Seminar Report
On
CLOUD STORAGE

AT

Shankersinh Vaghela Bapu Inst. Of Tech.

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BY

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CERTIFICATE

This is to certify that Mr. **Patel Bhumit P.** of B.E. Semester 5th C.E. class Enrolment No **100750107016** has satisfactorily completed his seminar report of on **Cloud Storage** during the academic year **2012**.

Date of Submission: 27-11-2012

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ABSTRACT

This study is a comprehensive report on the state of the cloud storage market and of the storage services that are layered atop of it. It includes a definition of cloud storage, discusses how cloud storage is deployed, surveys users on their expectations of the cloud and provides a detailed look at the vendors and services users will deploy in the cloud.

Charging for cloud storage must account for two costs: the cost of the capacity used and the cost of access to that capacity. For the cost of access, current systems focus on the work requested, such as data transferred or I/O operations completed, rather than the exertion (i.e., effort/resources expended) to complete that work. But, the provider's cost is based on the exertion, and the exertion for a given amount of work can vary dramatically based on characteristics of the workload, making current charging models unfair to tenants, provider, or both. This paper argues for exertion-based metrics, such as disk time, for the access cost component of cloud storage billing. It also discusses challenges in supporting fair and predictable exertion accounting, such as significant interworkload interference effects for storage access, and a performance insulation approach to addressing them.
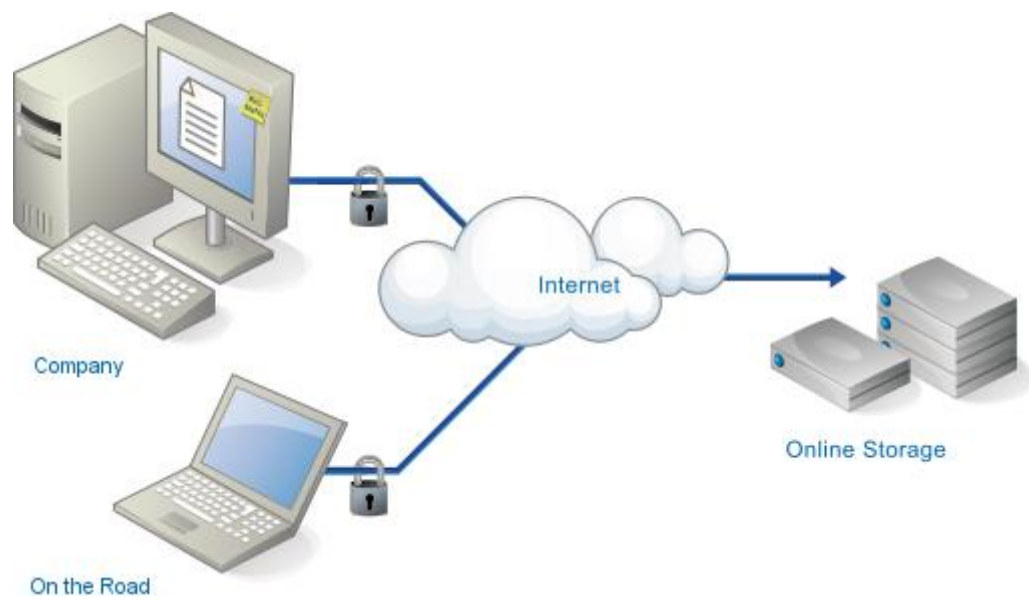
CLOUD STORAGE

INTRODUCTION

Cloud storage is the model of networked online storage where data is stored on multiple systems. A cloud storage offers limited/unlimited storage capacity over the Internet. Cloud storage services may be accessed through a web service, application programming interface (API), or through a Web-based user interface. The data center operators, in the background, virtualize the resources according to the requirements of the customer and expose them as storage pools, which the customers can themselves use to store files or data objects.

ARCHITECTURE

Cloud storage does not have the same characteristics as cloud computing in terms
of agility, scalability, elasticity and multi-tenancy. It is believed to have been invented by Joseph
Carl Robnett Licklider in the 1960s. Since the sixties, cloud computing has developed along a
number of lines, with Web 2.0 being the most recent evolution. However, since the internet only
started to offer significant bandwidth in the nineties, cloud computing for the masses has been
something of a late developer.

It is difficult to pin down a canonical definition of cloud storage architecture, but object storage is
reasonably analogous. Cloud storage services like Amazon S3, cloud storage products like EMC ,
Atoms and distributed storage research projects like OceanStore are all examples of object
storage and infer the following guidelines.

