Azure Backup and Disaster Recovery Implementation

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Cloud Platform: Microsoft Azure

Overview

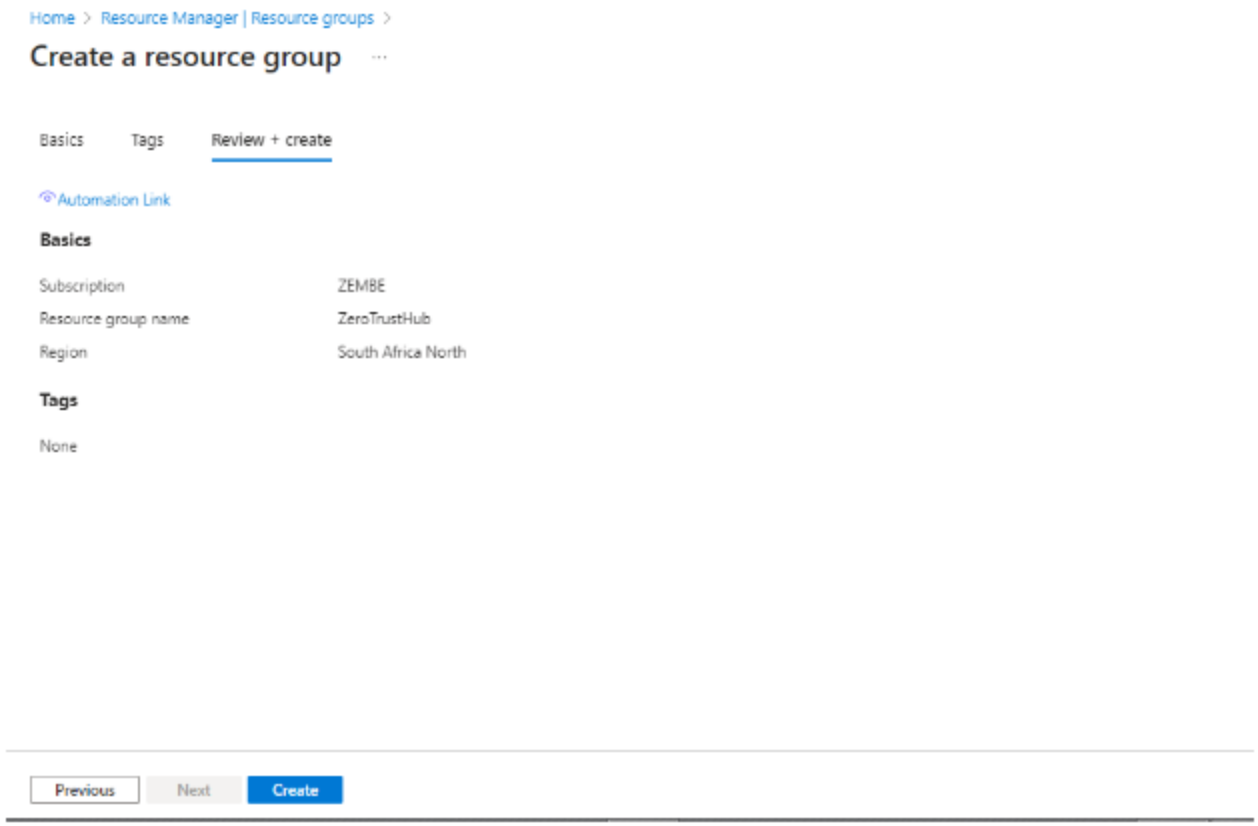
This project demonstrates how to implement a ***complete backup and disaster recovery solution*** for Azure Virtual Machines. Using ***Azure Backup*** and ***Azure Site Recovery***, the project ensures that workloads are protected against accidental deletion, corruption, and regional outages. The solution provides business continuity by allowing data recovery and VM failover to a secondary region.

Problem Statement

Organizations rely on cloud infrastructure for critical workloads. However, VMs can be accidentally deleted, corrupted, or affected by ransomware. Additionally, regional outages can disrupt service. The challenge is to:

