Comparison between SAP NetWeaver 7.0 and Oracle Fusion Middleware 11g

Individual Project Report

Kelvin Gani

California State University, Fullerton

ISDS-435

Prof. Gupta

Fall 2010

Introduction

Nowadays no companies can manage its business processes without Enterprise Resource Planning (ERP) software; both non-profit and profit organizations absolutely need ERP system to run its business. There are many ERP software makers exist today, however the two largest ERP companies control more than 50% ERP market share of all organizations in the world (Jacobson et al. 9). Those two companies are SAP and Oracle. SAP, which stands for Systeme, Anwendungen und Produkte in der Datenverarbeitung (Systems, Applications and Products in Data Processing), is the first and largest ERP software company in the world. Founded in Germany on June 1972, it has grown to be the fourth largest company in the world, employing more than 48,000 people worldwide ("SAP AG" 8). On the other hand, the second largest ERP Company is Oracle. Founded in 1977 in Santa Clara, California, Oracle has now become one of the biggest software companies in the world. With its recent acquisition of Sun Microsystems, Oracle is now entering hardware industry by selling both Enterprise software and hardware as one ("Oracle Corp." 7). Even though both SAP and Oracle provide ERP system to any type of industries and businesses, they create and develop their ERP system in different platforms. SAP uses SAP Netweaver, while Oracle uses Oracle Fusion Middleware.

Applications and Tools

SAP NetWeaver and Oracle Fusion Middleware are combination of applications and tools, just like Microsoft Office with Excel, Word, Power Point, etc. Both SAP and Oracle offer variety of applications to support all of its customer specific business needs; and each of the applications has its own function to support business needs. Even though they are created by two different companies, the applications basically serve the same purpose for business user. Oracle has just introduced their new cloud computing hardware products into the Fusion Middleware

called Exalogic which is a collaboration of Oracle and Sun Microsystems ("Oracle Exalogic"). On the other hand, SAP is trying to be more focus in the mobile application development for ERP system by acquiring Sybase in May 2010. During 2010 SAP World Tour in Santa Clara, SAP displays its first ERP application report for iPad, iPhone, and iPod Touch. This new mobile development will allow business users to look at any reports in real time.

Figure 1: SAP NetWeaver and Oracle Fusion Middleware Applications & Tools Comparison

SAP NetWeaver 7.0	Oracle Fusion Middleware 11g
Team Productivity	
Portal	Portal, User Interaction, and Enterprise 2.0
Mobile	
Enterprise Search	
Information Mgmt	
Master Data Mgmt	Business Intelligence
Business Warehouse/ BI	Data Integration
BW Accelerator	Content Management
Lifecycle Management	
Business Process Mgmt	
Business Process Mgmt	Business Process Management
Business Rules Mgmt	
Composition	
Composition Environment	Collaboration
Developer Studio	Developer Tools
Visual Composer	Event-Driven Architecture
SOA Middleware	
Process Integration	Service-Oriented Architecture
Partner Adapters	Transaction Processing
Industry Standard Protocols	Oracle Fusion Middleware for Applications
	SOA Governance
Foundation Mgmt	
Application Server	Application Server
Identity Mgmt	Application Grid
Solution Manager	Identity Management
	In-Memory Data Grid
Hardware	
-	Exalogic

Source: www.sap.com and www.oracle.com

As shown in Figure 1, SAP and Oracle provide similar applications such as the team productivity, composition, etc. The collaboration of all the applications and tools is called NetWeaver for SAP and Fusion Middleware for Oracle.

Programming Language

SAP NetWeaver supports the ABAP (Advanced Business Application Programming) programming language. ABAP is specially designed for creating large-scale business applications, with dedicated features for developing complex business functionality, connecting applications, and provisioning services. Users can use model-driven or code-driven tools to develop and configure user interfaces for web-based business applications. When SAP introduced SAP R/3 System, ABAP became the basis of the entire system ("ABAP" par. 1). In addition, ERP developers can take advantage of powerful design and runtime tools to build business applications using standards-based Java. Developers can control Java's strengths to design user interfaces, handle XML-based messages, use web services for greater flexibility, and increase interoperability across a diverse environment ("SAP NetWeaver with Java" par. 1).

On the other hand, Oracle has been a leading and substantive supporter of Java since its emergence in 1995. Oracle Fusion Middleware is built on Java technology; its system and basis of applications and services are written in Java language ("Oracle and Java" par. 2). By acquiring Sun Microsystems, Oracle has been developing its software to be more compatible with Java technology, as well as hardware. Java is "an object-oriented, platform-independent, multithreaded programming environment. It is the foundation for Web and networked services, applications, platform-independent desktops, robotics, and other embedded devices" ("Oracle and Java" par. 3). Currently, Java is considered as the most common programming language

("TPCI Nov. 2010"), and most of the software engineers and programmers know or use Java programming language.

