--- We cannot set DB in single user mode when the DB is in Availability group

---when we are restoring\overwrite with the existing DB we need to set DB to single user mode

---- if the login is getting locked we need to check if it is connecting with the wrong password

---- if we are seeing any space issue in the drive we need to check any shadow copies are occupied in the drive

----- How to check the isolation mode in DB level and instance level

DBCC useroptions

--- How to add Database in to AG availability group

Step 1: first we need to take the full and log backup of database

2) Please stop the log backup job in primary node

3) Restore the full and log backup's in all the secondary nodes with no recovery mode

4) Use join only function (or)Fileshshare option while adding the DB into AG

5) Please enable the log backup job after completion of successful added DB in AG

---- Database modes please check and write below

Online:

offline: when we set database to offline

In Recovery\Pending\Suspecting:

No Recovery:

Synchronizing:

Not Synchronizing:

Restoring:

Read-only\Stand-by:

Single user:

---- Generally in what scenarios primary and secondary replicas are not in Synchronizing

When the network fluctuations between primary and secondary’s

When the SQL services restarted as because the DB will be in recovery mode (then the AG status will be in resolving state)

when server got rebooted there can be chance of drives are missing like mainly log drive and also just check once data,tempdb drives also

There can be scenario where primary and secondary servers drive configuration is not same in such cases where log drive is increasing on the primary

And in secondary the drive got full due to the less configuration compare to primary.

When server rebooted there is chances of database in AG will be suspend data movement

Then we will right click and click on resume data movement on database or use command below

And this error occurs when failovers are happened

ALTER DATABASE [YourDatabase] SET HADR RESUME

---- Many of the times we will face permissions issue when failovers done i.e., the user will face login issues as the login not created in secondary’s or having different SID

-----Backup Strategy:

Not only for the single server but we have total 950 servers.

Out of which 400 are prod and remaining 450 are dev/stage.

for all the servers backup strategy is same full backup runs on every Saturday in off PST hours

DIFF on daily basis and log backup runs on every 15 Mins.

Highest database Size for one DB is 5 TB and backup is striped backup with 5 backup files

And the RAM for this server is 512 GB RAM and Operating system is windows 2012 R2

----what permissions needs to give when user wants to run the dmv's on the SSMS

We need to give view server state permissions in securable section

--- How many types of restarting SQL services

by services.msc , sql configuration manager and server will reboot and sql services can be started by windows you can search with event id:7036

--- Sysadmin permissions required for doing update statistics Operations and for rebuild system databases

--- we can create the 32,767 databases in one instance of sql server and 50 instances we can create.

--- 1024 coulumns can be created per table in sql server.

Can we take backup's on secondaries ?

Yes, we can take backup's on secondary’s but with copy only full backup but not DIFF and can be taken transactional log

--- If the database or application (or) server is running slow (or) Performance Tuning steps

Please check the basic things like

CPU and Memory

Long lock running, blockings and deadlocks

any DB maintenance jobs like ( backup and update statistics and index jobs)

check any open transactions running on the temp db by using dbcc opentran()

Fragmentation

Indexing and Update statistics

Performance counters

Max Dop , DAC

table partitioning and Query tuning

---- Please use Event ID: 1074 for finding the who rebooted the server: Event viewer->system->filtercurrentlog-> give event id 1074

--- how to check percentage completion of backup or restore

select percent\_complete,db\_name(database\_id),\* from sys.dm\_exec\_requests where command like'%restore%'

Orphan users :

Orphaned users in SQL Server occur when a database user is based on a login in the master database, but the login no longer exists in master. This can occur when the login is deleted, or when the database is moved to another server where the login does not exist. This topic describes how to find orphaned users, and remap them to logins.

The problem is that the user in the database is an "orphan".

