

Cloud ERP: Its Benefits and Challenges

Sangeeta M. Borde

MAEER's MIT Arts, Commerce and Science College,
Alandi (D), Pune.

E-mail: smborde@mitacsc.ac.in

Kavita B. Waghmare

MAEER's MIT Arts, Commerce and Science College,
Alandi (D), Pune.

E-mail: kbwaghmare@mitacsc.ac.in

Bareen K. Shaikh

MAEER's MIT Arts, Commerce and Science College,
Alandi (D), Pune.

E-mail: bkshaikh@mitacsc.ac.in

Abstract

Since their inception, the vast majority of ERP systems have been implemented on premise. Traditional ERP systems provide various kinds of benefits such as mature system functionality and abilities of greater customization and integration. In the past decade, other software applications, however, have seen a shift to cloud computing that has become one of the fastest growing segments of IT industry. Cloud computing is a new technology trend which changed how information systems operated and used, while ERP is one of the most used enterprise applications by the market, and considered the core of many corporations. The fact that ERP systems require high resources in term of cost, time and people in order to be implemented and maintained introduced many difficulties for organizations to set up such a vital system, which was the driving force to try to benefit from cloud computing to help organizations to implement ERP systems with less implementation cost and time.

In this paper, based on a literature study, we identify and classify the benefits and drawbacks of cloud-based versus traditional ERP systems. Then we compare the features of cloud-based, hosted, and on-premise ERP. The purpose of this research was influenced by the potential benefits of using cloud computing technology and challenges for cloud ERP.

Keywords: Cloud Computing, Traditional ERP (Enterprise Resource Planning), Cloud Based ERP.

Introduction

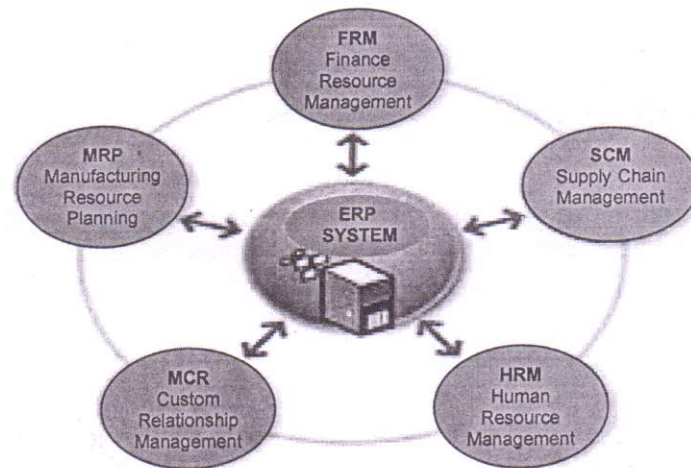
Traditional ERP System

As a small or mid-sized business owner, you know that technology is generally a big expense. As it constantly evolves, it is important for any business to keep the cost of technology in check. The key is to maintain that all-important competitive edge without depleting much-needed revenue and resources.

When considering ERP software, you're going to notice that traditional systems have limited scalability. Because ERP business software was originally created for enterprise businesses, there was no real need to scale resources. An enterprise business simply doesn't grow exponentially.

If you're an emerging business that shows promise of significant growth in the future, you need a cloud ERP software solution that is a good fit today and scalable enough to grow alongside your company.

When you purchase a legacy ERP system, you have to pay for both the hardware and the software technology. This means you're incurring the entire licensing cost, which you're then unable to write off during any lulls in the business year when the software isn't really needed.



Enterprise Resource Planning (ERP)

Also, with a legacy ERP system, building on a customized application is a challenge for any developer, as older models aren't future proofed for upgrades.

Software as a Service (SaaS)

is also known as on-demand or hosted applications which can be used in the enterprise resource planning systems and it will be very useful in these applications. SaaS can be molded for adapting for the implantation in the software applications like ERP systems. And it is comfortable with the change the way organizations makes payment for services, implement, and run their software applications. The SaaS software model has fixed financial and operative advantages over the others in comparison with, on-premise software models. The operation cost is very less and the subscription cost is also reduced because the service provider operates the systems which can offer the services. SaaS offers low initial cost—mostly based on subscription cost and further operation costs as the service provider is the one that operates the system. This process definitely represents savings in terms of money, IT resources, and time spent from development to implementation. Recent research indicates that SaaS usage has increased and the demand is still increasing.

