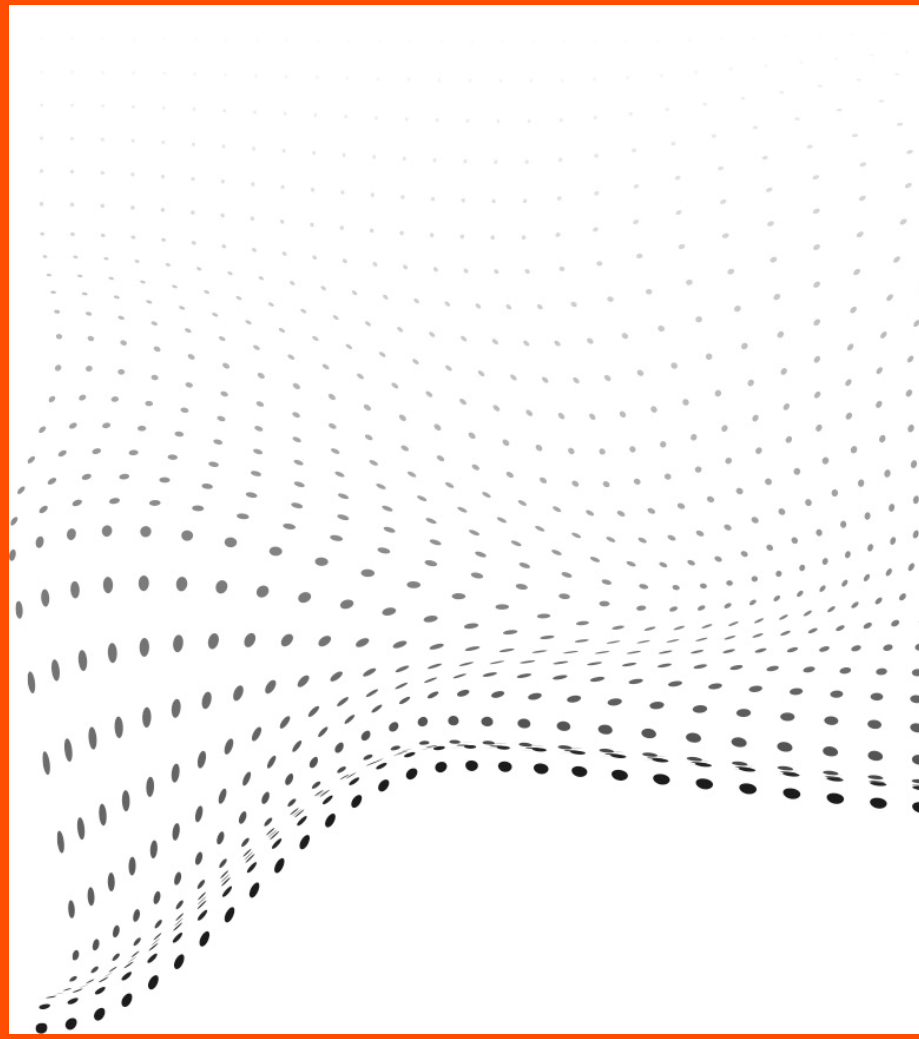
DB BITS

SOLUÇÕES
EM GERÊN
DE DADOS

Zero to Hero in 16 Hours: HADR on SQL Server

Module 7: AOAG II

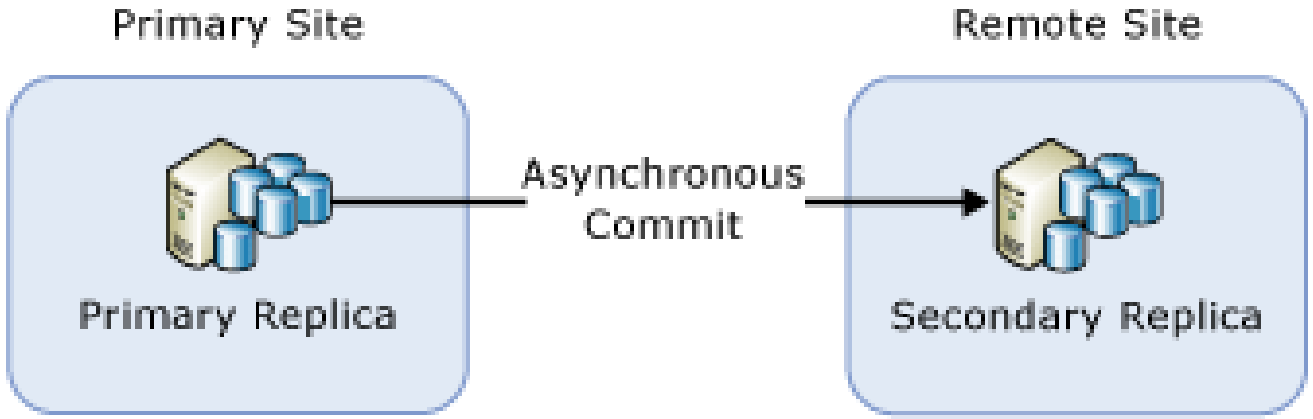
More Always On Availability Groups



