

STUDY OF PRIVATE CLOUD

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ABSTRACT

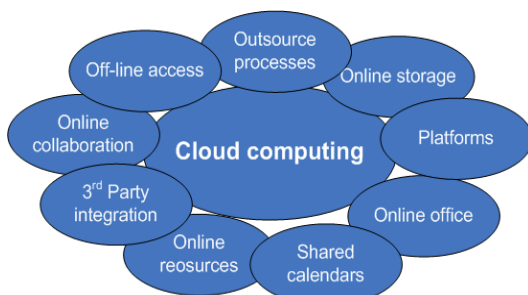
Cloud Computing is a term which defines different pathways in computer science. It basically built on decades of research and utilizes all achievements in distributed computing, virtualization and utility computing and networking. It implies service oriented architecture by offering software's and platforms as a service, reduce information technology overhead for the end users, great flexibility, reduce total cost of ownerships on demand services and many other things. This paper is briefly based on readings of cloud computing and it tries to address related search topics.

I. INTRODUCTION

Cloud computing refers to a technology wherein data and applications can be maintained and saved online through internet. The benefit is that users can use their personal accounts and applications on internet, that too without installing any software.

Various computing concepts involving a large number of computers connected through a real-time communication network (like internet). It involves distributed computing over a network. Exhibit the ability to run a program on many connected computers at the same time. Hosted services like application program can run the client server software on a remote location.

It relies on sharing of resources and services to achieve coherence similar to electric grid. It focuses on maximizing the effectiveness of the shared resources as well as computing power. The main enabling technology for cloud computing is virtualisation.



II. PRIVATE CLOUD COMPUTING

Cloud computing is a paradigm that focuses on sharing data and computations over a scalable network of nodes. Examples of such nodes include end user computers, data centers, and Web Services. We term such a network of nodes as a cloud. Cloud is a metaphor for internet and an abstraction for complex infrastructure it conceals.

Private cloud is a cloud only operated by single organization, whether managed internally or by the Third-Party and hosted externally or internally. Undertaking a private cloud project requires a significant level and degree of engagement to virtualize the business environment, and requires the organization to re-evaluate decisions about existing resources. When done right, it can improve business, but every step in the project raises security issues that must be addressed to prevent serious vulnerabilities.

Self-run data centres are generally capital intensive. They have a significant physical footprint, requiring allocations of space, hardware, and environmental controls. These assets have to be refreshed periodically, resulting in additional capital expenditures. They have attracted criticism because users "still have to buy, build, and manage them" and thus do not benefit from less hands-on management, essentially "the economic model that makes cloud computing such an intriguing concept".

III. ADVANTAGES AND DISADVANTAGES

Advantages:

1. **Reduced Cost:** Cloud technology is paid incrementally (you pay only for what you need), saving organizations money in the short run. Money saved can be used for other important resources.
2. **Increased Storage:** Organizations can store more data than on private computer systems.
3. **Highly Automated:** IT personnel not needed to keep software up to date as maintenance is the job of the service provider on the cloud.

4. More Mobility: Employees can access information
5. Wherever they are, rather than having to remain at their desks.
6. Allows IT to Shift Focus: No longer having to worry about constant server updates and other computing issues, government organizations will be free to concentrate on innovation.

Disadvantages:

GNU founder Richard Stallmansays that the interesting thing about cloud computing is that we've redefined cloud computing to include everything that we already do. One reason you should not use web applications to do your computing is that you lose control. It's just as bad as using a proprietary program. But certainly shifting to cloud computing has other problems including:

1. Security: Is there a security standard?
2. Reliance on 3rd Party: Control over own data is lost in the hands of an "difficult -to -trust" provider.
3. Cost of transition: Is it feasible for me to move from the existing architecture of my data centerto the architecture of the cloud?
4. Uncertainty of benefits: Are there any long term benefits

IV. LITERATURE SURVEY

Topic	Journal	Issues Handled	Ignored Issues
1. Best Practices for Database consolidation in Private Clouds.	ORACLE WHITE PAPER	Reduced cost, reduced complexity, increased quality of service, improved agility.	When it comes to Saas security is a main concern.
2. Oracle VM Enabling Rapid Migration to Private Cloud	ORACLE WHITE PAPER	Virtualized infrastructure is more agile. Security and control.	Security issues are not handled.
3. Private cloud setup for colleges	International Journal Of Advanced Research In Computer	How to install using Ubuntu cloud infrastructure. Multiple ways	How to run virtual machines on it.

