RESEARCH ARTICLE   OPEN ACCESS

Cloud-ERP Limitations and Benefits with Special Reference to Small & Medium Enterprises

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Abstract
For any business whether Small and medium businesses (SMEs), an Enterprise Resource Planning (ERP) system has become a needful application in order to manage the various resources and elements of enterprise. In current time many enterprises are using their personal ERP for managerial purpose but there are number of issues to be faced by them. A new technology in world of computer science named Cloud Computing (CC) is growing in enormous fashion which is highly efficient in terms of service providence. A number of researches have been done on this solution and this technology to make them more beneficial than previous ones. Here in this paper a model of ERP has been proposed over the cloud environment as combination of two (ERP & Cloud Computing) in order to give a solution for the problems faced in traditional ERPs in terms of data security cost and availability of computer resources.
Keywords- Enterprise Resource Planning(ERP), Cloud Computing(CC), Small and medium businesses (SMEs).

I. INTRODUCTION

ERP frameworks help incorporate and deal with all procedures of organization business easily. ERP coordinates all the data with respect to an organization and gives access to continuous data. Little and Medium Enterprises are portrayed as the spine of an economy. The IT plan of these units is much lower than their bigger partners. New advances like web and Cloud Computing, offer minimal effort or open source answers for SMEs to utilize. Little and medium organizations (SMEs) are presently contending all around and they have to be more focused to win in the worldwide rivalry. It is vital for SMEs to convey fitting data and specialized apparatuses further bolstering influence business good fortune. SMEs are utilizing ERP to upgrade their development, and to deal with the data frameworks of their associations. Despite the fact that ERP frameworks were at first thought to run on huge scale undertakings, SMEs are progressively propelled to execute ERP because of expansion in benefit. The target of this paper is to acquire an understanding of the data needs of little and medium businesses their issues in executing coordinated IT frameworks, for example, Enterprise Resource Planning frameworks and to examine the potential suitability of a Cloud-based ERP framework to answer these needs.

II. ENTERPRISE RESOURCE PLANNING SYSTEMS

Enterprise Resource Planning (ERP) frameworks are refined IT bases (Gupta, 2000) where incorporated administration programming frameworks keep up a focal database system along with a set of projects to store, control and recover data. ERP frameworks are programming results incorporating the different useful circles in an association and as a connection through the whole store network, pointed worst case scenario rehearses for giving the right item at the opportune spot in any event cost (Rao, 2000).

Figure II -1: Typical ERP system modules.

ERP implies the strategies and ideas for coordinated administration of business all in all for the compelling utilization of assets to enhance the proficiency and profit of the undertaking (Ehie, et. al., 2005). By looking to the figure 2-1 we can see that all business divisions are joined with one another. Developed from MRP-II and MRP around right on time 1990s, the ERP frameworks consolidate all the usefulness of its ancestors, notwithstanding Finance, Supply Chain, Human Resources and Project Management usefulness.
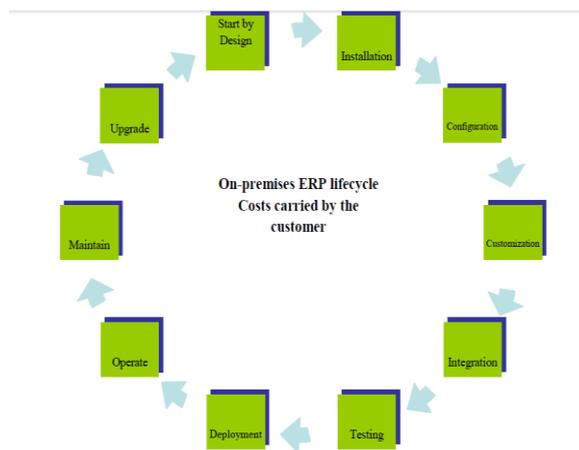
Figure II-2: On-premises ERP lifecycle.