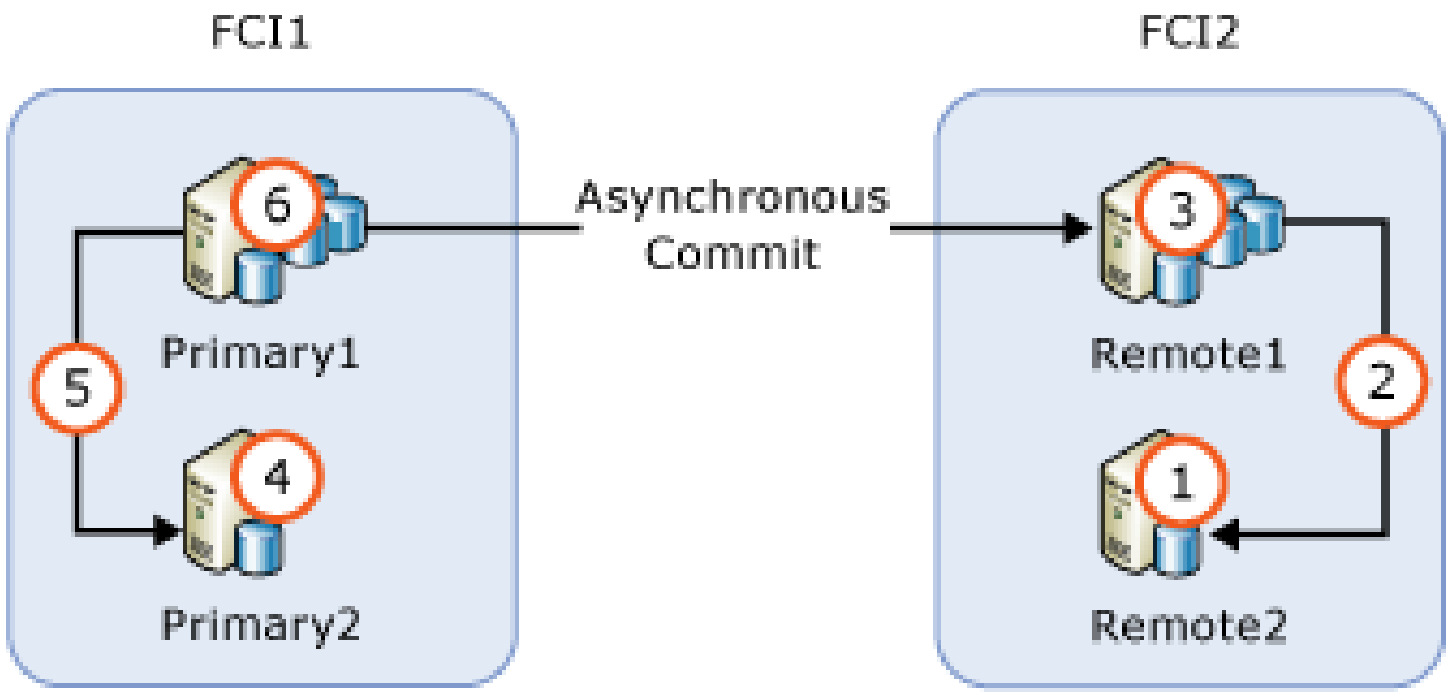
Goals

- Patching considerations
- AOAG between Datacenters (multiple subnets)
- Distributed AGs
- Troubleshooting and health checks
- Timeout fine tuning
- DMVs