	Science.	of installing Ubuntu.	
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V. BACKGROUND STUDY

A. Cyber Infrastructure

The term "cyber infrastructure" describes the new research environments that support advanced data visualization, data storage, data integration, data management, data mining, data acquisition and other computing and information processing services over the Internet. In scientific usage, Cyber infrastructure is a technological solution to the problem of efficiently connecting data, computers, and people with the goal of enabling derivation of novel scientific theories and knowledge.

"Cyber infrastructure makes applications dramatically easier to develop and deploy, thus expanding the feasible scope of applications possible within budget and organizational constraints, and shifting the scientist's and engineer's effort away from information technology development and concentrating it on scientific and engineering research. Cyber infrastructure also increases quality, efficiency and reliability by capturing commonalities among application needs, and provides the facility for the efficient sharing of equipment and services."

Today, almost every business or major activity uses or relies on IT service. These services need to be enabling and there must be an economy of scale for the total-cost-of-ownership to be better than it would be without Cyber infrastructure. Technology needs to reduce technology-driven and improve end-user productivity overhead.

B. Virtualization

Virtualization in computing refers to the act of creating a virtual (rather than actual) version of something, including but not limited to a virtual computer hardware platform, operating system, storage device, or computer network resources. Virtualization is a methodology of dividing the resources of the computer into multiple execution environments by applying one or more concepts or technologies such as time-sharing, partial or complete machine simulation, emulation, software partitioning, quality of service, and many others.

VI. CURRENT WORKS

1. Eucalyptus is an open source software framework developed by University of California –Santa Barbara for cloud computing that implements what is commonly referred to as Infrastructure as a Service (IaaS); systems that give users the ability to run and control entire virtual machine instances deployed across a variety physical resources.
2. The University of Chicago Science Cloud, codenamed "Nimbus" , provides compute capability in the form of Xen virtual machines (VMs) that are deployed on physical nodes of the University of Chicago TeraPort cluster (currently 16 nodes) usingthe Nimbus software. The Nimbus cloud is available to all members of scientific community wanting to run in the cloud.

These days enterprise Clouds consisting of hundreds of thousandsof computing nodes are common (Amazon EC2, Google App Engine, Microsoft Live Mesh) and hence federating them together leads to a massive scale environment. It seems that all leading IT companies have understood the importance of cloud computing and its great future needs and they are moving toward it no matter what happens.

VII. CHALLENGES AHEAD

One of the important challenges is that cloud computing will always be compared to the local machines in the time of usage. It is important for the user to know what he gains of shifting to the cloud. Obviously the services on local machines, user needs more resources but at least he knows that he has access to his data all the time and he owns his local machine. But the one who is in charge of restoring his dataif something happens to the cloud and the fact that the user is not aware of the physical place which his data is stored makes cloud more unreliable for him.

VIII. CONCLUSION

Cloud Computing is an emerging computing solution that is getting popular day-by-day. Leaders in the industry, such as Microsoft, Google, and IBM, have provided their initiatives in promoting cloud.

In a study of the research literature surrounding cloud computing, we found that there is a distinct focus on the needs of the scientific computing community. Big IT companies are also building their ownversion of cloud. But still there are many question have left without an answer and indeed the most important one is security.

XI. REFERENCE

1. From “NSF’S Cyberinfrastructure Vision for 21st Century Discovery,” NSF Cyber infrastructure Council, September 26th2005, Ver.4.0.
2. M.A. Vouk, “Virtualization of Information Technology Resources”, in Electronic Commerce: A Managerial Perspective 2008, 5th Edition y Turban, Prentice –Hall Business Publishing, to appear.
3. Mike P. Papazoglou,“Service -Oriented Computing: Concepts, Characteristics and Directions”, Tilburg University, INFOLAB.
4. An Introduction to Virtualization, <http://www.kernelthread.com/publications/virtualization/>
5. Salesforce, <http://www.salesforce.com/>
6. QuickBooks Online, http://oe.quickbooks.com/_bb/index.cfm
7. Google App Engine, <http://appengine.google.com>
8. Eucalyptus,<http://eucalyptus.cs.ucsb.edu/>
9. Amazon Elastic Compute Cloud (EC2), <http://www.amazon.com/ec2/>
10. Microsoft Live Mesh, <http://www.mesh.com>
11. www.howstuffworks.com/cloud-computing/cloud-computing.htm
12. Nimbus, <http://workspace.globus.org/>
13. Kupa,<http://meta.cesnet.cz/cms/opencms/en/docs/clouds>
14. Microsoft Live Mesh, <http://www.mesh.com>
15. www.microsoft.com/cloud-os
16. <http://www.oracle.com/us/products/database/database-private-cloud-wp-360048.pdf>
17. <http://www.oracle.com/us/technologies/virtualization/ovm-migration-to-private-cloud-1918264.pdf>