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LIMITS IN DESIGN OF PUBLIC CLOUD

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Abstract—Cloud Computing is proving to be a gift in the field of computer technology. This paper is focused on studying the faults in the design and architecture of the public cloud. Cloud providers speak different languages. Though public cloud brings about a great deal in helping simplify our day to day data usage but there are many fields where in public clouds fails and may even lead to great loss for organizations and companies. Those fields and events are discussed in brief this research paper, which highlights the need to look for methods to fill the holes in the Public Cloud.
***Keywords*—**public cloud, security, data, users, server, privacy.

I. PUBLIC CLOUD

Public clouds are the latest evolution of computing. They offer tremendous value to a number of businesses in terms of better economics, agility, rapid elasticity etc. The public cloud infrastructure is operated by a cloud service provider and the services are offered over the internet. This nature of public clouds is advantageous in terms of better ROI and faster time to market, while it also raises concerns about lack of visibility, security, reliability, etc. Public clouds are suited very well to meet the collaborative needs of today's global workforce distributed across different geographies and time zones, but there a few takers for this service due to the under listed factors.

II. PUBLIC CLOUD CASES

Businesses can take advantage of the cost benefits and elasticity of public clouds to their advantage. Public cloud can be used by a video production company for video rendering and pay for only the time they used the resources. A business can easily tap into public clouds when they expect any unpredictable demand during a marketing promotion. A pharmaceutical company can run their drug design processes on public cloud, thereby, accelerating the time to market. With proper security procedures, more and more workloads can be moved to the public clouds from private clouds. In fact, public clouds easily match the private clouds in respect to availability and business continuity. But there have been cases where the public cloud fails:

A. Google Doc's September Disaster

Google Docs is known for its flexible public cloud architecture. A company used it for most of the daily. Activities incorporating arranging important events, setting up conferences, sharing files and documents amongst all team members or clients at the time employees are not present in the office, Google Docs helped for a long time. However, then there came a day when Google Docs underwent approximately an hour outage which resulted in daily tasks coming to a standstill. The word processor faced a disappointing downtime at 10 pm in the UK. It also made many US organizations to suffer a lot from it as they were not able to access or share files with others. This was a major setback for Managed Cloud Provider in terms of monetary losses company suffered and its degraded reputation.

B. Amazon Elastic Cloud Compute Outage

Another cloud disaster occurred when Amazon EC2 or Elastic Cloud Compute hit the East coast of the US making a number of big time users like the Reddit, Hootsuite, Quora and Sqaurefoot suffer tremendously. Adding to its number, approximately 170 SMBs also suffered a major setback as they were finding it extremely tough to run their businesses during a disastrous 8 hour downtime that Amazon EC2 cloud showed to them. According to the reports there were many frequent and timely updates regarding the troubleshooting that erupted from Amazon. Almost all the IT organizations running their business were put to a standstill. Thus, a backup must be ensured in order maintain a healthy relationship with the important clients.

C. Microsoft's Office Cloud Disaster

Recently, in the month of August and September, Office 365 cloud productivity suite was launched by Microsoft, but just few months after it was launched, media broke the news of its collapse shattering the hopes of Microsoft applications users. The company also experienced a global outage with DNS servers falling into trash.

These examples prove that outages or technical faults like these are a common affair with even a flexible environment like the public cloud. The only thing organizations need to take care is the fact keep working on improving and enhancing their in-house IT infrastructures.

III. FAULTS IN DESIGN

3.1 Third-Party Risk

Poor third-party risk management program may result in damage to provider's reputation and revenue losses. SaaS will effectively manage the security risks with third parties if SaaS moves into cloud computing for the storage and processing of customer data. Legal actions should be taken against the provider found not to have performed due poor activity on its third-party vendors so that future third-party risks may be lowerd down.

3.2 Security & Compliance

One of the biggest and most emotional challenges to public cloud is security. . In the cloud, provider is to be trusted. Because of the upcoming data security issues associated with the public cloud, all the mid-size and large enterprises are preferring private clouds because of network. HIPAA Compliance or PCI Compliance cannot be achieved in a public cloud.

3.3 Data loss

In public cloud, if a host crashes, all of the virtual servers and data of the user on that hardware host gets lost. One of the Amazon's cloud crashes while wiping out their customers data and their impersonal response to their customers. Public cloud is unable to recover most data and hence this proves to be a major setback.

3.4 Fraud & Spammers

Any cloud hosting provider may have a fraud rate as high as 80%! Fraudulent users can spin up a cloud server because sign up and deployment is fast & easy, a fraudulent user can spin up a cloud server, with any acquired information such as a stolen credit card, launch attacks and can easily go invisible before International Journal of Computer Science & Information Technology (IJCSIT) Volume 4, No 2, held on April 2012. Not all the applications in the market are great for the cloud. There are mid-sized and large enterprises that want to be 100% sure about the safety of their corporate clients and will hence choose private cloud over the public cloud.

IV. OTHER LIMITS OF THE PUBLIC CLOUD

4.1 PLUG AND PLAY

One of the most prominent voices in comparing utility computing to electrical utilities is Nicholas Carr, author of book, The Big Switch: Rewiring the World, from Edison to Google. Carr hails utility computing to be a historic shift similar to the advent of electrical utilities. The public imagination has been set for this utility analogy. Although useful, this analogy is not entirely accurate because it blinds us to the limitations of cloud for enterprises. The reality is that cloud computing simply cannot achieve the same plug-and-play simplicity as electricity.

4.2 Performance Instability

The cloud is often bragged as a solution for organizations with large variations in their computing demands. Less well known is the performance variability in the clouds themselves. To demonstrate that Amazon, Google, and Microsoft suffered from variations in performance and availability due to ads, Researchers in Australia conducted stress tests. Another example for the limitations of performance predictability is research by Kossmann et al. (D. Kossmann, T. Kraska, and S. Loesing, "An Evaluation of Alternative".

V. CONCLUSION

Even though the benefits of using public cloud are numerous, there still are many drawbacks too. If these loopholes are fixed, using the public cloud will become flawless.

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