First, make sure that this is the problem. This will lists the orphaned users:

EXEC sp\_change\_users\_login 'Report'

If you already have a login id and password for this user, fix it by doing:

EXEC sp\_change\_users\_login 'Auto\_Fix', 'user'

If you want to create a new login id and password for this user, fix it by doing:

EXEC sp\_change\_users\_login 'Auto\_Fix', 'user', 'login', 'password'

---- how to give permissions for a user to run profiler

- To Grant access to a Windows Login

USE Master;

GO

GRANT ALTER TRACE TO [DomainNAME\WindowsLogin]

GO

-- To Grant access to a SQL Login to run a profiler in server

USE master;

GO

GRANT ALTER TRACE TO manvendra

GO

1) DMV's and DBCC commands

Answer : DMV's are light weight threads and also

it consumes the less memory compared to DBCC

so DMV's are better compared to DBCC

a)how to check the queue of pending transaction to replicate to secondary when DB is in initializing state

select redo\_queue\_size from sys.dm\_hadr\_database\_replica\_states

and in redo\_queuesize column you can find the pending transactions

b) to get the blocking information we will use sys.sysprocesses

c) to check percentage completion of SPID we will use sys.dm\_exec\_requests

d)to check the fragmentation sys.dm\_db\_index\_physical\_stats

DBCC's are

dbcc opentran() and dbcc inputbuffer() and dbcc sqlperf and DBCC CheckDB

5) pre-requisites and configuration of Always ON

6) Pre-requistes and installation of Failover cluster manager

8) Take all the required documents here in T-mobile

9) what is file groups

10) Table partition

11) replication document and required screen shots of Tech servers and XECM in word document

12)SQL Architecture and related questions

13) what is file share witness

from : querytuning and execution plan

examples if a bulk insert command is running for long time so what will be the action

and database is becoming slow

when executing a query some times multiple threads will come what we need to do if we need only single thread

what are vulnerabilites and what is patching.

General information of daily day to day tasks

----- we will work on PIER Tickets for User requests

(like DBencryptions,creating linked servers, creating jobs, password reset activity where we will use saving passwords in cyber ark tool,backup and restore

add if anything remembered)

----- We will work on ChangeRecord CR for deploying scripts and SSIS packages and backup and restore according dev team requirement

----- Merlin Tool for servers information

----- foglight is the monitoring tool ( we can get all the information of the servers in foglight and we can blackout the servers for any activities)

----- Monitoring foglight alerts for blockings,CPU and memory, job failures,Disk capacity

----- Merling for servers repository tool having info of app support team and details

------ working on reboot activities called prod night 1,2 and 3 for three days as the windows patches will update and needs reboot of servers

in this cluster nodes will be in different prod nigths ad because if two same cluster nodes are in same prod night then the DB will be down

Cognizant Interview :

1)can we take full backup with command .trn file extension

Ans : yes we can take and we can restore also

2) if one environment Always on is configured and Replication is configured suppose if any secondary DB's are not in Sync then Replication will be in Sync or not

Ans: replication will not be in sync

3) in replication we got an error message that store procedure is mismatch with subscriber. so how you will trouble shoot it

Ans: Need to check

4) supppose if the DB is corrupted and no backup is there with us and then how we will troubleshoot it

Ans : (check our Book for clear info)we will set DB to Emergency mode and need to check more ( and also read if tempdb is corrupted what we will do and also check can we able to connect to instance)

6) what is pagelatch,PageI/O.

Ans: Need to study

9) what is the low and highest memory values (min=0 max=2,147,483,647)

10) what is connection and session in sql server

----- how you will trouble shoot when log file is getting full

i will create one more log file in another drive

will raise for storage request

will check any shadow copies occupied in the server

will try to shrink the other databases to get some space so that the open transaction will complete

will check the database status with this command select log\_reuse\_wait\_desc,\* from Sys.databases whether it is waiting for the log backup or avalability replica( means the transactions pending to send to secndary node or when the log file is getting full)

---- how you will trouble shoot when data file is getting full

i will create one more data file in another drive

will raise for storage request

will check any shadow copies occupied in the server

will check for high data consuming tables and will check with application team and try to purge the data (deleting old data and after deleting we need to shrink the datafile other wise mdf file size will not decrease)

--- what is lazy writer

when the buffer memory is getting full or reaches threshold the lazywriter will automatically trigger and it will move the modified datapages to datafile

default it will be in sleeping mode and it will trigger based on PLE(Page life expectency)

--- What is check point

read definition in Dairy and read the below points

TARGET\_RECOVERY\_TIME is Database level configuration and we can change this by below command

ALTER DATABASE ... SET TARGET\_RECOVERY\_TIME =target\_recovery\_time { SECONDS | MINUTES }

