Error 40613 State 14 Slow Logins

Last updated by | Holger Linke | Mar 1, 2023 at 5:12 AM PST

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Error 40613, State 14 - Slow Logins

Issue

The customer is reporting connection errors, slow or failed logins, and/or that open connections are being dropped.
Typical error messages are:

> [Microsoft][ODBC Driver 17 for SQL Server]Unspecified error occurred on SQL Server. Connection may have been terminated by the server
> [Microsoft][ODBC Driver 17 for SQL Server]TCP Provider: Error code 0x2746
> [Microsoft][ODBC Driver 17 for SQL Server]SMux Provider: Physical connection is not usable [xFFFFFFFF].

Investigation / Analysis

Using Azure Support Center

The issue shows on ASC through the following symptoms. Note the "out of memory", "OOM_EX", and "SlowLogins" in the output:

Properties	Downtime Reasons	Provisioning	Connectivity	Performance	Elastic Pools Performance	XStore	Read Scale Out	Data Warehouse	Data Sync	Metrics	GeoDR	Security	Auditing
Vulnerability Assessment	Portal	Backup/Restore	Import/Export	Recent Issues									

Insight	7 Day Overview	Overview	Config & Change History	CPU	IO	Memory	Blocking & Deadlocking	Queries	Plans	Overbooking	Transaction Log	Space Issues	TempDB	Actions (for PG only)
Advanced														

Performance insights.

The insights presented here have three categories as indicated in the Status column. "Warning" means there is a strong chance the item caused a performance issue. "Info" identifies an important signal that CSS, Engineering or Partners should investigate further. "Info" also identifies items that could cause performance issues and that may warrant further attention or investigation. "All Clear" means that the item was checked and did not reach the "warning" or "info" status threshold. It is listed only for awareness and to save you the time of manually checking the condition. Please send feedback, comments, or questions to 'SQLDBPerfAsc@service.microsoft.com' or click on the smiley/frowny faces on any of the charts. Thank you!

Drag a column header and drop it here to group by that column

Name	Status	Description
+ Query with potential parameter sensitivity problem detected.	Warning	One or more queries with suspected parameter sensitivity problem were found. Check the table 'Queries with Potential Parameter Sensitivity Problem' under Queries tab to see more information.
+ Troubleshooter Time Range Too Long	Warning	With a large time range, some tables or charts may not be as accurate. Consider re-running troubleshooter with a smaller time range. For example, if issue reported was between 9:00 and 10:00 am, consider running a report with time range between 8:30am to 10:30am.
+ User Pool Out Of Memory Detected	Warning	Out of Memory (OOM) detected for user memory pool. Please check the table 'User Pool's OOM Factor with MSR' under the 'Memory' tab to see the OOM Factor and the Memory Status Report (MSR) for more information.

| Properties	Downtime Reasons	Provisioning	Connectivity	Performance	Elastic Pools Performance	XStore	Read Scale Out	Data Warehouse	Data Sync	Metrics	GeoDR	Security	Auditing
Vulnerability Assessment	Portal	Backup/Restore	Import/Export	Recent Issues									

General	SQL Storage

All Login Outages

Kusto Query

Shows all login outages (no user errors, only system errors) experienced by customer. Note: These contain login failures regardless of database availability. Therefore, rows in this table do not indicate that there was a failover occurring, just that MonLogin shows that customer was receiving login errors due to system.