Cloud Computing

Cloud computing, as an innovative distributed computing, can provide dynamic resource buffer, virtualization and highly usable next generation of enterprise data center. With cloud computing, the resources are shared and so are the costs. User can pay as they go and only use what they need at any given time, keeping cost to the user down. Cloud computing is very much a business model as well. Providers of cloud computing solutions, whether they are software, hardware, platform, or storage providers, deliver their offerings over the Internet. There are no shrink wrapped boxes containing discs or hardware for you to buy and set up yourself.

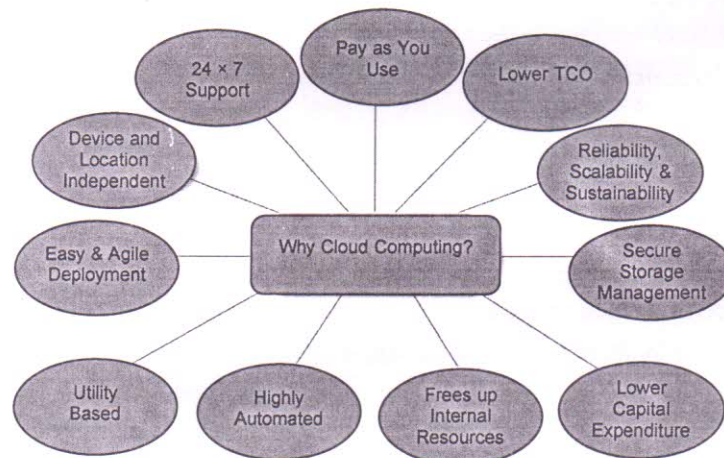
Why Cloud Computing for ERP?

ERP referred to the way a large organization planned to use its organizational wide resources. Formerly, ERP systems were used in larger and more industrial types of companies. However, the use of ERP has changed radically over a period of few years. Today, ERP can be applied to any type of company, operating in any kind of field. ERP software that is deployed

into a cloud environment becomes “Cloud ERP Software”. Most (if not all) cloud environments are built using virtualization and load balancing technology that allows applications to be deployed across multiple servers and database resources. Cloud ERP is positioned as a revolutionary approach to deploy an ERP solution. It provides a solution that is flexible, adaptable, scalable, efficient and affordable. Cloud ERP as a business management software has provided big success to deliver business critical data. ERP software as a service (SaaS) for customers who want to acquire ERP without managing hardware, software, and upgrades while reducing up-front expenses. Customers can build an internal cloud to reduce ongoing hardware costs while maintaining greater control over integration and requires local access to their data server.

The cloud promises a new way to address ERP’s most infamous challenges. The ability to adapt to constantly changing business requirements, for small or mid-sized business – with ERP software, you must consider what you need beyond today.

With cloud-based ERP software as a hosted solution, you have the ability to add or remove users with a single click, never mind the hassle and cost of setting up hardware and software on individual computers. Also, when you partner with a cloud-based ERP software platform that features a vast customer base, you never have to endure time-intensive and expensive ERP migrations. Worries about outgrowing your software become nil, as your cloud ERP platform should offer several built-in functional areas you may utilize today or down the road.



The Benefits of Moving Our Applications to the Cloud

Cloud ERP is designed to address the inflexibility of existing ERP software by allowing businesses to choose the deployment option that fits their specific needs. Cloud ERP is a flexible and cost-effective option for small and medium-sized businesses and offers extensive benefits for growth and expansion:

1. **Cost:** Rather than being purchased outright, cloud-based ERP implementations are paid for through a subscription model, which typically includes not just the software but also the hosting and support costs. Thus, the initial capital expenditure required for implementation is significantly lower than for traditional systems, and operating costs can often be lower as well. Cloud-based providers can scale up their offerings with relative ease as an organization’s needs evolve.
2. **Rapid deployment:** One major drawback to both in-house and hosted ERP systems is that vendors and system integrators frequently use existing templates that must be customized and configured to match a company’s specific practices and processes. Implementations typically take months and some times years. Cloud-based solutions, on the other hand, offer a basic configuration with a limited range of options that are designed to meet the requirements of most businesses — an approach that can significantly reduce deployment time while still addressing the most critical needs of the organization. How long it takes to roll out a cloud-based ERP system is determined not by the time required to build the system, but by the time needed to update any affected business processes and convert the pertinent data.

