Detecting failovers due to SQL or OS Patching - RHC Alerts

Last updated by | Abhijeet Survase | Mar 1, 2023 at 5:50 AM PST

Scenario

Troubleshooting RHC Alerts for RCA requests, this TSG helps develop an understanding on how to detect if there were any reconfigurations due to SQL or OS patching.

Symptom For failovers due to Operating system or SQL Upgrades, you will notice upgrade operations with "SwapPrimarySecondary" in ASC Downtime reason-WinfabLogs (as shown below).

Properties	Downtime Reasons	Provisioning	Connectivity	Performance	Elastic Pools Performance	XStore	Read Scale Out	Data Warehouse

General	SQL Storage

Add Content	Login Outages Due to Failover	All Login Outages	Database Failovers	HADRReplicaStates	HABotsAction	RecoveryTraces	WinFabLogs	Reco

WinFabLogs   Kusto Query ☺ ☹

ⓘ Shows the WinFabric Logs

ETWTimestamp	2022-09-17 05:09:22
NodeName	DB_HS2.0
Level	Informational
TaskName	CRM
EventType	Operation
Text	Operation Details: Phase: Upgrade Action: SwapPrimarySecondary Service: fabric:/Worker.Vldb.Compute/cbb4a8529b7b/SQL.UserDb/3617a295-274a-447c-bbca-b811732a49af DecisionId: 9a5b285c-763b-4e39-a541-a99287764617 PartitionId: a8d66cc1-00d3-423a-a443-35b034affa31 SourceNode: 26ff4cfa36545e150fa0840aa46bcbb3 TargetNode: 6a315f28bd3dc4d81c8e1ac6cc016ea3 MoveCost: 0

Identifying OS/SQL upgrade

1. Verify SQL upgrade

Option 1 ASC

From ASC-> SQL Troubleshooter-> Performance -> Config & Change History -> Database Version Change history check for version change (as shown below)

if there is a version change, you can conclude there is an upgrade

Option 2 Kusto Use the below query to verify code package version

```
MonDmRealTimeResourceStats
| where PreciseTimeStamp >datetime({StartTime}) and PreciseTimeStamp <datetime({EndTime})
| where AppTypeName !contains "storage"
| where LogicalServerName == '{ServerName}' and database_name =~'{DatabaseName}'
| where replica_type == 0
| summarize min(PreciseTimeStamp), max(PreciseTimeStamp)  by NodeName, AppName, AppTypeName, slo_name, Subscri
```

2: Verify OS upgrade

Option 1: Using XTS

- use sterling\infrawinfabstatus.xts

- enter the ring name (note that if the ring is for multi-AZ (availability zone), you need to enter the ring name such as tr5549 in ring suffix column. then you will have hs1.tr5549, hs2.tr5549 and hs3.tr5549

- search for the node name

  (change DB_HS3.6 to DB_HS3_IN_6)

- Look for upgrade types. if it's PlantformUpdate or TenantUpdate, node will likely restart.

  - // TenantUpdate: Guest OS, infra package, Tenant Cfg
  - // PlatformUpdate: Host OS, Host App packages, Host Cfg
  - // TenantMaintenance: Tenant schedule repairs against the VM and Host Machine (if allowed by Tenant/Azure policy)
  - // PlatformMaintenance: Azure schedule repairs for VM or that will impact the VM and need Tenant approval

Option 2: Kusto query

Use the following kusto query

```
MonRolloutProgress
| where event == "winfab_infra_job_metadata_updated"
| extend lines = split(new_metadata, ";")
| mv-expand lines
| extend line = split(lines, "|")
| project JobId = tostring(line[0]), IS_Id = tostring(line[5])
| join (
    MonRolloutProgress
    | where event == "winfab_infra_status_changed" and winfab_cluster_name contains "tr5549" // a ring can be h
      and ClusterName has "eastus2-a.control.database.windows.net"
    | extend s = parsejson(replace("\\\\", "", tostring(winfab_infra_new_status)))
    | mvexpand s.Jobs
    | project date_time = originalEventTimestamp,
        JobId = tostring(s_Jobs.Id),
        State = tostring(s_Jobs.JobStatus),
        AzureState = tostring(s_Jobs.AcknowledgementStatus),
        UD = tostring(s_Jobs.CurrentUD),
        JobType = tostring(s_Jobs.ImpactAction),
        Notification = tostring(s_Jobs.ImpactStep),
        Impact = tostring(s_Jobs.CurrentlyImpactedRoleInstances)
    | summarize date_time = min(date_time) by JobId, State, AzureState, UD, JobType, Notification, Impact
    | project date_time, JobId, State, AzureState, UD, JobType, Notification, Impact)
  on JobId
| project date_time, JobId, State, AzureState, UD, JobType, Notification, Impact, IS_Id
| sort by date_time asc
| where Impact contains "DB_HS3_IN_6"
```

Option 3: Using Service Fabric Explorer (For EE/TAs with Permissions)

- Open Service Fabric Explorer and go to the Tenant ring

- Click Views, open "Infrastructure service view". if you see rollout is '*In-Progress*', it means the TR is being upgraded.

Related ICM(s) for reference

- [337692780](#) ⧉

RCA Template

Summary of Impact

Between <Starttime> and <EndTime*> our monitoring service reported resource health alerts for Database <Database Name> on Server <Servername>. This alert was related to maintenance event that initiated failover(s).

Cause:

There was Operating system upgrade/maintenance (upgrade operation on <Operating system- OS> / <SQL Server>) at the time. In order to keep your Azure SQL Database secure, compliant, stable, and performant, updates are being performed through the service components almost continuously. Majority of updates are fully transparent and non-impactful in terms of service availability. However, we still have few types of updates cause short service interrupts and require special treatment.

Recommendation

The Azure infrastructure has the ability to dynamically reconfigure servers for planned operations such as load balancing and updates, or unplanned occurrences such as recoveries from software or hardware issues. In addition, building resiliency into your application to account for these situations can help create transparency to the end user when these transient scenarios occur. For information about connectivity in Azure SQL DB, how to implement retry logic, and to understand common errors in Azure SQL DB, please refer: retry logic ⧉.

Please refer our public documentation regarding maintenance Plan for Azure maintenance events - Azure SQL Database | Microsoft Learn ⧉

Root Cause Classification Cases resolved by this TSG should be coded to the following root cause: Connectivity: Troubleshoot DB Availability and Connection Errors\Resource Health events

How good have you found this content?