**Study on Analysis and Implementation of Data Centre on Cloud for Dynamic Storage in modern perspective**.

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**Abstract**:

Now a days we heard everywhere that businesses needs the cloud. Businesses needs a data center and then data center needs the cloud or/and cloud needs Data Center. Yet no one has told you why!. Data Centre and Cloud are two are fundamentally different ideas.

Run Time Dynamic Data storage is a very important and valuable research field in cloud computing. This paper introduces the concept of cloud computing with respect to run time cloud storage as well as the architecture of cloud storage with Dynamic Storage and Access.

In the last part, we illustrate how to choose distributed storage and fault-tolerant control though technology of Cloud Computing and Cloud Storage.

1. **Introduction**

In latest years, the concept of cloud computing becomes more and more popular. Cloud computing as a new business model is developed from distributed processing, parallel processing and grid computing.

At present, Google, Amazon, IBM, Microsoft, Sun and other IT giants are all seeking to develop cloud computing technologies and products. For example, Google has been dedicated to promoting application engines based on the techniques of (Google File System), MapReduce and so on, which provide users methods and means to process massive data. In this paper, we introduce the concept of cloud computing and cloud storage as well as the architecture of cloud storage firstly, analyze the cloud and data storage technology

1. **Data Centre Storage Technology**.

Let’s try to understand the Data Centre with different interpretations.

Hence a Data Centre may have following things maintained in-house.

* Servers
* Communication Media
* Communication Protocol
* Networking Infrastructures.
* Storage Devices
* Security Devices
* Backup Mechanism
* is fully redundant with power,
* power backup, cooling solutions,
* Safety devices.
* Mainframes, Servers,
* Disks, Routers/Switches
* and other computer related hardware

The capacity of data centre is scaled only by purchasing and installing hardware equipment. Hence businesses using a third-party data center can have huge savings on power costs and are saved from purchasing the expensive infrastructure.

Hence we can say that a data center (or datacenter) is a facility composed of networked computers and storage that businesses use to organize, process, store and disseminate large amounts of data.

3. **Cloud computing and cloud storage**

3.1. **Cloud computing definition** Cloud computing arises from the combination of the traditional computer technology and network technology, such as grid computing, distributed computing, parallel computing, utility computing, virtualization. One of the core concept of cloud computing is reducing the processing burden on user’s terminals through continuously enhancing the clouds’ handling capacity. Eventually user’s terminals are simplified into a simple input and output devices. Users can use the powerful computing and processing function on clouds and they can order their service from the cloud according to their own needs.

Cloud computing technology includes distributed file system, distributed data storage, etc. This architecture, can achieve high concurrent processing system to deal with a huge number of requests and can set up store huge amounts of data in the cloud storage. It builds a kind of distributed computing systems for data Analysis and Data mining. A search engine video, e-commerce like Amazon, Flipkart, map navigation like google maps, etc., are well known example of cloud computing.

In general, it is a delivery model for internet and network based services and ideas or we may say a product. Most of the times involves the use of the Internet/Intranet to provide dynamic and virtualized resources. Cloud computing is a kind of pay by usage of IT services model, this model gives , on-demand network access, and configuring computing resources and Shared buffer(resources including network servers, and storage services), these resources can be quick to provide, little interaction with service providers. Cloud computing is: on-demand, based on user needs, the other is the cloud computing architecture has a great design of flexibility, because physical resources are virtualized (abstract and object oriented), such that can be easily configured and managed.

3.2. **Cloud storage definition** and its architecture Cloud storage is a system that provides functions such as data storage and business access. It assembles a large number of different types of storage devices through the application software which are based on the functions of the cluster applications, grid techniques, distributed file systems, etc. Cloud storage can be simply understood as the storage in cloud computing, and also can be considered to be a cloud computing system equipped with large capacity storage. Cloud storage system architecture mainly includes storage layer, basic management layer, application interface layer and access layer.

Hence we can understand that cloud storage is a service model in which data is maintained, managed, backed up remotely and made available to users over a network (typically the Internet).