ERP bundles are programming bundles that backing these ERP ideas. These coordinated programming bundles blankets the greater part of the business capacities, for example, Production arranging, account, advertising, R&d, preparation, Sales & dispersion. Worldwide ERP sellers are liked to nearby frameworks in the ERP framework reception (Huang, et. al., 2009). Figure II-2 is show On-premises ERP lifecycle. ERP underpins much quicker and element choice structure, which current organizations need. ERP frameworks are considered as a key data framework foundation which gives everyday transaction transforming and in addition choice help supportive networks for associations to survive and succeed in today's economy. Associations use ERP to diminish lead times and stock levels alongside better correspondence with suppliers, distributers and end client clients and expanded client fulfillment as different profits (Gupta, 2000).

III. CLOUD ERP

Cloud ERP is just Cloud suppliers giving ERP to numerous organizations. In present situation, we have two sorts of Cloud ERP, in the first, ERP programming is exhibited as a gathering of programming in the SaaS term. These administrations are called ERP on SaaS, and due to low financing cost in this administration, SME's or little and average size Enterprises that have fiscal issues can utilize the profits of ERP on SaaS. Then again, we ought to consider the cutoff points of this sort of administrations. In this sort of usage, associations are confronted with confinement on business process re-designing in association and customization of ERP. It is very suggested to do BPR (Business Process Reengineering) by utilizing administration suppliers experience and measures to guarantee the association procedure stream and ERP structure match. In addition, on the grounds that suppliers have entry to all hierarchical information, we are confronted with

security and protection issues. Some of these issues incorporate notoriety destiny offering, access to data for a few issues like approval and calamities. In any case we can disregard the profoundly prescribed profits of such administration and further we prescribe a few parameters for associations to help them pick what kind of administration they can pick relying upon their breaking points and imperatives.

Figure III -1: Cloud ERP over the internet.

In second implementation method ERP is executed on IaaS gave inside an association or IaaS gave by Cloud administration suppliers. Figure III-1 shows ERP as SaaS offered from Provider via internet on the cloud. In this circumstance, such administration could be found topographically inside an association or set up that an implementer or supplier is facilitated. In the first sort (inside an association) we have high security and accessibility however then again, the association is confronted with high cost of usage and support. This sort in circumstance that association or Enterprise needs high security or have branches that need to associate and utilization association IT framework is successful. In the second sort (facilitated by a supplier) or method, we acknowledge security concern to reduction the implementation costs. In both sorts, as a result of utilizing IaaS, ERP permit ought to be purchased by the association and executed by implementers, so customization and adaptability will be expanded in many organizations that give this kind of administration, ERP likewise will be given.

IV. CLOUD ERP OPEN ARCHITECTURE

As At present, there is no standard definition or determination for Cloud Computing. It may take sooner or later to characterize the key aspects of Cloud Computing focused around practices in the field. Distributed computing includes a set of key advances to address asset offering focused around

business prerequisites. In light of our practices in the zones of administration provisioning and result plan, we think the accompanying two key empowering advances could assume exceptionally paramount parts in this progressive stage: virtualization innovation and Service-Oriented Architecture (SOA). The virtualization innovation handles how pictures of the working frameworks, middleware, and provisions are star made and dispensed to the right physical machines or a cut of a server stack. The pictures could be moved around and put into creation environment on interest. Then again, virtualization engineering can additionally help reuse licenses of working frameworks, middleware, or programming provisions, once a supporter discharges his/her administration from the Cloud Computing stage.
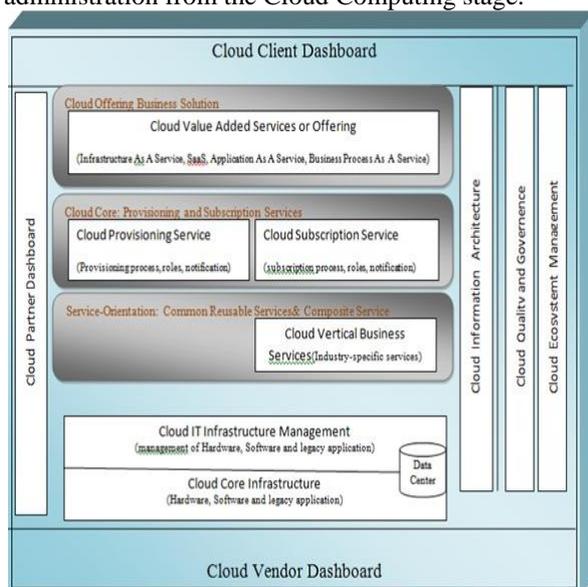

