

Cloud Application Development

Phase -2 : Submission Document

IBM: **CAD101** Recovery

Project Title: IBM Disaster Recovery

Project 8: Disaster Recovery with IBM Cloud Virtual Servers

Project Title: IBM Disaster

Problem Statement: Safeguard business operations with IBM Cloud Virtual Servers. Create a disaster recovery plan for an on-premises virtual machine, ensuring continuity in unforeseen events. Test and validate the recovery process to guarantee minimal downtime. Become the guardian of business continuity, securing the future of your organization!

Phase 2:

consider incorporated automated recovery plan using IBM cloud virtual servers

SOLUTION:

FUNCTIONAL REQUIREMENTS:

Automated Failover and Failback:	<p>The recovery plan should include automated failover mechanisms to quickly switch from primary to secondary servers or data centers.</p> <p>Automated failback procedures should be in place to return operations to the primary environment once it's restored.</p>
Data Backup and Restore	<p>Automated and regular backup of server configurations, applications, and data should be supported.</p> <p>The recovery plan should specify how data can be efficiently restored from backups to minimize downtime.</p>
Real-time Monitoring and Alerting:	<p>continuous monitoring of server health, performance, and resource utilization should be integrated.</p> <p>Alerting mechanisms should notify administrators of issues or potential failures in real-time</p>
Load Balancing and Traffic Routing	<p>The ability to distribute incoming traffic to multiple servers through load balancing should be included.</p> <p>Traffic routing should automatically redirect requests to available servers in the event of a failure.</p>
Resource Orchestration	<p>Automation tools or orchestration services should be available to automate server provisioning, configuration, and scaling.</p> <p>The plan should allow for on-demand resource allocation as needed.</p>
Testing and Validation	<p>The recovery plan should support the execution of regular recovery drills and tests.</p> <p>It should provide a sandbox or isolated</p>

	environment for testing without affecting the production environment.
Documentation Clarity	Specify that recovery runbooks or playbooks are clear and easy to follow during high-stress recovery situations. Geographical Considerations

NON FUNCTIONAL REQUIREMENTS:

Performance	<p>Response Time: Specify the maximum acceptable response time for failover and recovery operations to ensure minimal downtime.</p> <p>Throughput: Define the required capacity for handling simultaneous recovery processes without degradation in performance.</p>
Availability:	<p>High Availability: Specify the desired level of availability for the recovery plan, including uptime percentages (e.g., 99.99%).</p> <p>Failover Time: Define the maximum allowable time for failover to ensure that recovery is swift and meets business needs.</p>
Scalability:	<p>Horizontal Scaling: Specify how the recovery plan should scale horizontally to accommodate increased workloads during recovery operations.</p> <p>Vertical Scaling: Define the ability to scale resources vertically to handle larger server configurations if necessary.</p>

Security:	<p>Encryption: Require data encryption both in transit and at rest to protect sensitive information during recovery processes.</p> <p>Access Control: Define access control mechanisms to ensure that only authorized personnel can initiate and manage recovery procedures.</p> <p>Compliance: Specify regulations and compliance with industry-specific standards related to data security and recovery.</p>
Network and redundancy:	<p>Network Redundancy: Specify redundant network connections and routing to ensure continuous connectivity during recovery.</p> <p>Latency and Bandwidth: Define requirements for network latency and bandwidth to support data replication and failover.</p> <p>Documentation</p>
documentation	<p>Documentation Accessibility: Ensure that documentation related to the recovery plan is easily accessible and well-organized for reference during recovery procedures.</p> <p>Testing and Validation</p>
Testing and Validation:	<p>Testing and Validation:</p> <p>Testing Environment: Specify the availability of separate testing and validation environments that mirror the production environment.</p> <p>Compliance and Regulations:</p>
Cost efficiency:	<p>Consider cost-related non-functional requirements, such as optimizing resource usage to minimize recovery-related expenses.</p>