3.3. **Cloud storage technology of enterprises**

* Google File System
* Hadoop:
* AWS:
* Drobox
* One Drive
* iCloud
* Box
* Next Cloud
* PCloud
* IDrive
* Or In-house Cloud Storage Systems (Dev Cloud) Machines

1. **Difference between data center and cloud -**

We know that both **cloud**and **data centers** provides data storage and dynamic access, but difference is the way they offer services. **Cloud**is a resource for data storage that is accessed over internet, while a data center is essentially a part of on in house IT infrastructure of an organization

Cloud and Data centres both store data and information and provides infrastructure for any additional services.

Now Let us check differences between cloud and data centers.

**Data centers** can be setup within organizational premises for greater control on IT and Infrastructure operations. They are managed by large corporate organizations and involve huge investments in terms of purchasing of hardware, software, technical manpower, maintenance, and other overheads such as power and bandwidth expenses.

**Cloud**providers depend on datacentres for establishing their servers at different geographical locations. Hence it’s an added advantage of ensuring various services in any event with a single data center location.

**Data center** suffers from several restrictions. It is not possible to scale the number of servers in a data canter if requirements comes. However **cloud**services gives power to users to scale up number of resources because of dynamic scalability of cloud hosting services.

**Cloud**systems can be built within moments and can also be de-commissioned instantly. This cannot be applied to **data centers** that may require months or years to come into existence.

A cloud system has virtual unlimited storage based on vendor’s offerings and service.

A data canter, has limited capacity unless an investment has made on more storage.

*Data Centre:*

* Data center has the capacity of storing servers.
* Data center is a fully secured program without the intrusion of any third party.

*Cloud:*

* Cloud services are run by general cloud servers.
* Cloud-based resources need to be housed in data centers.
* Cloud resources will be shared with the other users of the same provider, if the private cloud is not used.

Example: Best analogy I can come up with is – any utility distribution. There is a grid that produces gas/electricity/water - assume it’s a datacenter. Cloud is nothing but the utilities used at home. We don’t need and maintain infrastructure. We just need to pay for the number of units consumed and the service provider ensures things up and running 99.99x% of the time.

Hence we can say that Data center is a network of specific devices for global collaboration to deliver, accelerate, display, compute, and store data information on the Internet infrastructure. It includes computing devices and other relevant equipment, redundant data communication connections, control equipment, monitoring equipment and safety devices.

1. **Application of Data Centre with Cloud**.

Before Internet infrastructure, cloud computing didn’t/couldn’t exists. It’s booming and in near future, data centers will begin to decline and cloud storage will take over. So what is the reason behind it? Let’s check and understand

Cloud being virtual infrastructure which may be accessed or delivered with a local network or to remote location through internet.

The cloud services are on-demand on a pay per use basis or a dedicated resource, this model is known as Infrastructure as a Service (IaaS).

Hence here user can access

Computing resources, Networking services and storage and Software’s. In cloud computing terminologies it’s called as Infrastructure as a service and Software as a Service.

It is an Off-premise form of computing which can be accessed from the internet, its maintenance and updates is maintained and controlled by the [third-party](http://www.ironsystems.com/services/Iron-Cloud-Integration-Center?utm_campaign=23+Feb+2017&utm_source=SMO). No physical Infrastructure is presented anytime with user.

But in actual this is stored somewhere on real Data Centres. And that layer is hidden from user. The cloud is an online storage system designed to fragment and duplicate your data across multiple data centre locations. In case of sudden failures, a cloud system always ensures a backup of the backup. Hence the only way anything ever put on the cloud can ever be destroyed is if the Internet/base itself no longer exists.

In a cloud based system generally users do not know the exact location of the hardware that is providing services - provider just gets fee to deliver a service and in return he manage the facilities, hardware, software and configurations, platform and ensures the delivery.

Cloud needs data centres to house the equipment and storage devices, all data centres do not support cloud based services. A data centre is a place where the servers and other hardware are kept. It may be on the corporate network and located right next to the head office or may be many miles away and run by a service provider.

