

DIGITAL SKY

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ABSTRACT

The rapid growth of technology has immensely increased the internal volume of data, because of this storage has become the major issue now. The aim is to provide a cloud in Platform as a Service (PaaS). In which the cloud can be used for storage of necessary data, that can be accessed from anywhere without any data loss through an API. The user can upload the important data using this API. In an API there will be different section for different types of storage e.g. Images, videos and pdf. The cloud server will be setup using software named digital ocean. Prevent unauthorized access to cloud computing infrastructure resources. This includes implementing security domains that have a logical separation between computing resources (e.g., logical separation workloads running on the same physical server by virtual machine (VM) monitors [hypervisors] in a multitenant environment) and using default to no-access configurations. Protect Internet browsers from attacks to mitigate end-user security vulnerabilities. This includes taking measures to protect Internet-connected personal computing devices by applying security software, personal firewalls, and patches on a regular maintenance schedule. Deploy access control and intrusion-detection technologies at the CP and conduct an independent assessment to verify that they are in place. This includes, but does not rely on, traditional perimeter security measures in combination with the domain security model. Traditional perimeter security includes: restricting physical access to network and devices; protecting individual components from exploitation through security patch deployment; setting as the default the most secure configurations; disabling all unused ports and services; using role-based access control; monitoring audit trails; minimizing the use of privilege; using antivirus software; and encrypting communications.

Keyword - Cloud Storage, Digital Ocean, API, My SQL Database, Password Hashing

1. INTRODUCTION

Private cloud is a type of cloud computing that delivers similar advantages to public cloud, including scalability and self-service, but through a proprietary architecture. Unlike public clouds, which deliver services to multiple organizations, a private cloud is dedicated to a single organization. As a result, private cloud is best for businesses with dynamic or unpredictable computing needs that require direct control over their environments. Public and private cloud deployment models differ. Public clouds, such as those from Amazon Web Services or Google Compute Engine, share a computing infrastructure across different users, business units or businesses. However, these shared computing environments aren't suitable for all businesses, such as those with mission-critical workloads, security concerns, uptime requirements or management demands. Instead, these businesses can provision a portion of their existing data center as an on-premises or private cloud.

1.1 Objective

From this project, We want to aware the people about Cloud and its usage limits. Storage being a major issue in the coming future, Cloud is the best the best option for it. It has wide prospectives which include Online Gaming, Website Hosting, providing Softwares and Infrastructure to people. Protect data from unauthorized access, disclosure, modification, and monitoring. This includes supporting identity management such that the capability to enforce identity and access control policies on authorized users accessing cloud services. This also includes the ability to allow access to its data selectively available to other users. Protect information resources from supply chain threats. This includes verifying and maintaining the trustworthiness and reliability of the CP, as well as the security assurances associated with the hardware and software used.

Prevent unauthorized access to cloud computing infrastructure resources. This includes implementing security domains that have a logical separation between computing resources (e.g., logical separation workloads running on the same physical server by virtual machine (VM) monitors [hypervisors] in a multitenant environment) and using default to no-access configurations.

Protect Internet browsers from attacks to mitigate end-user security vulnerabilities. This includes taking measures to protect Internet-connected personal computing devices by applying security software, personal firewalls, and patches on a regular maintenance schedule

1.2 Organization of the report

The report is divided into 4 parts and each part deals with the different aspects of the system.

(i)System Design: This part talks about the existing system, how they are designed and the issues associated with them. Furthermore, it describes the features of the system proposed and the requirements for operating it.

(ii)Module Description: This part describes each module implemented in the system, i. e., how the data is processed in each and what are the steps involved from the user's point of view . Each module is diagrammatically represented so that there is a clear understanding about what happens at that particular step.

(iii)System Implementation: This part deals with an overview of the platform for which the system is developed for. It also talks about the parameters needed for running the system and provides a sample of code used, along with screenshots of the output.

(iv)Conclusion: This part concludes the report and discusses the possible enhancement that can be implemented in the future improve the quality.

2. Existing System

GOOGLE DRIVE

Google combines a complete set of office tools with cloud storage in Drive. You get a little bit of everything with this service, including a word processor, spreadsheet application, and presentation builder, plus 15GB of free storage space. If you already have a Google account, you can already access Google Drive. You just have to head to drive.google.com and enable the service. You get 15GB of storage for anything you upload to Drive, including photos, videos, documents, Photoshop files and more. However, you have to share that 15GB with your Gmail account, photos you upload to Google+, and any documents you create in Google Drive.

