International Journal of Advanced Computer Research (ISSN (print): 2249-7277 ISSN (online): 2277-7970)
Volume-2 Number-1 Issue-3 March-2012

Future of Cloud Computing in India

Pradeep Kumar Tiwari
M.Phil, CS (Pursuing) Mahatma Gandhi Chitrakoot Vishwavidyalaya, Chitrakoot, Satna (M.P.)

Abstract

This paper shows the future of cloud computing in India. This paper also help to understand of future of cloud computing in Indian market .This paper also show the benefits of cloud computing .Cloud computing is not very buzz in India. This paper give the new idea to understand cloud computing and cloud computing future in India. This paper also show the importance of cloud computing. Ito show the growth rate of cloud computing. This paper not only show the cloud computing market it also show the uses and benefits of cloud computing.

Keywords

Cloud Computing, Cloud System, Cloud in India, Cloud Impact

1. Introduction

The popularity of cloud computing derives from its general provisioning paradigm, which turns out to be not solely an issue of technology but rather, an issue of economy. The myth of cloud computing is built upon the understanding that it is a true, valuable, and economical contributor to cyber-infrastructure. According to IDC the worldwide forecast for cloud services for 2013 amounts to $44.2bn, with the predictions for European Market reaching to €6,005m in 2013. Creation and competition in Worldwide with a positive impulse to the annual growth rate, contributing to create about a million new jobs through the development of a few hundred thousand new SMEs. Cloud computing is also presented as a new tool for economically conscious and green policy making. US and Britain adopt cloud computing initiatives that intend to cut costs on infrastructure and reduce the environmental impact of government computing systems. Even though, conceptually, cloud computing is not a novelty; the enhanced capabilities associated with clouds make it evolutionary. According to Rappa, cloud computing is an outcome of an evolution toward utility business model in which computing capabilities are provided as a service. Rosenthal et al. as a new business paradigm, as opposed to a new technical paradigm; where a cloud vendor provides hardware, a software infrastructure, or an application as a service to its customers. Cloud computing is based on delivering Internet-based information and technology services in real time. This is the most important feature of the cloud system. Today, with the availability of faster, cheaper, and more reliable .Internet, there is a tendency among the companies to use the clouds. This tendency is motivated with widely acclaimed cloud scenarios that focus on cost reduction, elasticity, reliability, availability and energy-saving aspects of clouds.

Tags
Deploy, maintain and support applications. In the near future, these challenges will be resolved through better technology, transparency, cost, regulations and changes in mind set of the customer. Despite challenges and concerns, CIOs are aware about opportunities and benefits of cloud computing and related business models. In a recent survey conducted across 240 CIOs, more than 70 percent agreed to adopt cloud in the near future.

India has a legacy of jumping technology curves. The precedent exists in the telecom sector and now DTH is also witnessing transformation. It is expected that cloud would also show the similar behavior. The companies that are currently not adopting IT and don\'t have major investments in datacenters and server farms are expected to shift directly to the cloud model. There are ample opportunities in every industry. Verticals such as retail, manufacturing, banking, education, and healthcare will rely upon cloud services for better reach. The key themes for most opportunities are cloud, mobile, market place, price discovery, collaboration and analytics.

2. Cloud System

- "Cloud" is the aggregation of Servers, Low end computers and storage hosting the program and data.
- Accessed via Internet anywhere from world.
- User Centric – Easier for group members to collaborate

- Task Centric – User's need is more important than features of
- Application.
- Powerful– All resources together create a wealth of computing power.
- Programmable–Automated distribution of computing power and data across cloud. Data loss
- Become a history now.

It is a style of computing in which IT-related capabilities are provided "as a service" allowing users to access technology-enabled services from the Internet without knowledge of, expertise with, or control over the technology infrastructure that supports them. There are three types of cloud service models; Cloud Infrastructure as a Service (IaaS), Cloud Platform as a Service (PaaS) and Cloud Software as a Service (SaaS). Cloud Infrastructure as a Service (IaaS) covers the provision processing, storage, networks, and other fundamental computing resources where the user is able to deploy and run arbitrary software, which can include operating systems and applications. This provides managed and scalable resources to the user, based on virtualization capabilities. Amazon, IBM, Microsoft's Azure are examples for IaaS.