Cloud storage is:

    -made up of many distributed resources, but still acts as one

    -highly fault tolerant through redundancy and distribution of data

    -highly durable through the creation of versioned copies

    -typically eventually consistent with regard to data replicas
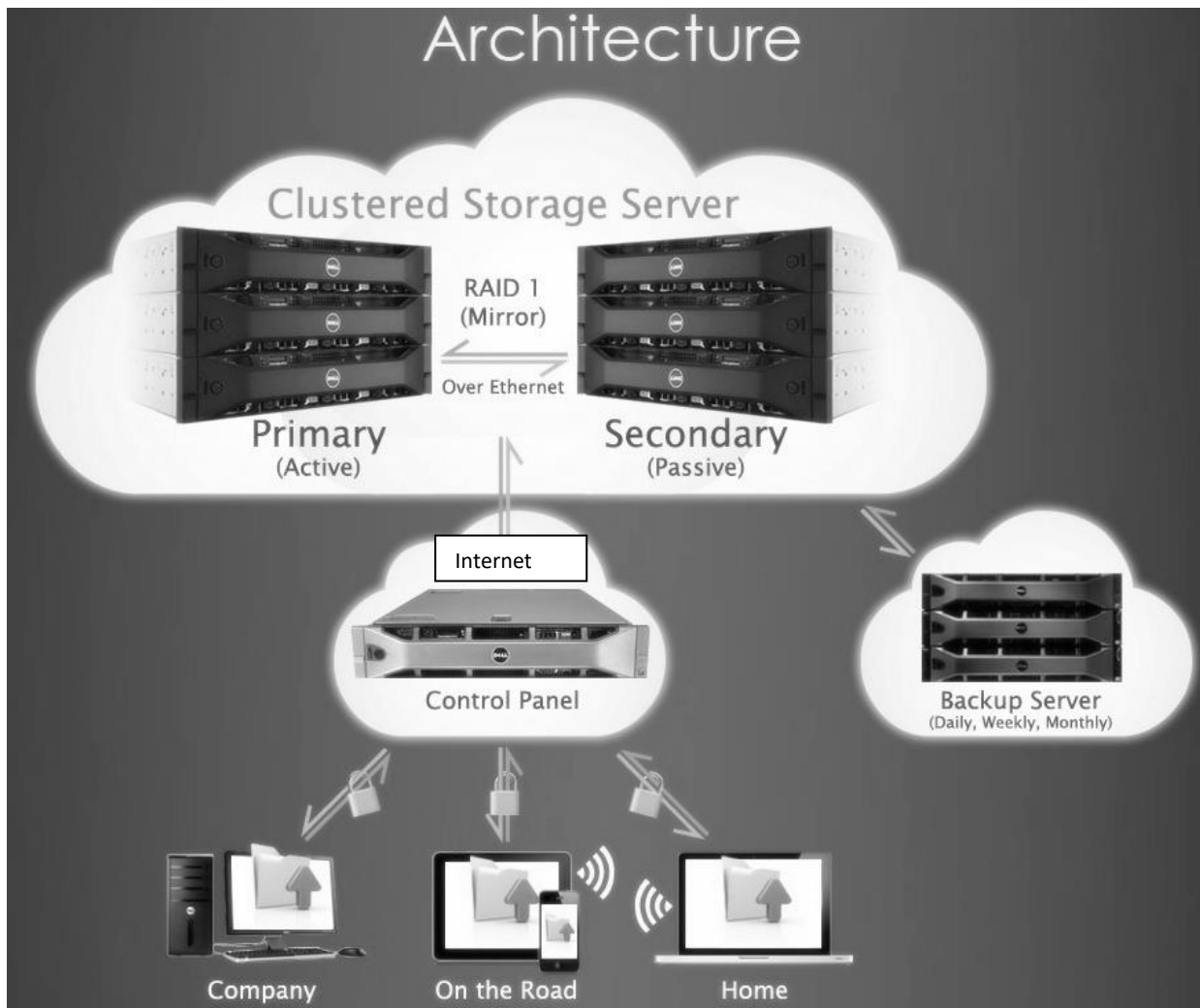
TYPES OF CLOUD STORAGE

1) Public cloud:

- Public cloud means ,a service provider makes resources, such as applications and storage, available to the general public over the Internet.

- Public cloud services may be free or offered on a pay-per-usage model.

- The term "public cloud" arose to differentiate between the standard model and the private cloud, which is a proprietary network or data center that uses cloud computing technologies, such as virtualization. A private cloud is managed by the organization it serves. A third model, the hybrid cloud, is maintained by both internal and external providers.

- It is usually an open system that is available for free to general public via World Wide Web or Internet.

The main benefits of using a public cloud are:-

-> Public cloud solution is typically very simple and immediate.

-> No wasted resources because you pay for what you use.

Examples of public clouds:-

-> Amazon Elastic Compute Cloud (EC2),

-> IBM's Blue Cloud

2) **Private cloud:**

- Private cloud is the implementation of cloud services on resources that are dedicated to your organization, whether they exist on-premises or off-premises.