DROPBOX

Dropbox is a favorite in the cloud storage world because it's reliable, easy to use, and a breeze to set up. Your files live in the cloud and you can get to them at any time from Dropbox's website, desktop applications for Mac, Windows and Linux (Ubuntu, Debian, Fedora or compile your own), or the iOS, Android, BlackBerry and Kindle Fire mobile apps. You can store any kind of file in Dropbox, by either uploading to the website or adding it with the desktop apps. Those apps live in your file system so that you can easily move files from your computer to the cloud and vice versa by dragging and dropping them into your Dropbox folder. There is no size limit on files you upload to Dropbox with the desktop or mobile apps, but larger files can take several hours to upload, depending on your connection speed.

AMAZON WEB SERVICES

Amazon already sells you nearly anything under the sun, and it wants to be the place you store all of your music, photos, videos and other files too. Amazon Cloud Drive has been around for a few years, but the company introduced new storage plans in March 2015; one just for photos and one for all other kinds of files. Neither plan is free, but both have three-month trials. Unlimited Photos is available for free for all Amazon Prime members or anyone with a Fire device. If you don't have a Prime subscription or a Fire phone or tablet, you'll need to pay \$12 per month for the storage.

2.1 Proposed System

The goals and motives of the companies who are well established in the business are bit different from our goals and motives. They are providing a huge Cloud platform, and we are just creating a small cloud storage to create awareness among the private organizations, communities and the startup's. So that they can have their own Cloud platform. Storing your files in the cloud has many advantages. You can view your files from any phone, tablet or computer that's connected to the Internet, and the cloud can also provide backup for files so they'll never disappear if your phone gets lost or your computer crashes. Using the cloud is a no-brainer, but picking which service to use is a bit more difficult.

3. MODULES

3.1 Introduction

Our complete project deals with the different modules based on the working. The project consists of various modules as described below:

3.2 List of modules

The list of modules to performed are given below

- Server Module
- Storage Module
- Fabric Module
- WAN Module
- End User Type-1- Branch, Home, Office
- End User Type-2- Mobile, Laptop(Anywhere)

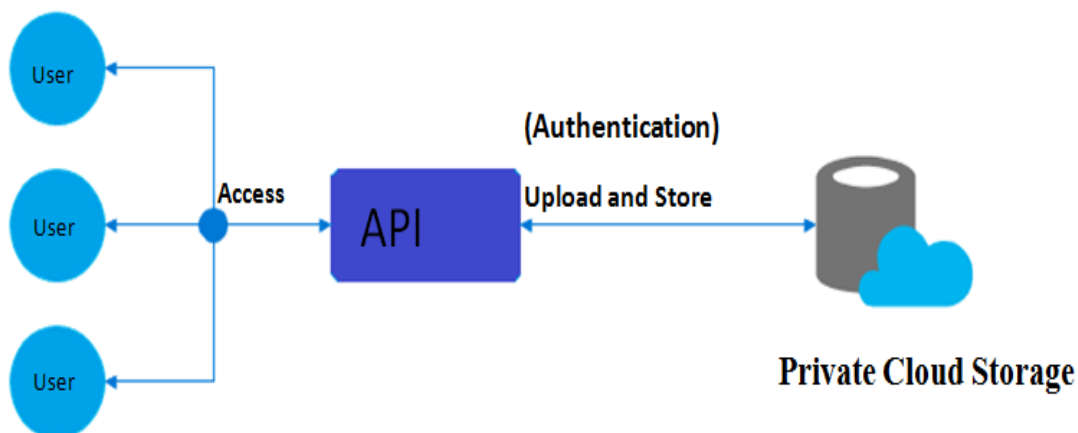


Fig 1:- WorkFlow Diagram

3.3 Description

Server Module

Cloud servers offer great benefits over the traditional options of shared or dedicated servers.

In some respects cloud servers work in the same way as physical servers but the functions they provide can be very different.

When opting for cloud hosting, clients are renting virtual server space rather than renting or purchasing physical servers. These are often paid for by the hour, depending on the capacity required at any particular time. Traditionally, there are two main options for hosting; shared hosting and dedicated hosting.

Shared Hosting

- The cheaper option, as servers are shared between the hosting provider's clients (e.g. one client's website will be hosted on the same server as those of other clients)
- Suitable for small enterprises, where the required capacity is relatively low
- Setup is inflexible and cannot cope with a large amount of traffic.

Dedicated Hosting

- A much more advanced form of hosting, whereby clients purchase whole physical servers
- The entire server is dedicated to one client, with no one else sharing it
- In some instances, a client may utilise multiple servers which are all dedicated to their use
- Allows for full control over hosting
- Capacity needs to be predicted, with enough resource and processing power to cope with expected traffic levels.
- If this is underestimated it can lead to a lack of necessary resource during busy periods, while overestimating will mean paying for unnecessary capacity.