Cloud Platform as a Service (PaaS) provides computational resources via a platform enabling the user to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages and tools supported by the provider. Google App Engine, Windows Azure, Force.com can be the examples for PaaS. Cloud Software as a Service (SaaS) enables the use of the provider's applications running on a cloud infrastructure. Google Docs, Salesforce, SAP Business by Design are the examples for SaaS. Cloud computing offers four deployment models; private, community, public and hybrid. National Institute of Standards and Technology, Information Technology

Laboratory gives brief explanations for all of them. Accordingly, private cloud infrastructure is operated solely for an organization whereas community cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns. Public cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services. Lastly, hybrid cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability. EU adds special purpose clouds to the deployment models as the extensions of normal cloud systems to provide additional dedicated capabilities. Essential characteristics of clouds include on-demand self-service, broad network access, resource pooling, rapid elasticity and measured service. On-demand self-service simply means that consumer can unilaterally provision computing capabilities. Broad network access points availability over the network and accessibility through standard mechanisms that promote use by heterogeneous thin or thick client platforms like mobile phones. Resource pooling provides computing resources are pooled to serve multiple consumers with different physical and virtual resources assigned and reassigned dynamically according to consumer demand. Rapid elasticity capabilities appear to be unlimited and can be purchased in any quantity at any time. Measured service means that cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (eg, storage, processing, bandwidth, and active user accounts).

3. Why cloud computing have bright future in India?

A. Service->Cloud computing platforms provide highly reliable data center architecture, they can achieve load balancing, real-time backup, and remote disaster recovery.

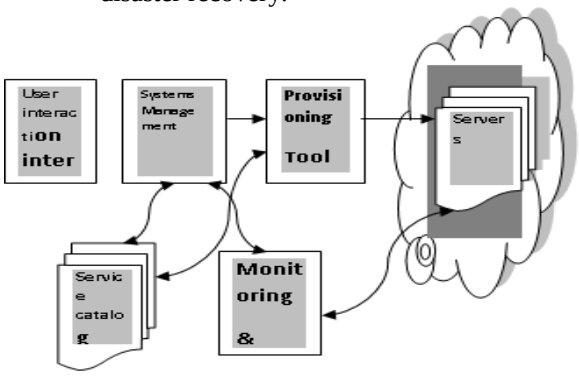

Fig 1. The Architecture of Cloud Computing

By the technical infrastructure support of Saas(Software-as-a Service),Paas(Platform-as-a-Service) or IaaS(Infrastructure-as-a-Service), the large server clusters, high reliability and high availability platform, the cloud computing ERP

system can efficiently segment each user's transaction into grain tasks on multiple nodes, which can provide customers with the fastest speed solutions.

B->Cost ->Cost savings, power savings, green savings, increased agility in software deployment.

- Cloud security issues may drive and define **how** we adopt and deploy cloud computing solutions

C->Security->Shifting public data to a external cloud reduces the exposure of the internal sensitive data.

- Cloud homogeneity makes security auditing/testing simpler. Clouds enable automated security management.
- Redundancy / Disaster Recovery.

D->Benefits

- Use public clouds.
- Develop private clouds.
- Build a private cloud.
- Procure an outsourced private cloud.
- Migrate data centers to be private clouds (fully virtualized).
- Build or procure community clouds.
- Organization wide SaaS.
- PaaS and IaaS .
- Disaster recovery for private clouds.
- Use hybrid-cloud technology.
- Workload portability between cloud

Cloud computing growing fast in India

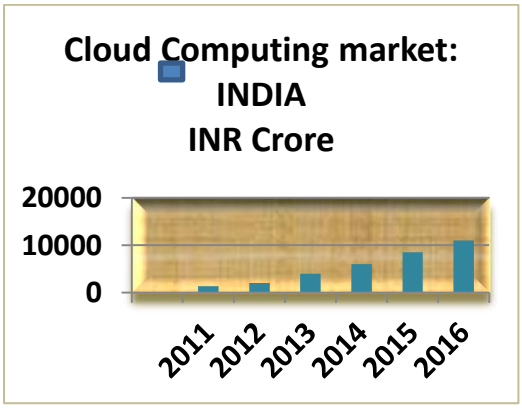

Fig 2. The Cloud computing market is expected to grow at a CAGR of 52% for the next 5 years

