

Management Information System and its Implementation using ORACLE Technology: Analysis by End User

Arindam Roy¹ and Haritha Tumu²

¹B.Tech (Computer Science & Engineering), Uttar Pradesh Technical University (UPTU), Oracle Application Developer

²B.Tech (Information Technology), JNTU (Affiliated), Hyderabad (Telangana)

E-mail: ¹arindamroy107@gmail.com, ²t.haritha.reddy@gmail.com

Abstract—This article gives an overview of the Oracle information systems and its features. From the context, we can conclude that oracle based information systems can really help any organizations to manage the complexities of global business environment despite of the organization size. It includes all the standard ERP functions such as order entry, inventory planning, purchasing, order management and a lot more which works perfectly and are stable. This article also reflects about how oracle can be a better information system and thus can provide a bundle of benefits to any organization implementing it.

Keywords: Order Management, Human Resource Management, Enterprise Resource Planning, MIS etc.

1. INTRODUCTION

Considering Today's Scenario, almost all the modern organization are open based systems which means they can exchange the information continuously to adapt to the changes imposed by the rapidly changing technology and market. All organization needs the right information at the right time but simply obtaining the information is not enough, it should be gathered, organized, processed, evaluated, presented in a proper format and finally transmitted. It was said that "The first thing about the information system strikes me is that one gets too much information" [9]. This brings us to the term Management Information System (MIS). Developing Information Management systems would require knowledge about the business applications, processes, foundation concepts, information technologies, and management challenges of an organization [5]. But today's Information Systems comprises of the increased data processing as the business needs are becoming more and more complex and we need more sophisticated hardware, software, network equipments etc. ; complex decision making situations for which we require more complex analysis of business situations and a phenomenal rise in knowledge workers as the number of workers are no more doing operational work.

Hence we can define Management Information System as the interrelated components working together to collect , process,

store, disseminate information to not replace but support the decision making, coordination, control, analysis, and visualization in the organization.

MIS is very important for the organization [1]. Management Information System, however implemented in any organizations, is done at three or four different levels of the organization. The first one are the Top/Senior Management who uses it for long range decisions & strategic planning for the organizations. Then comes the Middle Level Management who carries out the plans and goals as specified by the top management. We have Knowledge Management which deals with knowledge work and data work and finally Operational Management, whose responsibilities are to monitor day to day activities, operational planning and control, looking over the transaction processing. In other words, we can say that the Management Information Systems can provide the necessary processing power, connectivity with the network and framework for applications to support the business activities within an organization [2].

2. ORACLE SYSTEM FUNDAMENTALS

Management Information Systems are designed by various vendors for organizations implementation ranging from large scale enterprises to the small ones. These systems involves the reporting systems using various Business Intelligence Tools, up gradation or the conversion process associated with them and the standard business modules implementation like Order Management, Inventory management, Purchasing and a lot more. Hence it is said that the implementation of the MIS often represents the largest investment for the organization [10]. Considering the rest, I found oracle to be the most successful and stable Information system to be implemented in an organization.

Oracle Enterprise Resource Planning or Information System has plenty of advantages concerning to other Information Systems. As per the Global Data is concerned, an Oracle customer spends less money that is about 1.7% of its annual

revenue on its total cost of ownership comparing to the other giant vendor for information system like SAP which have almost 4 % of its annual revenue. Not only that, Oracle based Systems have a lower risk implementation profile comparing to other Information Systems. Even the oracle based systems are easy to integrate with the existing compatible database and applications and are quite stable comparing others. Taking to the architecture level, the oracle open architecture interface helps the organization to establish a better relationship with the suppliers, content providers and the third parties such as payroll outsources and recruiters.

Talking about the Oracle basic fundamentals, the Oracle Systems architecture contains the oracle server which act as the primary function for sending and receiving the information. When the oracle server is invoked, the oracle instances are loaded into the main memory. The oracle instance contains the memory structure and the background process associated with it. Security plays a vital role in oracle based systems as the data in the database are accessed only via oracle instance and the oracle instance can open or connect to one and only one database at a time which enhances the data integrity part.