Drag a column header and drop it here to group by that column

outageStartTime	outageEndTime	durationSeconds	OutageType	OutageReasonLev...	OutageReasonLev...	OutageReasonLevel3	OwningTeam	OwningEmail	RcaText	Custo...
+ 2022-07-14 08:22:35	2022-07-14 08:22:46	10.87	CustomerInitiated	Update SLO	UpdateLogicalDat...	RequestId: 2A1E4001-FB3E-4A9D-90FE-E848D9731D48, StartTime: 2022-07-14T07:45:01.9991650Z, EndTime: 2022-07-14T08:23:07.8109564Z, States: ["CheckingRedoQueueSize","Discon...	AZURESQLDB/SQ...	ctrlpl_dbpool_cru...	Your database webpe-db in webpe-db-server was unavailable due to a scaling operation or service tier change.	Your d... webpe was un due to operat tier cha
+ 2022-07-14 08:39:07	2022-07-14 08:39:11	4.54	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.93753446461297				
+ 2022-07-14 09:00:45	2022-07-14 09:00:50	4.99	Unplanned	Unknown	["xdbhost/40613/14 (InstanceFailedToR...	GeoRole: GeoPrimary				
+ 2022-07-14 09:31:27	2022-07-14 09:31:27	0.22	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.00970786903365				
+ 2022-07-14 10:00:25	2022-07-14 10:00:56	30.93	Unplanned	Unknown	["xdbhost/40613/14 (InstanceFailedToR... (RetrieveDatabase...	GeoRole: Primary				
+ 2022-07-14 11:00:36	2022-07-14 11:00:42	6.45	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.80071911862916				
+ 2022-07-14 11:31:10	2022-07-14 11:31:15	4.43	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 93.98995335709472				
+ 2022-07-14 11:59:42	2022-07-14 11:59:46	4.09	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 93.98995335709472				
+ 2022-07-14 12:15:32	2022-07-14 12:15:42	10.27	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.49479523324276				
+ 2022-07-14 12:44:47	2022-07-14 12:44:50	3.21	Unplanned	SlowLogins	Performance - SingleCoreCPUSpi...	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.49479523324276				
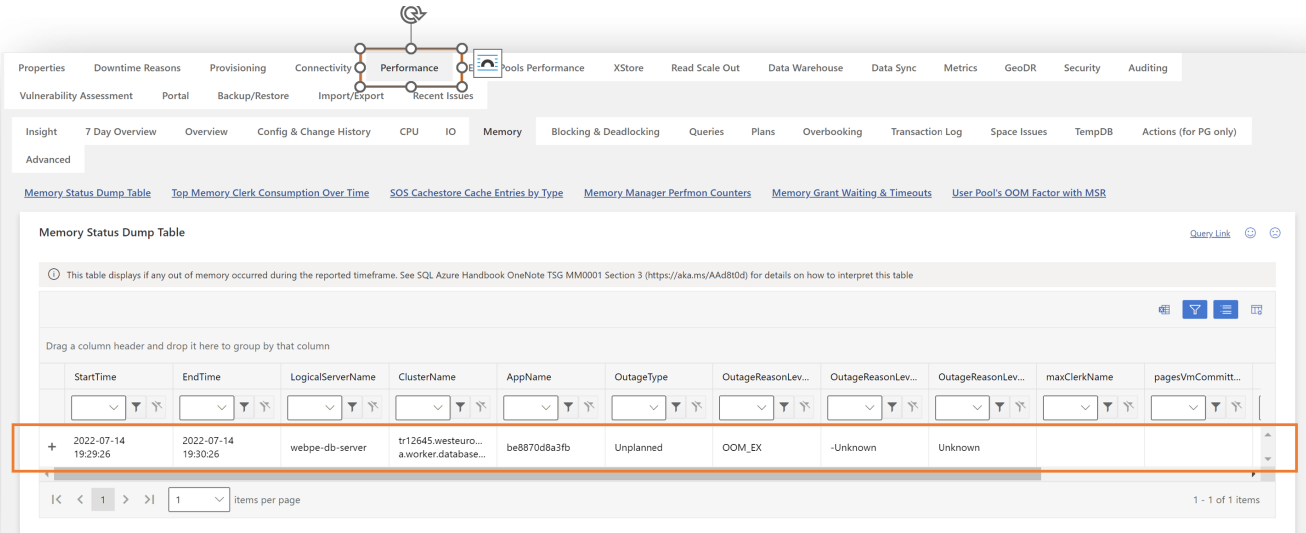
Using Kusto

In the `MonLogin` Kusto table, the issue is captured as Error 40613 State 14:

```
MonLogin
| where TIMESTAMP >= datetime(2022-08-11 01:38:00)
| where TIMESTAMP <= datetime(2022-08-12 17:08:00)
| where error != 0
| filter logical_server_name == "<server_name>"
| filter database_name == "<database_name>"
| project TIMESTAMP, event, error, state, connection_id, peer_address, severity, spid, kill_reason, AppName, a
```

