Study on Deployment Models & Application in Cloud Computing

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Abstract— "Cloud" computing : It's a relatively recent term, which builds after Decades of research in virtualization, distributed computing, utility computing, and more recently networking, web and software services. It implies a service oriented architecture, Cloud computing is architecture for providing computing services via the internet on demand and pay per use access to a pool of shared resources namely networks, storage, servers, services and applications, without physically acquiring them. So it saves time while being 'cost effective' for organizations. Cloud computing is a completely internet dependent technology where client data is stored and maintained in the data centre of a cloud provider like Google, Amazon, Salesforce.com and Microsoft etc. It implies a service for architecture, reduced information technology overhead, oriented the end-user, great flexibility, reduced total cost of ownership, on-demand services and many other things based on readings of 'cloud computing'. This paper tries to address, related research topics, challenges ahead and possible applications.

Key words: Cloud computing, private cloud, public cloud

I. INTRODUCTION

A key differentiating element of a successful information technology (IT) is its ability to become a true, **VALUABLE AND ECONOMICAL CONTRIBUTOR** to cyber infrastructure. and builds upon decades of research in virtualization ,distributed computing, "grid computing" ,utility computing and more recently networking, web and software services .It implies a service oriented architecture, reduced information ,technology overhead for the end user, greater flexibility, reduced total cost of ownership on demand services and many other things.

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 (i.e., the Cloud) without knowledge of, expertise with, or control over the technology infrastructure that supports them. Email was probably the first service on the "cloud". As the computing industry shifts toward providing Platform as a Service (PaaS) and Software as a Service (SaaS) for consumers and enterprises to access on demand regardless of time and location, there will be an increase in the number of Cloud platforms available. But it seems that Cloud computing cannot save the universe. Cloud computing cannot run for President.

Cloud computing is a very specific type of computing that has very specific benefits. But it has specific negatives as well. And it does not serve the needs of real businesses to hear only the hype about cloud computing – both positive and negative. One thing that is hoped to be accomplished with this paper is not only a clear picture of what the cloud does extremely well and a brief overview of them, but also a short survey on their criteria and challenges ahead of them. There are also four different cloud deployment models namely, private cloud, public cloud, hybrid cloud and community cloud. Details about the models are given below:-

A. Private cloud:

private cloud can be owned or leased and managed by organization or a third party and exist at on premise or off premise it is more expensive and secure when compared to public cloud in private cloud there are no additional security regulation legal requirement or bandwidth limitation that can be present in a public cloud environment by using a private cloud.

B. Public Cloud:

A Cloud infrastructure is provided to many customers and is managed by a third party and exists beyond the company firewall. Multiple enterprises can work on the infrastructure provided, at the same time and users can dynamically provision resources. These clouds are fully hosted and managed by the cloud provider that are fully responsible of installation, management, provisioning, and maintenance .Customers are only charged for the resources they use, so under-utilization is eliminated.

C. Hybrid Cloud:

A composition of two or more cloud deployment models, linked in a way that data transfer takes place between them without affecting each other. These clouds would typically be created by the enterprise and managing responsibilities would be split between the enterprise and the cloud provider. In this model, a company can outline the goals and needs of services.

D. Community Cloud:

Infrastructure shared by several organizations for a shared cause and may be managed by them or a third party service provider and rarely offered cloud model. These clouds are normally based on an agreement between related business organizations such as banking or educational organizations. A cloud environment operating according to this model may exist locally or remotely.

II. CHALLENGES IN CLOUD DEPLOYMENT MODELS

One of the most important challenges ahead is that clouds will always be compared to local machine in the time of usage. It's important for the user to know what he gains of shifting to the cloud. Obviously using services on local machines, the user needs more resources but at least he knows that he has access to his data all the time and he has the data he owns on his local machine. But who is in charge of restoring his data if 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. Here is a list of issues that cloud computing is currently facing.

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A. Information Policy

Cloud computing raises a range of important policy issues, which include issues of privacy, security, anonymity, telecommunications capacity, government surveillance, reliability, and liability, among others. At a minimum, users will likely expect that a cloud will provide.

B. Reliability and Liability

Users will expect the cloud to be a reliable resource, especially if a cloud provider takes over the task of running "mission-critical" applications and will expect clear delineation of liability if serious problems occur.

C. Security, privacy, and anonymity:

Users will expect that the cloud provider will prevent unauthorized access to both data and code, and that sensitive data will remain private. Users will also expect that the cloud provider, other third parties.

D. Access and usage restrictions:

Users will expect to be able to access and use the cloud where and when they wish without hindrance from the cloud provider or third parties, while their intellectual property rights are upheld. Here are seven of the specific security issues Gartner says customers should raise with vendors before selecting a cloud vendor.

