Coping Strategies Research on Accounting Information Risks Based on Cloud Computing Environments

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Abstract. In the cloud computing environment, in order to solving the problem of accounting information security. Through the introduction of cloud services model and cloud computing, systematically analyses the enterprise's risks of choosing cloud services. Studies have shown that with cloud computing technology used by enterprises, there exist such risks like inadequate understanding of cloud service providers, lack of awareness on the overall cloud services and incomprehensive understanding of service level agreements, so they should take such classification catalog and scientific evaluation, countermeasures as demand analysis and so on.

Introduction

In recent years, with the growing applications, cloud computing has triggered a series of idea and technology innovations, especially for enterprise accounting information construction. With such features like one-time low investment, short implementation cycle and strong scalability [1], cloud computing can better meet the practical need of enterprise for information products and services, and provide convenient and efficient techniques and application tools for the construction of enterprise accounting information. However, in practical applications, cloud computing requires the enterprises' selection of IT services and resources provided by Cloud Service Provider (CSP), which is involved with the selection of cloud services. The inappropriate choice of cloud service models will lead to consequences, ranging from the inefficiency of enterprise accounting information to significant losses. Therefore, the selection risks of cloud services should claim our highest attention.

Research Status

At present, domestic and foreign scholars does a certain degree of research about the choosing risk of enterprise cloud services. MISRA S.C. has particularly analyzed some of the key elements to be concerned when enterprise chooses cloud computing services, such as IT resource scale, resource usage patterns, data sensitivity and standardization of the company's business. When enterprise decides if it should transfer IT resources to the cloud server, it should take the above key elements into comprehensive consideration [2]. Meantime, MISRA S.C. gave the index system and evaluation methods. Considering the financial stability and disaster recovery plan of the cloud service providers, partners and competitors etc., David Barley discusses the selection of the cloud computing service providers. Domestic scholar Gao Yunlu raises a Cloud computing trust model based on Service Level Agreement (SLA) and users' evaluation.

By analyzing SLA quality of service for CSP and users' evaluation, this model can help enterprise users to select credible cloud computing services, thus minimize the risks of cloud computing services caused by improper selection. Liang Changyong makes analysis about necessity of the enterprise cloud services. Based on the enterprise classification, he proposes the selection methods and risk countermeasures about cloud services. By analyzing the value of the cloud computing service model, Yang Zhendong builds a specific framework for the application of enterprise cloud computing. In summary, we found the existing studies on the selection risks of enterprise cloud computing under cloud computing environment still exist some problems, mainly as follows: the current studies about cloud service selection risks mostly focus on the risks happened after enterprise has chosen a cloud

service provider to work with. while before deciding to use cloud computing, enterprise exactly what the potential risks are not to be encountered in-depth analysis on how to deal with these risks have not fully revealed.

Cloud Computing and Services Model

At present, the field hasn't come to an agreement about cloud computing. Generally speaking, cloud computing refers to the delivery and usage patterns of IT infrastructures, and the user gets the needed resources and services over the network as demand and in a scalable way [3]. In cloud computing applications, the suppliers that provide resources for enterprise are called "cloud computing service providers," also known as "cloud service providers." Resources provided by "cloud service providers" are called "cloud". The transparent and seamless service pattern provided by "cloud service providers" are called cloud services. Cloud computing can be divided into different types according to different perspectives. From the perspective of cloud services, the current cloud service model can be roughly divided into three categories: software as a service (SaaS) model, platform as a service (PaaS) and Infrastructure as a Service model (IaaS) model [4].

Software as a Service (SaaS). Cloud computing service providers deploy applications uniformly on cloud infrastructures, and provide post-implementation application management, maintenance and other services. In this mode, according to its individual needs, enterprise orders the needed application software services from cloud computing service providers, and pays the fees to the cloud by the number and the use time of its ordered software services.