3. **Anywhere, anytime information access:** With a cloud-based ERP system, Any one can access the system from any approved computer or location. All that is required to stay connected is an Internet connection.
4. **Third party interoperability:** Microsoft dynamics ERP systems all you to connect your various locations and suppliers through one system. Maintaining interoperability between internal and external systems can be a daunting task. At cloud ERP we ensure your interconnected systems continue to function throughout the life of the system. Reliable interoperability reduces friction within your supply chain helping to ensure smooth business operations.
5. **Delivers better performance:** With cloud ERP we apply computing resources centrally allowing you to increase performance for a lower overall cost. Our systems consistently out perform most on-premise deployments of Microsoft dynamics. Larger, faster servers provide performance improvements. Our economy of scale provides significant cost savings.
6. **Return on investment:** Cloud ERP is cost efficient through resource scalability, you only purchase the amount of resources your business needs over a given period of time. Additionally your existing IT staff can focus on value add projects instead of ordinary day-to-day operations.
7. **Improved control:** Can turn the Internet into a reliable business platform and address security issues at the edge of the cloud, before reaching the data-center.
8. **Improved availability:** Addresses availability bottlenecks in the public cloud itself to help ensure anywhere, anytime access to Web-enabled applications.
9. **Freedom from IT constraints:** Offers high-level security and privacy, easy accessibility and integration.
10. **Freedom from lock-in:** With your data in the cloud, you can move it at any time.
11. **Freedom to innovate:** Offers continuous new features and functions.

Challenges for Cloud ERP

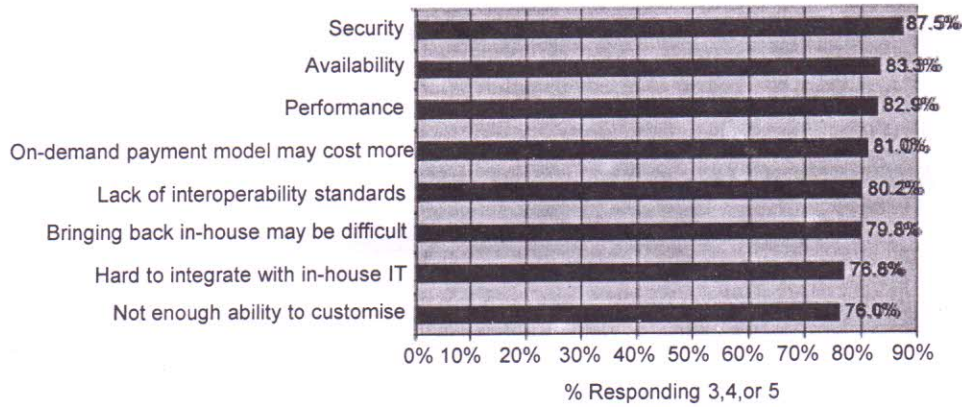
Because cloud-based ERP services are still new to the market, and maturity is a concern to CIOs, some companies remain wary. Other primary concerns include restricted functionality and customization, and perceived data risk:

1. **Limited functionality and availability:** So far, vendors of cloud-based ERP systems have focused on delivering core ERP functionality such as general accounting, purchasing, and accounts receivable and payable. They continue to invest in developing new functions like statistical forecasting, constraint-based planning, social media, and production management — but these offerings have not caught up to the advanced functionality of traditional on-premises and hosted ERP offerings. Furthermore, cloud-based applications are currently confined to certain geographies, in part because they cannot yet support the financial reporting requirements of every region in which a company might operate.
2. **Reduced customization and integration:** Compared with traditional on-premises and hosted applications, cloud-based solutions typically offer a limited range of configuration options. That makes cloud options most appropriate for companies that use highly standardized business processes in areas like sales, purchasing, and accounts receivable. Cloud-based ERP may not be able to handle the needs of companies with either highly tailored business processes or highly developed application architectures (such as those involving multiple points of integration across a variety of legacy IT systems, highly customized software, or packaged software). For example, SAP's current on-demand ERP system for small and medium enterprises offers only standard connections via Net Weaver and integration with common applications such as Salesforce.com.
3. **Perceived data risks:** Companies choosing a cloud-based ERP system must be willing to trust a third-party provider with sensitive company information, such as financial data or customer orders, where it may be mingled with that of other companies. But cloud providers, including Oracle and SAP, have invested heavily in state-of-the-art security that may exceed what a hosted solution, or even an on-premises solution, can provide. Some of them are even willing to guarantee that the data will stay in the same national jurisdiction or in a specific data center. Moreover, many providers of human resources software already host and manage sensitive employee data for companies that compete with one another. It's important to note that certain regulatory requirements such as

the US International Traffic in Arms Regulations and specific business needs that involve storing highly confidential intellectual property may be too stringent for a cloud-based system. Given the measures that cloud providers have taken to ensure security, however, the perception of increased risk tends to be based more on a lack of familiarity with these emerging options than on actual security risks.