- With a Private cloud, you get many of the benefits of public cloud computing—including self-service, scalability, and elasticity & with the additional control and customization available from dedicated resources.

- Private cloud (also called internal cloud or corporate cloud) is a marketing term for a proprietary computing architecture that provides hosted services to a limited number of people behind a firewall.

- Marketing media that uses the words "private cloud" is designed to appeal to an organization that needs or wants more control over their data than they can get by using a third-party hosted service such as Amazon's Elastic Compute Cloud (EC2) or Simple Storage Service (S3).

- The reasons for using a Private cloud are
  - -- cost reduction,
  - -- enhancing service quality,
  - -- more importantly for reducing the time it takes to deliver what users demand.

3) **Hybrid cloud:**

- Hybrid cloud is a combination of characteristics of both public and private cloud where internal and external service delivery methods are integrated.

- A Hybrid cloud is a composition of at least one private cloud and at least one public cloud.

- A hybrid cloud is a cloud computing environment in which an organization provides and manages some resources in-house and has others provided externally.

- 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.

- Benefits of using a hybrid cloud :-

  -> Hybrid clouds offer the cost and scale benefits of public clouds while also offering the security and control of private clouds.

  -> Cost Savings ,

  -> Business Agility ,

  -> Data migration , etc….

DIFFERENCE

Characteristic	Public cloud storage	Private cloud storage	Hybrid cloud storage
Scalability	Very high	Limited	Very high
Security	Good, but depends on the security measures of the service provider	Most secure, as all storage is on-premise	Very secure; integration options add an additional layer of security
Performance	Low to medium	Very good	Good, as active content is cached on-premise
Reliability	Medium; depends on Internet connectivity and service provider availability	High, as all equipment is on premise	Medium to high, as cached content is kept on-premise, but also depends on connectivity and service provider availability
Cost	Very good; pay-as-you-go model and no need for on-premise storage infrastructure	Good, but requires on-premise resources, such as data center space, electricity and cooling	Improved, since it allows moving some storage resources to a pay-as-you-go model

-> 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 **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 **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.

FEATURES

*Automatic Backups:

-> Automatic backups offer the convenience of configuring backup jobs to occur based on a

preset time and date. The feature alleviates the need for the user to have to remember to

manually run the job. Once the feature is configured, you can rest assured that a copy of your

data will be stored on your online account. In the event that you shut down your computer in

the middle of a backup job, it will automatically resume once the computer is powered back

on.

*File Archiving:

-> Without this feature, older files are automatically deleted and replaced by their newer versions.

File archiving preserves older versions so that, if needed, they can be accessed. Regardless of

the number of previous versions, file archiving will keep a copy of each.

*Remote Access:

-> A feature that allows you to access stored files from any computer whenever the need arises.

   All that's required are the login details for your cloud storage account. This feature comes in

   very handy for those who are frequently on the move and may need to access files while on a

   flight, in a meeting or simply out of the office.

*File Security:

-> This is a must-have feature. Providers of secure online backups encrypt files during both

   transfer and storage; otherwise, your data is liable to be intercepted and read by malevolent

   parties. Most cloud storage companies use SSL and 256-bit AES encryption.

*File Sharing:

-> The file sharing feature gives the ability for multiple users to access files, on your online

   account, from wherever they may be. The feature is especially useful for those who need

   friends, family or co-workers to be able to view some or all files stored on the account.

*Collaborating:

->Users can collaborate on files without having to physically move them (for example, on a flash

drive) or email them. This is accomplished via the Cloud Storage advanced collaboration

capabilities called "Projects". Multiple users can collaborate on a project by making changes or

just reviewing the data. Files continue to reside within the owner's storage, but are accessible

by all authorized users. Members of the project can view their projects through any access

device and assign new files and folders to existing projects.

*Access Extensibility:

-> Files stored using the Cloud Leverage platform can be accessed using any Internet connected

application, website or device. Out of the box, Cloud Leverage offers clients that enable access

via the Windows® desktop, via Internet enabled smartphones – iPhone®, BlackBerry®, and

Windows Mobile® devices, as well as the REST API.

CONCLUSION

In this report we have worked to facilitate the client in getting a proof of integrity of the data which he wishes to store in the cloud storage servers with bare minimum costs and efforts. Cloud storage systems like those offered by Amazon Web Services offer a great deal of promise, but just as with traditional data storage methods, they also offer opportunity for attackers to take advantage of careless developers. Developers must ensure that they follow defense-in-depth and least-privilege practices, taking advantage of cloud storage features to protect data when possible, yet also continuing best practices like input validation and proper encoding.

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