Security and Risk Management Module

DISASTER RECOVERY (DR)SOLUTION DIAGRAMS

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UNIT 9B ACTIVITY(DISASTER RECOVERY SOLUTION

Create a high-level diagram of a DR solution for the following requirement:

1. RPO=1hr,RTO=8hrs: High Availability(HA)Required. DR Objective {Active-Passive system].

2. RPO=24hr,RTO=72hrs: HA Not Required. DR objective {Backup Restore system].

3. RPO=5Mins,RTO=1hr:HA Required. DR objective {Active-Active system].

DR Solution-Active-Passive Recovery Objective(AKA Warm standby)

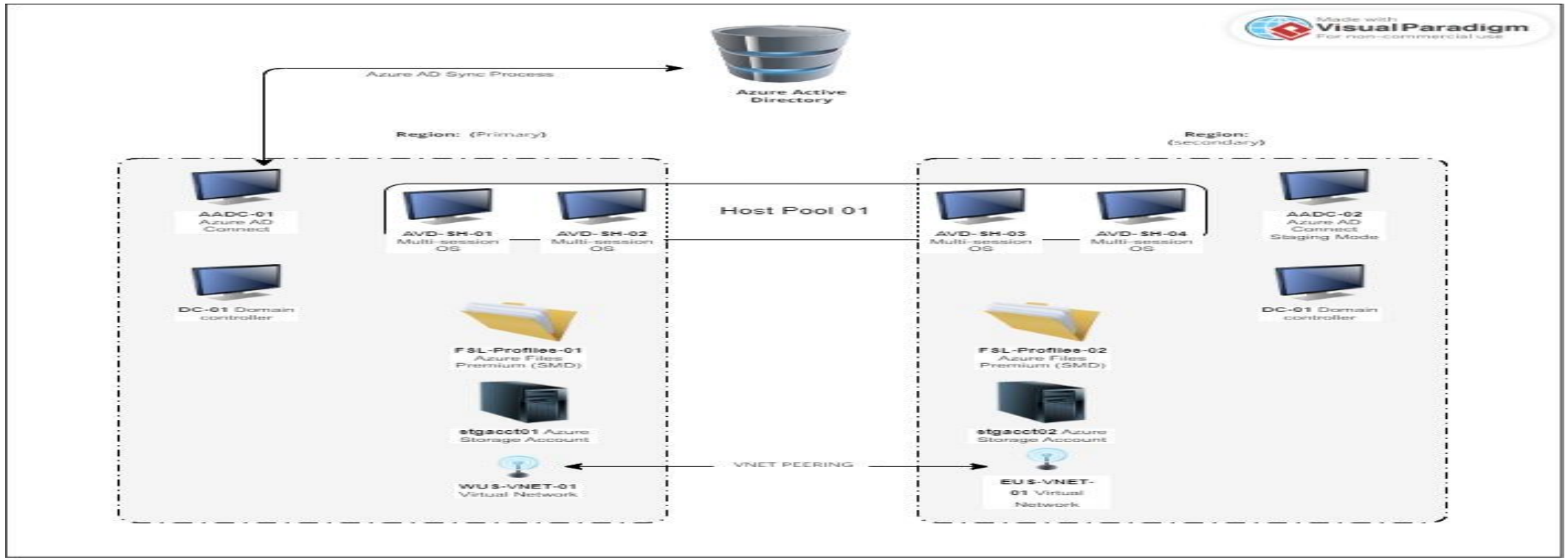

FIG1 - DR OBJECTIVE SOLUTION : ACTIVE-PASSIVE

Explanation of Fig 1

The fig 1 represent a DR solution object(Active-Passive) to scenario 1 RPO=1hr,RTO=8hrs: High Availability(HA)Required.

