Enterprise Resource Planning With Cloud

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*Abstract— It is the analysis of Enterprise resource planning solution with the help of cloud computing technology. T*his paper reviews the Enterprise resource planning solution to industries on portable devices using latest technologies. These technologies are Cloud Computing, mobile computing, software services. This paper also includes a very important step of industries that is customer relationship management feature.

Index Items: **ER Planning, Software Service, Cloud computing and mobile system.**

I. INTRODUCTION

Some time big industrial problems are very complex and always need money in a big scale and heavy efforts. Industrial world is rapidly change according time and in terms of resource. These changes bring problems which need specific solutions. Experts are available in the industry to face it but some time availability of experts and skills causes mare complexity. Enterprise resource planning is example of it. Enterprise resource planning system brings big changes into that industry. Those Industries which are working or using Enterprise resource planning system may face big problem or crash if they avoid problems. This paper creates a path to club cloud computing technology and Enterprise resource planning with portable device. This paper provides an approach to attach existing ERP system with cloud concept. Enterprise Resource planning software reduces the cost for management of operation in industry. The economic benefits of industry are better which are used ERP software rather than non ERP industries [1]. All resources of the industry are managed by ERP software. These resources are information and data related to operation and functioning of industry. ERP Software stored information centralized and shared data source. For any industry information is very important and at any cost it should be secure and authentic. So the resource

management should be cost effective and it can be by using cloud computing technology.

II. MANAGEMENT OF CUSTOMER RELATION IN ENTERPRISE

In current market trends, the customer has become a prime need for the enterprises, So it means they need to concentrate on Customer Relationship Management (CRM). By the proper utilization of new technologies, reforming the functioning of business and reengineering the workflow. Many new customers can be attained and existing can be stopped going away from the business [5]. Today plenty of prospective applications of CRM and supply chain management are available in industrial clusters [6]. ERP systems are being utilized by Enterprises or organizations to increase their profits as well as growth. These systems can also curtail the time required for production phase and definitely enhance the services required by the customers. However, it is not always easy to implement and effectively use these ERP systems because of few constraints [7].

OSS (Open Source Software) has great prospects from technical or market perspective. The utilization of OSS by small and medium sized enterprises as it grows, which in-turn enhances the role of E-Business of small or medium size enterprise. Definitely the effective implementation and usage of OSS will play a major positive role in the exponential growth of large sized industries too. However, the small and medium term firms should always be focused on using the software which is safe and importance also should be given to make use of the software in a standardized way.

Small enterprises always try to avoid the trespassing of intellectual property rights of software developers. It also enhances and Updates the OSS and it also makes the organization's E-Business to grow efficiently and effortlessly [2].

III. SOFTWARE-AS-A-SERVICE (SAAS) IN THE ENTERPRISE

Sometimes referred to as "on-demand software", is a software delivery model in which software and associated data are centrally hosted on the cloud. SaaS is typically accessed by users using a thin client via a web browser. So SAAS can be used in the enterprise resource planning systems in cloud environment. SaaS can be used for implantation in the software applications like enterprise resource planning system. it is flexible with the change of way in the organizations related to service management, implementation, and software application.

The SaaS software has financial and operational advantages in comparison of the other technology. The service provider operates the systems that's why the subscription cost is very less and the operational management cost is also reduced.

Often service provider operates the ERP system and SaaS offers low cost based on subscription cost and operational cost. Service provider is one of to operate and manage system. This process definitely economical in terms of wealth, Resources and time spent in development to implementation.

It can be seen that SaaS has become popular and it still increasing. [13], SaaS is better alternative of traditional IT software and will helps the economies to recover [14]. SaaS benefits list is increasing and it will go beyond cost-effective software delivery factors, enabling organizations to transform their business processes [15]. In information technology sector E-business service field adopt new technology such as cloud computing. Because an enterprise mostly concentrate on investment pay off. Cloud based Enterprise Resource Planning system can be the future implementation. Cloud computing, as an innovative distributed computing, can provide dynamic resource buffering, virtualization and next generation of ERP data centre. Cloud

is used to represent the Internet or some large networked environment, the cloud is a virtualization of resources that maintains and manages itself. The application built using the resource from multiple services potentially from multiple locations. Users need to know the endpoint to access the services, to get storage, computing, database, and service interaction provided.