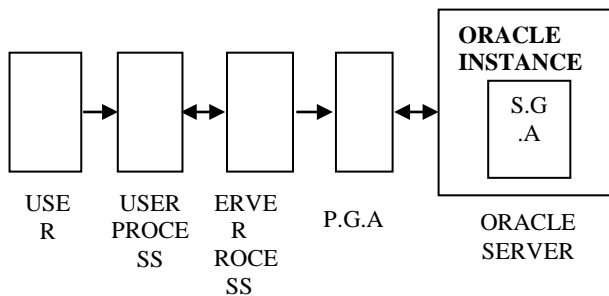


Fig. 1: Oracle System Architecture Flow Diagram Source: [8]

The user process gets created when any compatible application capable of connecting to oracle server is initiated on the client machine. On the flip side, the Server Process gets invoked when the client successfully log on the server and can work both on dedicated server mode as well as the shared server mode

Concerning to memory, the oracle systems memory architecture is the best form of stable and usable unit of the oracle systems. Oracle systems generally have the two main memory areas namely the System Global Area(S.G.A) and the Program Global Area (P.G.A). SGA is the main / core memory of the oracle instance which stores the information shared by the various database process and the user process which are connected concurrently to the oracle instance. However the PGA is created specifically for each server process created and it gets de-allocated once the server process terminates and constitutes the session memory.

We have one interesting feature of the Oracle Memory Systems namely the Data Buffer Cache, which can store the most recently used data from the data files thus enabling the faster access to the data and the stored data can be shared by multiple user processes if multiple request are made of the same data. We also have a Redo Log Buffer which can hold the information about the changes made to the data very recently. Its primary purpose is to work during the data recovery from any crash or failures.

3. ORACLE SYSTEMS BASED SUPPORTING MODELS

Oracle Information Systems constitutes the Grid computing architecture that produces the low cost but high performance enterprise information systems. It enables the group of independent servers and software components to be connected on demand maintain a balance workload over these connected servers and manage these servers as one single complete system that is centralization. Not only that, Oracle Grid Computing Technology also includes the Automatic Storage Management(ASM) which enables the multiple disk to be connected to form a storage grid. ASM also distributes the data across the disks to provide the highest I/O throughput. It also redistributes the data automatically on addition or deletion of disk. Another thing that works is the Real Application Clusters whose primary work is to automate the workload management across the servers. Also we have the Oracle Streams that helps us to establish the connection between the application in the grid in order to capture the database changes and synchronize other sources accordingly.

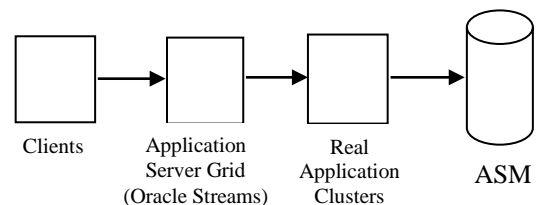


Fig. 2: Oracle Grid Computing Architecture Structure Source: [7]

Covering the other aspects, Oracle Information systems supports the multi-org Organization Model via which a single installation of any oracle application product can support to a number of the organizations, even if those organizations use different set of books. Various benefits are available such as secure access to the information data i.e. user can access only that information which are relevant to them. User can purchase the products via one legal entity and receive them in another legal entity.

Oracle Multi-org Organization model comprises of different organization types. Firstly we have the Business Groups who

represent the highest level in the organization and their sole work is to secure the human resource information without affecting on accounting. We have the Set of Books which are nothing but the financial reporting entity that uses a particular chart of accounts, functional currency and accounting calendar. Legal entities are the legal companies for whom the fiscal or tax reports are prepared. Lastly we have the Operating Units which can be a sales office, division or the department which represents the organization that uses the oracle sub ledger applications such as purchasing, receivables. The information are secured by the operating units as each users sees the information only for their respective operating units.

Taking the Data Quality in the scene, we have the Oracle Trading Community Architecture Data Quality and Management which works on keeping the party and customer account information free from the duplicates and well as the to perform powerful searches on that information. Parties refer to the person or organization that can enter into the business relationships while the customers are the parties with whom we have the selling relationships.