Characteristics:

- It is a medium criticality system.
- Alt set of resources is running in another environment or data canter which will be readily available to go live i.e. identical site in active primary site and passive secondary site.
- Data replication is usually asynchronous and could be through standard provider mechanism. The system design architect should confirm the SLAs meets the RPO objective
- Availability: the code and data are available in all site but manual intervention is required to switch-over to the alt system and the manual mechanism delays switch-over process.
- Recoverability: The alt site means recoverability would be same order as RTO.
- Region: Single vendor can manage both sites however, any error from the vendor might affect all the site and the DR will not work. Multiple vendor is recommended .

DR Solution-Active-Passive Recovery Objective(AKA Cold standby)

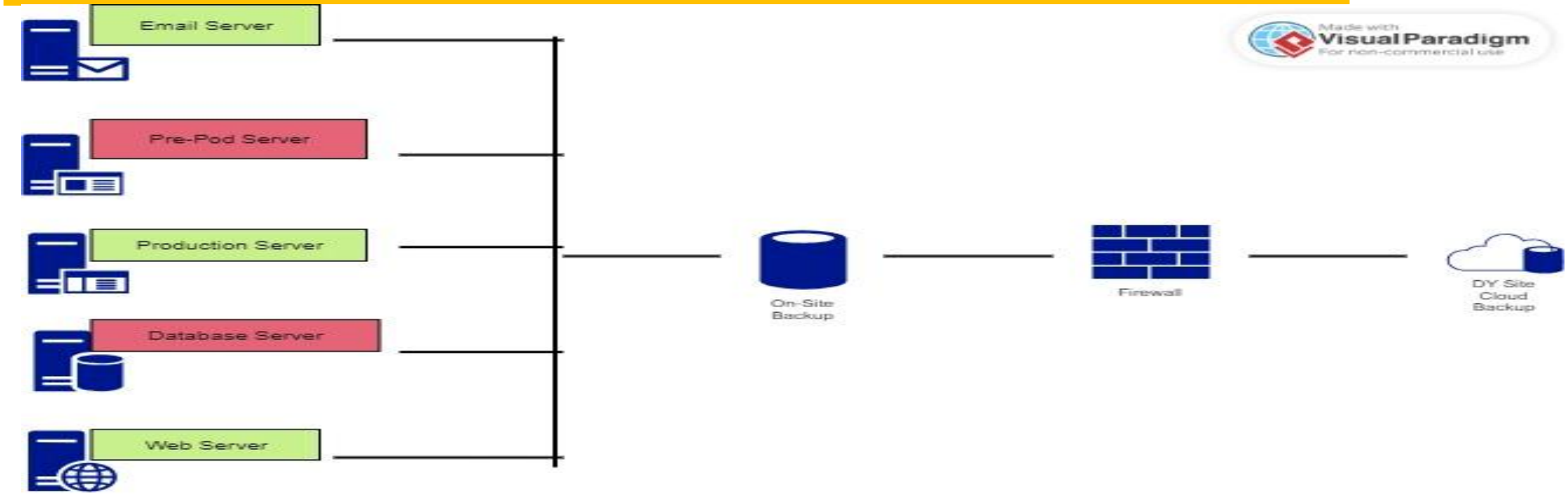

Fig 2-DR Objective :Backup and Restore solution

Explanation of Fig 2

The fig 2 represent a DR solution object(Backup Restore) to scenario 2 RPO=24hr,RTO=72hrs: HA not required.

Characteristics:

- It is a low criticality system. Not HA but requires failover expense
- It uses reserved instance mechanism. This is where capacity is paid but not deployed .
- Code and data is made available on demand although the deployment pipeline must have access to both sites .
- Data replication is normally asynchronous.
- DR system is usually built using deployment scripts and data is manually restored .
- Recoverability is high within the agreed time objective however, there is risk of delays due to having to run the scripts.