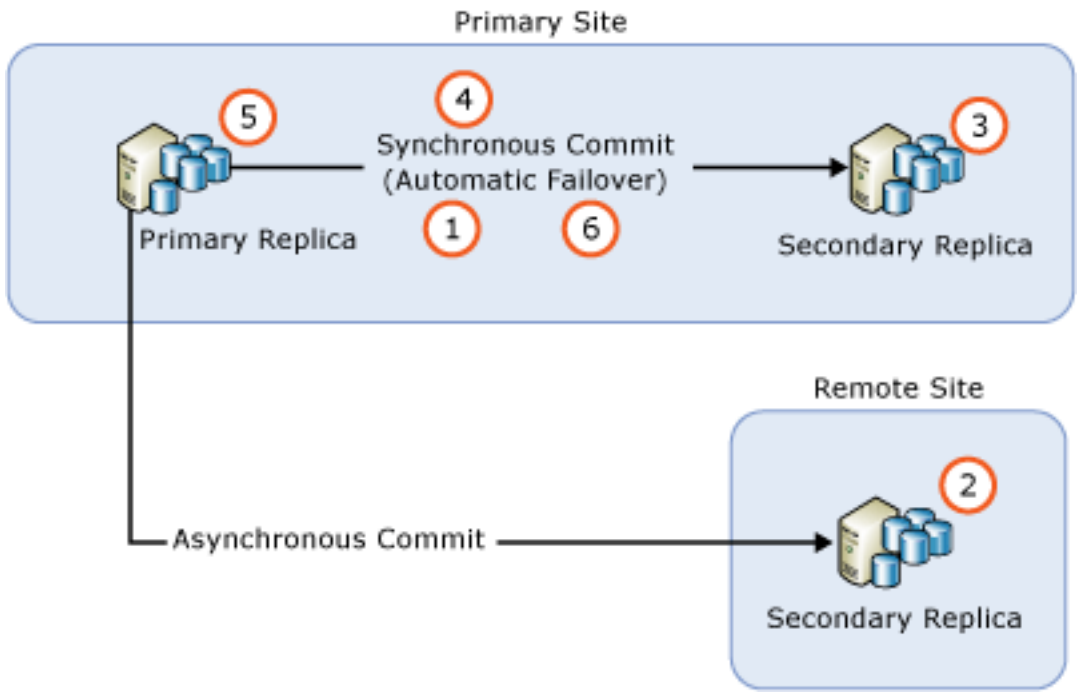
Patching and upgrade considerations



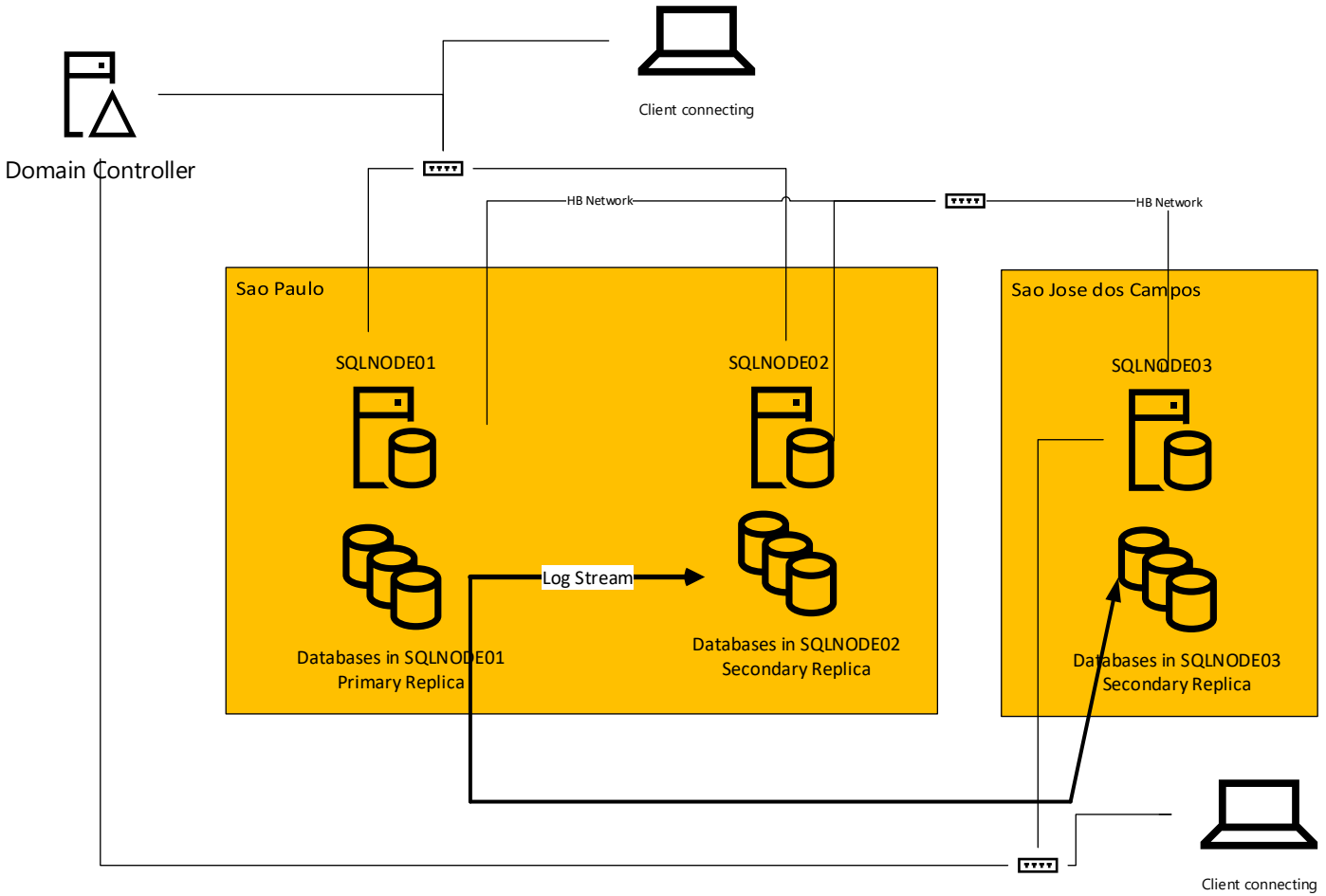
Patching and upgrade considerations



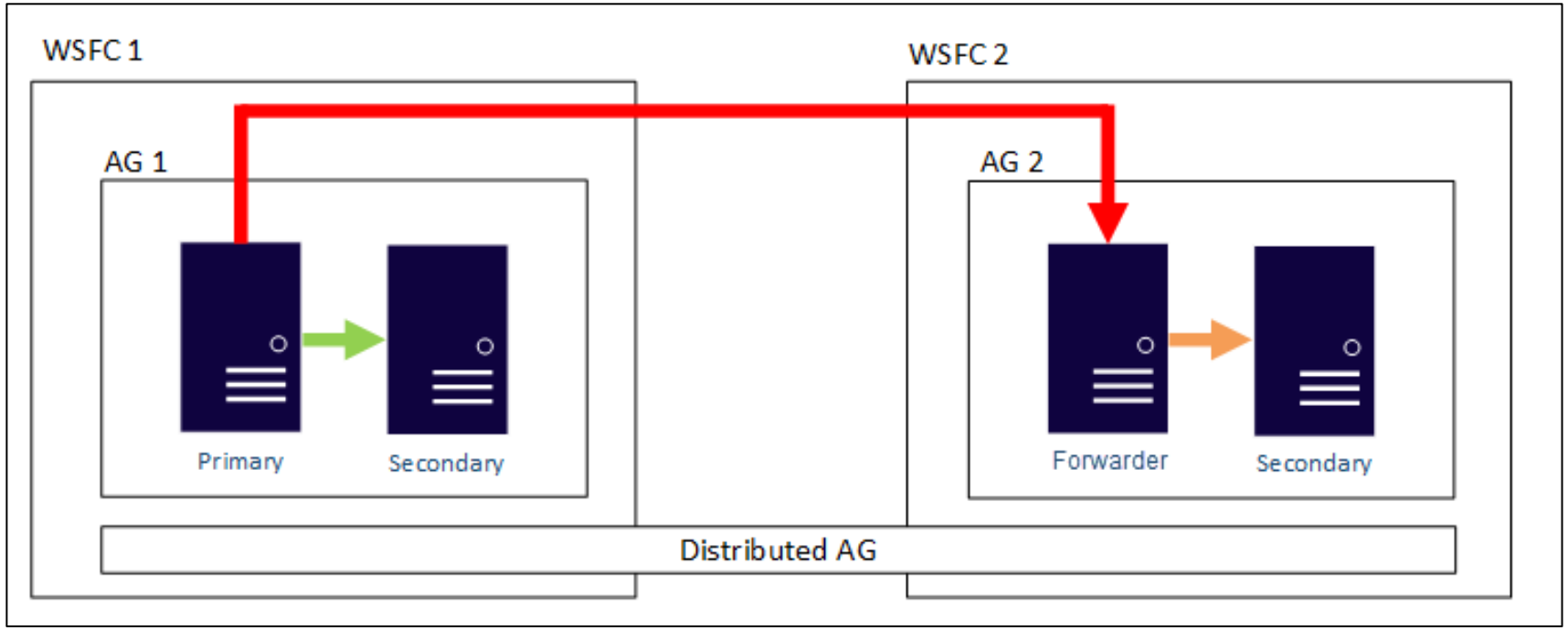
Patching and upgrade considerations



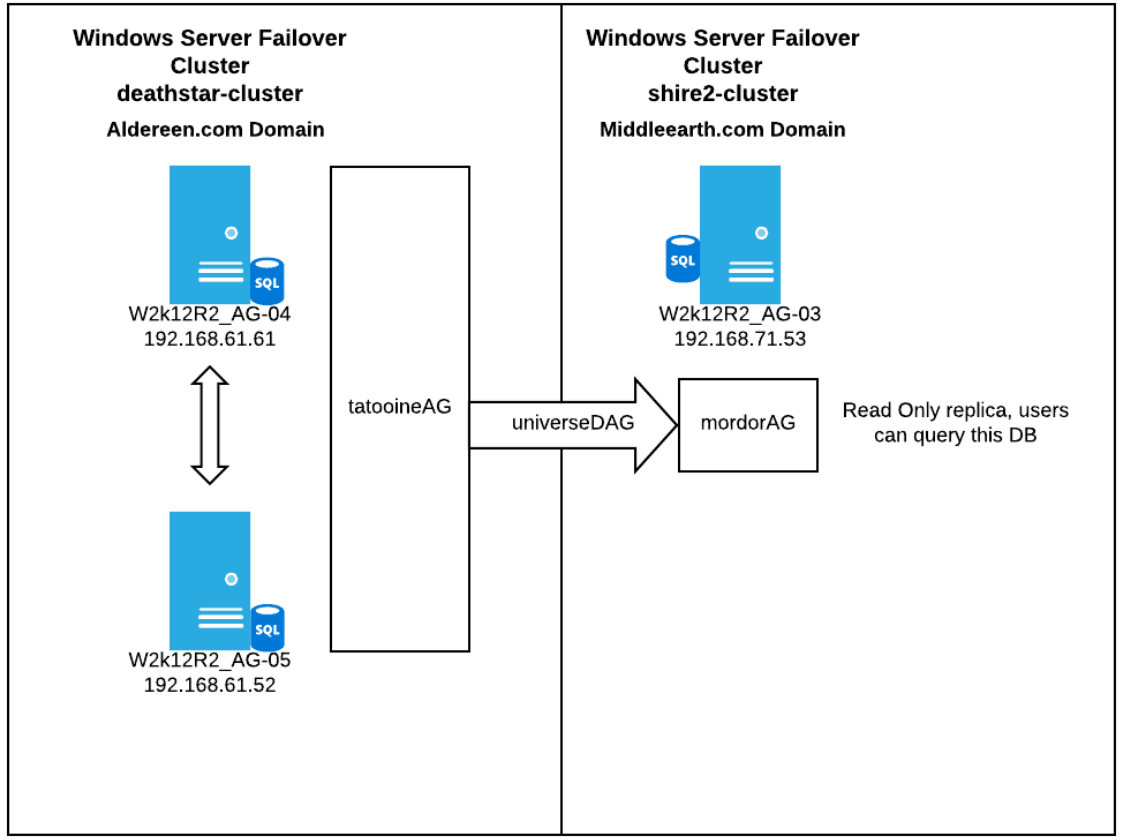
AO AG between Datacenters



