

Der Open-Access-Publikationsserver der ZBW – Leibniz-Informationzentrum Wirtschaft  
*The Open Access Publication Server of the ZBW – Leibniz Information Centre for Economics*

Koehler, Philip; Kraemer, Jan; Anandasivam, Arun

Conference Paper

# Cloud Computing: New Business Opportunities for Telecommunications Companies?

21st European Regional ITS Conference, Copenhagen 2010

**Provided in cooperation with:**

International Telecommunications Society (ITS)



Suggested citation: Koehler, Philip; Kraemer, Jan; Anandasivam, Arun (2010) : Cloud Computing: New Business Opportunities for Telecommunications Companies?, 21st European Regional ITS Conference, Copenhagen 2010, <http://hdl.handle.net/10419/44316>

**Nutzungsbedingungen:**

Die ZBW räumt Ihnen als Nutzerin/Nutzer das unentgeltliche, räumlich unbeschränkte und zeitlich auf die Dauer des Schutzrechts beschränkte einfache Recht ein, das ausgewählte Werk im Rahmen der unter

→ <http://www.econstor.eu/dspace/Nutzungsbedingungen> nachzulesenden vollständigen Nutzungsbedingungen zu vervielfältigen, mit denen die Nutzerin/der Nutzer sich durch die erste Nutzung einverstanden erklärt.

**Terms of use:**

*The ZBW grants you, the user, the non-exclusive right to use the selected work free of charge, territorially unrestricted and within the time limit of the term of the property rights according to the terms specified at*

→ <http://www.econstor.eu/dspace/Nutzungsbedingungen>  
*By the first use of the selected work the user agrees and declares to comply with these terms of use.*

**21<sup>st</sup> European Regional ITS Conference  
Copenhagen, 13-15 September 2010**

**Philip Koehler, Jan Kraemer, Arun Anandasivam**

**Cloud Computing:  
New Business Opportunities for Telecommunications Companies?**

**JEL codes: L86, L96, M31**

**Key words: Cloud Computing, Telecommunications, Conjoint Analysis**

**Institute of Information Systems and Management (IISM),  
Karlsruhe Institute of Technology (KIT), Germany**

**philip.koehler@kit.edu, jan.kraemer@kit.edu, arun.anandasivam@kit.edu**

# Cloud Computing: New Business Opportunities for Telecommunications Companies?

Philip Koehler, Jan Kraemer, Arun Anandasivam

Institute of Information Systems and Management (IISM), Karlsruhe Institute of Technology (KIT), Germany

philip.koehler@kit.edu, jan.kraemer@kit.edu, arun.anandasivam@kit.edu

## 1. Introduction

Cloud computing has recently shifted into the center of attention of Telecommunications Companies. Deutsche Telekom, for example, just announced the importance of cloud computing as one of their leading growth sectors (Deutsche Telekom Press Release, 2010). Also other important telecommunication players such as AT&T, Vodafone and Telefónica are expanding their cloud computing business. Clearly, these developments indicate that telcos believe that cloud computing provides significant business opportunities, particularly by further driving the convergence of telecommunications and information technology. Some researchers, however (cf. Greelan, 2009) state that cloud computing is nothing more than a marketing buzzword. On the other hand, Weiss (2007) mentions that although cloud computing “is a buzzword almost designed to be vague, [it] is more than just a lot of fog”. In an effort to shed more light on this debate, we investigate the business opportunities of cloud computing for telecommunication companies in more detail. Thereby, we focus especially on the factors that might especially qualify telcos in becoming a significant player in this emerging domain. More specifically, our contribution is twofold: First, we identify technical and economic factors that are relevant for the telcos’ competitive position in the cloud computing market. Second, we identify future scenarios on how telcos position themselves in this market.

## 2. Results

There are especially two technical factors that make cloud computing attractive to telecommunication companies. Firstly, telcos already own most of the infrastructure and facilities that is necessary to provide cloud computing services (e.g. datacenters, networks, technical expertise). Therefore initial infrastructure investments are heavily reduced and thus barriers of entry into the cloud computing market are comparably low. Moreover, this infrastructure has often idle capacity which could be effectively utilized for providing infrastructure cloud services to potential customers. By using virtualization methods, cloud computing is able to provide these resources dynamically and to adjust to current demand (Vouk, 2008). Furthermore, many cloud computing scenarios are not time sensitive and elastic demand can be shifted to idle times by employing dynamic prices. In this way, telecommunication companies are able to gain additional revenue from utilizing their existing infrastructure more effectively.

Secondly, telecommunications incumbents are at a competitive advantage over established cloud providers such as Amazon and Google, because of their ability to control the entire cloud computing value chain. The telcos’ vertical integration also helps them to better face technical obstacles, such as availability of service and data transfer bottlenecks (cf. Armbrust et al., 2009). Moreover, owning the transmission network allows for better managing and upgrading the network as well as for quality of service. Thus, telcos are able to provide service level agreements with higher reliability, because their cloud service offerings do not involve any third party company.