4. ORACLE SYSTEMS BASED SUPPORTING BUSINESS MODULES

Oracle Systems supports various business related modules such as the order management, inventory management, Human Resource Management, Purchasing and a lot more. We are going to discuss about the two major business modules namely the Oracle Order Management Module and the Oracle Human Resource Management Module.

4.1 Oracle Order Management Module

Oracle Order Management is typically an order to cash solutions that provides the functionalities to the customers, partners and employees to choose the right products and services, negotiating to the best price and thus ensuring the timely fulfillment. Oracle Order management modules contains order to cash flow which involves the order creation , release, shipping and even bank reconciliation. The simplistic visualization of Oracle Order to Cash Life cycle can be seen in Fig. 3.

In context to today's business scenario, the information systems profession is continually faced with making difficult decisions about the commitment of its limited management, research and educational resources [3].

In context to same, the order management is becoming a critical problem for large companies. There are some valid points explaining the root cause behind it. Firstly, we have the Globalization factor where the businesses having operations in multiple countries execute different order capture and fulfillment systems. Industry studies have shown that typically a single organization have 4 to 5 systems for the order capture

and order fulfillment thus causing the centralization and integration problem of the overall orders gained.

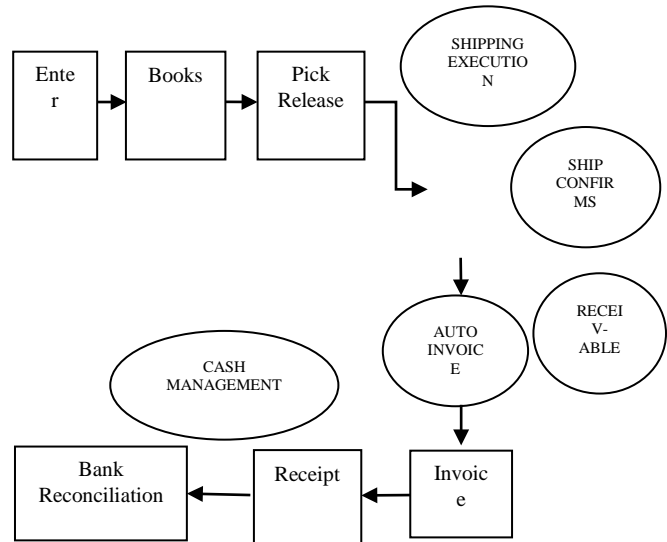


Fig. 3: Oracle Order Management Flow Diagram
Source: [6]

Different ERP (Enterprise Resource Planning) systems from different vendors are implemented within the same organizations and thus cause the difficulty in centralizing them to one single source of information. Not only that, the maintenance of the multiple disparate systems results in high IT cost in order to keep each systems functioning, upgrading when needed, integrating heterogeneous applications and tools in order to obtain the single order orchestration architecture. This results in lack of opportunity in making the better cost/benefits decisions, addition of new channels or partners becomes a slow and frustrating process and moreover with no single centralized systems, organization faces difficulty in identifying the potential delays and problems and unable to resolve or prevent them.

In context to above problems, Oracle Order Management module provides various benefits and advantages to the organization implementing it. Firstly, it provides an enhanced customer experience via selection of right products at the right price, accurate order promising and automatic order status update from the fulfillment systems to multiple channels. Secondly, the organization can witness reduction in the operational cost via a faster order entry, reduced order errors and also the reduction of manual steps involved in the process completion. Not only these, organization experiences a revenue increase via targeted cross/ up selling, margin maximization and faster order process.

The user interface provided by the oracle order management module is very sophisticated and easy to use and configure. It provides both the HTML (Hyper Text Markup Language) and Classic Form User interface for the business process in order to search, view, enter and edit the order details. Both the

HTML and Classic Form User interface supports inline entry, drag and drop functionality, hide/show of information which helps users to personalize the access and display of sales order information which are required.

