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SWITCHING OVER TO CLOUD ERP IMPLEMENTATION–A WORKABLE SOLUTION FOR SMALL AND MID-SIZED PUBLIC SECTOR ENTERPRISES OF KERALA

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ABSTRACT

Present is the era of internet, communication and networking. The organizations and firms are switching over from individual departmental software to a total enterprise software solution (Lin, G., Fu, D., Zhu, J., & Dasmalchi, G. 2009)[1].

The Enterprise Resource Planning (ERP) got momentum in 1990's. SAP being the biggest ERP provider started in 1972 by 5 engineers from Germany, having now a total range of business software solutions and services designed to fit the needs of all types and classes of organizations from tiny, small & medium to large MNCs (Maurice Catt, P. (2008)[2].

SAPs service extends now 35 Million customers scattered over 136 countries. After two decades, all most all ERP vendors turn in to providing their solution through the Cloud. Now it is getting premiere attention of all Industries for a Total Business Enterprises Software Application.

ERP, SCM, MS Office 365, CRM, various Server solutions and Platforms are offered through cloud service (Padhy, R.P., & Patra, M.R.2013)[3].

KEYWORDS:

Enterprise Resource Planning, Small and Medium Enterprises, Public Sector Enterprises

INTRODUCTION

Small and Med-Sized Enterprises (SMEs) are getting up with the new technology adoption and increase the overall efficiency and profitability of the business.

This paper try to attempt to reveal certain factors that influence the selection and implementation of ERP, SCM, CRM, MS Office etc, in cloud and its merits in comparison to server based installed and paid ERP business solution packages (Lenart, A 2011)[5]. The entry of cloud ERP for SMEs is advisable and most relevant in the existing business scenario.

The comparative cost advantage of cloud and online based ERP and MS Office is highlighted. This study also discusses certain security issues related to implementation of ERP especially cloud based, suitable for small and mid-sized public sector enterprises in Kerala.

Cloud offered computing from conventional desktop and portable computer devices to remote computing to its users. (Dillon, T., Wu, C., & Chang, E.2010)[6]. The facility provides hosted services through internet or cloud which can be assessed by its users scattered over the world. The major features of this Cloud computing like the elasticity, its dynamic and massive scalability nature, correct and measured services, and self-provisioning of enterprise resources which attracts many industries for its use and adoption (Awadallah, N. 2016)[8].

The supreme objective of a business to maximize profit through cost minimization is achieved through increasing the efficacy of business by switching over to cloud. There exist three Level of Deployment models offered by Cloud providers (Mell, P., & Grance, T. 2011)[9]. All these services are customized according to the requirements of the consumers and their demand.

The Indian economy renders stable growth through the performance of Small, Cottage and Medium Size Business Enterprises being the main sources of growth contributors of the economy. The present challenges to the SMEs are the inability of technology adoption due huge investment requirement of hardware and software. Cloud provides the best practical solution for this technology adoption. (Nussbaumer, N., & Liu, X. (2013)[10].

The way to optimize service providers through new streaming technology, which is fast and easy to operate through all businesses. The technology extension and up-gradation of provides a competitive edge to firms in cost effectiveness and effort deduction of the solution. The acceptance of cloud technology adoption by SMEs can considerably improve the ability of a business to get a job done satisfactorily (Lin, G., Fu, D., Zhu, J., & Dasmalchi, G. 2009)[11].

This research involves adoption of cloud technology by SMEs, which can provide a big advantage to their company, which can differentiate them and make them unique in the business by their rivals. This paper also brings to light various factors influenced in the selection of "ERP in Cloud" as a business solution for small and mid-sized public sector enterprises in Kerala.

"ERP in Cloud" to 'Simple ERP' is compared by its usage customization cost reduction. The ERP cloud platforms used by SMEs with its advantages provides a better practical solution for cloud adoption problem (Goyal, S. 2014)[12].

The use and technology adoption in all business benefits the entire industry and many aspects that deliver competitive gain to adopting companies. Through the solutions like CRM, companies can access and reach entire existing and more potential customers in this competitive environment and will help companies for developing a better relationship with the potential customers.

The information technology growth, development and progress can control the operation, the same will bring better efficiency and cost reduction leads to maximise profit. The Business solution in cloud renders faster Implementation time and quick execution solutions and services. It provides quick execution by quickly starting business settlement services in the cloud. Business solutions in the cloud start fast when the service is activated. It offers "pay as you Use" model leads better advantage in costing side for SMEs (Bhat, J. M. 2013)[7].

Cloud computing is a cost-effective solution to the business's demands, allowing companies to provide companies with competitive prices in the current competitive market conditions. Cloud offers 'anywhere anytime' access with higher security so that the organizations are able to have a transparent and trouble free environment for working towards quick decision-making and organizational improvement. Real-time backup offers maximum up time & availability are possible in cloud (Hirsch, B., & Ng, J. W. 2011)[13].