According to Tiobe Programming Index on November 2010, Java is the first and most popular programming language. ABAP is the 23rd in the list ("TPCI Nov. 2010"). Even though SAP NetWeaver also supports Java Programming Language, it is used for only some of the applications and reports. The basis of the applications development in SAP NetWeaver still has to be programmed by ABAP language.

Database

Database is "a systematically arranged collection of computer data, structured so that it can be automatically retrieved or manipulated" ("Encarta"). Even though SAP creates and develops ERP software, it has never developed its own database system. In 1997, SAP bought Software AG who developed database for ERP applications; in 2003, SAP partnered with MySQL and named its database MaxDB ("SAP MaxDB"). Additionally, SAP database supports both Microsoft SQL Server and Oracle database.

On the other hand, Oracle developed its own database called Oracle database. The latest database that Oracle has is Database 11g. Even though Oracle created its own database, they realized the importance of integration between its applications and other vendors' databases. Therefore, Oracle Fusion Middleware supports more than just Oracle database, but also MySQL, Berkeley DB, and Microsoft SQL server ("Oracle Database").

In order to capture the market of small and medium size businesses, both SAP and Oracle have worked really hard to be able to integrate their products with any databases. Nowadays, most databases can be integrated with SAP NetWeaver and Oracle Fusion Middleware. Although

there are some differences, the ability of these two companies in integrating their platforms with databases from different vendors is very similar.

Operating System Integration

Operating system is the programs that control and manage the basic operations of computer hardware and computer fundamental applications. Every server computer needs server operating system. Currently, the most popular server OS are Linux/ UNIX, Solaris by Oracle, and Windows.

SAP NetWeaver supports all major operating system including Solaris which is built by Oracle. In SAP website, it offers helps for users who want to find out the method to install SAP NetWeaver on different operating system ("Database and Operating Systems"). Conversely, Oracle Fusion Middleware supports primarily Windows, Linux, and Solaris. Oracle uses a different method than SAP by allowing users to download Oracle Fusion Middleware files based on their operating system ("Oracle WebLogic Server").

Both Oracle Fusion Middleware and SAP NetWeaver support 32-bit and 64-bit operating system. Overall, the integration of operating system for SAP and Oracle is at its best. It supports most of the server operating systems.

Hardware Requirements and Integration

Hardware plays a big role in operating ERP system; if the hardware fails or is too slow, it could create a problem or bottleneck in the system, which then could lead to a halt of the whole business process. SAP and Oracle have always been trying to overcome this hardware issue by providing the minimum hardware requirement for their platforms and applications.

SAP NetWeaver has many applications; however, the general requirement for that is 2 GB Ram per CPU with network connection to the server of at least 1 Gbps ("SAP Library

Installation" par 3). Conversely, Oracle provides a more detail documentation for the hardware requirement of Oracle Fusion Middleware. The general requirement for the memory is 2 GB Ram and the CPU is dual-core Pentium, 1.5 GHz or greater. Essentially, each of the applications has different requirements. For data profiling and quality server, Oracle requires user to use a more powerful hardware such as Intel Xeon MP for CPU and 8 GB Ram for memory ("Oracle Fusion Middleware" Sect. 2).

Both SAP NetWeaver and Oracle Fusion Middleware are very well integrated platform; it can run on most of the major servers such as IBM, HP, Dell, etc. Nevertheless, Oracle is now offering its own hardware infrastructures for server and data storage. According to John Fowler, Executive Vice President of Oracle Hardware, "Oracle has done the extra engineering and testing so that products, when used in combination with Sun hardware products or other parts of the Oracle software stack, deliver additional benefits" (Fowler par. 4). One of their collaborated products is Oracle Exadata Database Machine, which was built exclusively to run Oracle 11g applications for business intelligence data warehouses and online transaction processing (OLTP). Oracle argued that when software and hardware are combined and developed together, it increases the performance of the system and reduces latencies (Fowler par. 5).

Conclusion

Due to the competition, both SAP and Oracle have to create integrated applications that are scalable and reliable. SAP NetWeaver and Oracle Fusion Middleware are very similar in many ways. Their applications and tools are user friendly and serving nearly for the same purpose. They support Java programming language, and they can be integrated with most of the major operating systems and server hardware. In addition, most of the databases that exist today can be integrated with either SAP NetWeaver or Oracle Fusion Middleware. Nonetheless, there

are still some differences that make each of them better in different areas. Oracle has its advantages in building and developing its own hardware infrastructures with Sun Microsystems. When users implement Oracle Fusion Middleware with Oracle's hardware, it would result in better performance and higher reliability because the hardware is engineered exclusively for that particular platform. On the other hand, SAP NetWeaver can be easily integrated to mobile devices such as iPad and iPhone. SAP is more focused on mobile environment development for its platform so users would be able to show the real time report at anytime using just mobile devices. Both companies are focusing in two different directions that are very promising in the future, and therefore, the better platform is for the users to decide, based on their organization's needs.