Platform as a Service (PaaS). PaaS refers that cloud computing service providers consider the platform required by enterprise user's software development as a service, which is submitted to the user in SaaS mode. Therefore, PaaS is an extension of SaaS, and also a special application of SaaS mode. In this mode, using the development languages and tools, databases, application servers, etc., enterprise develops its own applications by itself and publishes them on the cloud infrastructure.

Infrastructure as a Service (IaaS). Cloud computing service providers consider infrastructures including processing, storage, network and other basic computing resources as a service to enterprise users. In this mode, enterprise can choose the infrastructures including operating systems and applications, according to its own requirements. Cloud service providers own these equipment and are responsible for the daily operation and maintenance of them, and enterprise users often pay the fees by the actual use. Currently, on the market there are several cloud service providers with various types of cloud services. There are well-known providers abroad such as IBM, Microsoft Google, Amazon, Salesforce, etc. There are also domestic telecommunications, Ali Baba, Century Internet, Red Hat, etc. With the deepening of cloud computing applications, some of the traditional software vendors, such as UF, Kingdee, Gold Abacus and other companies have begun to offer cloud services. Because enterprises are from different industries, their management mode, business features and staff's IT level are also different. Therefore, facing so many cloud services, enterprises must appropriately choose the cloud services based on their own features and financial applications, in order to avoid the risks caused by the improper selection of cloud services. This is particularly important to enterprise accounting information applications under current cloud computing environments.

Cloud Service Selection Risk of Accounting Information

Lack of Awareness on the Overall Cloud Services. At present, although cloud computing in our country has been widely recognized, but in practical applications, some enterprises are still lack of adequate knowledge and understanding about cloud computing and related services. Especially SMEs, combining their own specific finance, business and applications, are still not very clear how much profit cloud computing in the end can provide the enterprises. Besides, in this field there is not yet a specialized agency which can provide authoritative information about cloud computing and applications to enterprise, so that many enterprises are dazed by a wide variety of cloud services. Against this background, the rush to implement cloud computing applications will lead to a mismatch

between demand and supply of accounting information, ultimately resulting in losses to the enterprise [5].

Inadequate Understanding of Cloud Service Providers. Service level and reputation is an important indicator to measure the overall strength of the cloud service provider. Under the cloud computing environment, as the storage of the enterprise information assets highly depends on the cloud service provider, the provider's service level and capability directly affect the reliability of enterprise information assets. If the cloud service provider's service level fails, in a slight degree it would affect the effectiveness of enterprise accounting information and in a serious degree enterprise's information would be leaked out, privacy and intellectual property rights be infringed, and the enterprise suffer significant losses. But it is undeniable that, despite currently thriving market of the cloud computing and a variety of cloud services, the sustainable service capacity of cloud service providers varies widely. Many cloud service providers set up not long, and some of them invest less in research and development of cloud computing and cannot position themselves adequately. With the development of the cloud industry, those providers may eventually undergo mergers and acquisition. On the other hand, due to market monopoly and the asymmetry of information, enterprise is difficult to get well known of cloud service providers' human resources, business performance, management level, financial condition and reputation in the industry, and unable to make accurate and objective judgment on cloud service providers' service level and capability, which became an unavoidable problem of current accounting information applications.

Incomprehensive Understanding of Service Level Agreements. Under cloud computing environments, implementing accounting information, enterprises also need to know cloud services agreement which is called a service level agreement (Service-Level Agreement, SLA). The agreement includes conventions related to the details of cloud services and fees, etc. and is also currently widely adopted risk countermeasures in the implementation of accounting information under computing environments [6]. In general, different cloud service providers may offer different SLAs, but a standard SLA contains at least three aspects: service-level objectives, breach of treatment options, exceptions to the rule description. Service level objectives include: the availability of cloud services, response time, security, exit clause and so on. Among them, the availability defines which kind of cloud service users can enjoy, the use time promised by cloud service providers, the related fees and so on; response time refers to the cloud service providers' agreement of average delay and loss situation of datagram in a given period with users; security is aimed at user data and personal information off-site stored in the cloud servers, and the cloud service providers specifically describe users' data access permissions and exclusive use in a certain range; exit clause is a declaration: when cloud service providers cannot satisfactorily resolve the availability reliability and security issues which often happen, ultimately interrupt users' business operations to a certain level, or because of other unacceptable factors, users have the right to immediately terminate the agreement.