Figure IV -1: Client Dashboard

SOA (Service-Oriented Architecture) is that the advancement of a framework or programming structural engineering for tending to componentization, extensibility adaptability, and reusability. To build adaptable Cloud Computing stages, we have to power SOA to make reusable components, standard-based interfaces, and extensible result architectures. making a supposed Cloud Computing stage is clear as long on the grounds that it will empower imparting of no less than one in every of the assets. Nonetheless, fabricating a bound together, adaptable and reusable Cloud Computing construction modeling to help offering of each sort of assets still confronts challenges inside the ranges of engineering achievement and best business polishes.

V. METHODOLOGY

In the present work we have tried to analysis the benefits of cloud ERP over on premises ERP. As discussed the importance of Enterprise Resource

Management in current day's business establishments cannot be ignored. For this purpose we used X2 engine open source applications both on premises and on cloud. We requested four small size companies to test both the applications simultaneously for one month as X2 engine provide this application free for one month. Then we evaluated our findings based on some. These questionnaires were asked from the four owners of the companies and their 12 consultants. Some screenshots of cloud and on screen applications.
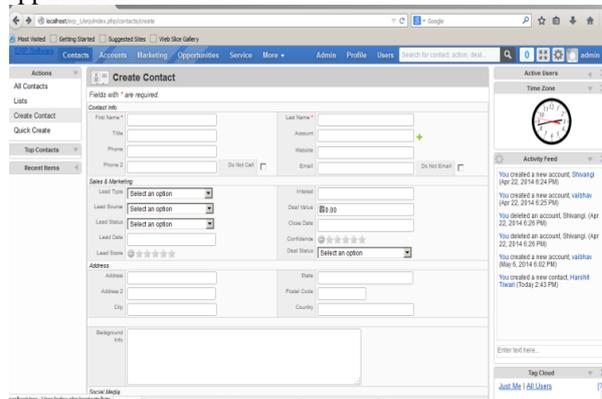

Figure V-1: A

The above figures V-1: A and V-1: B are used to create contacts in the on site ERP. It took about 35 seconds to store the information in the database as compared to it cloud application took 10 seconds less to store the data on cloud.
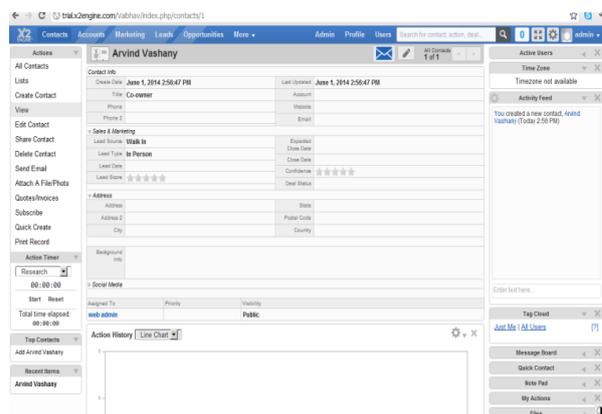

Figure V-2: **B**

VI. RESULT AND DISCUSSION

Discuss the result of associated small and midsized business companies in behalf of this Questionnaire:

1. Do you decide to use ERP system? Yes/No
2. If, yes, that one among the ERPs you're getting to adapt? Cloud ERP or on-premises ERP?
3. Is it safe to use cloud ERP?
4. Which services you're about to source over the cloud? Google , IBM, Amazon or Customized
5. Is ERP on Cloud as SaaS effective?