Most providers offer redundancy by creating multiple data centres. Cloud services provider’s market cloud computing as a utility or a service. This model allows customers to buy only what they require and to scale up or down services as and when needed.

We can see how an analogy may be seen differently. In organisation where millions of computers are equipped then that place may be called as data canter. Because of abstraction it may be called as cloud as well for outsiders.

Cloud works with multiple servers called as grid computing so in case of failure at some point, resources are fetched and accessed automatically from the other points in the network. Cloud is scalable on demand. The level of scalability depends on the cloud vendors. The only issue is the users do not have control i.e. they do not know where their data is stored.

1. **Pros and Cons of Data Centre**

**Pros:** Data centers have number of advantage.

1. Organizations able to have an in-house data storage center are far less reliant on maintaining an Internet connection.
2. Data will be accessible as long as the local network remains stable.
3. Remote storage has its advantages as well. If any organization’s place is compromised via natural calamity, the data will remain safe and unharmed at its remote location.

**Cons:**

1. Having all or most of your data stored in one location makes it more easily accessible, both virtually and physically, it may be unsecure.
2. Depending on budget, it could prove too expensive to maintain, own and operated data center.
3. **Pros and Cons of Cloud Computing/Storage**.

**Pros: Cloud comes with some advantages** in interconnected world

1. Services like Microsoft Office 365 and Google Drive and one drive have embraced its ability to store data online and have created services to capitalize on its potential.
2. Businesses can do the same thing with data by making it accessible 24X7. And with online access, data will always be accessible as long as you have Internet.

**Cons:**

1. Anything online is more susceptible to virtual attack. A hacker is can hook up and isolate a cloud storage system than a data center.
2. Cloud systems also typically don’t have as much power as a data center because of their online nature.
3. Cloud security continues to be a concern among users. Providers need to build security capabilities, such as encryption and authentication.
4. **What your business need cloud hosting or data centres services?**

**So how do you decide?**  If businesses needs customizable and wholly dedicated system, a data center is more appealing. You’re not sharing any space with another organization. Keep in mind, however, that if needed more space or computing power, it translates into purchasing more equipment, staff to maintain it, and electricity.

It will cost less since you are sharing the space with other organizations hiring the third party to maintain their data.

There is a coexistence side by side. There is a way to optimize usage of both a data center and a cloud computing system by placing the most essential and critical data in a data canter.

In a world where everything is speedy and top notch, the technology around you needs to be better and faster. Hence we can check better between dedicated server and cloud server?

Here I will compare between these two on the basis of few points. These are

**Efficiency:** Since each machine has its own individual network, therefore dedicated server is more efficient in handling greater workloads. Cloud servers o handles a network traffic hence performance get affected.

**Maintainability:**dedicated server need a minimum of two scaling procedure, that is migration and hardware upgrades. If there is a cluster of dedicated server then there is a downtime connected to server dedicated servers are great.

**Provisioning:  Its** nice experience while using cloud server when compared to dedicated server in provisioning. The self-services provided by cloud server is definitely a plus point where things take place in actual time.

**Reliability:**If dedicated server and cloud server are running on the same hardware then their reliability would be equal. Nothing is left to be compared then.

**Security:**Dedicated server would be on one level up when compared to cloud server for security purpose only when businesses needs total isolation.

**Actual Value:** Value is something about services are provided in defined cost. While using dedicated server one has to spend a consistent amount of sum even if same is not being used continuously. Whereas on the other hand cloud server made charges on timey basis and only for the resources consumed. Thus, which is better in terms of value depends on usage.

1. **Conclusions**:

Cloud computing is the inevitable product with the development of the internet, and it also brings more rich applications to the internet. In this paper, we introduce the related concepts of cloud computing and cloud storage. Then we pose a cloud storage architecture based on OS web operating system in our computers. Experiments verified the system is well. Acknowledgements.

There are factors affecting decision and those are: business needs, data security and system costs...

A [Data center](https://www.go4hosting.in/services/data-center-india) is perfect for who require a devoted framework that gives them full control over their information and hardware.

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