

Class Base Cloud Structure for Effective Cloud Computing

Rakesh Chandra Verma ,Asst. Professor IMT, e-mail-rcvranchi5@yahoo.co.in

Ram Babu DBA,e-mail-singh.rambabu@gmail.com

Nirmal Lodhi , Reserch Scholer, e-mail-singh.rambabu@gmail.com

Rajesh Pandey , Programmer,[e-mail- rajesh.fbd@gmail.com](mailto:rajesh.fbd@gmail.com)

Abstract:-

Clouds are typically defined according to three types: private, public and hybrid. Public cloud Also known as a shared cloud, such services are provided "as a service" over the Internet with little or no control over the underlying technology infrastructure. This cloud is appealing to many decision-makers as it reduces complexity and long leads times in testing and deploying new products. It is generally cheaper, too but private cloud also called an internal cloud or enterprise cloud, this also offers activities and functions "as a service" but is deployed over a company intranet or hosted datacenter. This is private product for a company or organization offering advance security and highly available or fault tolerant solutions not possible in a public cloud. In this scenario, the private cloud owner shares few, if any, resources with other organizations. Hence, multi-tenancy is not an issue. Hybrid Cloud this is an integrated approach, combining the power of both public and private clouds. Customized rules and policies govern areas such as security and the underlying infrastructure. In this scenario, activities and tasks are allocated to internal or external clouds as required.

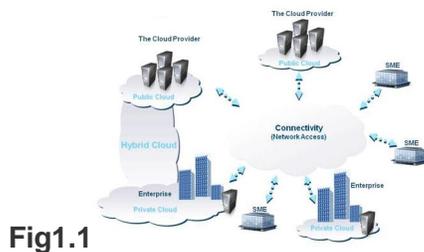
A new concept suggested in this paper is to divide the cloud in to class and implement protected cloud in hybrid cloud in order to minimize the cost of searching and maintenance.

INTRODUCTION:-Mainly cloud comes in three forms: public clouds, private clouds, and hybrids clouds. Depending on the type of data you're working with, you'll want to compare public, private, and hybrid clouds in terms of the different levels of security and management required.

PUBLIC CLOUDS

A public cloud is one in which the services and infrastructure are provided off-site over the Internet. These clouds offer the greatest level of efficiency in shared resources; however, they are also more vulnerable than private clouds. A public cloud is the obvious choice when

- Your standardized workload for applications is used by lots of people, such as e-mail.
- You need to test and develop application code.



- You have SaaS (Software as a Service) applications from a vendor who has a well-implemented security strategy.
- You need incremental capacity (the ability to add computer capacity for peak times).
- You're doing collaboration projects.
- You're doing an ad-hoc software development project using a Platform as a Service (PaaS) offering cloud.

Private Clouds

A private cloud is one in which the services and infrastructure are maintained on a private network. These clouds offer the greatest level of security and control, but they require the company to still purchase and maintain all the software and infrastructure, which reduces the cost savings. A private cloud is the obvious choice when

- Your business is your data and your applications. Therefore, control and security are paramount.
- Your business is part of an industry that must conform to strict security and data privacy issues.
- Your company is large enough to run a next generation cloud data center efficiently and effectively on its own.

HYBRID CLOUDS

A hybrid cloud includes a variety of public and private options with multiple providers. By spreading things out over a hybrid cloud, you keep each aspect at your business in the most efficient environment possible. The downside is that you have to keep track of multiple different security platforms and ensure that all aspects of your business can communicate with each other. Here

are a couple of situations where a hybrid environment is best.

- Your company wants to use a SaaS application but is concerned about security. Your SaaS vendor can create a private cloud just for your company inside their firewall. They provide you with a virtual private network (VPN) for additional security.
- Your company offers services that are tailored for different vertical markets. You can use a public cloud to interact with the clients but keep their data secured within a private cloud.

Public Cloud Vs Private Cloud

- Public cloud is used as a service via Internet by the users, whereas a private cloud, as the name conveys is deployed within certain boundaries like firewall settings and is completely managed and monitored by the users working on it in an organization.
- Users have to pay a monthly bill for public cloud services, but in private cloud money is charged on the basis of per Gb usage along with bandwidth transfer fees.
- Public cloud functions on the prime principle of storage demand scalability, which means it requires no hardware device. On the contrary, no hardware is required even in private cloud, but the data stored in the private cloud can only be shared amongst users of an organization and third party sharing depends upon trust they build with them. It is also entirely monitored by the business entity where it is running.

Although, cloud technology has come up as a boon for IT organizations, it still holds several questions

unanswered as to what is its scope for businesses in future.

Nevertheless, when it comes to comparing both cloud services in terms of performance, they share almost similar nature, but differentiate only in their architecture. However, as per several researches, a public cloud rules over the private one. Let us ponder upon some points related to it.

- **A private cloud**, because it functions independently for an organization and that too behind firewall settings does prove to be accessible. By stating this, we mean that a private cloud cannot be accessed from anywhere and at any point of time. It is completely managed by the users working for an organization.

As far as the scalability factor is concerned, private cloud gives scalable business environment. It also offers flexibility to expand as per users' requirement. Public is more viable than private cloud, let us check on few points:

- Data security risks are less as compared to the one stored in public cloud. The geographical location of the data stored in private cloud is visible than that in public cloud.
- Initial cost is expensive, but gets minimal at later stages of using it as a service.
- **Public Cloud** architecture is built with the view to create an accessible business environment that can be shared and accessed from anywhere and at any time of the hour. Even though, it poses security risks, public cloud is considered more useful than its counterpart because of several reasons:
 - Initial cost is minimal, but if data is stored for a long period of time, it proves to be expensive. However, the cloud acts as an excellent source for different types of data than a particular type of it.