One major kind of cloud computing is Software as a Service (SaaS), through which users can get software service from Internet, without having to invest massively in software or infrastructure. They can lease the web-based software from service provider, which is responsible for the operation, upgrading and maintenance of the software related technology.

IV. ENTERPRISE RESOURCE PLANNING WITH CLOUD

Cloud computing is a new paradigm in which computing resources such as processing, memory, and storage are not physically present at the user's location. Instead, a service provider owns and manages these resources, and users access them via the Internet. For example, Amazon Web Services lets users store personal data via its Simple Storage Service (S3) and perform computations on stored data using the Elastic Compute Cloud

(EC2)[8]. The business will be definitely benefitted by making use of this kind of computing platforms. Some of the benefits could be less initial capital investment, a smaller amount of time will be required to start new services, maintenance and operation costs could go lower, effective utilization through virtualization and the most important thing is simpler disaster recovery. All these points make cloud computing a striking option. Reports suggest that there are plenty of advantages of portable computing from desktop to the cloud. Limited energy and bandwidth are the main source of limitations of cloud computing. Cloud computing can be utilized effectively to save the energy which is used in mobiles, though it also poses some unique challenges. Mobile systems, such as smart phones, have become the primary computing platform for many users [8].

Cloud computing has a profound impact on the entire IT industry as a new business model. Integrated into all sectors of business applications, cloud computing will reflect the value in a deeper level. With the rapid development of cloud computing, it can help enterprises to access high-performance IT services with lower cost, and also conducive to small and medium-sized enterprises to access high-performance IT services like large enterprises. At the same time, the reduction of IT burden can help

enterprises to concentrate on its core business. The process optimization which based on cloud computing can achieve throughout a large-scale reconstruction of the industry, and enhance the overall IT standards and competitiveness [9].

Another advantage of cloud computing is it offers good advantages to the communicators. And these advantages are: the availability of large quantity of software applications, access to terrific processing power, abundant storage, and power of easily sharing and processing of information. All this information can be found in the browser anytime, anywhere through accessing the internet. It means computing ability also can be a kind of commodity, as gas, water and electric, easily use and cheap cost. "Could Computing" brings such a change—computer storage computing center are set up by professional network companies such as Google and IBM, through one cable user can access easily with browser, make "Could" as the center of material storage and application services [11] .

The service layers (SaaS, IaaS, PaaS) work closely among each other in a cloud to reduce the costs and resources. The cooperation among these three layers results in better performance, stack harmonizing (Controlling the load competency from central position) and maximum

utilization of the server capabilities. This is how, cloud computing results is better usage of the resources which in-turn reduces the maintenance cost [10]. There is no need to install large and complex systems in the sales room as organizations can make utilize the mobile devices and wireless networks for data transmission. This process enables all the information about sales and returns to be available immediately to the central office and company management [4].

The third generation mobile system such as UMTS (Universal Mobile Telecommunications System), soon will be set in any of the countries, which will not revolutionize but reform the telecommunication technology by providing feature rich contents to mobile users, wireless broadband access to internet and worldwide roaming [2].

V. MODEL OF CLOUD COMPUTING

The organizations can decide the type of the boundaries of cloud computing which deploy their applications according to organization demands and objectives. The type of cloud computing can be categorized into three classes, the public cloud, the private cloud and the hybrid [3] as depicted in figure 1. The idioms public, private, and hybrid do not impose location. Whereas the term public clouds are naturally "out of

organization" on public sites on the Internet and private clouds are positioned on premises, a private may be hosted at a collocation facility as well.

Third parties are responsible for running the public clouds outside the organization. Various customers' applications can be grouped together on the cloud server's memory and network. Public clouds basically hosted on a remote place which is away from the customer's location. And they play a major role in reducing the customer's risk and cost by extending the enterprise infrastructure.