TIMESTAMP	event	error	state	connection_id
2022-07-06 12:17:27.5112085	process_login_finish	40613	14	75C50086-C413-4128-B552-0B401128AE1A
2022-07-06 12:17:27.5112085	process_login_finish	40613	14	E1B73BD8-80F0-4ACF-96A5-2626839ABC17
2022-07-06 12:46:27.5864108	process_login_finish	40613	14	275875AA-4834-470E-A514-AD66968D83DD
2022-07-06 12:46:27.5864108	process_login_finish	40613	14	278819FC-3547-46C4-AAEB-DBB8913FA688
2022-07-06 13:18:27.6296449	process_login_finish	40613	14	E6969824-FD49-488B-B49A-4F3EA6085CEF
2022-07-06 13:18:27.6296449	process_login_finish	40613	14	59B3B283-318A-4B84-962A-CD8577297CA8
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	0A06259E-9432-43C0-A2DE-9B74DA88AFDD
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	B3463BB3-6F98-4686-A98A-96F37AA030A7
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	D79117F5-E9C6-4EC3-8E9E-E9B2F22687DF
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	EDA50CDA-F57D-4BF0-A7DD-51C7C2A2E4...
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	BB71F465-F422-424E-8771-8C3B5BCB283A
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	82BF6EDA-F681-4EA9-B2EA-525052BA5951
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	AFB51E44-65BB-40E3-A7B2-A7AD16C88D5F
2022-07-06 13:18:27.6452674	process_login_finish	40613	14	D31C82AA-BAEF-4A42-B2AB-71EFB641F537
2022-07-06 13:47:27.7208479	process_login_finish	40613	14	FEA948F0-2F3D-437F-9E9F-8A138B5CFFFD
2022-07-06 13:47:27.7208479	process_login_finish	40613	14	578C91F0-31BB-4EE2-B5F4-98A07D6EAE25
2022-07-06 14:16:57.7338891	process_login_finish	40613	14	1847606E-6841-431E-AA71-F6AE495113A3
2022-07-06 14:46:57.8083813	process_login_finish	40613	14	46FFBFE3-464A-4348-A5BD-DC74B371D261
2022-07-06 14:46:57.8083813	process_login_finish	40613	14	F9BF5CB3-8E0A-4572-BC39-A802BC9B0C62
2022-07-06 15:17:57.8681049	process_login_finish	40613	14	985C1518-E0FD-4DB8-A316-1C9D5B4C1E60
2022-07-06 15:18:27.8680439	process_login_finish	40613	14	28D28C55-1A6A-4638-993C-A8748C3D35B1
2022-07-06 15:18:27.8680439	process_login_finish	40613	14	18D1E6F9-E0B9-4BE5-A319-773596CF6EA1
2022-07-06 15:47:27.8969132	process_login_finish	40613	14	DFE873B8-07BC-491E-82E4-041AA795454D
2022-07-06 15:47:27.8969132	process_login_finish	40613	14	E53EF2C7-E1E9-45A8-833C-F730B68ACBEA
2022-07-06 15:47:27.8969132	process_login_finish	40613	14	CE8EEF0D-1773-49DD-A0F3-138978FCFB44

◀

Done (00:11.042): 2933 records

The details that are shown in the ASC Insight are available through Kusto table `_LoginOutagesInternal`:

```
_LoginOutagesInternal
| where TIMESTAMP >= datetime(2022-07-11 00:00:00)
| where TIMESTAMP <= datetime(2022-07-19 00:00:00)
| where OutageReasonLevel1 =~ 'OOM_EX' or OutageReasonLevel1 =~'SlowLogins' or OutageReasonLevel1 =~'HighLaten
| filter logical_server_name =~ "<server_name>"
| project TIMESTAMP, sql_instance_name, tenant_ring_name, service_level_objective, outageStartTime
```