The major benefits of Cloud use can be highlighted in the following aspects:

➢Administrative :

Availability and easy access of hardware and its software, Simple recovery from disaster, administration work reduced, quick editing and deployment possible.

➢Partnership:

Improved Information Sharing and Collaboration, Easier to partner with other organizations, Reduced capital investment

➢Cost-Based:

Requires only less staff to support IT system, changes the higher fixed costs to reduced operating and variable expenses

➢Data-Based:

Better data Security, Easy storage access, Easy backup.

As an example, MS Office 365 was used in many desktop computers and devices facing challenges from Google Apps and Zoho Docs apps and adversaries. (Sangeetha, D., & Chandar, S. P)[14].

➢Other Benefits:

No big initial investment/cost, Ease of deployment. Working with existing hardware only no new hardware required, Reduces overall direct IT expenses and indirect expenses and reduce its headaches, Easy for technological collaboration with cloud providers, True scalability possible, A facility of acquiring and release of IT and hardware resources on demand, Etc,.

➢ Uptime:

Better uptime ensured by reputable SaaS providers with better security protection than the individual on-premises installers.

SMEs pay more for Desktop Based proprietary Microsoft Office and results in reduction in investment in other technological areas there by a ban on the cost aspect of the organization. In this connection, the Cloud offers their packages in a better way added with more security aspects.

The clients can easily switch over their packages according to the market requirements. The users concerns regarding the security aspects can be solved through certain models:

IAM MODEL (Identity and Access Management)

The 'motto' of IAM is that 'right access' by 'the right people' at 'right time'. Scheidel, J (2010)[16]. IAM model gives different functional elements namely: **Identity Provisioning and DE-Provisioning:-** This focuses on the Procedural aspects of on-boarding of user (Provisioning), when they join the network as in and off-boarding the user (exiting, DE-Provisioning) when the user exits or leave the organisation.

Authentication and User Management: - This permits the user to get the required credentials and certificates in order to access the ERP system or any one of its service. The system also ensures enough security and credentials to the user from the system.

Identity Federation Management: -

Federations in Identity Management are an important concept for reducing complexity, services, and services, when a good user experience is provided. This is a Method of establishing the trust relationship between different enterprises. (Shim, S. S., Bhalla, G., & Pendyala, V. 2005)[17]

Authorization & Compliance Management: -

This supports many complex access control policies comprising user roles, user groups and its attributes. Compliance Management is for tracking and monitoring the user rights and ensure these privileges are not violated. (Sudha, S., & Viswanatham, V. M. 2013)[15].

SLA (Service-Level Agreement) : -

SLA is a method of security addressing process where it provides a contract with customer and provider of cloud service regarding the list of services and benefits offered by cloud provider (Subashini, S., & Kavitha, V. 2011)[16]

FACTORS INFLUENCING SELECTION OF ERP IN CLOUD

The factors for SMEs have to be analyzed in three ways in cloud ERP for ensuring better and trouble free usage. It is focused on Economical view which deals with financial issues as cost play the major role in decision making. The technology dealt with technical evaluation of the software towards adopting the software in the company. Johansson, B., & Sudzina, F. (2008)[4]

The knowledge and awareness of the users regarding the Cloud and its adaptability in their organization also influence the decision of selection of cloud ERP.

Flexible Payment system:

The usage charges are determined by actual use of the ERP software rather than by license fees fixed as charged by the traditional ERP vendors. Prices are very competitive. This major charm of moving to the cloud is its cost advantage.

REDUCTION OF IT INFRASTRUCTURE COST

Since there is no investment required in IT infrastructure, upfront hardware, and software the investment in IT can be significantly reduced. The infrastructure database server, software etc are provided through virtual services on a remote server and can be operated only through a login in to the internet for accessing ERP software.

Low Operational Cost:

The cost of operation, running and maintenance of ERP software is very much reduced.

DATA BACKUP AND RECOVERY

Active recovery is possible if data assurance is backed up when data is lost or tampered with. Ubiquitous access: The user can access the ERP software easily and without any delay while using it on cloud basis. It also reduces technical difficulties.

Scalability on demand:

The ERP modules originally needed to the users are scaled according to the usage.

Low IT Manpower:

In order to maintain an ERP in the cloud, a low manpower is necessary as it is the duty of the seller to operate and maintain this infrastructure

Availability (24X7):

Readiness and accessibility. The call centre services for cloud available 24 x 7 on demand on the internet.

Platform and location Independence:

The cloud ERP can access from any location and compatible to the digital devices. It supports any OS or any browsing software. It can access on any platforms like MS Windows, Mac or Linux based operating systems.

Data Security:

The data cannot access by unauthorized persons on the network and or within an organization.

