Perils of Cloud Based Enterprise Resource Planning

Sumit Goyal

IDA, New Delhi, India

Email: thesumitgoyal@gmail.com

Abstract – Leading software enterprises are heavily investing in cloud infrastructure for the delivery of cloud-based enterprise resource planning (ERP) services. Cloud computing provides data storage and software services to the clients. ERP combines all departments and functions across an enterprise onto a single machine that can serve all those different department's particular needs. The future seems wonderful for cloud based ERP as software giants are heavily investing in it, but full of risk, as organization's data reside on a third party system, unknown to the concerned enterprise, which is the biggest peril of cloud based ERP.

1. Introduction

Enterprise resource planning (ERP) allows a company to use several integrated applications together to fulfill multiple needs of a business enterprise. ERP is the most talked about technology these days. The Gartner Group first used the term ERP in the 1990's. The idea was to incorporate all features of the business enterprise under one software application. Since then ERP systems have been successfully implemented in the following sectors: IT enterprises, communications companies, financial companies, government and public sector, hospitals and health care, wholesale companies, pharmaceuticals companies, automotive manufacturing companies, textiles companies *etc*.

2. Market

The market for large ERP enterprises is dominated by the companies like SAP, Oracle and Microsoft. Mid-size market is dominated by vendors like QAD, Infor, Lawson, Epicor and Sage. Visibility, Exact Globe, Syspro, NetSuite, Consona, CDC Software and Activant Solutions hold the ERP market for small businesses. Last decade has seen a remarkable increase in the use of ERP systems, particularly by big world-class business organizations eager to develop an international information systems approach.

3. Cloud Technology

Cloud computing provides data storage and software services to the clients. Customers can use these services on-demand and at some cost. Cloud computing offers three types of services which are:

a. Infrastructure as a Service (IaaS)
b. Platform as a Service (PaaS)
c. Software as a Service (SaaS)

Cloud technology gives Hi-Tech services on demand like power processing, high storage, data transfer, software, middleware, input output requests and computing resources. Google, Amazon, Apple, Microsoft are some of the companies, which provide cloud computing services to the users. These companies have established large data centers and multiple servers, situated at different locations around the globe. The users can use cloud storage for storing data and files without having to buy storage hard disks on their own computers. Fast internet speeds and mobility have provided great support to cloud computing. As cloud technology is getting adopted more and more, it will provide new job opportunities and open ways of success for small and medium term businesses in the coming years.

4. Growth

Leading software companies are heavily investing in cloud infrastructure for the delivery of cloud-based services. According to *The Business Perspective*, cloud computing is expected to be $150 billion business by 2014. Cloud computing has created a major shift in the way IT services are implemented and delivered to the companies. Leading IT companies are promoting and investing in their infrastructure to deliver cloud computing services to enterprise users. However, ERP users are reluctant and show concerns about this new computing model. For instance, adoption rate of cloud-based comprehensive and mission-critical applications

like ERP is relatively lower than plain and stable applications such as customer relationship management (CRM). This hype led the IT users becoming more careful while adopting cloud-solutions. The IT researchers are also playing role in creating this hype by making claims about the bright future of ERP in cloud, *e.g.* scientists predicted that in the near future ERP systems will be run in the cloud even for multibillion-dollar companies. In short, IT providers and researchers have similar opinion about ERP in cloud environment, but ERP users disagree. This ambiguity between ERP providers and users is a barricade in the way of cloud ERP adoption. To bring the ERP users and providers on the same page, there is a need to include ERP user's point of view by asking the concerns they might have. Also, answer their questions such as why and why not enterprises should abandon their in-house ERP systems to switch to cloud ERP, and what are the tradeoffs involved in this switch need to be addressed.

5. Advantages

An enterprise's motivation to adopt ERP systems can stem from a number of reasons, *e.g.* increase organizational capabilities; solve technology and operational problems to become efficient and effective. According to cloud computing researchers, the prime motive to adopt ERP systems is to increase organizational performance by process improvement or business process reengineering as well as seeking standardization or increasing flexibility.

6. Risks

According to IT researchers, there are adoption issues for cloud computing that hamper the rapid acceptance of cloud-based ERP solutions. It includes service outage, security, performance, compliance, integration, and hidden costs. The service outage occurs when the service provider goes temporarily or permanently out of business. The security is an issue because the data is delivered and stored by a third party crossing the organization's boundaries, and thus ensuring 100% security in this model becomes impossible. The performance is reduced due to the communication time between the client computer and the web server in the cloud. The compliance relates to the government regulations regarding the secure data storage, privacy, and disclosure of data. The government rules and regulations can differ from country to country, *e.g.* in United States enterprises have to follow the Sarbanes-Oxley Act for corporate accounting data, and HIPAA (Health Insurance Portability and Accountability Act) for people's healthcare insurance data. Furthermore, integrating cloud based applications with the legacy system is an issue in cloud computing. The maintenance cost of the system in the long-run could be considered as hidden costs.

A survey conducted in the year 2008 by International Data Corporation (IDC) revealed that security, performance, availability, integration, customization cost more than anticipated. Difficulty in bringing system back home and lack of major cloud suppliers are some of the main adoption issues of cloud based ERP. Security is the biggest issue of concern in cloud based ERP environment as company's private and sensitive data reside on a third party computer, unknown to the enterprise. The data security is referred to the complexity of security in the cloud environment involving data storage security, data transmission security and application security. Other drawbacks are availability of service, data lock-in and data confidentiality and auditability.

Several other factors are also associated, *viz.*, enterprises have already invested too much in on-premises ERP system, and lack of awareness about cloud based ERP's. Current conventional ERP based systems support business strategy, government policies regarding the secure data usage, slow internet speeds and training employees to cloud based ERP environment. Customization and integration are difficult in cloud based ERP environment. Also several costs are hidden, which enterprises have to bear after they implement cloud based ERP module.

7. Future

The aim of ERP is to integrate all departments and functions across an enterprise onto a single computer system that can serve all those different department's particular needs. This year Microsoft, the biggest software maker, returns to China for launching its Windows Azure. The Microsoft's cloud computing platform is all set to launch in June 2013. Alibaba, which already handles more than 80% of the e-commerce market in China, has high hopes for its own cloud based ERP service. Forrester estimated that by 2020, revenue from cloud services will grow to $3.8 billion. On May 22, 2013, Steve Ballmer, chief executive said that Microsoft will hire thousands of new employees in China for launching its cloud based services. Although, the future of cloud based ERP is very bright as software giants are heavily investing in it, but the biggest peril of cloud based ERP is that the organization's data reside on a third party system, unknown to the concerned enterprise.

Author's Biography

Sumit Goyal received his Bachelor and Master's degree from the central university of Government of India. He has published many research papers in international journals throughout the world, which have been citied more than 466 times. Besides that, he has also written book chapters, instructional manuals, review articles, technical papers and brought out special issues of international journals, as Guest Editor. He is holding positions in the editorial board of 32 world renowned international journals. His interests include Professional Writing, Editing, Artificial Intelligence and Social Media.