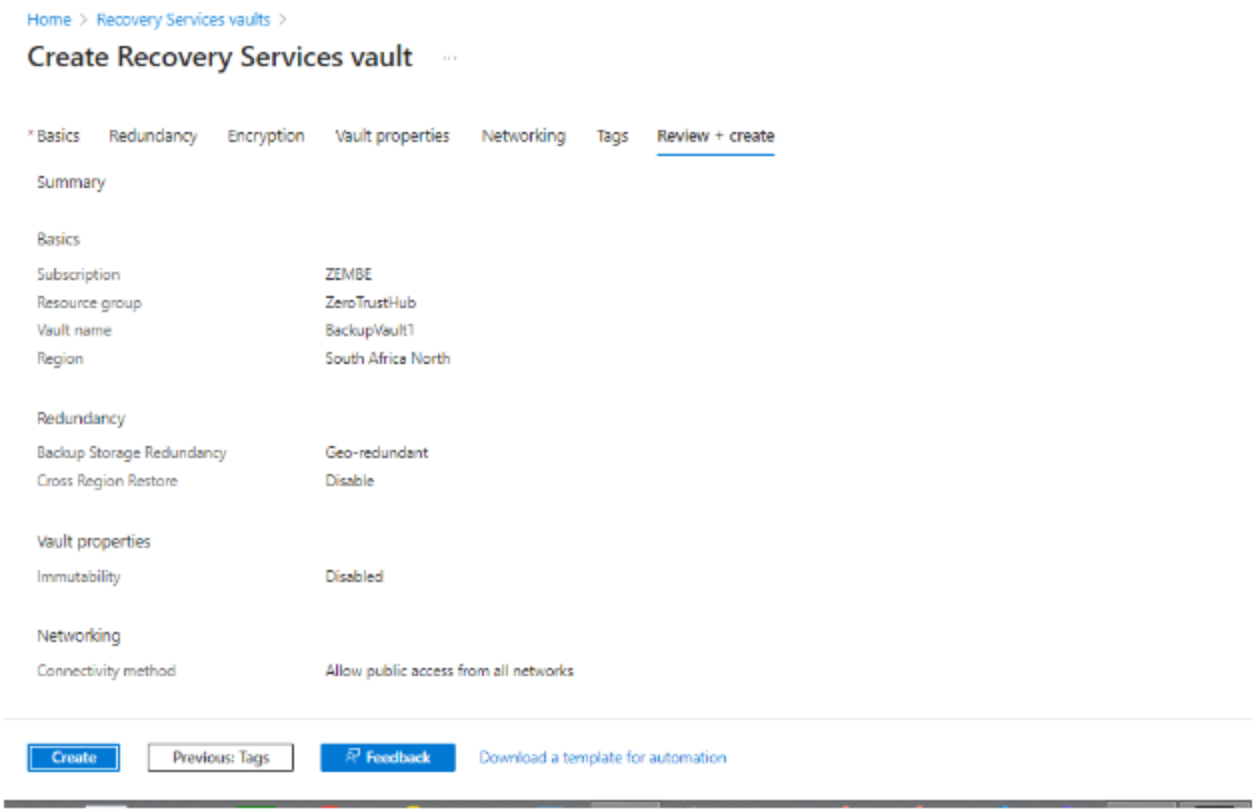
> Protect VM data with automated backups.
>Ensure workloads can be restored quickly if failure occurs.
>Maintain business continuity during regional outages through disaster recovery.

Step 1: Create a Resource Group
To group all related content.

