



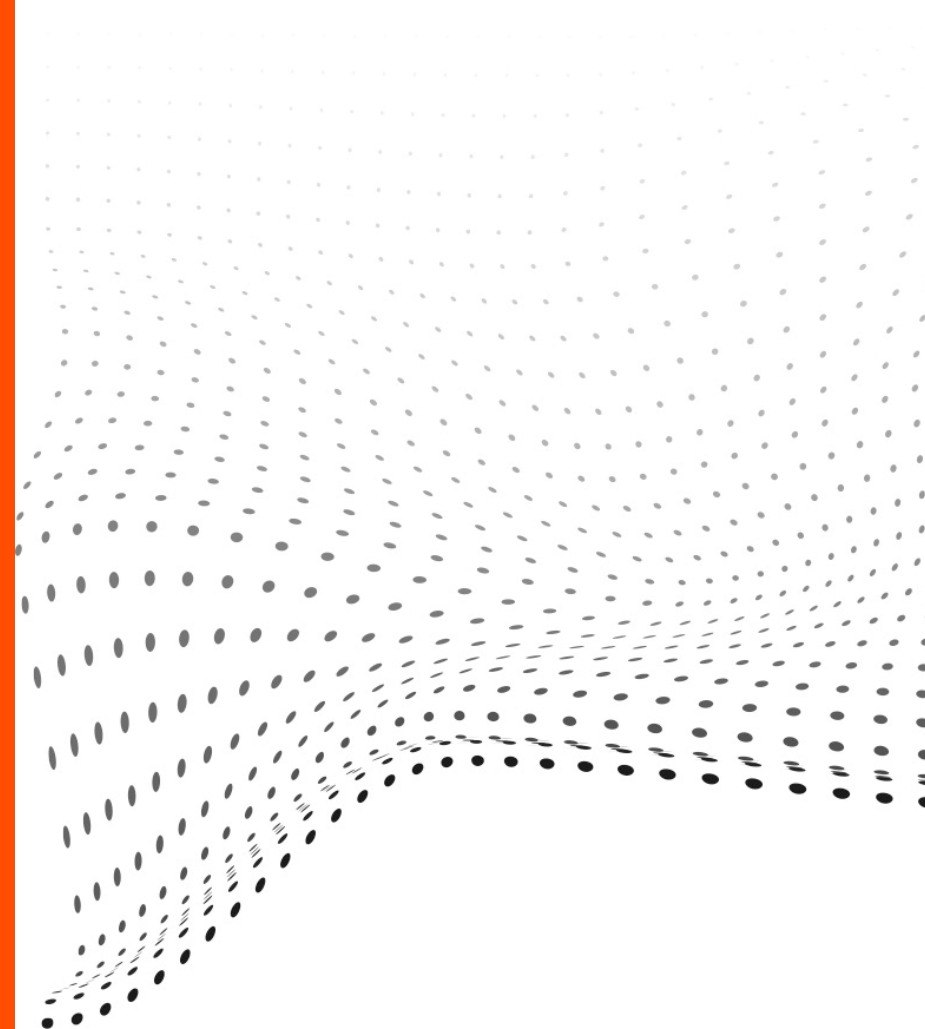
SOLUÇÕES
EM GERENCIAMENTO
DE DADOS

Zero to Hero in 16 Hours: HADR on SQL Server



Module 8: AOAG III

Combining the solutions and more



Goals



- Read only routing
- Failover Clustering Instances and Availability Groups combined
- Best Practices

Read-only routing for AO AG



- Must have a Listener
- Round-Robin Balance
- Connection string: Read-only (read-intent connection request)
- SQL SERVER 2016+
- Every Replica needs to have a READ_ONLY_ROUTING_URL (TCP://SQL16N3:1433')
- ALTER AVAILABILITY GROUP ag MODIFY REPLICA ON N'SQL16N1' WITH (PRIMARY_ROLE (READ_ONLY_ROUTING_LIST= (('SQL16N3', 'SQL16N2'), 'SQL16N1')))

Read-only routing for AO AG



```
ALTER AVAILABILITY GROUP [AGPombo]
MODIFY REPLICA ON N'SQL13' WITH (PRIMARY_ROLE(READ_ONLY_ROUTING_LIST = ((N'SQL12',N'SQL11'))))
GO
USE [master]
GO
ALTER AVAILABILITY GROUP [AGPombo]
MODIFY REPLICA ON N'SQL12' WITH (SECONDARY_ROLE(READ_ONLY_ROUTING_URL = N'TCP://SQL12:1433'))
GO
ALTER AVAILABILITY GROUP [AGPombo]
MODIFY REPLICA ON N'SQL12' WITH (PRIMARY_ROLE(READ_ONLY_ROUTING_LIST = (N'SQL11',N'SQL13'))))
GO
USE [master]
GO
ALTER AVAILABILITY GROUP [AGPombo]
MODIFY REPLICA ON N'SQL11' WITH (SECONDARY_ROLE(READ_ONLY_ROUTING_URL = N'TCP://SQL11:1433'))
GO
ALTER AVAILABILITY GROUP [AGPombo]
MODIFY REPLICA ON N'SQL11' WITH (PRIMARY_ROLE(READ_ONLY_ROUTING_LIST = (N'SQL12',N'SQL13'))))
GO
```

Read-only routing for AO AG



- BCP or SQLCMD use -K ReadOnly
- Server=tcp:MyAgListener,1433;Database=Db1;IntegratedSecurity=SSPI;ApplicationIntent=ReadOnly;MultiSubnetFailover=True