'recovery interval' is server level configuration

EXEC sp\_configure 'recovery interval','seconds'

Steps if master database is corrupted

1)we will open the cmd prompt and give SQLCMD

2) execute the command Setup /QUIET /ACTION=REBUILDDATABASE /INSTANCENAME=InstanceName /SQLSYSADMINACCOUNTS=accounts [ /SAPWD=StrongPassword ] [ /SQLCOLLATION=CollationName ]

3) check the summary.txt where we can see the database is recovered

4) And login to the instance but we cannot see the user databases

5) then set the master db. in single user as we can set -m in strtupparamerters

6) Stop the sql services

7) Restore with the new master backup in command prompt

8) Set the database online and start the services

9) You can connect to the instance with all the new data

---- if the login is getting locked we need to check if it is connecting with the wrong password

And if a user is facing issue when failover happen so check it may be different SID, as SID should be same for primary and secondary.

What is copy only backup:

By using this option in backup window it will not effect the current going backup schedule

how to move\remove the secondary log file or datafile ?

you can use the option in shrinking DB window is "Empty file by migrating the data to other files in the same file group"

how to check the backup file is good or not ?

RESTORE VERIFYONLY FROM DISK = 'D:\AdventureWorks.bak';

can we take backup's on secondaries ?

yes, we can take backup's on secondaries

---- index Rebuild and re-organize command

command to create an index : CREATE INDEX MyIndex ON MyTable (Column1);

how to rebuild or re-organize a table index : ALTER INDEX IX\_Employee\_OrganizationLevel\_OrganizationNode ON HumanResources.Employee

REBUILD WITH (FILLFACTOR = 80); ( change the rebuild to re-organize)

----Index rebuild has two types online and offline

when it is doing index rebuild offline it will lock the resources when it is in process

but when it is in online rebuild there are three phases

initial phase : it will apply modification lock on the resource so it will allow the only SELECT queries

BUILD phase : it will release the modification lock and allows to updates the transactions to old index and also new index will fetch the data here

final phase : it will apply the lock to specific resource here and updates the previous updates old index to current new index

DR Setup:

1) Make sure that CR is raised and approved

2) make sure that black outs was done to avoid alerts

3) at the time of activity please disable the jobs in Polaris and jobs server which only jobs are hosted

4) after the DR change please check all the DB's and AG's are online

5) enable the jobs in the Titan node

6) If we are moving the failover manually check it is having no data loss and the failover node should be in synchronous type.

Cognizant interview:

What are pre requisites for installation of failover cluster manager

what is the ip address will be given in configuring cluster manager

Ans: Network IP

for Active-Active Total 9 IP's are required

for Active-Passive Total 7 IP's are required

--- Any issue while installing the SQL server

Sometimes MSP and MSI files and also .net framework will be missing so we will download the script from google

And we will save it as .bat file on the server and will run that .bat and proceed for SQL installation

--- What is Quorum disk (or) File share witness?

It is having the fail over information and also it is used to send the communication between the nodes

If the Quorum disk is down then auto failover will not happen in case of any node downs then we need to go for Manual failover

The recommended size is 500 MB

File share witness and quorum disk is same but quorum disk is better compared to File share witness

If you have a multi-site cluster, then most likely you will have to use a file-share witness as there wouldn't be shared storage between the two sites…

--- Differences between the DB mirroring and Always-on

> In DB Mirroring secondary’s are not readable because those are in Restoring state but in always-on the secondary’s are readable

> In DB mirroring only one secondary but in always on there can be more than one.

> In always-on AG failover will be there but in DB mirroring is database level failover.

---- we cannot run the DIff backup's without having full backup run but if they restoring the DB's with overwrite option then DIFF can be run.

--- How to failover AG's availability groups please discuss and write down the steps below

(the below process when only AG roles are running on the cluster)

Go to the AG Right click and click on failover

then in the dashboard please make sure that it should be "no dataloss" to which node that you are moving

Then proceed the failover next screens and complete

If it is in dataloss then you need to click on the AG properties and change to Asynchronous if it is in synchronous

Then it will come to "no dataloss" then you can proceed to failover steps to next.

And also when we are doing failover then the AG will go to Resolving state.

