Title:	RCA - Azure SQL Database - Japan East
Tracking ID:	CLCK-LD0
Event type:	サービスの問題
Status:	解決済み
Service(s):	SQL Database
Region(s):	Japan East
Start time:	2020-07-01T09:36:11Z
Resolve time:	2020-07-01T11:15:00Z
Last update time:	2020-07-01T11:15:00Z
Impacted subscriptions:	[redacted]

Last update:

Summary of impact: Between 09:24 and 11:15 UTC on 01 Jul 2020, a subset of customers using Azure SQL Database, Azure SQL Data Warehouse/ Synapse analytics in Japan East may have experienced service connection failures or possible timeouts. Services utilizing SQL Databases may have also been impacted.
Root cause: Connections to Azure SQL Database and related data services go through a load balanced set of front-end nodes (Gateways) that provide directory lookup services and reroute the incoming connections to the intended backend- end nodes hosting the database. For scalability and zone redundancy purposes, there are multiple active SQL Gateway clusters in a region. During this incident, one of the SQL Gateway clusters became unhealthy having an intermittent impact on login availability. A specific network traffic pattern combined with a networking stack configuration on the SQL Gateway instances triggered an imbalance on the CPU processing of new connection requests. The persistence of such CPU imbalance over a long period of time caused high response latency and increased timeouts on connection requests. The error condition propagated across multiple instances of the SQL Gateway cluster in this region, sometimes causing a service restart.

Mitigation: Multiple SQL Gateway instances became healthy upon the triggered service restart. On further investigation, we were able to isolate the specific network pattern and the configuration setting that caused this incident and were able to reconfigure the traffic to prevent a recurrence.

Next Steps: We apologize for the impact to affected customers. We are continuously taking steps to improve the Microsoft Azure platform and our processes to help ensure such incidents do not occur in the future. In this case, this includes (but is not limited to):
Fix the underlying issue that causes service restart when such a condition occurs.
Improve the alerting logic and add identified telemetry to diagnose this kind of issues faster.
Activate a newer SQL Gateway cluster in this region with a more efficient networking stack configuration that reduces the chances of hitting a processing imbalance.

Provide Feedback: Please help us improve the Azure customer communications experience by taking our survey: https://aka.ms/AzurePIRSurvey

Update history:

2020-07-07T12:45:05Z

Summary of impact: Between 09:24 and 11:15 UTC on 01 Jul 2020, a subset of customers using Azure SQL Database, Azure SQL Data Warehouse/ Synapse analytics in Japan East may have experienced service connection failures or possible timeouts. Services utilizing SQL Databases may have also been impacted.
Root cause: Connections to Azure SQL Database and related data services go through a load balanced set of front-end nodes (Gateways) that provide directory lookup services and reroute the incoming connections to the intended backend- end nodes hosting the database. For scalability and zone redundancy purposes, there are multiple active SQL Gateway clusters in a region. During this incident, one of the SQL Gateway clusters became unhealthy having an intermittent impact on login availability. A specific network traffic pattern combined with a networking stack configuration on the SQL Gateway instances triggered an imbalance on the CPU processing of new connection requests. The persistence of such CPU imbalance over a long period of time caused high response latency and increased timeouts on connection requests. The error condition propagated across multiple instances of the SQL Gateway cluster in this region, sometimes causing a service restart.

Mitigation: Multiple SQL Gateway instances became healthy upon the triggered service restart. On further investigation, we were able to isolate the specific network pattern and the configuration setting that caused this incident and were able to reconfigure the traffic to prevent a recurrence.

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Fix the underlying issue that causes service restart when such a condition occurs.
Improve the alerting logic and add identified telemetry to diagnose this kind of issues faster.
Activate a newer SQL Gateway cluster in this region with a more efficient networking stack configuration that reduces the chances of hitting a processing imbalance.

Provide Feedback: Please help us improve the Azure customer communications experience by taking our survey: https://aka.ms/AzurePIRSurvey

2020-07-01T11:49:45Z

Summary of impact: Between 09:30 and 11:15 UTC on 01 Jul 2020, you were identified as a customer using SQL Database in Japan East who may have experienced service connection failures or possible timeouts. Services utilizing SQL Databases may have also been impacted.

Preliminary root cause: We determined that instances of a gateway service responsible for handling traffic to and from some SQL Databases became unhealthy. This prevented some connections from completing as expected and caused downstream impact to services leveraging SQL Databases.

Mitigation: We performed a manual restart of the impacted gateways to mitigate the issue.

Next steps: We will continue to investigate to establish the full root cause and prevent future occurrences. Stay informed about Azure service issues by creating custom service health alerts: https://aka.ms/ash-videos for video tutorials and https://aka.ms/ash-alerts for how-to documentation.

2020-07-01T11:04:24Z

Starting at approximately 09:50 UTC you were identified as a customer using SQL Database in Japan East who may experience service connection failures or possible timeouts. Services utilizing SQL Databases may also be impacted.

Current status: We are actively investigating and the next update will be provided in 60 mins.