E. Privileged user access

Sensitive data processed outside the enterprise brings with it an inherent level of risk, because outsourced services bypass the "physical, logical and personnel controls" IT shops exert over in-house programs. Get as much information as you can about the people who manage your data. "Ask providers to supply specific information on the hiring and oversight of privileged administrators, and the controls over their access.

F. Regulatory compliance:

Customers are ultimately responsible for the security and integrity of their own data, even when it is held by a service provider. Traditional service providers are subjected to external audits and security certifications. Cloud computing providers who refuse to undergo this scrutiny are "signalling that customers can only use them for the most trivial functions," according to Gartner.

G. Data location:

When you use the cloud, you probably won't know exactly where your data is hosted. In fact, you might not even know what country it will be stored in. Ask providers if they will commit to storing and processing data in specific jurisdictions, and whether they will make a contractual commitment to obey local privacy requirements on behalf of their customers, Gartner advises.

H. Data segregation:

Data in the cloud is typically in a shared environment alongside data from other customers. Encryption is effective but isn't a cure-all. "Find out what is done to segregate data at rest," Gartner advises. The cloud provider should provide evidence that encryption schemes were designed and tested by experienced specialists. "Encryption accidents can make data totally unusable, and even normal encryption can complicate availability.

I. Recovery:

Even if you don't know where your data is, a cloud provider should tell you what will happen to your data and service in case of a disaster. "Any offering that does not replicate the data and application infrastructure across multiple sites is vulnerable to a total failure," Gartner says. Ask your provider if it has "the ability to do a complete restoration, and how long it will take." Long-term viability. Ideally, your cloud computing provider will never go broke or get acquired and swallowed up by a larger company. But you must be sure your data will remain available even after such an event. "Ask potential providers how you would get your data back and if it would be in a format that you could import into a replacement application.

III. CLOUD COMPUTING SECURITY ARCHITECTURE:

Security within cloud computing is an especially worrisome issue because of the fact that the devices used to provide services doing not belong to the users themselves. The users have no control of, nor any knowledge of, what could happen to their data. This is a great concern in cases when users have valuable and personal information stored in a cloud computing service. Users will not compromise their privacy so cloud computing service providers must ensure that the customer's information is safe. This, however, is becoming increasingly challenging because as security developments are made, there always seems to be someone to figure out a way to disable the security and take advantage of user information.

Some of the important components of Service Provider Layer are SLA Monitor, Metering, Accounting, Resource Provisioning, Scheduler & Dispatcher, Load Balancer, Advance Resource Reservation Monitor, and Policy Management. Some of the security issues related to Service Provider Layer are Identity, Infrastructure, Privacy, Data transmission, People and Identity, Audit and Compliance, Cloud integrity and Binding Issues. Some of the important components of Virtual Machine Layer create number of virtual machines and number of operating systems and its monitoring. Some of the security issues related to Virtual Machine Layer are VM Sprawl, VM Escape, Infrastructure, Separation between Customers, Cloud legal and Regularity issues, Identity and Access management Some of the important components of Data Centre (Infrastructure)Layer contains the Servers, CPU's, memory, and storage, and is henceforth typically denoted as Infrastructure-as-a-Service (IaaS). Some of the security issues related to Data Centre Layer are secure data at rest, Physical Security: Network and Server some of the existing standards and test bed groups are Cloud Security Alliance (CSA), Internet Engineering Task Force (IETF), and Storage Networking Industry Association (SNIA) etc. On the other side, a cloud API provides either a functional interface or a management interface (or both). Cloud management has multiple aspects that can be standardized for interoperability. Some possible standards are Federated security (e.g., identity) across clouds, Metadata and data exchanges among clouds, Standardized outputs for monitoring, auditing, billing, reports and notification for cloud applications and services, Cloud-independent representation for policies and governance etc.,

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IV. APPLICATION

Cloud computing applications, or apps, are the cloud-based services also known as Software as a Service (SaaS). Programs that once had to be installed on computers individually are now offered online, and the only thing a person needs to access the program is an account and password. These apps can do everything from keeping track of notes to accounting. For both software providers and users, there are a number of benefits to using cloud based apps:

A. Collaboration:

Cloud apps give employees access to their information from anywhere around the globe. All you need is an Internet connection. This allows more collaborative working as multiple people can view and edit the same information at once, ensuring your team works efficiently.

B. Automatic Updates:

Software as a service (SaaS) allows companies to ensure all users of their application are on the same version of the software. This is because they can provide automatic updates to cloud applications, rather than waiting for users to do it themselves. This also helps with support, as the company will know what version of the software is being used when issues are logged.

