Improvements in Web Based ERP Software Architecture as Implemented on the Cloud

Shruti Kanade
Research Student, Dr B.A.M. University, Aurangabad, Maharashtra, India

Abstract: Cloud computing is the buzz word in today's Information Technology. It can be used in various fields like banking, health care and education. Some of its major advantages that is pay-per-use and scaling, can be profitably implemented in development of Enterprise Resource Planning or ERP. There are various challenges in implementing an ERP on the cloud. In this paper, we discuss some of them like ERP software architecture by considering a case study of a manufacturing company.

Keywords: Cloud Computing, ERP, ERP Architecture, Web Based ERP, Cloud Based ERP

I. INTRODUCTION

World is changing very fast with respect to enterprise systems and all types of industries need very specialized solutions to their specific needs. Industrial issues are very complex and need a lot of money and efforts. Availability of skills and expertise cause another issues for industries. Enterprise resource management solutions are example for this kind of issue. The complicated project of an ERP implementation in industry, particularly the manufacturing sector, results in large changes in the system. Organizations that face an ERP implementation have several risks to consider to avoid possible causes of project failure. The purpose of this research is to create a method for implementation for web based ERP system when implemented on cloud. The research approach implements the concept of cloud solutions in existing ERP is very interesting.

Nowadays information is a priceless tool for organizations. The key is the mobility of ERP systems. We can use cloud computing infra-structure and SaaS for low cost working. Here the cloud computing infra-structure is just a web service interface to operate system virtualization.

II. CLOUD BASED ERP

Cloud based ERP system aims to construct common, open features, to meet integrated requirements of manufacturing, and to support networking applications. ERP systems can support enterprise customization and rapid implementation with the new cloud based systems. The cloud is owned by and managed by a cloud service provider (CSP) who offers services to consumers on a pay-per-use basis.

SaaS deliver software as a service over the Internet, eliminating the need to install and run the application on customer’s own computers and simplifying maintenance and support

The SaaS model has fixed financial and operative advantage over others in comparison with on-premise software models. The operation cost is very less and subscription cost is reduced because service provider services which are essential for the enterprise

E-business is the first key service field to be enhanced by new technology such as cloud computing and SaaS. Web based ERP can be next to implement. They can lease the web-based software from service provider, which is responsible for the operation, upgrading and maintenance of the software related technology.

III. DISCUSSION

Enterprise Resource Planning (ERP) system software development begins with system study of organization for which ERP is being developed. Here, the researcher has considered a manufacturing company in Aurangabad, Maharashtra as a case study. The company manufactures non-stick cookware and is a brand name in its sector. The company already has an ERP software which is an all-in-one in-house package. The IT manager of the company was interviewed face-to-face in order to find his take on the existing ERP Software. There were fifteen end to end questions in the questionnaire. Minimum customization was to be made in the software due to cost and project overruns. As it was an in-house ERP, it was limited to the premises of the company. There were no major vendor issues for the ERP software.
The in-house ERP could be re-developed into a web-based ERP which could be hosted on the cloud. The discussion begins with the technologies involved in web based ERP. The intended web-based ERP is based on the client/server model on which most of the softwares are developed today. This ERP uses a Relational Database Management System (RDBMS) to store enterprise data in a single database. It is a characteristic feature of ERP to have data at a single point location.

A web based ERP application consists of data entry forms, business rules, validations, menus, security routines and other data access routines just as a desktop application. Partitioning an application by grouping all entities logically based on certain guidelines is done in Application design.

Web ERP Application Architecture

Our objective is to create a multi-layer web application and class libraries are the way to create and implement such applications. Class libraries enable us to separate code completely and they exist in different layers. We create class library components for each layer that is Data Access, Business Layer and Presentation Layer. The IDE creates a default namespace for each layer. This enables us to place programs in appropriate layers. The database forms the Data Layer.

Five modules of ERP like Finance, Sales, Purchase, Inventory and manufacturing are being considered for our esteemed company. This is the required underlying architecture for the ERP which we want to host on the cloud in order to give the following benefits to the company.

IV. FEATURES OF SAAS ERP

- **Pay for what is used**
  Customers using SaaS ERP software need to pay only for the transactions they create on a daily, monthly or periodic basis. Customers are attracted to this offer as their funds deployment is in a phased manner resulting in lesser up-front requirements.

- **Speedier Implementation**
  The customer need not spend any time for purchase of hardware and software as it is already installed at the Vendor’s server.

- **Lesser hardware infrastructure investments**
  Customers using SaaS ERP need not buy expensive back-end servers, middleware, and networks as the vendor provides them on sharing basis

- **Increased availability**
  Customers can access SaaS ERP application from anywhere in the world as it is a web based model. All you need is a computer and an internet connection

V. GENERAL CONSIDERATIONS FOR ENHANCING THE BUSINESS PROCESS

Programmers who are custom building ERP software can contribute a great deal to the company by striking a balance between implementing standard business practices while ensuring there is not much of a deviation from processes existing in the company.

Many a times, companies specialize their business processes to gain competitive advantage. Programmers should identify these business processes and ensure that these are retained and not adversely affected. An iterative method of software installation and up-gradation will provide an opportunity for the development team to test which modules and transactions are being used and those which are not in use.
VI. CONCLUSION

Initially different architectures are designed according to different requirement of the SME. In the next steps essential programming languages are decided for various applications & system will be developed. Available Hardware is studied for implementation & simulations are done on developed system then different future problems are studied.

REFERENCES