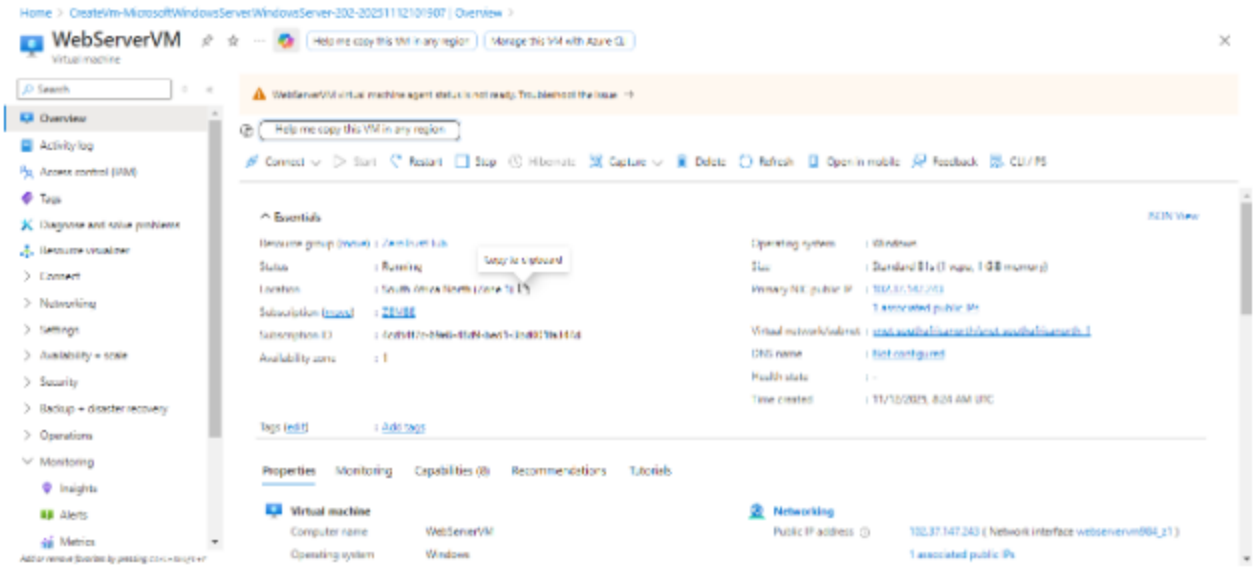


Step 2: Create Recovery Services Vault

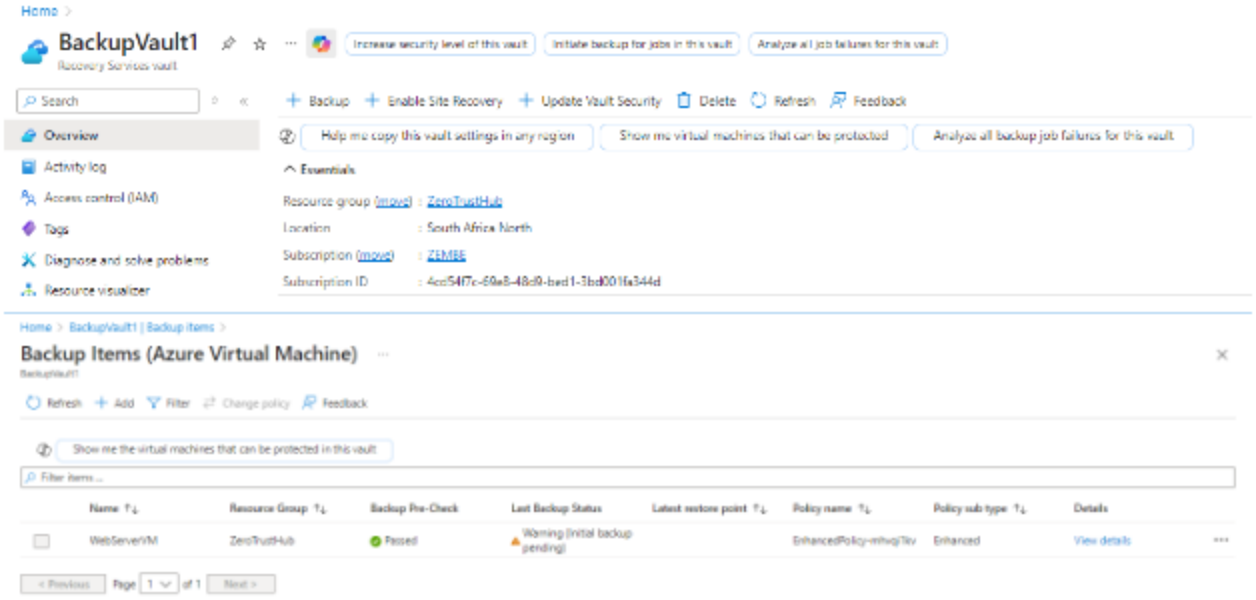
A secure container to store backups and replication configurations.



Step 3: Create a Virtual Machine
A cloud-based server to run workloads.



Step 4: Configure Backup for VM
Protect VM data from accidental deletion or corruption.



https://portal.azure.com/#

Step 5: Backup Recovery (Documented Step)

Verify that backups are recoverable without affecting the original VM.

STEPS:

1. Recovery Service Vault – Backup items – Azure Virtual Machine.

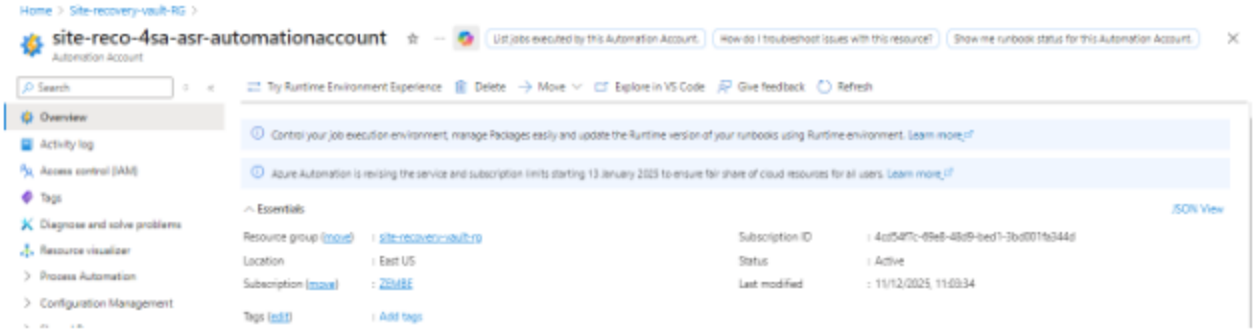
2. Select (WebServerVM) – Restore VM

3. Restore Point – Create new VM

4. Configure new VM settings and click Restore.

Step 6: Configure Azure Site Recovery (Disaster Recovery)

Ensure VM can continue running in case of primary region outage.

