GRT INSTITUTE OF ENGINEERING AND TECHNOLOGY, TIRUTTANI - 631209

Approved by AICTE, New Delhi Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT TITLE

Disaster Recovery with IBM Cloud Virtual Servers

COLLEGE CODE:1103

Phase-2

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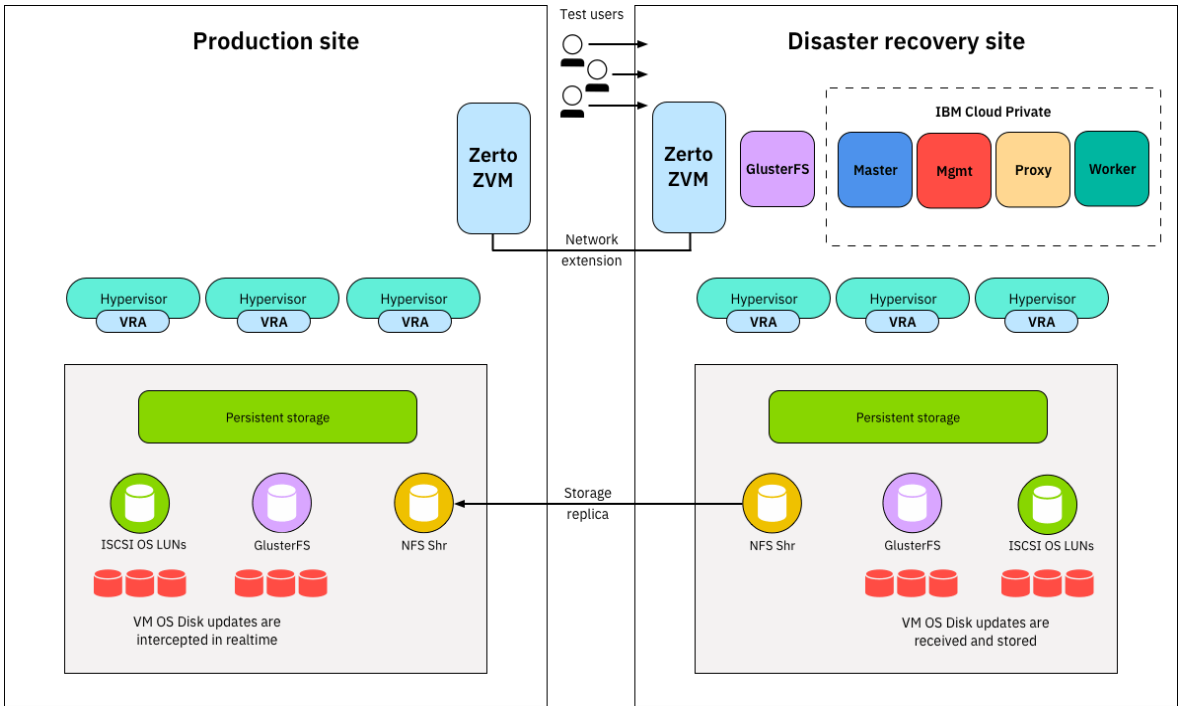
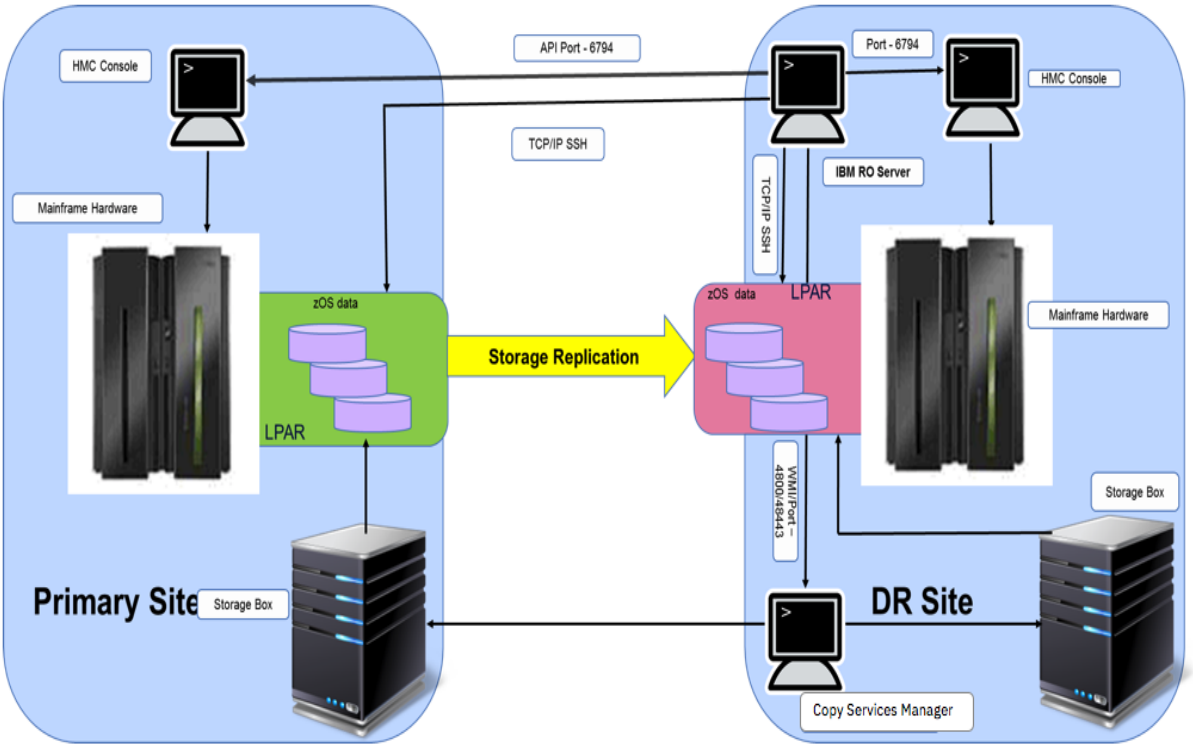
DISASTER RECOVERY WITH IBM CLOUD VIRTUAL SERVERS