- More accessible than the private cloud as it can be accessed from anywhere round the globe.
- Availability and reliability are the two factors that make public cloud computing service more popular. The reason being, it is available to users via web installed at a given server off-premises.

Apart from the technical in and outs of the cloud technology, there have been a number of researches and conferences on cloud theory that have given rise to a number of conclusions from a number of IT researchers, analysts and professionals. One of them listed below will give an overview of what industry thinks on cloud computing and its managed services.

In two statements on public as well as private cloud architecture, Vanessa Alvarez, a Frost & Sullivan analyst on cloud computing said that: "Private clouds will make the most money and drive the most revenue," whereas "Public clouds can offer some level of security and reliability, but private gives you that comfy feeling."

Thus, despite being different from each other on so many factors, it is difficult to say which cloud service stands out. Both have equal pros and cons. Nonetheless, factors concerning access patterns, security, confidentiality, service level agreements and professional work force in public and private cloud computing are yet to be enhanced so that the technology proves to be beneficial for establishing as well as established businesses.

Hybrid Cloud vs. Public and Private Cloud

1. A hybrid cloud is a composition of at least one private cloud and at least one public cloud. A hybrid cloud is typically offered in one of two ways: a vendor has a private cloud and forms a partnership with a public cloud provider, or a

public cloud provider forms a partnership with a vendor that provides private cloud platforms.

2. A hybrid cloud is a cloud computing environment in which an organization provides and manages some resources in-house and has others provided externally. For example, an organization might use a public cloud service, such as Amazon Simple Storage Service (Amazon S3) for archived data but continue to maintain in-house storage for operational customer data. Ideally, the hybrid approach allows a business to take advantage of the scalability and cost-effectiveness that a public cloud computing environment offers without exposing mission-critical applications and data to third-party vulnerabilities. This type of hybrid cloud is also referred to as hybrid IT.

Class Base Cloud Structure:-

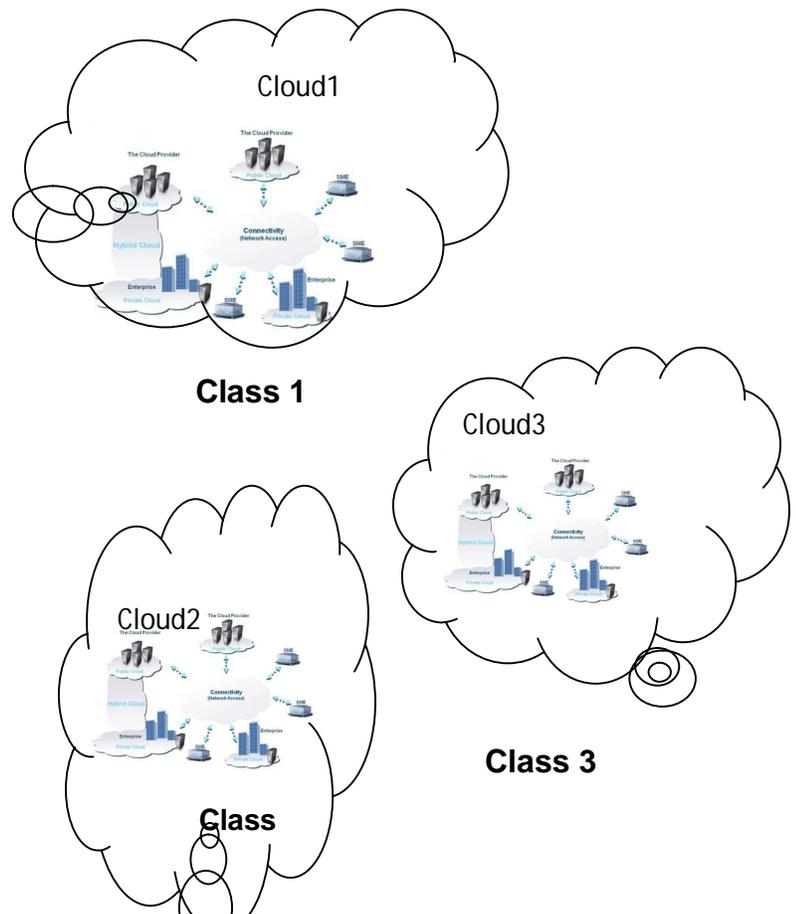
1) All though all the concept of object oriented programming is implemented in cloud but it is also possible to implement cloud in the form of class and implement the above said architecture. This will reduce the effort and cost of searching in the cloud. My concept is to divide the cloud first into the class such as class for business community class for education class for government site and after that using the concept of object oriented programming are implemented this will more clarify the concept of public, private and hybrid cloud.

2) It is also possible to implement a protected cloud that will only be shared among the close user that is vendor to the company or the participating company in B2B environment this will be more secured and beneficial than the private one because it does not affect the vendor or the person who is authorized to work on it.

3) It will reduce the cost of searching for the application in the cloud and the maintenance cost will be reduced and it is also easy to identify the cloud by the vendors to connect and the programmer.

Class base cloud structure

Fig1.2



All the class having their own Public, Private, Hybrid structure as given in the figure 1.2 this architecture is suitable when there are lots of individual cloud exists the desired cloud is identified by the class of search it will reduce the cost of searching and implementation of cloud and suitable connection with the cloud is made according to the content.

Conclusion:-

Our suggested architecture of the cloud will reduce the cost of searching and maintenance.

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