4.2 Oracle Human Resource Management Module

It is said that the people are the most critical assets for any organization. In Today's business scenario, organizations are paying more attention towards the contribution made by the workers to their respective organization. Therefore, the people-related cost now constitutes the majority of the total corporate expenditure. Talking about the efficiency, well it starts in any organization at that point of impact where a worker performs a job. Employees possessing adequate skills, ample knowledge and great abilities can take the company to the top most level. But unfortunately, it becomes difficult for a good employee to manage themselves which however creates a necessity for a fast, reliable information system to manage.

The most challenging problem associated with the Human Resource Management System (HRMS) of other vendors is the integration of various 3rd party information sources from where the employee information are gathered and hence using disparate systems to extract and perform manipulations on information leads to lack of accuracy and potential delays in obtaining the right information at the right time in accordance with the business requirement.

Thus for the resolution to above, we have the Oracle Human Resource Management System which is a very flexible and efficient to meet the business requirements and is adaptable enough to change with the business needs. Oracle HRMS provides a single central platform and provides various functionalities related to the Human Resource management. The basic functions of oracle HRMS are firstly it manages the core HR data and processes, payroll processes and legislative/regulatory compliance. Not only these, it provides the metrics and analytical tools to stake holders in order to deliver the information and to determine the value of HR program investments. The major advantage of the Oracle HRMS is the centralization of the data repository for all the people management activities throughout the organization. We have Oracle Single Global Employee Data Model that keeps all the information in one single place thus providing single source of information. Centralization helps any organization to obtain a single, consistent and globally accessible record for each employee and enables for better improved and efficient analysis, better hiring, decision making and earlier detection of cost saving opportunities.

Web based infrastructure, robust multi-language and multi currency functionality provided by the Oracle HRMS helps in consolidating the HR functions across the global and organizational structures. It is often noticed that the management of the system development project is a problem with large cost and time overruns which are frequently reported [4]. So, we have Oracle Payroll, being a part of

Oracle HRMS, provides the high performance, graphical based and rule based payroll management systems that works on reducing the administration, lower set up cost and reduce the error while enhancing the reporting, analysis, capabilities and responsiveness. Not only that, organizations have the flexibility to run the payroll process any time during the pay period and also process any changes at the end of payroll cycle which helps in reducing the cycle time

On the other hand, we have Oracle Tutor, one basic tool of Oracle HRMS, that enables the users for creation, customization and maintenance of the process documentation, training and references materials related to Oracle HRMS which leads to reduction in training and implementation cost, increase in learning and absorption rate, and ensure adherence to policies and procedures.

We have Oracle Self Service Human Resource that keeps the workforce to update and use employee specific information via a part of view which is personalized in accordance with an individual's roles, experiences, work content, language and information needs and helps the organization to streamline the business processes, decrease cost and improve services.

5. DRAWBACKS OF ORACLE INFORMATION SYSTEMS

We have seen the advantages and functionalities of the oracle information systems but there are some drawbacks which I found during working on oracle systems:

1. Oracle Information Systems in my opinion are in bits and pieces and thus requires a lot of integration in order to run complete sophisticated information systems as specific to any organization business needs.
2. Though the oracle provides a good and user friendly graphical user interface to easy use and conFig. the applications, but still it requires some coding and technical knowledge mainly the pl sql language as the entire oracle products are based on relational tables
3. Since all the information are finally stored in the relational tables which are further linked to other tables, sometimes the responsiveness to any query made by a user takes a lot of time to execute and even sometimes ends up with response time out.
4. Sometimes the oracle default business modules are somewhere lacking in fulfilling the specific business needs of an organizations so further needs the customizations which sometimes become hectic and difficult to do so.

6. CONCLUSION

From the above, we can conclude that oracle based information systems can really help any organizations to manage the complexities of global business environment

despite of the organization size. Oracle applications modules are easily integrated to provide the organization industry standards for transactional systems. Oracle Information systems includes all the standard ERP functions such as order entry, inventory planning, purchasing, order management and a lot more which works perfectly and are stable. And last but not the least, the oracle automation functionality keeps eliminating the needs for the manual labor involved in organizations such as data entry from 3rd party systems, automation of tools and modules .etc. and also benefits by providing the recovery management

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