ALGORITHM

1.PRODUCTION SITE:

Define Objectives and Goals:

Clearly outline the objectives and goals of your cloud computing production site, such as maximizing efficiency, minimizing costs, ensuring high availability, and meeting performance targets.

Select IBM Cloud Services:

Choose the appropriate IBM Cloud services and resources to support your production workloads, including virtual servers, databases, storage, and AI/ML services.

Monitoring and Logging:

Develop monitoring and logging algorithms to collect metrics, logs, and performance data from your cloud resources. Use tools like IBM Cloud Monitoring and IBM Cloud Log Analysis.

Continuous Integration and Continuous Deployment (CI/CD):

Implement CI/CD algorithms and pipelines to automate the building, testing, and deployment of applications, ensuring rapid and reliable releases.

Load Balancing:

Configure load balancing algorithms to distribute incoming traffic across multiple instances to ensure high availability, scalability, and fault tolerance.

2.DISASTER RECOVERY SITE:

Define Objectives and Goals:

Clearly outline the objectives and goals of your disaster recovery site, including recovery time objectives (RTO) and recovery point objectives (RPO).

Choose IBM Cloud Services:

Select IBM Cloud services that meet your DR requirements, such as IBM Cloud Virtual Servers, IBM Cloud Object Storage, and IBM Cloud Databases.

Data Backup and Replication:

Implement algorithms for regular data backup and replication from the primary site (production site) to the disaster recovery site. Use services like IBM Cloud Object Storage for storing backups.

Failover Planning:

Develop failover algorithms and procedures to ensure seamless transition to the disaster recovery site in the event of a disaster. This may involve DNS updates, IP address reassignment, and application configuration changes.

Automated Monitoring:

Implement monitoring algorithms to continuously assess the health and availability of the primary site. Set up alerts and triggers to initiate the failover process when needed.

Disaster Recovery Plan Execution:

Define and document the step-by-step procedures for executing the disaster recovery plan. Include roles and responsibilities of team members involved in the DR process.

Testing and Simulation:

Conduct regular testing and simulation exercises to ensure that the failover process works as expected. Automate the testing process to minimize human error.

3.PRIMARY SITE:

Define Objectives and Goals:

Clearly outline the objectives and goals of your primary site, including application performance, scalability requirements, security measures, and cost optimization.

Select IBM Cloud Services:

Choose the appropriate IBM Cloud services and resources to meet your requirements. IBM Cloud offers a wide range of services, including virtual servers, databases, storage, and AI/ML services.

Infrastructure Provisioning:

Implement algorithms for provisioning and configuring cloud infrastructure resources, such as virtual machines, storage, and networking components.

Security Measures:

Implement security algorithms to protect your cloud resources and data. This includes access control, encryption, and regular security audits.

Monitoring and Logging:

Develop monitoring and logging algorithms to collect metrics, logs, and performance data from your cloud resources. Use tools like IBM Cloud Monitoring and IBM Cloud Log Analysis.

Cost Optimization:

Develop cost optimization algorithms to analyze resource usage and recommend cost-saving measures, such as using reserved instances and rightsizing resources.

Documentation and Knowledge Sharing:

Maintain comprehensive documentation of your cloud infrastructure, configurations, and procedures. Share this knowledge with the relevant teams and stakeholders

Performance Optimization: -

Continuously monitor and analyze system performance and implement tuning algorithms to optimize the performance of your cloud-based applications and services.

Disaster Recovery Planning:

Develop a disaster recovery plan that includes procedures for failover to a backup site (if applicable) in case of a disaster.

Vendor Support and SLAs:

Ensure that you have appropriate support agreements and service-level agreements (SLAs) with IBM Cloud to guarantee timely assistance and adherence to performance metrics.

PROGRAMMING LANGUAGE:

1. python

2.java

3.Node.js

4.PHP

5.C/C++

Additionally, you can use a Javascript, Ruby, Go, powershell, shellscripting or bash, perl, rust combination of these languages and tools to create a comprehensive disaster recovery strategy, including resource provisioning, data synchronization, monitoring, and failover procedures.

The choice of programming language and tools is based on the preferences and the specific requirements of your disaster recovery plan.