6. Which is more effective between cloud ERP and on-premises ERP?
7. What is more easy to manage Cloud or on-premises
8. Cost of implementing cloud ERP for one month?
9. Cost of implementing on-premises for one month?
10. What are the trends regarding the adaptation of cloud ERP within the future?

	Q2		Q3		Q4		Q5		Q6		Q7	
	FS	CS	FS	CS	FS	CS	FS	CS	FS	CS	FS	CS
On Cloud	3	9	1	5	3	10	2	7	4	12	2	5
On Premises	1	3	3	6	1	2	2	5	0	0	2	7

Table VI-1: Showing number of positive and negative responses based on questions 2 to 7

In table VI-1 FS(Firms) and CS(Consultants), It suggests that the firm owners as well as the consultant, namely Masamb, RF Silicons, ZTE and eBrainsTech, preferred cloud over on premises in most of the cases except for security issues and manageability. This has been graphically mentioned in figure VI-1.
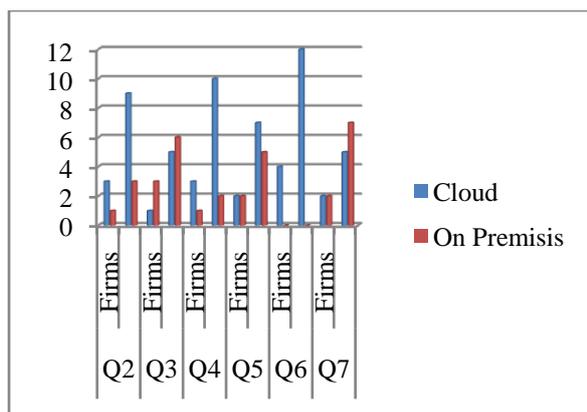

Figure VI-1: Graphical representation of analysis of questionnaires.

Table VI-2 Shows the cost aspect of cloud and on premises usage.

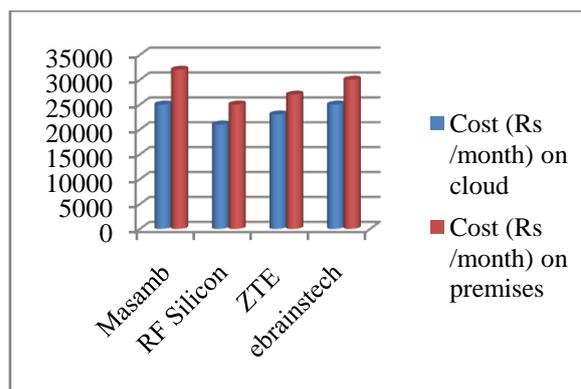|	Cost (Rs /month)	
	on cloud	on premises
Masamb	25000	32000
RF Silicon	21000	25000
ZTE	23000	27000
ebrainstech	25000	30000

Table VI-2.

Figure VI-2: Showing the graphical representation of financial aspects of cloud and on premises usage

Table VI-2 and Figure VI-2 suggest that in all the four cases cloud application is more viable than on premises application. Hence depending of the findings of the questionnaire it is suggested that cloud application is more effective and financially beneficial for the firms using ERP. Here it is also to mention that security of cloud data is of concern for the users.

VII.   Conclusion:
As describe above an ERP solution is provided over cloud environment and tested on various parameter such as cost performance choice issue. Most of organizations are going to use any ERP which is build on cloud environment on cloud ERP the enterprise are paying less cost for implementing cloud and cloud ERP seems easy to manage by enterprise as compare to premise ERP. Using the cloud ERP has become effective in terms of software application service on performance level that includes software updation and maintenance.

VIII.   Acknowledgement

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