- 4. Organizational resistance:** IT organizations at most companies have already put in place the teams and developed the skills needed to operate their ERP environment, including data center hosting, support, maintenance, and ongoing application development. Like any outsourcing decision, moving ERP to the cloud can create significant organizational disruptions that must be taken into account when considering the options. IT organizations with a strong culture of pride of ownership of technology solutions, or those that are new to application and infrastructure outsourcing, are likely to feel threatened by moving ERP applications into the cloud.

Graph 1
Q. Rate the Challenges/issues of the 'cloud'/on-demand model
 (Scale: 1 = Not at all concerned, 5 = Very concerned)



Source: IDC Enterprise Panel, 3Q09, n = 263

Table 1: Comparison of Features of Cloud-based, Hosted and On-premise ERP

	On-premise	Hosted	Cloud-based
Implementation Size	Large	Medium	Small to medium
Solution Complexity	High	Medium	Low
Capital Costs	High	Medium	Low
Operating Costs	Low to medium	Medium	Medium
Implementation Time	12-36 months	9-18 months	4-8 months

The future of Cloud ERP is going to be an exciting one. The next five years will be very exciting as more and more providers and customers transitioning to Cloud ERP and as a result, many legacy systems will likely be retired. Software that is running on old platforms will begin to disappear. Cloud updates and version controlling happens so fast and so regular. No more waiting for disks and announcing downtime to your users while you test, load, and then patch updates.

Conclusion

When is adopting a cloud-based ERP system the right choice? That depends. Providers are investing significantly in enhancing their offerings, expanding the functionality and availability of their services and reducing the risks of adoption. Smaller companies that want to gain the benefits of scale lower their costs, and drive standardization should consider this option now, as should larger companies looking to lower costs and drive standardization within divisions or functional units. ERP in the cloud is the future, and even companies that have good reason not to take the plunge yet should be monitoring developments and considering their longer-range plans. Cloud ERP applications have been getting tremendous demand for companies battling the business challenges. It is a maturing deployment model that may provide a greater opportunity to capitalize on an ERP investment which encourages standardization through visible economic drivers and provides the

opportunity for greater focus on strategic activities. Balance of enthusiasms for cloud ERP with realistic expectations is needed. The association of right people at the time the system is evolving is crucial.

References

1. Kiadehi E.F.i.* and Mohammadi Sh. (2012), "Cloud ERP: Implementation of Enterprise Resource Planning using Cloud Computing Technology", J. Basic. Appl. Sci. Res., Volume 2(11), pp. 11422-11427.
2. What is Cloud ERP?, <http://www.plex.com>
3. ERP Software Cost Comparison: On-premise, SaaS, and Hosted, <http://erpcloudnews.com>
4. Cloud ERP and Web-based Software, <http://erpcloudnews.com>
5. Robert Jacobs and 'Ted' Weston Jr., F.C. (2007), "Enterprise Resource Planning (ERP) – A Brief History", Journal of Operations Management, Volume 25(2), pp. 357-363.
6. Møller, C. (2005), "ERP II: A Conceptual Framework for Next-generation Enterprise Systems?", Journal of Enterprise Information Management, Volume 18(4), pp. 483-497.
7. IRACST – International Journal of Computer Science and Information Technology and Security (IJCSITS), ISSN: 2249-9555, Volume 2, No. 1, 2012.
8. N. Ram Ganga Charan, S. Tirupati Rao and Dr. P.V.S. Srinivas, "Deploying an Application on the Cloud", International Journal of Advanced Computer Science and Applications, Volume 2, No. 5.
9. Michael Armbrust and Armando Fox, "A View of Cloud Computing", Communications of the ACM, 2010, Volume 53(4), pp. 50-58.
10. Kresimir Popovic, *et al.*, "Cloud Computing: Issues and Challenges", MIPRO, 2010 May 24-28, Opatija, Croatia, pp. 344-349.
11. Mirashe, S. P. and Kalyankar, N.V. (2010), "Cloud Computing", Journal of Computing, Volume 2(3), pp. 78-82.
12. Erdogmus, H. (2009), "Cloud Computing: Does Nirvana Hide behind the Nebula?", IEEE Software, Volume 26(2), pp. 4-6.
13. Leavitt, N. (2009), "Is Cloud Computing Really Ready for Prime Time?", IEEE Computer, Volume 42(1), pp. 15-20.
14. Hinchcliffe, D. (2009, March 3), "Cloud Computing: A New Era of IT – Opportunity and Challenges", ZDNet, <http://blogs.zdnet.com/Hinchcliffe/?p=261>
15. A. Singh, Srivatsa, and L. Liu, "Search-as-a-Service".