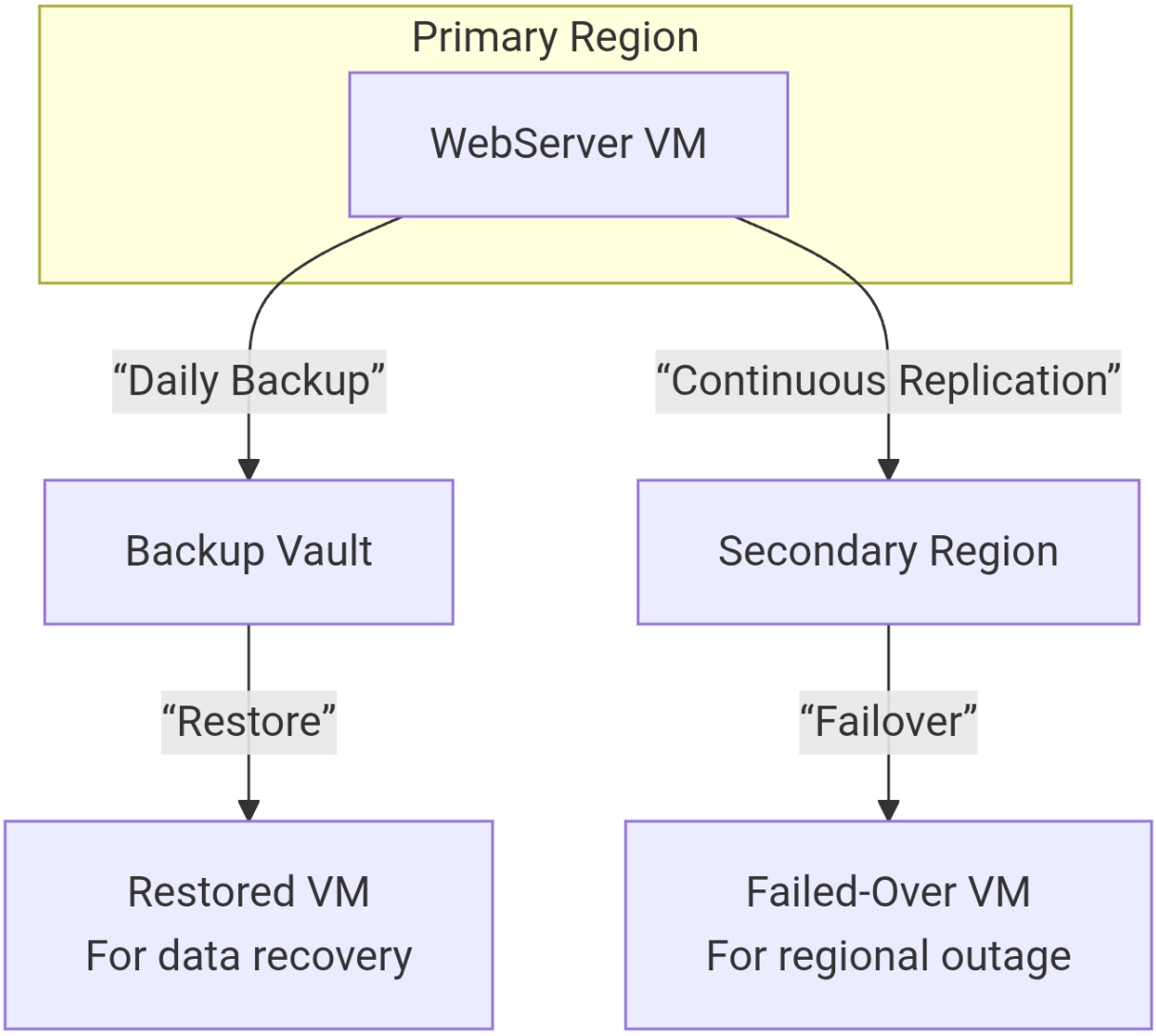


Step 7: Test Failover (Documented steps)

Ensure disaster recovery works without impacting production VM.

STEP:
1.Recovery Service Vault – Site Recovery – Replicated items.
2. Select WebServerVM – Test Failover.
3. Choose the latest recovery point.
4. Select Virtual Network for the test VM.
5. Click OK to start test failover.
6. After verification, Clean up Test Failover

DIAGRAM



OUTCOME
> Automated daily backup for WebServerVM enabled
> Backup recovery steps documented and can be executed as needed.

> VM replication to a secondary region established for disaster recovery
> Test failover steps documented to validate business continuity