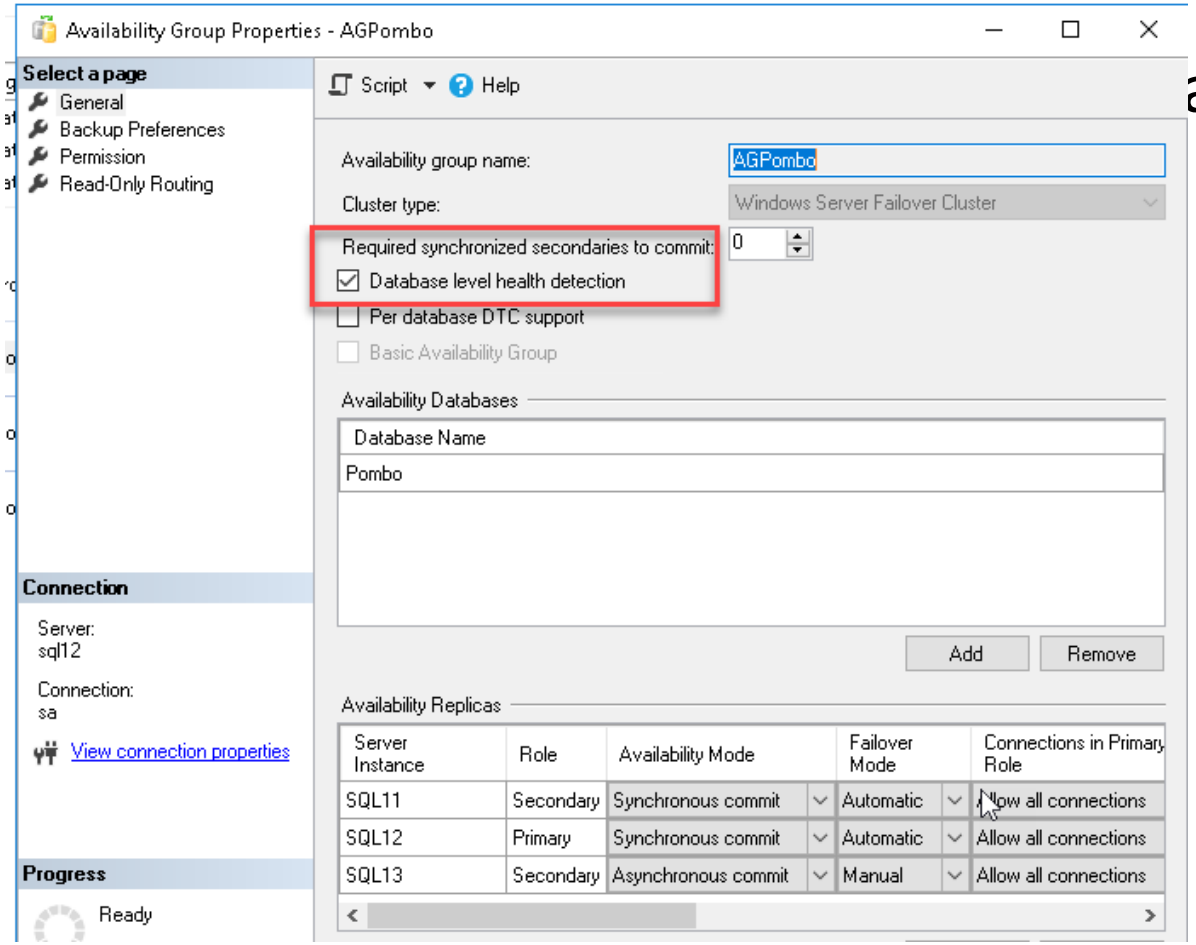
Distributed Availability Groups



Distributed Availability Groups



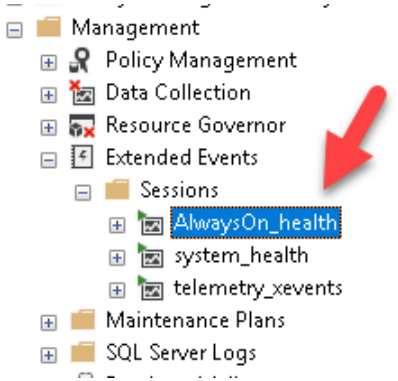
Troubleshooting



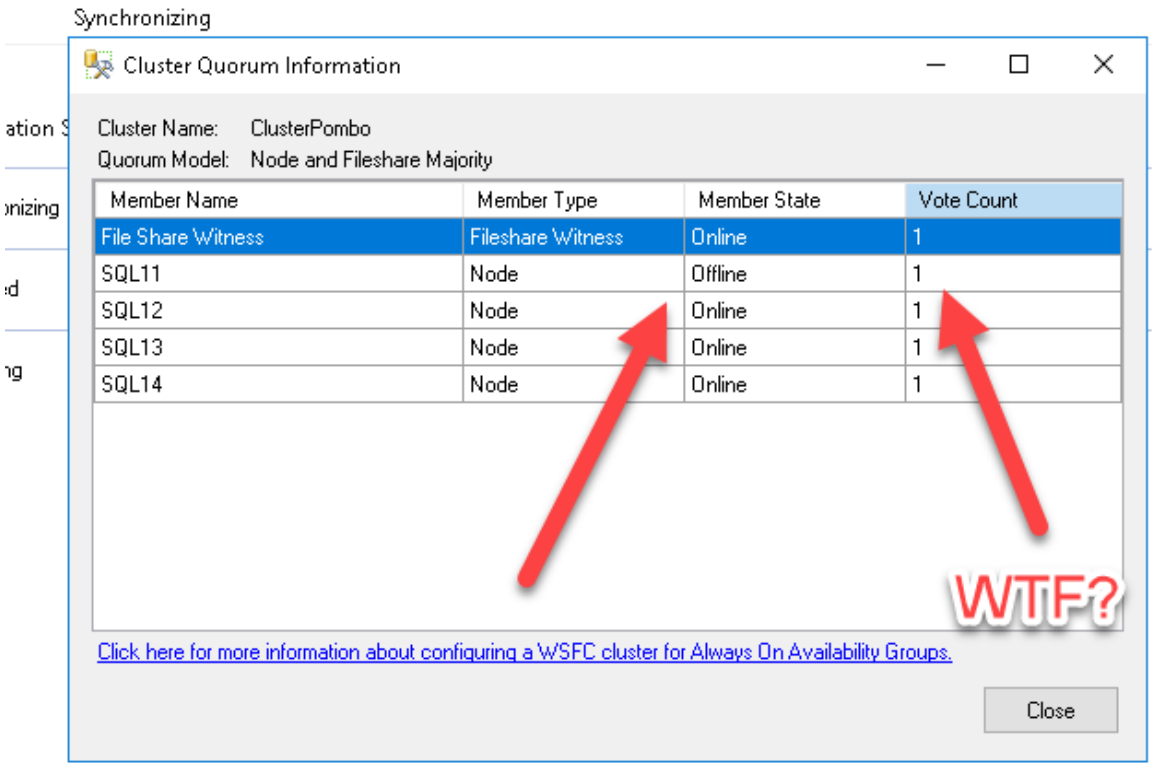
- ays enable it)
- from ONLINE

Troubleshooting

```
CREATE EVENT SESSION [AlwaysOn_health] ON SERVER