A screenshot of a Windows command prompt window titled "SQLCMD". The window shows the execution of SQLCMD commands to configure read-only routing. The first command is "C:\Users\sqladmin>sqlcmd -S list -E -K readonly -d agdb". The prompt then shows "1> select @@servername" and "2> go". The output is "SQL16N3" followed by "<1 rows affected>" and "1> quit". The second command is "C:\Users\sqladmin>sqlcmd -S list -E -K readonly -d agdb". The prompt then shows "1> select @@servername" and "2> go". The output is "SQL16N2" followed by "<1 rows affected>" and "1> _".

```
C:\Users\sqladmin>sqlcmd -S list -E -K readonly -d agdb
1> select @@servername
2> go

-----
SQL16N3

<1 rows affected>
1> quit

C:\Users\sqladmin>sqlcmd -S list -E -K readonly -d agdb
1> select @@servername
2> go

-----
SQL16N2

<1 rows affected>
1> _
```

(from the trenches) Troubleshooting AO Ags Bnecks



SYNC:

- REDO process on secondary
- All read-only use SNAPSHOT Isolation

Directly impacts:

- Long transactions on Primary;
- REDO on Secondaries

ASYNC:

- Bottleneck can be anywhere, however, won't directly affect the Primary.

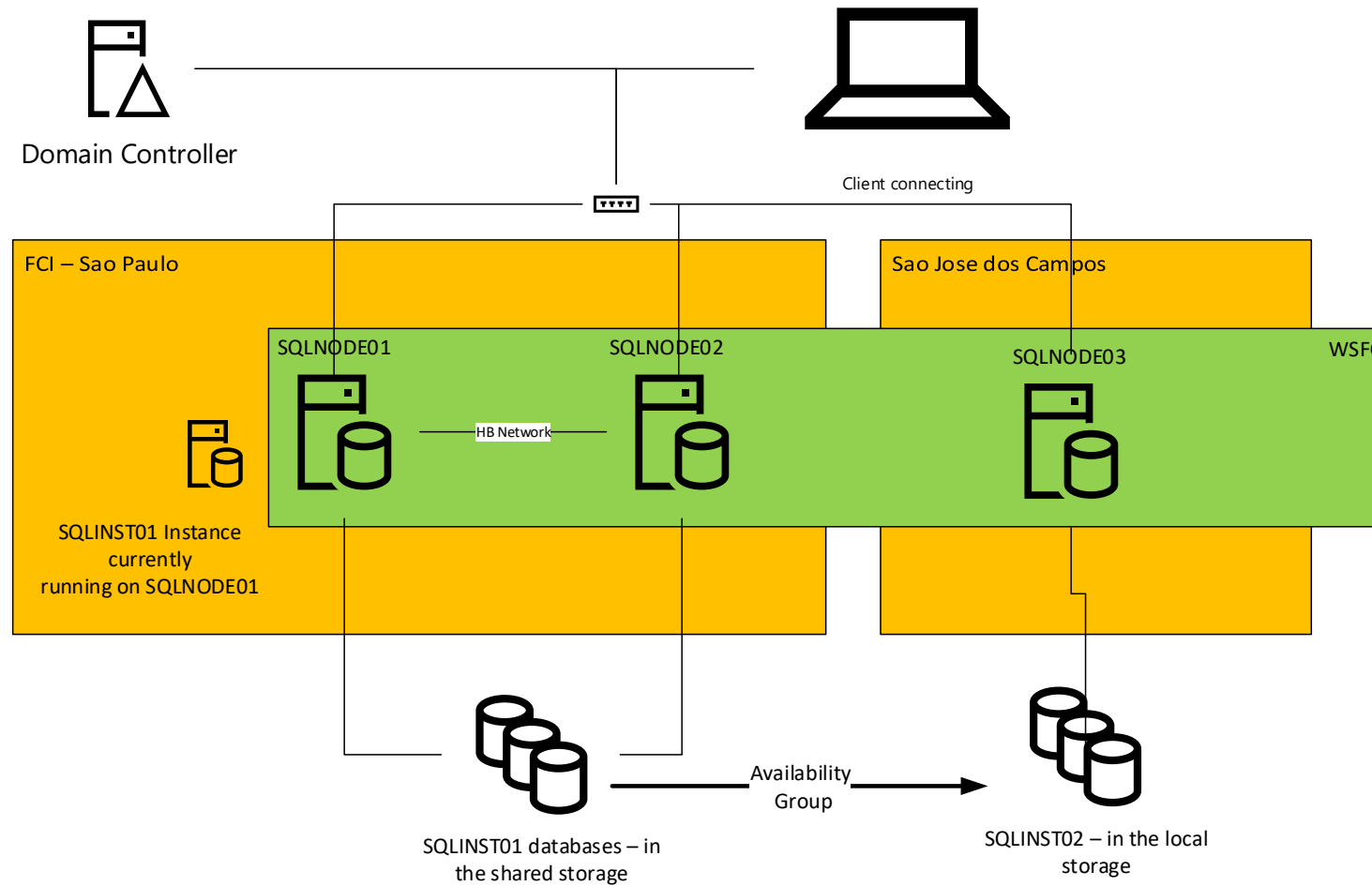
(from the trenches) Troubleshooting AO Ags Bnecks



Most common causes:

- Long transactions on Primary
- High network latency or low throughput

AO FCI and AO Ags combined



Best Practices



- External objects from the Database (Jobs, Logins, Linked servers);
- Don't forget the Indexes on the Secondaries;
- The Canary table;
- Make sure the TCP url for the endpoint is properly formed, test PING with the exact address (alter availability group [AG-Racoon] modify replica on 'CL-LAB01\LAB01' with (ENDPOINT_URL='TCP://CL-LAB01:7022'))

Fim do módulo