Bibliography

"Database." Microsoft® Encarta 2007 [DVD]. Redmond, WA: Microsoft Corporation, 2006.

"Database and Operating Systems." SAP Developer Network (SDN): Downloads, Discussions, ELearning, and Documentation for Developers. SAP AG, 2010. Web. 25 Nov. 2010. <http://www.sdn.sap.com/irj/sdn/dbos>

Fowler, John. "Mission Critical." *Profit : The Executive Guide to Oracle Application* Nov. 2010: 11. *Profit*. Oracle Corporation, Nov. 2010. Web. 26 Nov. 2010. <http://www.oracle.com/us/corporate/features/pn10-engineered-173431.pdf>

"Getting Started with ABAP." *SAP Developer Network (SDN): Downloads, Discussions, ELearning, and Documentation for Developers*. SAP AG, 2010. Web. 22 Nov. 2010. <http://www.sdn.sap.com/irj/sdn/abap?rid=/webcontent/uuid/90e7556d-ed76-2910-1592-b6af816225cc>

Jacobson, Simon, Jim Shepherd, Marianne D'Aquila, and Karen Carter. *The ERP Market Sizing Report, 2006-2011*. Rep. AMR Research, Inc, 2007. Web. 15 Nov. 2010. <http://www.sap.com/usa/solutions/business-suite/erp/pdf/AMR_ERP_Market_Sizing_2006-2011.pdf>

"Oracle and Java | Technologies." *Oracle | Hardware and Software, Engineered to Work Together*. Oracle Corporation, 2010. Web. 24 Nov. 2010. <http://www.oracle.com/us/technologies/java/index.html>

Oracle Corporation. Publication. Data Monitor, 6 August 2010. Web. 19 Nov. 2010. <http://web.ebscohost.com.lib-proxy.fullerton.edu/bsi/companyinfo?vid=9&hid=105&sid=aa877d3f-7578-457d-b8f6-b6b5af06ba71@sessionmgr112>

"Oracle Database." Oracle | Hardware and Software, Engineered to Work Together. Oracle Corporation, 2010. Web. 22 Nov. 2010. <http://www.oracle.com/technetwork/database/enterprise-edition/overview/index.html>

"Oracle Exalogic | Fusion Middleware | Oracle." *Oracle | Hardware and Software, Engineered to Work Together*. Oracle Corporation, 2010. Web. 20 Nov. 2010. <http://www.oracle.com/us/products/middleware/exalogic/index.html>

"Oracle® Fusion Middleware System Requirements and Specifications."*Oracle® Fusion Middleware*. Oracle Corporation, 18 Nov. 2010. Web. 27 Nov. 2010. <http://download.oracle.com/docs/html/E18558_01/fusion_requirements.htm#BABBDHFA>

"Oracle WebLogic Server Downloads." *Oracle | Hardware and Software, Engineered to Work Together*. Oracle Corporation, 2010. Web. 26 Nov. 2010. <http://www.oracle.com/technetwork/middleware/ias/downloads/wls-main-097127.html>

SAP AG. Publication. Data Monitor, 23 July 2010. Web. 17 Nov. 2010. <http://web.ebscohost.com.lib-proxy.fullerton.edu/bsi/companyinfo?vid=9&hid=105&sid=aa877d3f-7578-457d-b8f6-b6b5af06ba71@sessionmgr112>

"SAP Library - Distributed TREX Systems (Multiple Host Installation)."*SAP Help Portal*. SAP AG, 2010. Web. 26 Nov. 2010. <http://help.sap.com/saphelp_nw70/helpdata/en/46/c13c8a6cc70e5ce10000000a1553f7/frameset.htm>

"SAP MaxDB." SAP Developer Network (SDN): Downloads, Discussions, ELearning, and Documentation for Developers. SAP AG, 2010. Web. 22 Nov. 2010. <http://www.sdn.sap.com/irj/sdn/maxdb>

"SAP NetWeaver Application Server, Java EE 5 Edition - Getting Started."*SAP Developer Network (SDN): Downloads, Discussions, ELearning, and Documentation for Developers*. SAP AG, 2010. Web. 23 Nov. 2010. <http://www.sdn.sap.com/irj/sdn/javaee5?rid=/webcontent/uuid/f417163c-0e01-0010-50a3-c82a1f8b70b7>

TIOBE Programming Community Index for November 2010. Rep. TIOBE Software, Nov. 2010. Web. 25 Nov. 2010. <http://www.tiobe.com/index.php/content/paperinfo/tpci /index.html>