Cloud Hosting

- Clients get the best of both worlds: resource can be scaled up or scaled down accordingly, making it more flexible and, therefore, more cost-effective
- When there is more demand placed on the servers, capacity can be automatically increased to match demand without needing to be paid for on a permanent basis
- Cloud servers can run on a hypervisor. The role of a hypervisor is to control the capacity of operating systems so it is allocated where needed
- There are multiple cloud servers which are available to each particular client. This allows computing resource to be dedicated to a client if and when it is necessary – additional capacity is temporarily accessed when required, and then removed when no longer needed
 - Cloud servers offer more redundancy – if one server fails, others will take its place.

Storage Module

Cloud storage is defined as "the storage of data online in the cloud," wherein a company's data is stored in and accessible from multiple distributed and connected resources that comprise a cloud.

Cloud storage can provide the benefits of greater accessibility and reliability; rapid deployment; strong protection for data backup, archival and disaster recovery purposes; and lower overall storage costs as a result of not having to purchase, manage and maintain expensive hardware. There are many benefits to using cloud storage, however, cloud storage does have the potential for security and compliance concerns that are not associated with traditional storage systems.

Fabric Module

The Data Center Fabric revolutionizes data center economics by creating an agile, highly efficient infrastructure that is built on the hardware and software you choose. This open, elegantly simple architecture lets

you dynamically connect servers, networks, and storage. You create networks and connections entirely in software to enable secure, isolated services that support your business processes and priorities. With the Data Center Fabric, all traffic types, including Ethernet and Fibre Channel, traverse a converged infrastructure, resulting in a dramatically simpler, more efficient, wire-once environment and the industry's most flexible connectivity.

The Data Center Fabric incorporates a software-defined network architecture that lets you create the ideal platform for a private cloud or for a public cloud service provider. From a single management screen you can quickly create isolated pools of resources entirely under software control. Deploy isolated networks and virtual connections among servers, networks and storage on-demand. Within this flat infrastructure, traffic is automatically routed over the fastest path without the need to specify switch ports or routing paths. Inefficient routing schemes such as Spanning Tree Protocol are eliminated. In the event of a path failure, traffic is immediately directed around the failed link with no interruption of service.

WAN Module

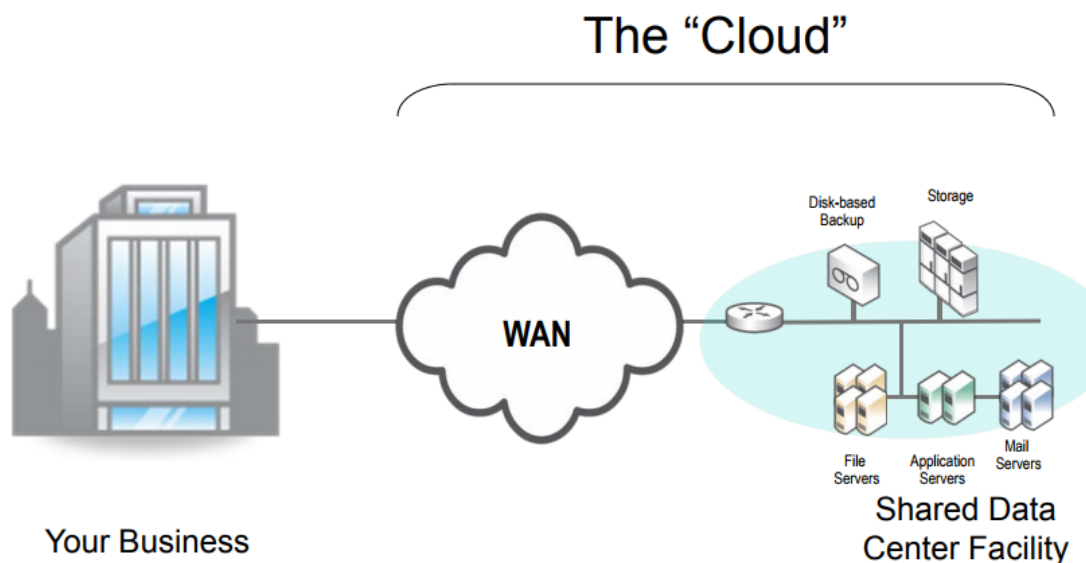


Fig 2:- WAN- Core Component of Cloud

When looking at WAN optimization and branch consolidation in the private cloud, enterprises need to consider service integration -- such as firewall virtualization, next-generation WAN techniques -- and the limitations of these services. Private Cloud Computing: Consolidation, Virtualization, and Service-Oriented Infrastructure , provides an in-depth look at private cloud computing and the WAN, helping WAN managers and network engineers understand integration of service elements such as firewalls and server load balancers (SLBs), as well as next-generation WAN technologies.

