# SQLSERVER ALWAYS ON AVAILABILITY GROUP

# REAL TIME PRODUCTION SCENARIOS

| SNO | Scenario | Findings | Fix | |
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| | 1 | SQL-Service terminated unexpectedly on the Primary Replica | Always on Resource will failover from Primary to Secondary Replica making the current secondary replica as the new Primary Replica | Fix the SQL Service on the failed Replica and Manually Failover the Always on Resource from the new Primary to the Old Primary Server. |
| | 2 | Primary Replica Server Reboots or crashes due to a hardware Failure | Always on Resource will failover from Primary to Secondary Replica making the current secondary replica as the new Primary Replica | Fix the Hardware on the Failed Replica and Manually Failover the Always on Resource from the new Primary to the Old Primary Server. |
| | 3 | Secondary Database goes into suspect/Recovery Pending mode due to the data file corruption | Secondary Database is corrupt or Unavailable and All the application read-only transactions are automatically routed to primary replica | On the primary Replica, Remove the Corrupt Database from the Availability Group. Delete the Database on the secondary Replica. Take a fresh backup of Full and Log on the Primary Replica and Restore it in secondary Replica and Add the database to Always on Group |
| | 4 | Secondary Replica Server Goes Down due to a Hardware Failure or an Unexpected Reboot Occurs on Secondary Replica in middle of a Long Running transaction of the Availability Database on the primary replica | Transaction will go ahead and complete on the primary replica without waiting for acknowledgement from Secondary because the Primary Replica temporarily shifts into asynchronous mode and when the connection is restored they resume the synchronous mode. Log file will grow and will not release the space until it gets synchrnized with the secondary replica | Fix the Hardware issue on the secondary replica and monitor the synchronization process of all the data changes that were made on the primary while the secondary was down. |
| | 5 | Primary Replica Database becomes Unavailable due to a SAN Failure | If the Database Level Health Detection is set to on then the Availability group will failover from Primary replica to Secondary Replica | Restore the SAN failure and bring the Database back online on the failed replica and then manually failover to the original primary Replica |

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| | 6 | Log File is Full on the Primary Replica | If there is some synchronization process going on in the background then Always on will not release the log space until the synchronization is complete | If the shrink does not release space, then try the backup log and if the backup log also does not release space then Remove the DB from Always on, backup the log, Shrink the log. Add the Database back to Always after a fresh backup and Restore |
| | 7 | Application Cannot access the Secondary Replica for Read-Only transactions due to the Orphaned user of the application account | With Secondary as Read-Only Replica you cannot fix the orphaned user in the secondary replica as you cannot delete or Re-Map the Login to the database user since the DB is Read-Only | Get the SID of the Login from the Primary Replica. Create the Login on the secondary with the same SID which will automatically map the Login to the database and also will do the same for future restores. |
| | 8 | A Sudden failover occurs from Primary to Secondary Replica in the middle of a long running transaction | Transaction is broke and will not failover to the secondary Replica | Find out the reason for Failover, Fix the Primary Replica and Re-Run the transaction again on the primary Replica |
| | 9 | Cluster Service on Primary Replica and File Share Witness of the cluster goes down. | Quorum is lost and Secondary Replica will go into the resolving state | Force the Quorum in secondary Replica and get the cluster up and running. Then Force a Failover of the Always on from SQL-Side to bring the secondary as a Primary Replica. Fix the cluster Service on the old Primary Replica and failback to the original settings. |
| | 10 | Add a new Data File on the Primary Replica | New file will be added successfully if the same path Exists in the Secondary. But if the path is different then Adding a new Data File will fail in the secondary Replica | Make sure the Database that is participating in the Always on has the same path as both Primary and Secondary Replica. |