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Google cloud platform as Disaster Recovery solution.

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Abstract: **In this paper, we present the system for managing the data backup on the Google Cloud Platform (GCP) environment using a scheduling mechanism to assist the people to recover their data during data failure or disaster. The usage of cloud services has been increasing and along with that there is a need to protect data in the cloud. The approach of our system adopts usage of the data backup to manage and protect the data present in disks of the virtual machines in google cloud using scheduling and tag-based scheduling mechanism for data. This will help users during disaster situation to protect and restore their data present in the Google cloud.**

Index Terms **– cloud disaster recovery,recovery point object,recovery point object, replica.**

I. INTRODUCTION

The usage of cloud services is increasing due to it's offerings of services, better efficiency and performance, cost effective and flexible resources which we can scale up and down as per our needs. As all services are offered remotely it results in reducing cost of physical infrastructure. Cloud has "pay as you use" pricing models, it means we must only pay for resources we have used. Due to it's offerings and services most of the organizations are shifting to use clouds. In Cloud environment, Data storage and management is main factor. Data must be backed-up and stored separately so that it can be used at the time of data loss, data failure issue. Due to server failure many issues can arise also it may lead to failure of business which results in loss. To recover the data or to prevent any loss of data, backup and disaster recovery mechanism is carried out. So generating backup of data frequently will help in business continuity. At this time data archival and damage recovery comes in picture. Data damage recovery could be defined as a collection of unequal disciplines and ethics those relates to healing loss of data depends building resources which is affected by a phenomenal accidents or a human made mistakes . The primary concentrated field of data loss healing is I.T and technology dependant system those are functions of a business. Categories of Disasters:

• phenomenon
• Man-made

phenomenon Accidents can be of different types such as tornado's, earthquakes, floods and hurricanes. It is very difficult to prevent from a phenomenon Accidents but good planning and different precautions can surely help. Talking about the Man-made accidents, it could be of different forms such as IT bugs,loss of system, bio-terrorism etc. to counters such disasters proper surveillance, planning and testing is mandatory. These type of accidents could be recover by designing methodology[1] .

II. LITERATURE REVIEW

This paper reflects the idea of data loss recovery by using google cloud.in previous studies data was recovered by some devices.but it need the flavour of cloud technology. after referring some papers we felt that the methodology need to enhance .so in this paper the architecture required for the data recovery created on demand and in that the network security is also created.along with Health ckeck one more service.health check will check the working of all resources is working fine or not.

III.METHODOLOGY

Impression of Data Recovery planning is the best aspect of data loss recovery. in today's era for any organization/firm an computerised system is essential, almost all industries completely depend upon their software for daily work. If the software system get lost, the daily operations of the company will stop or slow down, so it has become very important to check the significance of data loss repairing planning for example in case of a data accident some important data could be missed or lost and might not at all repaired or covered again back.

A. Control aspects:

Control aspects are the core Modules or steps those are followed by the firm/organization to reduce the damage and eliminate different threats which could create disasters. The disaster control plan is basically a child of a larger program which is business continuity planning, it includes the resumptions and recovery of following aspects:

- information
- equipment
- IT infra.
- signal

An industry or institute could arrange measures to eradicate or lessen the probability of loss from any accidents. An IT based data loss control measures could be verified.

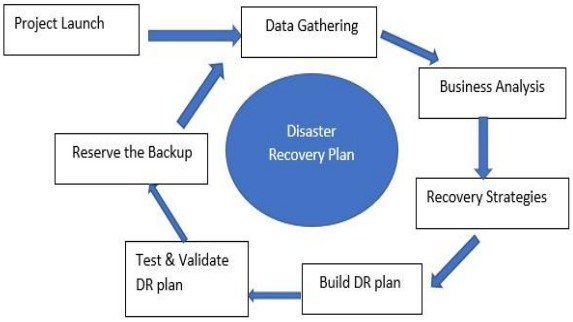

Fig. Disaster recovery plan

B. Procedure:

The business continuity plan must include the two paradigm of the data flow archival.points out two metrics such as :

- Recovery point Objective
- Recovery time Objective

These concepts helps in sorting out various business processes which eventually helps in mapping the IT terminologies. The defective RTO and RPO can easily defect a recovery plan. for every item which is part of the accidental recovery plan requires a recover point if those recovery points are not generated properly then significant problems are created which are less significant to reduce the effects of a disaster. After mapping out the RTO and RPO according to IT infrastructure, the planner needs to identify a suitable recovery strategy. different functions of data protecting.[3] duplication of data could be helps us in most of protecting data. In current days Different cloud storage providers are available These strategies can certainly help in recovering and protecting the IT infrastructure from any sort of disaster.