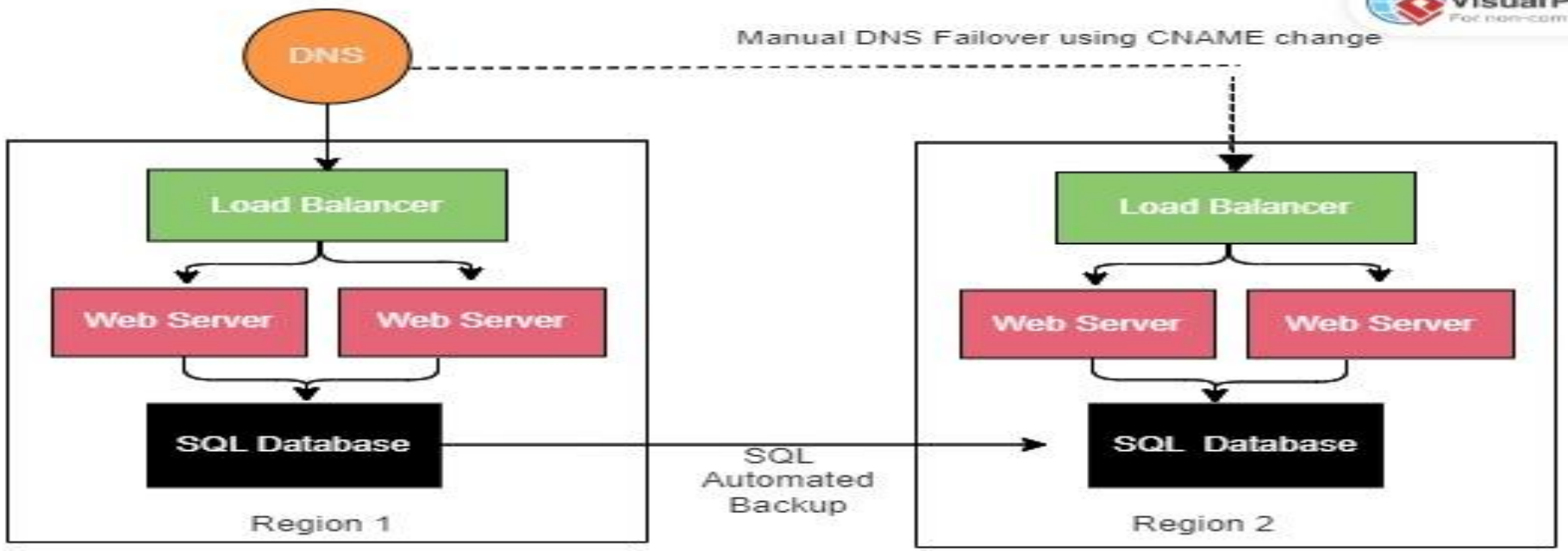

FIG 3-DR OBJECTIVE SOLUTION : ACTIVE-ACTIVE

Explanation of Fig 3

The fig 3 represent a DR solution object(Hot standby) to scenario 3 RPO=5mins ,RTO=1hrs: HA is required.

Characteristics:

- It is a critical system that is HA , zero downtime and an active solution .
- Two identical system running concurrently usually one in the premise and the second in the cloud and switching is mainly automated.
- Recoverability is very fast as the data is synchronous though the recoverability in paired in region .
- Data corruption risk can be mitigated by small replication delay though replication delays means loss of data and higher RPO. But this solution is near zero data loss .
- Region : single vendor management makes replication and switching easier, but any vendor error affects all the site system . Multi-vendor solution is recommended but its higher cost and complex .

Conclusion

Both RTO and RPO can be in minutes and hours depending on the criticality of the business application and the DR solution of choice must be tested regularly to ensure its works on the event necessity(Kanikicheria.p,2020).

Reference

- Kanikicheria ,P.(2020). Disaster Recovery strategies in Cloud or in general. Available from: https://prashix.medium.com/disaster-recovery-strategies-in-cloud-or-in-general-c1a01f192a3[Accessed 07 October 2023 .
- Microsoft Ignite Article 04/14/2023.Azure Virtual Desktop disaster recovery concepts .Available from: https://learn.microsoft.com/en-us/azure/virtual-desktop/disaster-recovery-concepts[access [Accessed 10 October 2023].
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