TopWaitStat_NETWORKSXMLMGRLOAD

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Contents


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Symptom

Customer may receive Unplanned Resource Health Event like below:

```
We're sorry your SQL database is unavailable at this time. Currently, Azure shows the downtime for your SQL database resource at a two-minute granularity. The actual downtime is likely less than a minute – average is 2s. If we are able to find the reason for unavailability, it will appear here within an hour after the downtime event. Please check back later to see if more information is provided.
```

OR

```
We're sorry your SQL database is experiencing transient login failures. Currently, Azure shows the impacted time period for your SQL database resource at a two-minute granularity. The actual impact is likely less than a minute – average is 2s. We're working to determine the source of the problem. If we are able to find the reason for unavailability, it will appear here within an hour after the downtime event. Please check back later to see if more information is provided.
```

Kusto table **"LoginOutages"** shows OutageReasonLevel1 **"HighLatencyLogin"**, OutageReasonLevel2 **"TopWaitStat_NETWORKSXMLMGRLOAD"**, and you may see the login issue occurs in a time partten (almost same time every day in this case):

```
LoginOutages
| where logical_server_name =~ "{ServerName}" and database_name =~ '{DatabaseName}'
| where TIMESTAMP >= datetime(2022-12-19 00:08:00)
| where TIMESTAMP <= datetime(2022-12-27 00:10:00)
| project TIMESTAMP, logical_server_name, database_name, database_type, OutageType, OwningEmail, OwningTeam, O
```

TIMESTAMP	OutageType	outageStartTime	OutageReasonLevel1	OutageReasonLevel2	OutageReasonLevel3
2022-11-30 10:15:00.0000000	Unplanned	2022-11-30 10:13:29.0700761	LongLogins	ssl_time_ms	{"package":"xdbhost","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4.0,"max_total_time_ms":16675}
2022-12-01 10:15:00.0000000	Unplanned	2022-12-01 10:13:25.2759643	LongLogins	enqueue_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":5060.0,"max_total_time_ms":15140}
2022-12-02 10:15:00.0000000	Unplanned	2022-12-02 10:13:36.8248040	LongLogins	login_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":8650.0,"max_total_time_ms":16790}
2022-12-03 10:15:00.0000000	Unplanned	2022-12-03 10:13:35.8007543	LongLogins	login_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4074.0,"max_total_time_ms":16487}
2022-12-04 10:15:00.0000000	Unplanned	2022-12-04 10:13:47.2159790	LongLogins	ssl_time_ms	{"package":"xdbhost","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4.0,"max_total_time_ms":23567}
2022-12-05 10:15:00.0000000	Unplanned	2022-12-05 10:13:46.9768294	LongLogins	ssl_time_ms	{"package":"xdbhost","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4.0,"max_total_time_ms":15518}
2022-12-06 10:15:00.0000000	Unplanned	2022-12-06 10:13:57.3970491	LongLogins	ssl_time_ms	{"package":"xdbhost","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4.0,"max_total_time_ms":16333}
2022-12-07 10:15:00.0000000	Unplanned	2022-12-07 10:13:56.3114988	LongLogins	ssl_time_ms	{"package":"xdbhost","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4.0,"max_total_time_ms":14865}
2022-12-08 10:15:00.0000000	Unplanned	2022-12-08 10:14:02.3069473	HighLatencyLogin	TopWaitStat_NETWORKSXMLMGRLOAD	WaitTime: 00:00:19.9750000
2022-12-09 10:15:00.0000000	Unplanned	2022-12-09 10:14:08.5927877	LongLogins	login_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":4207.0,"max_total_time_ms":15036}
2022-12-10 10:15:00.0000000	Unplanned	2022-12-10 10:14:09.3992380	LongLogins	login_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":5875.0,"max_total_time_ms":16141}
2022-12-11 10:15:00.0000000	Unplanned	2022-12-11 10:14:15.0448257	HighLatencyLogin	TopWaitStat_NETWORKSXMLMGRLOAD	WaitTime: 00:00:18.0140000
2022-12-12 10:15:00.0000000	Unplanned	2022-12-12 10:14:18.3639372	LongLogins	login_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":13876.0,"max_total_time_ms":16471}
2022-12-12 10:15:00.0000000	Unplanned	2022-12-12 10:14:38.9100634	LongLogins	login_time_ms	{"package":"sqlserver","NodesAffected":"[\"TR13967_DB.32\"]","long_logins_root_cause_duration":13876.0,"max_total_time_ms":16471}
2022-12-13 04:45:00.0000000	Planned	2022-12-13 04:31:18.3929638	Deployment	Upgrade	

```
//check network xml load time for this specific db (by AppName of the database)
MonLogin
| where originalEventTimestamp >= datetime(2022-11-27 10:00:00)
| where originalEventTimestamp <= datetime(2022-12-15 10:30:00)
| where AppName =~ "{AppName}"
| where event =~ "networksxmlmanager_traces"
| summarize min(originalEventTimestamp), max(originalEventTimestamp) by AppName, NodeName, ClusterName, event,
```

AppName	NodeName	ClusterName	event	originalEventTimestamp	min_originalEventTimestamp	max_originalEventTimestamp
[redacted]	DB.32	tr13967.westeurope1-a.worker.database.windows.net	networksxmlmanager_traces	2022-12-12 00:00:00.0000000	2022-12-12 10:14:14.3064689	2022-12-12 10:14:51.7657320
[redacted]	DB.13	tr13967.westeurope1-a.worker.database.windows.net	networksxmlmanager_traces	2022-12-13 00:00:00.0000000	2022-12-13 04:30:12.1275755	2022-12-13 04:30:15.4613116
[redacted]	DB.13	tr13967.westeurope1-a.worker.database.windows.net	networksxmlmanager_traces	2022-12-14 00:00:00.0000000	2022-12-14 04:25:20.1473162	2022-12-14 04:25:36.8161565
[redacted]	DB.13	tr13967.westeurope1-a.worker.database.windows.net	networksxmlmanager_traces	2022-12-15 00:00:00.0000000	2022-12-15 04:25:29.8878723	2022-12-15 04:25:46.8415864

Cause

The login process includes a section to see if the login should be allowed through the firewall because it is an Azure IP. This is done by looking up a list of these Azure IPs, which is refreshed periodically (in this case, once per day). While the refresh of this list is happening, logins are blocked. **NETWORKSXMLMGRLOAD** is associated with a lock used by SQL to synchronize access to the in-memory datastructure holding the list of azure ips. While the refresh of this list normally happens quickly, on some nodes, very low-powered subcore databases (typically S0 SLOs) see longer refresh times, that can go beyond the login timeout, causing login failures.

Note that the database itself did not have any downtime, staying running throughout; this related purely to new login attempts.

Mitigation

The refresh time is influenced by environmental factors on each node. In many cases, after scaling up service tier or moving database to a different node, the refresh time may drop below the login timeout.

As a workaround, **scaling up the SLO** will significantly reduce the risk of seeing these login failures.

There is an enhancement in the backlog to reduce the time that the refresh of the list needs to block logins; this does not currently have a timeframe.

References

Incident-357555022 Details - IcM (microsofticm.com)

Incident-350430482 Details - IcM (microsofticm.com)

Incident-341456334 Details - IcM (microsofticm.com)

Bug 1104980: Improving locking around networksxmlmgr APIs

How good have you found this content?