◀   ▶

service_level_objective	outageStartTime	outageEndTime	durationSeconds	loginFailureCount	totalLoginCountIn...	OutageType	OutageReasonLevel1	OutageReasonLevel2	OutageReasonLevel3
2	2022-07-14 14:29:51.6147917	2022-07-14 14:29:52.2097917	0.6	1	2863	Unplanned	Unknown	["xdbhost/40613/14 (InstanceFailedToReceive...	GeoRole: Primary
2	2022-07-14 14:29:51.6147917	2022-07-14 14:29:52.2097917	0.6	1	2863	Unplanned	Unknown	["xdbhost/40613/14 (InstanceFailedToReceive...	GeoRole: Primary
2	2022-07-14 14:29:51.6147917	2022-07-14 14:29:52.2097917	0.6	1	2869	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:44:39.3259892	2022-07-14 14:44:43.4829892	4.16	1	2694	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:44:39.3259892	2022-07-14 14:44:43.4829892	4.16	1	2692	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:44:39.3259892	2022-07-14 14:44:43.4829892	4.16	1	2694	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:44:39.3259892	2022-07-14 14:44:43.4829892	4.16	1	2692	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:44:39.3259892	2022-07-14 14:44:43.4829892	4.16	1	2694	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2946	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2951	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2951	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2946	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2951	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2946	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2951	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 14:59:51.6904022	2022-07-14 14:59:54.6204022	2.93	1	2946	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 95.3256009...
2	2022-07-14 15:16:01.1135451	2022-07-14 15:16:05.0714024	3.96	2	2692	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.4076307...
2	2022-07-14 15:16:01.1135451	2022-07-14 15:16:05.0714024	3.96	2	2692	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.4076307...
2	2022-07-14 15:16:01.1135451	2022-07-14 15:16:05.0714024	3.96	2	2692	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.4076307...
2	2022-07-14 15:16:01.1135451	2022-07-14 15:16:05.0714024	3.96	2	2692	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.4076307...
2	2022-07-14 15:44:38.5615390	2022-07-14 15:44:38.6625390	0.1	1	2943	Unplanned	Unknown	["xdbhost/40613/14 (InstanceFailedToReceive...	GeoRole: Primary
2	2022-07-14 15:44:38.5615390	2022-07-14 15:44:38.6625390	0.1	1	2944	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.4076307...
2	2022-07-14 15:44:38.5615390	2022-07-14 15:44:38.6625390	0.1	1	2944	Unplanned	SlowLogins	Performance - SingleCoreCPUSpikes	XDBHOST_Failures: ["40613_14"], CPU_AvgMax: 96.4076307...

Done (00:00.934): 153 records   KE.RunQuery;5b183ce1-d03a-4636-8f02-f7f02c8137e0

Results | Query Summary | QueryStatus | Issues: (1)

https://sqlazureweu2.kustomfa.windows.net/sqlazure1   UTC: 2022_07_15 11:31:46

Note:
If the customer received a 40613 state 14 and but didn't get the slow login errors, it can be related to the Dedicated Administrator connection (DAC) issue. See [Error 40613, State 14](#) for more information.

Mitigation

- Check the query and database performance (CPU and memory allocated). Slow-performing queries and high resource consumption may lead to the "slow logins" issue.

- Scaling up to a higher service tier can mitigate this scenario, since we increase the CPU and memory capacities.

- If the SQL instance is an Elastic Pool, then the issue can be mitigated by moving the databases with the highest resource consumption out of the pool (either to a different pool or into a stand-alone database).

RCA for Slow Logins

Customer Impact
On SQL Azure DB customers may experience login stalls/failures, specifically when a single CPU is busy. Background SQL Azure DB uses a LoginThreadPool to manage the workers used login tasks. A dispatcher is a worker which processes requests from a queue and executes the task. SQL Server scheduler's are used to enqueue and manage many different tasks that are executing on a node.

Root Cause
There is a bottleneck between the SQL Azure DB proxy and SQL Server when processing login events. This bottleneck may result in limiting incoming login requests. When a scheduler becomes busy (noisy neighbor, long runnable queue or non-yield occurs) the LoginDispatcher can stall. For example, increased signal time is one of the common symptoms of a long runnable list. Stalling the LoginDispacher bottlenecks the connection duplication processing between the SQL Azure DB proxy and SQL Server, starting a convoy effect. This increased request queue depth often triggers applications to add more connections to handle requests making the convoy worse.

The SQL Server Box product does not encounter the bottleneck as the logins are processed differently, the SQL Azure DB proxy is not required.

How good have you found this content?