Countermeasures of Cloud Service Selection Risks

Analysis of Cloud Service Demand. Demand analysis is the basis of accounting information technology. The demand uncertainty will lead to unclear targets and the chaos of implementation that will eventually lead to the failure of accounting information construction. For this reason, enterprises should organize special staff to do a full range of research on their own finance and demands for cloud services. First of all, the necessity of using cloud services for enterprises should be demonstrated; secondly, we should fully understand the nature of the industry, business size, organizational structure and business characteristics of enterprises, and evaluate existing IT infrastructures, financial staff's IT level, financial data types, investment costs, etc.; Finally, on this basis, we can design the cloud computing solutions and implementation procedures conforming with the enterprises' financial demands, including hardware platform, operation system, application software, user access patterns, system security plan, fees, etc., ultimately lay the foundation for the selection of appropriate cloud services.

Establishment of Cloud Services Classification Catalog. To cope with risks due to inadequate understanding of cloud services, before enterprises decide to implement accounting information through clouding computing, they need to do extensive research on cloud computing service providers' information through website, e-mail, phone calls and interview, try to establish cloud service classification catalog including service types, service items, tariffs, in order to obtain details about IaaS cloud service models and charges that match the enterprises' financial demands, and help enterprises make follow-up decisions.

Evaluation of Cloud Computing Service Providers. The valuation of cloud service providers is a key session which can deal with the risks caused by enterprises' inappropriate choice of cloud service providers and lack of understanding of the service level agreements. In this session, in addition to do specialized research on the IaaS indices provided by cloud service providers such as the number, performance, availability, security of the infrastructures, enterprises also need to focus on the following aspects: First, consulting peers, Learn the reputation evaluation of cloud service providers made by peer enterprises; the second is consulting experts, learn experts' appropriate and scientific assessment over service performance index and service level agreements (SLA) of cloud service providers.

Conclusion

The cloud computing brought the enterprises a fundamental change in working methods and business models. Although there are many advantages for enterprises to use cloud computing to implement accounting information, how to choose the appropriate cloud computing services and avoid the risk due to improper selection of cloud services has become the obstacle to enterprises using cloud computing.

Based on the systematic analysis of enterprise cloud service selection risks, from three aspects including analysis of cloud service demand, establishment of cloud services classification catalog and evaluation of cloud computing service providers, we did systematic study on how to deal with the risks of cloud service selection during the enterprises' implementation of accounting information, can help enterprises cope with cloud service selection risks with considerable operability.

In the next, combining the framework model of enterprise choosing cloud computing mode, we will quantify the assessment index, in order to propose more scientific assessment of cloud service mode selection and help enterprises choose proper cloud services according to their own features of accounting information.

References

[1] Lu Jiayuan, Shenb Beijun, Kong Huafeng. SME information construction model innovation orientation and path. Jianghai Academic Journal, vol. 6, pp. 224, 2012.

[2] MISRA S.C. Identification of a company's suitability for the adoption of cloud computing and modeling its corresponding Return on Investment. Mathematical and Computer Modeling, vol. 53, pp. 504-521, 2011.

[3] Wang Peng. Approaching Cloud Computing. Beijing: The People Post Press, pp. 123, 2009.

[4] Gao Yunlu. Calculation model based on trust and user evaluation of cloud SLA. Computer Engineering, vol. 4, pp. 29, 2012.

[5] Zhao Jing. Cloud computing applications in the SME accounting information. Finance and Accounting Monthly, vol. 8, pp. 87, 2011.

[6] Deng Zhonghua, Yu Yue. Information service level agreements under cloud environment research. Library and Information, vol. 4, pp. 58, 2009.