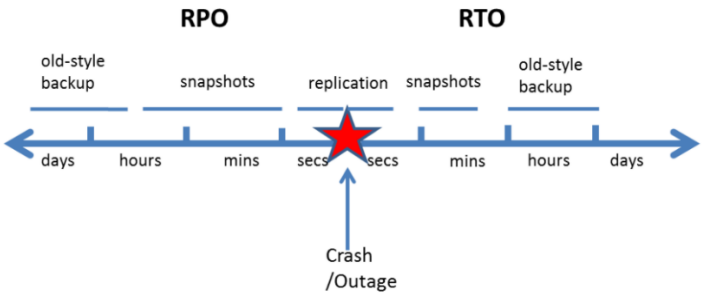

Fig. RPO and RTO for backup

C. Types of Backup[1]

The Backup will be differ by it's performance.behaviour of backup. mostly copying up your files, networks, servers to the cloud location on google storage buckets and another begins with pointing the capabilities of a network and selecting the accurate type of backup for the circumstances. The different categories of backups available to managed service providers and IT administrators include:

1) Complete - This type of backup is in the form of taking replicas of data in full manner.if a data is backups on any day then its process will be done completely.
2) Incremental - This is the next backup type here after Full backup the new inserted data will be copied.
3) Differential- like to an previous type, a newly available or updated backup replica all data modifies by the last complete backup every time when it triggers.this backup delivers a way of backing up changed data to the new data.

D. Level Of Data Backup:

1) Virtual Level Backup:
Virtual level backup allows us to take a backup of data in complete form.in the storage all the data will hold by VM environment which contains all the files.

2) File Level Replica:
File Level Backup allow us to take a Backup of the Data By selecting File or Files Which we need to Backup and it will stored on cloud storage.[2]

IV. OBJECTIVES

1) Create cloud account.
2) Authenticate credentials
3) create google cloud resources for data recovery
4) Upload any file/files
5) Create image(replica of image) and attach volume on premises
6) Replicated image will provide to client on demand.

v. STAGES IN DATA RECOVERY

A. Account Authentication :
The first step is the credentials from the google cloud first authenticate to make connection.after authentication the code needs to make a VM and Storage and after listing the configuration the data will be send to cloud.

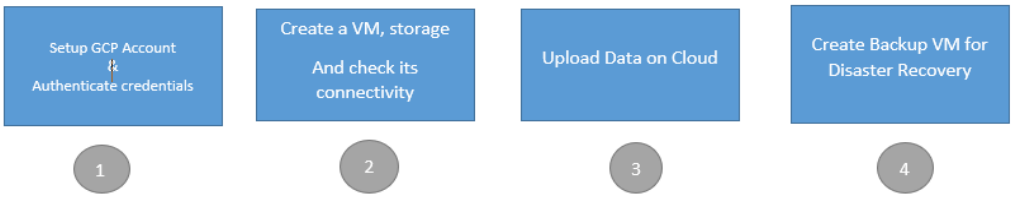

Fig. steps in Disaser recovery process

B.formation of cloud resources:
In this step we have creates google cloud resources for continuous work flow for data backup.it includes the virtual machine(VM),storage,network configuration includes subnets ,firewall with health check, and external disk for continues data backup.

