transmission
 - Data leak
 - Inappropriate deletion
 - Loss of secrecy key
 - External support attempts
 - Compromised service motor

- Legal:
 - Confiscation
 - Different legal effects
 - Data protection
 - Licensing

- Indirect:
 - Network failure
 - Network management
 - Modifying the network traffic
 - Authorization extension
 - Injury of operation diaries
 - Loss of security diaries
 - Loss of saves
 - Unauthorized physical access
 - Theft
 - Natural disasters

Provider requirements:

- The constant professional improvement of the developer team is a strong requirement
- The quality of the service provided with the necessary flexibility and speed, with the correctly chosen tools is also important.
- The more we build on a platform, the sooner the development will be necessary, which cannot be provided internally. Therefore, the individual requirement cannot be fulfilled.
- Instead of „ad-hoc” development, planned processes are necessary, the elements of which are:
 - Management of developer environment
 - Accesses, keys and passwords
 - Control of expenses
- Security is the most important above all
- Helping the constant optimalization with pressure tests
- Constant identification and simulation of users
- Performance and price should be in harmony
- Constant development, because there is no perfect new software
- The high initial expenses should be covered by the provider, since:
 - the usual expenses in the course of a project are:
 - ♣ development expense
 - ♣ one-time hardware investment
 - ♣ regular and general perational expense
 - as opposed to those of the cloud service:
 - ♣ development expense, covering the platform use
 - ♣ usage-based invoices issued subsequently

♣ in case of commitment, with a fixed amount to be paid in advance

- As companies are diverse, therefore a variety of solutions need to be offered to them
- Requirement toward international expansion

IT roles become a part of the business services, the emphasis on them is moving from necessary toward value creation and increase! (Table 1.)

Table 1: The value creation

Necessity	Value
<ul style="list-style-type: none"> • Hardware procurement, installation and maintenance • System installation, configuration and supervision 	<ul style="list-style-type: none"> • Application installation, configuration and supervision • Optimization of the environment
<ul style="list-style-type: none"> • The users of applications are the necessary evil • Securing stability 	<ul style="list-style-type: none"> • Recognition and tracking of user habits • Securing constant development • Instant quick reaction to events

Source: own construction

The cloud technology might mean great possibilities, which is justified by the fact that the German SAP has introduced its platform named Hana, from which the company has great expectations. This platform will be integrated into every SAP product, and it is able to filter out valuable information as quickly as possible from the enormous amount of the formerly mentioned Big Data, and the structured databases. It does not operate on the slower hard disk, but in the active memory of the computer the RAM, which – cooperating with the multicore processors – speeds up the work. Managers get the required dataline within seconds, as opposed to the hour-long processes of the past. This also means that the long-term planning is replaced by the ability of continuous intervention, which is especially important nowadays, when because of the uncertainty experienced in the world, those, who are able to change their plans quickly, are the ones one step ahead of the others!

4. CONCLUSION

The cloud technology has its advantages as well as its disadvantages. However, the disadvantages and the operational expenses are not even close to those of the technology based on private servers only.

Thanks to the hybrid technology, it can be decided which part of the data should be in the cloud and which portion needs to remain within the company. It can be said that apart from the innermost data of file servers and enterprise management systems, examples can be found for almost any outsourcing from clouds in accordance with the legal and regulatory issues of the enterprises.

The security of the data in the majority of the clouds is helped by numerous security measures, beside the 128bit SSL secrecy.

There are providers, which even offer financial warranty for outages, and beside that, they forecast the recovery as well as the expected deficiencies, the help of with the operation of an enterprise becomes easier to plan, and the deficiencies caused by It issues can be reduced.

As for the return in many cases, an enterprise can save a sizeable amount through the licenses in the case of the cloud technology, not to mention the communal and the maintenance expenses. Significant investments are not necessary either; on top of that, in case of a company with ever changing IT requirements, the flexibility in size of the cloud technology might mean enormous savings.

The scope of available technologies is wide and keeps widening. The choice and the possibility is in the hands of each company. It is worth to keep the pace with technology development and therefore advance significantly in the competition.

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