End User Type1/Type 2

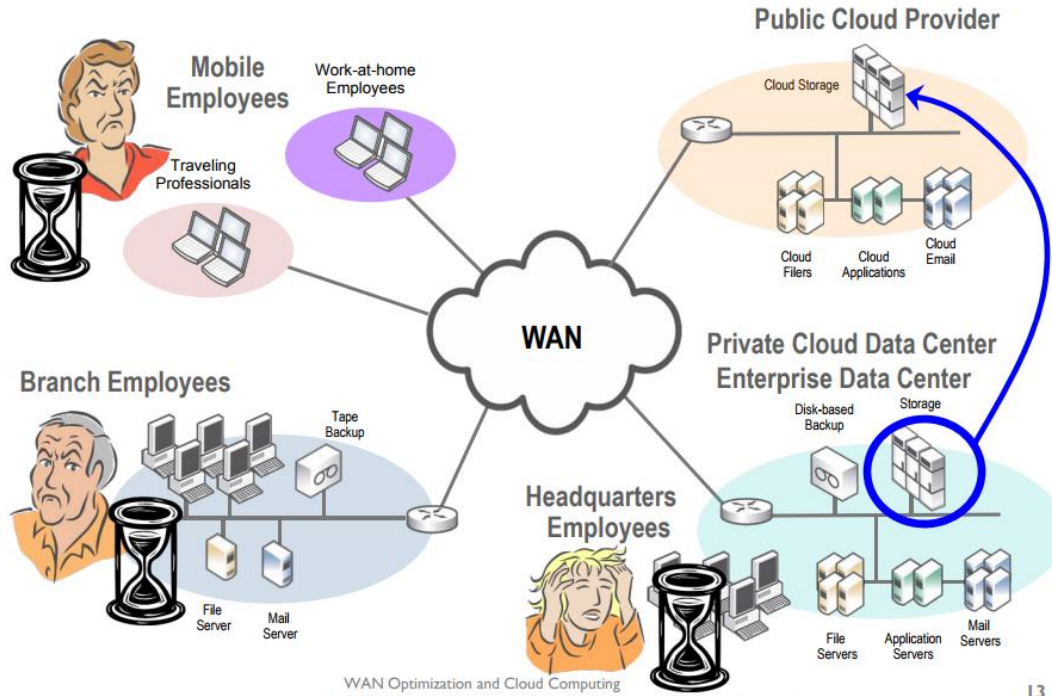


Fig 3:- WAN Optimization

3.4 Summary

Thus the above modules describe the working of the application. This ensures that the any cloud can be accessed by any user as it provides security and confidentiality for user convenience. All modules are explained in detail. It is expected that the proposed system can be used worldwide.

4. SYSTEM IMPLEMENTATION

4.1 Introduction

In this chapter implementation of the system is described in detail. Here the detailed coding is given for creating login and registration pages along with the upload button coding and php coding for password hashing. The Platforms like HTML, JavaScript, CSS, PHP etc. Plays a major role.

4.2 Overview of the platform

- **HTML**

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML can embed programs written in a scripting language such as JavaScript which affect the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

- **JavaScript**

JavaScript often abbreviated as JS, is a high-level, dynamic, weakly typed, object-based, multi-paradigm, and interpreted programming language. Alongside HTML and CSS, JavaScript is one of the three core technologies of Web content. It is used to make webpages interactive and provide online programs, including video games. The majority of websites employ it, and all modern web browsers support it without the need for plug-ins by means of a built-in JavaScript engine. Each of the many JavaScript engines represent a different implementation of JavaScript, all based on the ECMAScript specification, with some engines not supporting the spectrum fully, and with many engines supporting additional features beyond ECMA.

Although there are strong outward similarities between JavaScript and Java, including language name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design; JavaScript was influenced by programming languages such as Self and Scheme.

- **CSS**

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.

Separation of formatting and content makes it possible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. It can also display the web page differently depending on the screen size or viewing device. Readers can also specify a different style sheet, such as a CSS file stored on their own computer, to override the one the author specified.

- **PHP**

PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Development Team. PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP: Hypertext Preprocessor.

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge. The PHP language evolved without a written formal specification or standard until 2014, leaving the canonical PHP interpreter as a de facto standard. Since 2014 work has gone on to create a formal PHP specification.

5. CONCLUSIONS

In system implementation, all the details regarding the simulation and implementation of the project have been mentioned along with the sample coding for the private cloud access. The screenshot of the every module is also given in the above section. Thus, the proposed system has been executed successfully.

6. ACKNOWLEDGEMENT

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