Cloud for SMEs as a Business Solution:

Micro, Small and Medium Enterprises (MSMEs) contributes 10% of the total gross domestic product in India, 45% of the production and 40 percent of the exports [http://msme.gov.in/Web/Portal/New-Default.aspx][17]. The financial and security aspects are hindering the SME to hire technology that in turn obstructs them towards the path of continuous development in spite of their innovative business ideas. SMEs may use pirated software for meeting the competitive environment by reducing their cost burden. The original software was not affordable to SMEs and instead they try to use semi functional pirated software that gives an unsafe environment of data theft or loss.

There exists system on MIS of Indian Government to track and control the use of pirated software which is a legal offence and crime.

TALLY ERP9 software is used by most of the SMEs for meeting their accounting needs and these are offered through cloud by improvised security at reduced cost that can stimulate SMEs to use Cloud ERP in a genuine manner. Science &Technology which positively intrude SMEs on a cluster basis is today well appreciated internationally.

SMEs can group themselves as a community and they can adopt community cloud or private cloud, where they can accesses as original software at a reduced cost and improved security in the cloud. The payment is designed to pay as per the usage (pay as you use) of the organization and maintenance of the software is done by the vendors and thus the clients have ease of maintenance towards usage of service.

The cloud ERP as compared with simple ERP and the following conclusions have drawn justifying the choice of cloud ERP as a total Business Solution for SMEs. Enterprise resource planning (ERP) is regarded as the latest buzz to boost their productivity. Clients can select the type of ERP for their organization's requirements. On-premise ERP would be installed locally at the enterprise place. Low initial Investment required for Cloud ERP. Clients can have quick Return on their Investment. Clients have better performance delivery.

CASE STUDIES

The case studies are discussed with respect to end user and vendor point of view towards ERP in Cloud. This organization maintains all its transactions manually, which results in lack of integration among various functional departments and its branches leading to poor efficiency of business. This organization approached RAMCO for enhancing their business through cloud based ERP.

RAMCO provided them comprehensive end-end functionality with local statutory compliance with less costly subscription model through cloud. The Cloud based ERP implementation for the Japan based conglomerate tasted success by integrating among all departments and its geographical locations by providing error free, low cost, updated and timely data of all the functionalities. (http://www. ramco.com) UST Global chose SAP Cloud for Travel and Expense for various advantages like reduced costs and improvised decision making.

The peculiar feature of this model is its flexibility to pay for the actual usage and the complete freedom for exit at any time. 80+ clients are using this application without hassles. The cost aspect of in-house developed GPS tracking solution and cloud based GPS tracking solution provided by J-Technologies has also been analyzed.

The cost involved in developing the in-house GPS tracking solution is categorized under the following captions and the related costs are specified below: Application Development Cost : Rs. 10,00,000 (approx.) Web Server Cost for Hosting : Rs. 2,00,000 (approx.) Bandwidth Cost : Rs. 1,00,000 (approx.) Google Map Cost : Rs. 1,00,000 (approx.) Maintenance cost : Rs. 5,00,000 (approx.) The total accountable cost for development of the application is Rs.19,00,000 per year(approx.).

Whereas the cloud based GPS tracking solution provided by J-Tech through (Software as a Service) SaaS Model in Cloud is charged only: Rs. 550 per month for a vehicle, Rs.55000/- for a fleet of 100 vehicles monthly Rs. 6,60,000 yearly.(approx.) From the above working model, it is possible to save up to Rs.12, 40,000 per year (Rs.19, 00,000-Rs.6, 60,000) when a client adopts cloud based solution offered through SaaS in cloud provided by J-Tech.

DATA SECURITY IN CLOUD ERP

Cloud secures customer's data stored in its data center by using various security measures that are needed for a person to access and thus it can provide data security to SME. For example, RAMCO's cloud has more than 430 servers in its data center. The J-Tech service provides the basic security to

its User credentials with user name and password for login purpose and encrypted to validate the users security.

This prevents phishing of sensitive and private information. They also provide retina security scanning and digital signatures on demand by customers to protect their sensitive data. This can boost the confidence of SMEs towards adopting ERP in cloud by addressing the security issues of cloud.

SME can protect the data in cloud through different kinds of security measures that are provided by the vendors and they also have option towards selecting their security measure based upon the sensitivity of information and their budget allocation.

CONCLUSION

Cloud computing is regarded as one of the largest and fast growing markets in information and computing technology.

It is very attractive in respect of its cost effectiveness, administrative control and security for all SME customers. It offers significant potential for players of all sizes. Through "Cloud Computing", Companies can focus on managing from the top to bottom line to utilize its competency. Adopting ERP in cloud is a strong business solution than to use simple ERP tool.

Service Level Agreements (SLA) and Identity and Access Management (IAM) are the two facilities provide data protection through global cloud computing The Microsoft as a service provider is found very cost effective using Google Docs. Presently, the biggest ERP provider, SAP also offering its ERP through cloud in a customized cost effective manner to its clients provides an end to end solution.

The other providers like, J-Tech-GPS, is an important cloud service for cost effective tracking solution. Providing ERP in cloud computing platform is a Business solution for all kind of SMEs. It also improves the quality and business prospects of cloud computing service providers.

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