2) If both AG and SQL roles are running then we can move the roles directly through the failover cluster manager

(Use SQL role to move the required node then automatically AG role also will move)

3) If only SQL role is running then you can move to the other required node.

---- Why Listener is required even application can connect with instance name or hostname

An availability group listener is a virtual network name (VNN) to which clients can connect in order to access a database

In a primary or secondary replica of an Always On availability group. You point applications to the listener

--- How many types of restart of SQL services

We can restart through services.MSc, and via SQL configuration manager and if server rebooted then services will restart

And check with the Event ID: 7036 in event viewer system logs and ask the windows team for RCA.

--- How to check SQL error logs and always-on errors?

SQL Errors : Sp\_readerrorlog (or) path you can see the path in SQL configuration manager startup parameters (or)

Go to instance 🡪 management🡪 sql error logs

Always-on errors: go to the AG Dashboard and view always on health events (or) Event viewer

DMV's are light weight threads and also

It consumes the less memory compared to DBCC

So DMV's are better compared to DBCC

----what permissions needs to give when user wants to work on SQL Agent jobs

Go to msdb and select the roles SQL agent uesrrole, SQL agent reader role, SQL agent operator role

---- Responsible to provide technical support with high degree of Customer Happiness by meeting Service Level Agreements (SLA) and process compliance

What are pre requisites for installation of failover cluster setup..

what is the ip address will be given in configuring failover cluster.

Ans: Network IP

minimum two nodes and node to node ping check

for Active-Active Total 9 IP's are required

for Active-Passive Total 7 IP's are required

window failover cluster and sql failover setup file.

virtual name and sql virtual name and drives

private network ip and public network = 2+2

sql server ip and Network ip

mstsc ip

How to restore the master database using backup

Pre- requisites:

1) Just for safety keep the copy of mdf and ldf files

2) If restoring in a another instance of server, the SQL instance should have the same version and service packs and hot fixes

3) For doing this activity we should be part of the sysadmin role

Procedure:

1) Please start the SQL instance in single user mode by using -m parameter in SQL configuration manager --> start up parameters.

2) Connect to the SQL instance in single user mode

3) Make sure SQL agent services are stopped because if it is running it will consider you as second connection and it will not allow you to connect.

4) Restore the master database with command restore database master from disk='g drive path' withe replace

5) After completion of the restoring just remove the -m in the startup parameters and start the SQL services..

---- We can reboot always-on secondary’s in any modes like automatic, manual and sync and Async.

---- We cannot take DIFF or log unless full backup is taken on the database.

---- We can put Maximum 3 secondaries as Synchronous with Automatic failover in always-on.

---- 1) when the primary key is created automatically clustered index will be created and only one clustered index per table and 999 non clustered indexes.

2) If you want to create the clustered index and primary key for different columns then first create the clustered index on one column and then primary key on another column.

Backup/ Restore issues:

While restoring we may face disk Storage issues, occurs for both backup and restore

We may face permission issues

Need to change drive path for mdf and ldf files when restoring backup where drives may not exist here, occurs in only restore

---- The distribution databases are created under the System databases

---- if we need to take the backup of database with 2TB in less time compare to actual time then take the Stripped backup\Split backup…

---- Clustered index is having Root , intermediate and bottom node where the root and intermediate having the index navigations but the bottom is having the data with index navigations.

Non clustered also having the root, intermediate and bottom all the nodes are having only index navigations no data will present.

Clustered and non-clustered will follow the B-tree index structure

---- we cannot restore the 2012 backups in 2008 sql version? No because backward compatibility is not there

---- Ports info:

SQL server : 1433

SQL Browser : 1434 for remote connection

Mirroring and Always-on default port no: 5022

If principal server and witness server and mirrored server are different means then the port number can be same if not then different ports like 5022,5023,5024 like that

--- can we reboot secondary’s directly in always on : Yes

--- how to check CPU’s and processors : GO to SQL instance and right click an go to processors

--- Why listener only instead of instance name where users can connect through listener and instance name

When the failover happens in Always on if they are using the instance name to connect then the users will connect to previous node not current primary node so listener is required

We can create the multiple listeners with multiple AG’s as this may be required that the application can use some set of databases which are configure to one AG group with listener and another application set of databases which are configured to another AG group with another listener. So in such cases if one AG is down then only one application will be down and another application will be running fine.