**Disaster Recovery with IBM Cloud Virtual Servers**

**111421104021: Gouthaman.S**

**Phase -2**

**Problem Statement:**

Our organization currently faces the challenge of ensuring high availability and disaster recovery for critical services hosted on IBM Cloud Virtual Servers.

**Requirements:**

**Recovery Time Objective (RTO):** Achieve an RTO of less than one hour for critical services in the event of a disaster.

**Recovery Point Objective (RPO):** Ensure minimal data loss by maintaining an RPO of less than 15 minutes.

**Cost Efficiency**: Develop a cost-effective solution that optimizes resource utilization.

**Scalability**: Design the solution to scale seamlessly as our organization grows.

**Security and Compliance**: Ensure that the solution complies with industry-specific regulations and maintains data security.

**Research and Analysis:**

Extensive research has been conducted on existing disaster recovery solutions and cloud-based technologies. The analysis indicates that IBM Cloud Virtual Servers provide a robust infrastructure to build a resilient disaster recovery solution.

**Solution Design:**

Primary Site: Our data center with critical services.

Secondary Site: IBM Cloud Virtual Servers for disaster recovery.

Replication Mechanism: Use of synchronous and asynchronous data replication.

**Data Flow Diagram:**

A diagram of software processing

Description automatically generated

**Technical Specifications**

Primary Servers: IBM Cloud Virtual Servers

Disaster Recovery Software: IBM Cloud Resiliency Orchestration

Data Replication: IBM Cloud Object Storage

Network Connectivity: IBM Cloud Direct Link

**Innovation Aspects:**

Our solution innovates by leveraging IBM Cloud's scalable infrastructure, ensuring rapid recovery, and improving cost-efficiency through optimized resource utilization.

**Project Plan**

* **Task Breakdown**

1. Solution Architecture Design
2. IBM Cloud Virtual Server Provisioning
3. Disaster Recovery Software Configuration
4. Data Replication Setup
5. Network Connectivity Configuration
6. Testing and Validation
7. Documentation and Training

**Testing and Quality Assurance**

* **Testing Strategy**

Unit Testing: Individual component testing.

Integration Testing: Testing the interaction between components.

User Acceptance Testing: Validation by end-users.

**Scalability and Future-Proofing**

The solution is designed to scale horizontally to accommodate future growth. It can easily adapt to the addition of more IBM Cloud Virtual Servers.

**Security and Compliance**

Data encryption in transit and at rest.

Compliance with industry-specific regulations (e.g., HIPAA, GDPR).

**Documentation**

User Manuals

End-user manuals for accessing services during disaster recovery.

Technical Documentation

Comprehensive technical documentation for administrators.

Training

Training sessions for administrators and end-users on disaster recovery procedures.

**Risk Analysis and Mitigation**

Risks identified: Hardware failures, network issues.

Mitigation strategies: Redundancy and failover mechanisms.

**Change Management**

Plan for rolling out the solution in phases to minimize disruption.

**Measuring Success**

Key Performance Indicators:

Achieving the defined RTO and RPO.

Minimal service downtime during failover.

**Conclusion**

The proposed solution leverages IBM Cloud Virtual Servers and associated services to address our disaster recovery challenges, providing a resilient and cost-effective solution.