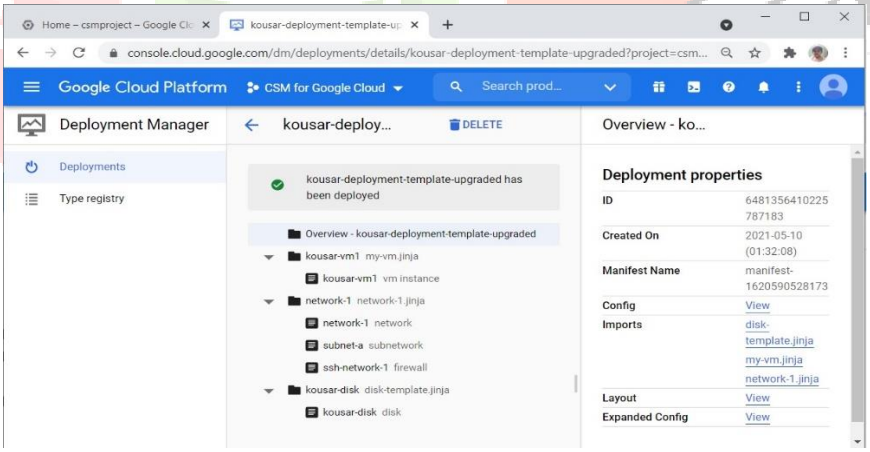

Fig.Deployment manager with GCP resources for DR

B. Create Backup of Data :
After configuring details it will create a policy where all the details of the environment will be kept.then created a external disk because by default if environment able to hold the 100GB data and in case if it exceed its limit then to make a smooth flow a specified external disk append after this backup image of the whole VM created.

C. Deploy replica image to end user :
when the data is backed up to external disk,nature of the backup will be incremental in nature so continuously data will be analyzed by RPO and RTO.now whenever disaster happen the replicated copy will able for customer .

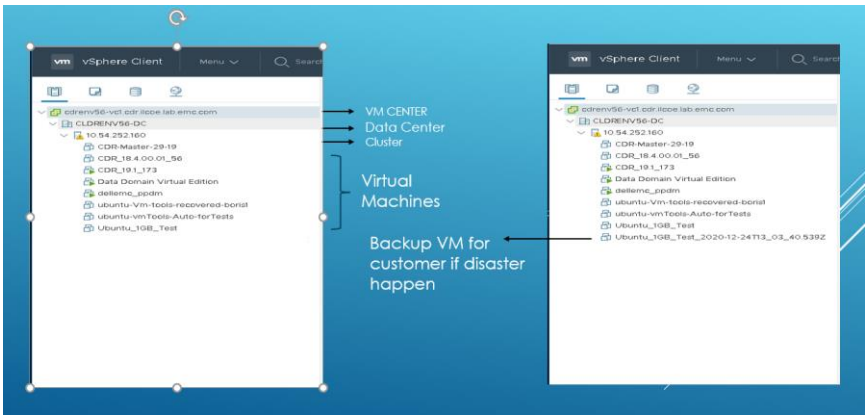

Fig. original Vm and archival Vm for customers business continuity

VI. PROBLEM STATEMENT

in last few years companies spend a lot of cost to keep data safe.to keep it backup for business continuity it has to pay more to keep maintaining hard disk's and other memory devices safe.But now a days the industries are growing rapidly so to improve its performance its data is more important.once any disaster happen ,for business fluency the important part is only data so to make availability of that is really important. Accidental data recovery hard capability for firm of every size. The possibility to start full industrial workflow in between a specific amount of time and at a particular stage in the IT process is required to maintaining business flow, avoiding loss of data and ensuring complete productivity. Disaster recovery possibilities are increasingly important as businesses depends more than ever on their IT environments for day-to-day operations. To support disaster recovery,some companies/firms provides secure, simple and economical disaster recovery solutions for on-premises and cloud with orchestration and automation of disaster recovery testing, fail over and fail back. so this study Refers to develop CDR platform using Google Cloud Platform.

VII. SCOPE

The life of this project is so wide because of the industries and business growth.data backup and recovery terms are major here so in future the data will be a important part of business continuity.

VIII. RESULT AND DISCUSSION

Cloud Disaster Recovery allows user to recover data from loss.In this Proposal the main advantage of creating and maintaining data from several disasters.so Virtual machines hold the environment for this recovery of data along with it automates the strategies will disciplines the flow of data and its respected work.data will be backup on the cloud on continuously and on once any disaster happen on premise the data will be available at the user end.to do this in between disaster recovery system and cloud many interaction form.

Fig. file backup on the GCP Bucket

IX. LIMITATIONS

This Project is only capable for Google Cloud Base Backup Recovery For Only Authorized Clients/Customers.So to Recover the data customer should have Google Cloud Account.

X. CONCLUSION

It is observed that the system presented in this study will assist the user in managing the data workload across the GCP resource using the CDR mechanism.this will help user to manage the data and also to recover the data present in the cloud during any data loss or any failure incident. it will maintain the business continuity. The study here is concentrated on managing and protecting data present in compute resource of GCP.Looking into the current study this information can be use full for any reference of any future study. in this above image ,file is uploaded to google cloud and its backup will success full.after uploading we ca check file details as well as its content.

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[4] Why Google Cloud?
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