In order to further evaluate the success of telecommunications companies within the cloud industry, we have conducted a choice-based conjoint analysis (cf. Louviere and Woodworth, 1983) that estimates the preferences for cloud service attributes. The survey is based on a sample of 60 respondents, mainly small and medium enterprises in Singapore. The main insight is that telcos can especially benefit from the fact that provider reputation is the most important cloud service attribute. With a relative importance of 26% reputation is thus more important than cost reduction considerations (16%). Reputation is naturally related to trust, which is among the most important factors that influence customers’ outsourcing decision (cf. Sabherwal, 1999). Telecommunication companies can thereby benefit from their existent customer base. In contrast to major cloud providers, telcos already consign sensitive customer data and can therefore built on an existing trust relationship to their current customers. Thus, it is more likely that telcos’ customers overcome their security and reliability concern and use cloud services with their well known

provider. Moreover telcos already have a large customer bases that they can tap in order to advertize and contract their new cloud service offerings.

### 3. Conclusions and Future Scenarios

In summary, considering the technical as well as the economic factors, we can conclude that telecommunication companies have comparably low market entry barriers and competitive advantages over established providers in the cloud computing market. Telecommunication companies should be able to use their datacenters to provide cloud services and furthermore take advantage of their vertical integration of transmission networks as well as their established customer base and reputation. However, their lack of knowledge on web services could limit their market success. We deem three future scenarios feasible: First, in case the aforementioned advantages exceed the disadvantages, telcos can certainly become a successful player in the cloud computing market and quickly gain reasonable market share. In this case, telco companies will especially profit from customers with security and reliability concerns due to their advantages in reputation and handling of sensitive personal data. Furthermore, vertical integration allows the telcos to better serve those customers who seek to run applications which are more sensitive to reliability. On the contrary, if telcos are unable to overcome their web service disadvantage, there are two further possible scenarios. On the one hand, telcos could focus on their core competences and be relegated as a supplier of cloud providers – extending and providing their transmission network to face cloud specific challenges. Here, they could also offer their customer management experience in services such as customer support and billing. However, thereby telcos will put themselves in the position of a mere infrastructure provider (“bit pipe”) that has started the net neutrality debate and from which they currently seek to evade by charging content providers for data transmission. Alternatively, telecommunications companies can try to overcome their disadvantages by cooperating with IT companies by means of strategic alliances. Of course, telcos should also be aware that established content providers will follow a similar strategy and cooperate with infrastructure providers as well. Google has even announced to roll out its own fiber network (Google Press Release, 2010). Thus, although telcos are at a competitive advantage, there is only a small time window in which these advantages can be realized before competing content providers have established the necessary infrastructure and customers at which network effects constitute insurmountable entry barriers.

### 4. References

- Armbrust, M., A. Fox, R. Griffith, A. Joseph, R. Katz, A. Konwinski, G. Lee, D. Patterson, A. Rabkin, I. Stoica and M. Zaharia. “Above the Clouds: A Berkeley View of Cloud Computing.” Technical Report, 2009.
- Deutsche Telekom. „Deutsche Telekom’s new strategy aims to double revenue in growth areas and increase free cash flow“. 17<sup>th</sup> March 2010. Deutsche Telekom Website. 26<sup>th</sup> March 2010.  
<http://www.telekom.com/dtag/cms/content/dt/en/99574;jsessionid=35818B097E8F328CF4653A11B480CFE?archivArticleID=832098>
- Google. “Think big with a gig: Our experimental fiber network”. 10<sup>th</sup> February 2010. Official Google Blog. 30<sup>th</sup> March 2010.  
<http://googleblog.blogspot.com/2010/02/think-big-with-gig-our-experimental.html>
- Geelan, J. “Twenty one experts define cloud computing.” 24<sup>th</sup> January 2009. Virtualization Journal. 30<sup>th</sup> March 2010.  
<http://virtualization.sys-con.com/node/612375>.
- Louviere, J., G. Woodworth. “Design and Analysis of Simulated Consumer Choice or Allocation Experiments. An Approach Based on Aggregated Data”. *Journal of Marketing Research* 20 (1983): 350–367.
- Sabherwal, R. “The role of Trust in Outsourced IS Development Projects”. *Communications of the ACM* 42, no. 2 (1999): 80-87
- Vouk, MA. "Cloud Computing - Issues, Research and Implementations." *Journal of Computing and Information Technology* 16, no. 4 (2008): 235-246.
- Weiss, A. "Computing in the Clouds." *ACM Networker* 11, no. 4 (2007): 18-25.