According to above figure we can clearly understand growth of cloud computing market in India. It is only a survey report. Indian market will reach above this survey. I already discuss the features of cloud computing .These reasons make the future of cloud computing. Cloud Infrastructure as a Service (IaaS), Cloud Platform as a Service (PaaS) and Cloud Software as a Service (SaaS).Cloud Infrastructure as a Service (IaaS). This above features makes the cloud computing unique. According to survey report Indian market is growing up to more than 2 million rupee per year.

The total cloud market in India, currently at $ 400 million will reach a market value of $ 4.5 billion by 2015; of which private cloud adoption will dominate and account for $ 3.5 billion in revenues, growing at over 60 per cent, according to a study "Private Cloud Landscape in India", released by EMC Corporation and Zinnov Management Consulting, a management consulting firm in July this year.

According to IDC, India is facing an information explosion with digital data growing from 40.000 petabytes in 2010 to 2.3-million petabytes in 2020 – with the cloud in the middle as Indian companies look for leveraging cost advantages.

As a testament to this development, several research analysts have published predictions on the cloud growth in India:

According to a Gartner survey, Indian companies expect to adopt new cloud services in 2011 much faster than originally anticipated, with two-thirds of CIOs expecting the majority of IT to be running in the cloud within the next four years.

In earlier news, IDC reported that the Indian cloud computing market would grow at a CAGR of 40 percent by 2014, and to become a $3 billion dollar market by 2015.

A study for EMC, conducted by Zinnov Management Consulting, finds that private cloud in India will deliver up to 50% saving to Indian enterprises creating in the process 100,000 additional jobs by 2015. Furthermore, the CEO of Zinnov claims that cloud computing will reshape the Indian IT market by generating new opportunities for IT vendors and driving changes in traditional IT offerings.

4. Result

The poor will be the greatest long-term beneficiaries of cloud computing because it eliminates the cost barriers to accessing the digital age. People can opt to use the most basic hardware, amounting to little more than a keyboard and screen. Gone is the need for

large and expensive hard-drives and processors capable of operating them. But this won't result in any loss in productivity or effectiveness because people using basic machines will be able to access huge amounts of data - stored remotely - and process it using software which is provided and paid for by someone else.

All of this is premised on internet connectivity. Here again, the poor can piggyback on the rich. As more people armed with computers move to areas without internet or with poor connectivity, it is in the interest of providers to expand and enhance networks to serve customers better. Not only does cloud computing close the digital divide, consumers too benefit because accessing larger markets will spur corporations to innovate even more. Cloud computing, today's widely acclaimed phenomenon, and creates a new business environment. It is not totally a technological development but rather an evolutionary set of on-demand and real time provisioning models which result in cost reduction and energy saving. Both concepts; cost and energy, are the keywords for sustainable clouds or any initiative that would serve to encourage the investors in this field.

Numerous cloud computing companies are available to provide this service. If you want to use this service for your company, you can get it online but you have to pay a small amount. This payment may be monthly or so on. After all, cloud computing service is becoming excellent system to save extra cost for purchasing additional online space. Thus cloud computing market is growing day by day.