C. Everyone Benefits:

Cloud apps allow companies to push new developments to all users at once, ensuring everyone benefits at the same time. (For more great benefits you can check out Why Move to the Cloud?) (10 Benefits of Cloud Computing)

Now to the best part, 6 great Cloud apps that can definitely be of benefit to your company are following:

1) Mozy - mozy.co.uk

Mozy is an online backup service that continuously backs up the files on your computer or server. It gives small businesses the space to back up all their computer and server files for a very reasonable price, so owners of SMEs know their files are retrievable, even during a data loss crisis

2) Skype - skype.com

Skype turns your computer into a phone: you can call or chat (with or without video) to other Skype users for free. You can also call landlines and mobile phones for a small fee. SMEs can use Skype to keep in touch with everyone they work with and for. Colleagues and clients can meet without leaving their respective cities, saving businesses precious time and money

3) BOX- box.com

Box.com is like a file folder that all your gadgets and devices can access. You simply drag a file into Box, and you can instantly access it from anywhere

As a Box customer, you get:

- 24/7/365 access to company's Help Center and Community.
- Award-winning Customer Support via phone, forum, chat or email.
- Complimentary resources, including self-guided user trainings, walk-through and more.
- Access to expert advisors for change management, industry-specific use cases.
- Expert Customer Success Managers (CSM) ready to help with any problem. Contact your Account Executive for more info.

4) Toggl- toggl.com

Toggl is the leading online time tracking tool, which is extremely popular among freelancers, consultants, and small companies. It allows users to track the time spent on various projects and analyze productivity. It's cloud-based and can be up and running from scratch in less than a minute. You can use Toggl on the web, as a desktop widget or on your mobile – all your data gets synced in real time.

- Good stuff for bloggers:

These materials can be used in blog posts, reviews and other publications (just make sure to link them to www.toggl.com). We encourage you to try out Toggl and cover it for your audience. Or would you like to write a guest post to Toggl Blog for more information write to support@toggl.com. The official Toggl communication channels are:

- Blog - http://blog.toggl.com/
- Twitter- https://twitter.com/toggl

5) Moo- uk.moo.com

The company loves great design and believes it can work wonders for every business. That's why we make it simple to create beautiful, expertly crafted business stationery and promotional materials that'll help you start conversations, open doors and strengthen relationships.

It's an online print and design company that is passionate about great design and the difference it can make to their customers and the world. MOO was launched back in 2006 with the aim to disrupt the $640 billion global print industry and make great design available to all by combining professional design with the accessibility and reach of the web.

6) MailChimp - mailchimp.com

MailChimp helps you email the right people at the right time. Send automated emails based on customer behaviour and preferences. Get started with pre-built Workflows or use our built-in segmentation and targeting options to build custom rules. And get in-depth reporting on how each of your automated series is performing. Our tools help you learn more about your customers and send them timely, relevant content.

MailChimp's send time optimization recommends the best send time within 24 hours of your selected delivery date, determined by your specific list's engagement data. Send time optimization is powered by MailChimp's ongoing big data initiative, Email Genome Project.

V. CONCLUSION

Cloud computing is a major development in information technology, comparable in importance with the mainframe, the minicomputer, the microprocessor, and the Internet. It has the potential to make an increasingly significant contribution to economic activity throughout the world. This potential will only be realized if cloud computing products and services are portable and interoperable.

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REFERENCES

[1] Harshita K Raj, A Survey on Cloud Computing, IJARCSSE, ISSN 2277128X, Vol-4, Issue 7 July 2014, PP 352-357
[2] http://grids.ucs.indiana.edu/ptliupages/publications/ReportNarimanMirzaeiJan09.pdf
[3] Cloud Computing: Security Issues and Research Challenges" IRACST - International Journal of Computer Science and Information Technology & Security (IJCSITS) Vol. 1, No. 2, December 2011
[4] http://www2.isye.gatech.edu/~adieker3/publications/cloudOR.pdf
[5] A. Kundu, C. D. Banerjee, P. Saha, "Introducing New Services in Cloud Computing Environment", International Journal of Digital Content Technology and its Applications, AICIT, Vol. 4, No. 5, pp. 143-152, 2010.
[6] Lizhe Wang, Jie Tao, Kunze M., Castellanos A.C., Kramer D., Karl W., "Scientific Cloud Computing: Early Definition and Experience," 10th IEEE Int. Conference on High Performance Computing and Communications, pp. 825-830, Dalian, China, Sep. 2008, ISBN: 978-0-7695-3352-0.
[7] R. L Grossman, "The Case for Cloud Computing," IT Professional, vol. 11(2), pp. 23-27, 2009, ISSN: 1520-9202.
[8] B. R. Kandukuri, R. Paturi V, A. Rakshit, "Cloud Security Issues", In Proceedings of IEEE International Conference on Services Computing, pp. 517-520, 2009.
[9] Meiko Jensen, Jorg Schwenk, Nils Gruschka, Luigi Lo Iacon,"On technical Security Issues in Cloud Computing," Proc. of IEEE International Conference on Cloud Computing (CLOUD-II, 2009), pp. 109-116, India, 2009.
[10] Pring et.al. "Forecast: Sizing the cloud; understanding the opportunities in cloud services," Gartner Inc., Tech. Rep. G00166525, March 2009.

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