PROJECT PHASE 1

PROJECT TITLE : Disaster Recovery with IBM Cloud Virtual Servers

Phase 1: Problem Definition and Design Thinking

In this part you will need to understand the problem statement and create a document on what have you understood and how will you proceed ahead with solving the problem. Please think on a design and present in form of a document.

Problem Definition:

The project involves creating a disaster recovery plan using IBM Cloud Virtual Servers. The objective is to safeguard business operations by developing a plan that ensures continuity for an on-premises virtual machine in unforeseen events. This plan will include setting up backup strategies, configuring replication, testing the recovery process, and guaranteeing minimal downtime. The project encompasses defining the disaster

recovery strategy,implementing backup and replication,validating recovery procedures, and ensuring business continuity.

Design Thinking:

1. **Disaster Recovery Strategy:**
   A disaster recovery (DR) strategy is a comprehensive plan that an organization puts in place to ensure its IT systems and data can be quickly restored and made operational in the event of a disaster or significant disruption. The primary objectives of a disaster recovery strategy are to minimize downtime, data loss, and overall business impact. To achieve these objectives, organizations establish specific targets known as Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO).

   • **Recovery Time Objective (RTO):**
   • RTO is the maximum acceptable downtime that an organization can tolerate for its systems and applications following a

disaster or disruption. It represents the time it takes to recover and restore essential IT services to a functional state.

- RTO is measured in hours, minutes, or even seconds, depending on the criticality of the systems and applications. For example, mission-critical applications may have very low RTOs, while less critical ones may have longer RTOs.

- **<u>Recovery Point Objective (RPO):</u>**

- RPO is the maximum allowable data loss that an organization can tolerate in the event of a disaster or disruption. It represents the point in time to which data must be recovered to ensure business continuity.

- RPO is expressed in terms of a specific time frame, such as minutes, hours, or days. For example, if the RPO is set at one hour, it means that no more than one hour's worth of data can be lost in the event of a disaster.

2. Backup Configuration:

- Choose Backup Software/Service
- Install and Configure Backup Software/Service
- Configure Backup Targets
- Create Backup Policies
- Schedule Regular Backups
- Consider Application-Aware Backups
- Implement Incremental Backups
- Test Backup and Recovery
- Monitor Backup Jobs
- Secure Backup Data
- Document Backup Procedures
- Automate Backup Reporting
- Review and Update
- Disaster Recovery Plan (DRP)

3. Replication Setup:

- **IBM Cloud Account**: Ensure you have an active IBM Cloud account.

- **Virtual Servers:** Provision the target IBM Cloud Virtual Servers where you intend to replicate your data and VM images.

- **Replication Software/Service:** Choose a replication solution that is compatible with IBM Cloud infrastructure. IBM Cloud offers services like "IBM Cloud Satellite" and "IBM Cloud Object Storage" that can be used for replication.

Configuration Steps:

- Connectivity Setup
- Select Replication Technology
- Replication Target
- Data Replication
- VM Image Replication:

- Data Synchronization
- Testing
- Monitoring and Alerts
- Security and Encryption
- Compliance and Documentation
- Disaster Recovery Plan (DRP)
- Regular Maintenance

4.Recovery Testing:

* Define Objectives and Scope

* Create Test Plans

* Choose Test Types

* Schedule and Coordinate

* Notify Stakeholders

* Prepare Test Environment

* Execute Recovery Procedures:

* Monitor and Document:

* Validate Data Integrity:

* Test Communication and Notification

* Measure Recovery Time

* Test Scalability

* Executive Summary and Communication

* Implement Improvements

*_ Repeat Regularly

5.Business Continuity:

- Identify critical business functions.
- Define RTOs and RPOs.
- Develop a comprehensive DR plan.
- Test both IT and business recovery.
- Document, train, and update regularly.
- Coordinate across departments.
- Foster executive support and compliance.
- Continuously improve and adapt.