Graph of Cloud Computing

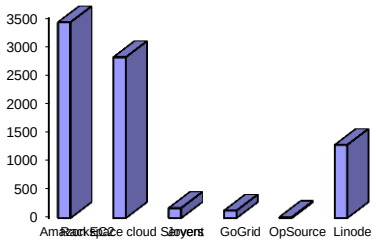

Fig 3. Top 500K Site by cloud Provider Nov – 2010

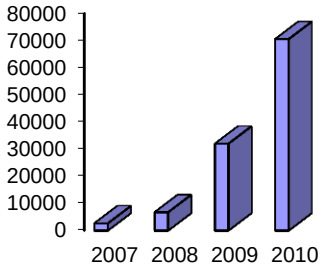

Fig 4. Cloud Popularity Growth

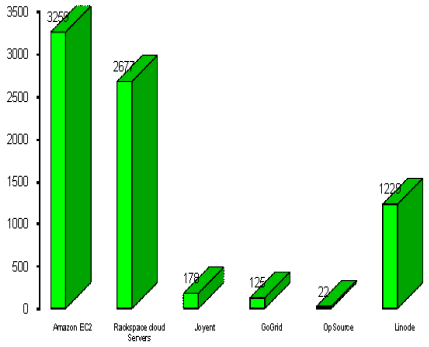

Fig 5. Top 500K Site by cloud Provider Sep – 2010

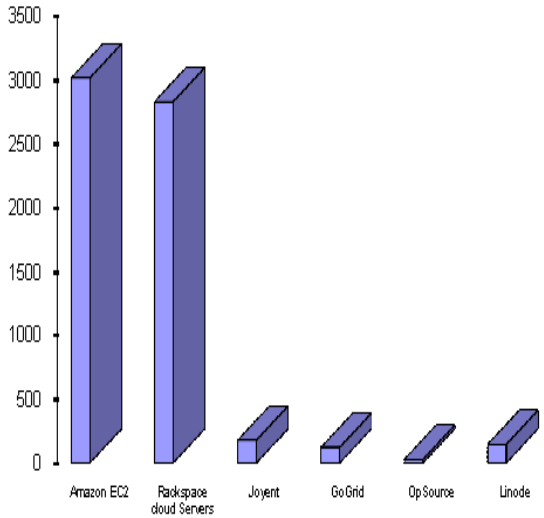

Fig 6. Top 500K Site by cloud Provider Aug – 2010

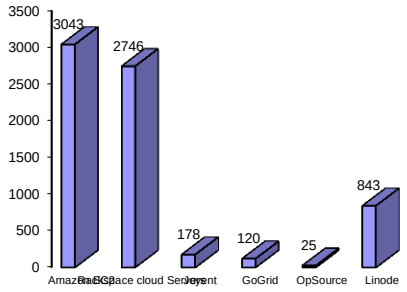

Fig 7. Top 500K Site by cloud Provider July – 2010

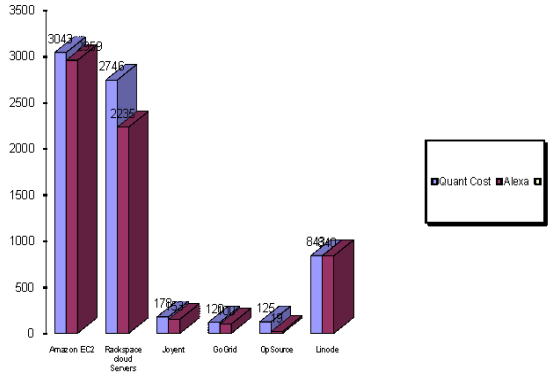

Fig 8. Top 500K Site by cloud Provider Alexa Vs Quant Cost

5. Conclusion

The cost is the major concern in cloud computing where we setup our own business and all the requirement is full fill on the basis of pay per use. This utility is useful in different sectors like railway reservation, data mining task, Website maintaining etc. In this paper we present the future scope of cloud computing and their services futility.

References

[1] Etro, Federico. "The economic impact of cloud computing on business creation, employment and output in Europe." Review of Business and Economics 54, no. 2 (2009): 179-208.
[2] Rappa, Michael A. "The utility business model and the future of computing services." IBM Systems Journal 43, no. 1 (2004): 32-42.
[3] Articles.timesofindia.indiatimes.com "A report by Times of India group".
[4] Economic times report.
[5] A serve report by Frost & Sullivan Study in Indian market.
[6] NIST, NIST Definition of Cloud Computing, retrieved: csrc.nist.gov/groups/SNS/cloud-computing/cloud-def-15.doc
[7] Cloud computinglive.com"Future of Cloud computing in india".
[8] Cloud Computing journal by Capgemini.
[9] Cloud Computing Report by NSIT.
[10] Cloud Computing: Methodology, Systems, and Applications October 03, 2011 by CRC.
[11] O'Reilly Cloud computing Book Written By-Russell