Private clouds are basically hosted for a single client. They offer better security, quality of service and utmost control over the data. Every organization will have its own infrastructure and the way in which applications are organized. Enterprise's data centre or a collocation facility can be used to deploy the private clouds.

Hybrid clouds are the result of combination of private and public clouds. They provide on-demand, externally provisioned scale. The resources of a public cloud can even support private clouds to maintain high service levels with respect to rapid work load fluctuations. This clearly shows the use of storage clouds to support Web 2.0 applications. In addition to these, even hybrid clouds

also help to maintain planned workload spikes and even public clouds can also be utilized to perform periodic tasks.
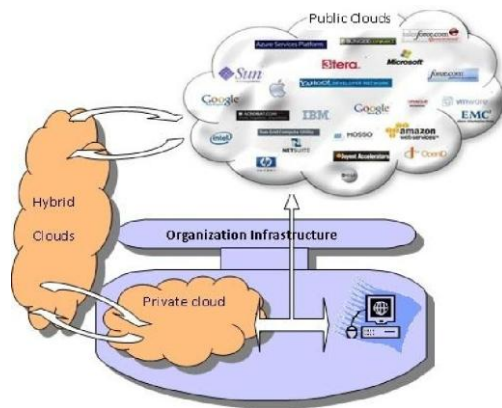

Fig.1 Types of cloud computing

Cloud computing can illustrate the services being supplied at any of the established layers from hardware to applications. The cloud computing company provides a services that belongs to the SPI model of cloud computing. Typically, the cloud service providers like to offer services that can be collected into three categories:

A. Software as a service (SaaS)

Software as service features of complete application is offered as a service on demand. The services of multiple terminals or client organizations are used a single version of the software that runs on the cloud.

B. Platform as a service (PaaS)

The Platform as a service covering a layer of software and presents it as a service that can be used to construct a higher-level services. There are at least two viewpoints on PaaS relying on the perspective of the creator or client of the services:

The originator of PaaS can construct a platform depend on the integrating of operating systems, middleware, application software, and may including the development environment that is then presented to a customer as a service.

The PaaS is presented as encapsulated service through an API manner. The client cooperates with the platform through the API. Therefore the platform utilizes necessary steps to handle and scale itself to provide a given level of service.

C. Infrastructure as a service (IaaS)

Infrastructure as a service utilizes the main services such the storage and determine capabilities as modulated services over the network. Servers, storage systems, switches, routers are collective and situate available to utilize and manage a high-performance computing applications.

On other hand the hardware as services (Haas) hardware as a service (HaaS) is an approach to permits an organization outsources to maintain business components such as servers,

storage and networking equipment. Figure 2 depicts the Architectural layers of cloud computing.

Fig 2 the Architectural layers of cloud computing

VI.   RFID

RFID is a general term used with wireless data capture and identification. It is being used in various fields such as supply chain management, personnel identification, tracking and hospital management. The different entities that constitute RFID are: transceivers (readers), host computer, transponders (tags) and back end information systems (eg., ERPS, CRM etc) [3].

RFID got tremendous success in the recent past, especially since the world largest retailers started using it i.e since they started to put the vision of smart items into practice. And today many companies have explored and implemented RFID and ERP technologies successfully. Even few companies have come forward to support these technologies by mentioning how these are useful in managing and operation of assets as well as facilities [3].

Using latest technology (Cloud computing, SaaS, Mobile computing etc) development of Mobile ERP System which affordable to Indian industries. Study the various coming problems in implementation of Mobile ERP system & provide the solution to the problems. Architecture of mobile ERP system will be developed for low cost working for SME Industries. Simulation work should be done on developed system & coming future problems will be studied their solution are searched out by mixing different technologies.

VII. CONCLUSION

In next steps essential programming languages are decided for various applications & system will be developed. After that architectures are designed according to requirement of the small and medium enterprise. Different future problems are studied and Available Hardware is studied for implementation & simulations are done on developed system. Low cost Mobile enterprise resource planning system will be developed for small and medium enterprise which will

work on any Mobile devices which are easily available. Problem faced during Mobile ERP are studied and its advantages are discussed.

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