ADD EVENT sqlserver.alwayson_ddl_executed,
ADD EVENT sqlserver.availability_group_lease_expired,
ADD EVENT sqlserver.availability_replica_automatic_failover_validation,
ADD EVENT sqlserver.availability_replica_manager_state_change,
ADD EVENT sqlserver.availability_replica_state,
ADD EVENT sqlserver.availability_replica_state_change,
ADD EVENT sqlserver.error_reported(
    WHERE ([error_number]=(9691) OR [error_number]=(35204) OR [error_number]=(9693) OR [error_number]=(26024)
ADD EVENT sqlserver.hadr_db_partner_set_sync_state,
ADD EVENT sqlserver.lock_redo_blocked
ADD TARGET package0.event_file(SET filename=N'AlwaysOn_health.xel',max_file_size=(5),max_rollover_files=(4))
WITH (MAX_MEMORY=4096 KB,EVENT_RETENTION_MODE=ALLOW_SINGLE_EVENT_LOSS,MAX_DISPATCH_LATENCY=30 SECONDS,MAX_EVEN
GO
```



Troubleshooting

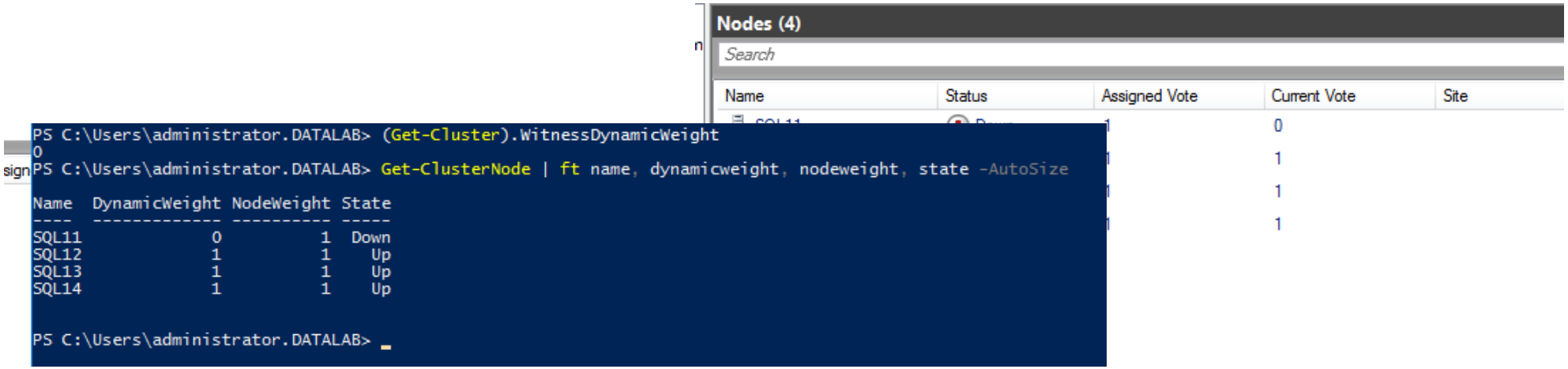


Troubleshooting

In POSH:

(Get-Cluster).WitnessDynamicWeight

Get-ClusterNode | ft name, dynamicweight, nodeweight, state -AutoSize

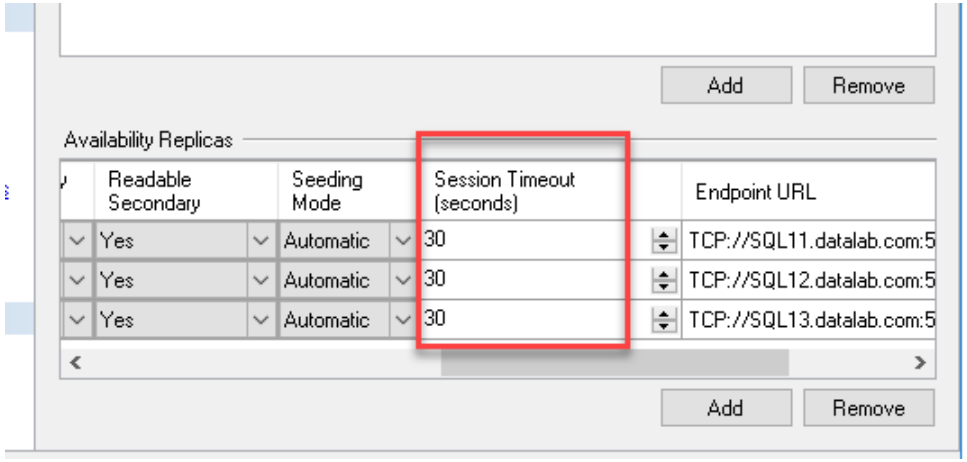


Troubleshooting

- The Cluster Log:
- Get-ClusterLog -UseLocalTime -Destination "c:\temp“ –TimeSpan <previous X mins>

```
00001b44.00000b84::2020/02/18-10:58:28.192 DBG   [Schannel] Authorization succeeded
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [SV] Incoming (second) connection from SQL12 is secure
00001b44.00000b84::2020/02/18-10:58:28.193 INFO  [ReM] Got stream info from fe80::6d51:91b9:c8f6:cabf%8:~3343~ to fe80::8de8:5fdc:65
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM] Exchanging local info.
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM] Sending local info.
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM] Local info sent, receiving remote info.
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM] Remote info received from 2:SQL12.
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM][Leader] I did not initiate connection, getting epoch from stream NodeObject.
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [NODE] Node 1: To n2 getting epoch (currently 1)
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM][Leader] I am the leader, my epoch = 1, sn = 1
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM][Leader] The follower's epoch = 2, SN = 1, Fault Tolerant Session ID = 6917c0e
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [ReM][Leader] My node did not initiate the connection.
00001b44.00000b84::2020/02/18-10:58:28.193 INFO  [ReM][Leader] This is a reconnect (initiator epoch <2>, receiver's epoch <1>).
00001b44.00000b84::2020/02/18-10:58:28.193 WARN  [ReM][Leader] Ignoring connection with 2 because the connection was initiated at Fa
00001b44.00000b84::2020/02/18-10:58:28.193 INFO  [CORE] Node 1: Clearing cookie b86185ca-ba42-4b99-9cd0-c270ade19355
00001b44.00000b84::2020/02/18-10:58:28.193 DBG   [CHANNEL fe80::8de8:5fdc:65cb:a18f%8:~55503~] Close().
00001b44.00000b84::2020/02/18-10:58:28.194 INFO  [ReM] Eating connection.
00001b44.00001164::2020/02/18-10:58:28.466 INFO  [RGP] node 1: Tick
00001b44.00001164::2020/02/18-10:58:28.466 INFO  [RGP] node 1: selected partition 1202(2) as node 2 has quorum
00001b44.00001164::2020/02/18-10:58:28.466 INFO  [RGP] node 1: selected partition 1202(2) to join [using info from 2]
```

Timeout finetune



(Review) Failure detection components

- **Resource DLL (RHS):** determines the IsAlive value at the cluster heartbeat interval, and is controlled by CrossSubnetDelay and SameSubnetDelay cluster properties
- **sp_server_diagnostics,** which reports the component health on an interval controlled by the HealthCheckTimeout property
- **Lease mechanism,** which is used as a Looks-Alive between the cluster resource host and the SQL processes
- **Session Timeout,** which detected the soft errors/ small timeouts or insufficient resources

DMVs

- sys.dm_hadr_auto_page_repair
- sys.dm_hadr_availability_group_state
- sys.dm_hadr_database_replica_cluster_states
- sys.dm_hadr_availability_replica_cluster_node
- sys.dm_hadr_database_replica_states
- sys.dm_hadr_availability_replica_cluster_state
- sys.dm_hadr_instance_node_map
- sys.dm_hadr_availability_replica_states
- sys.dm_hadr_name_id_map
- sys.dm_hadr_cluster
- sys.dm_tcp_listener_states
- sys.dm_hadr_cluster_members
- sys.dm_hadr_cluster_networks
- sys.dm_hadr_automatic_seeding
- sys.dm_hadr_physical_seeding_stats

Fim do módulo