Error connecting from cloud service

Last updated by | Mustafa Ashour | Mar 1, 2023 at 5:40 AM PST

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Issue

The customer received the following error periodically in multiple azure sql servers and databases at the same time.

They can occur from difference instances in cloud service.

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A network-related or instance-specific error occurred while establishing a connection to SQL Server. The serve
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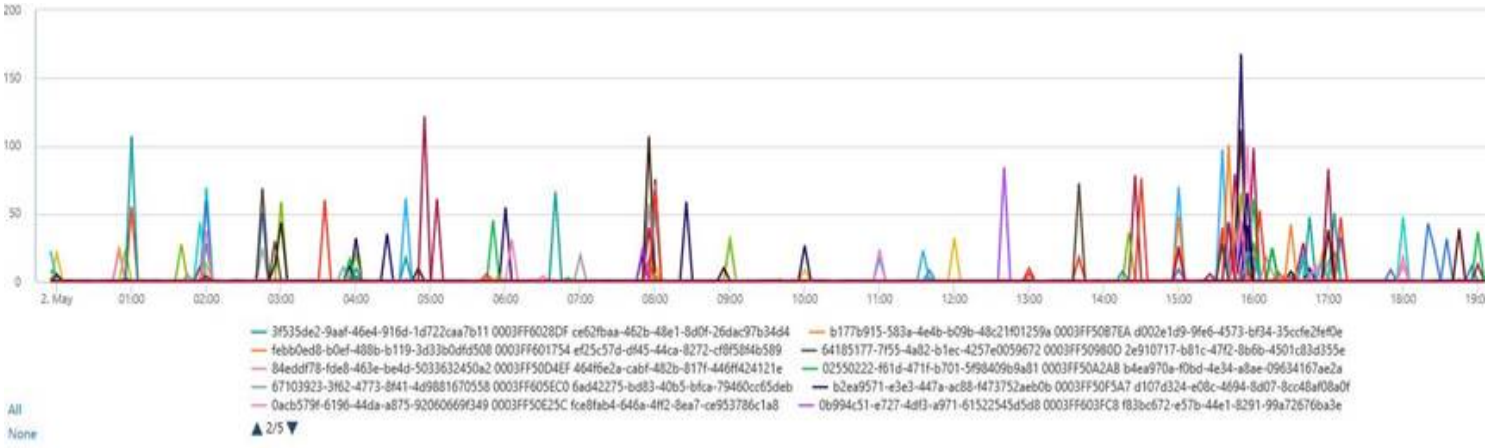
Investigation/Analysis

Nothing in SQL end so I engaged cloud service team and networking team.

However, no packet drop found and all instances seems fine.

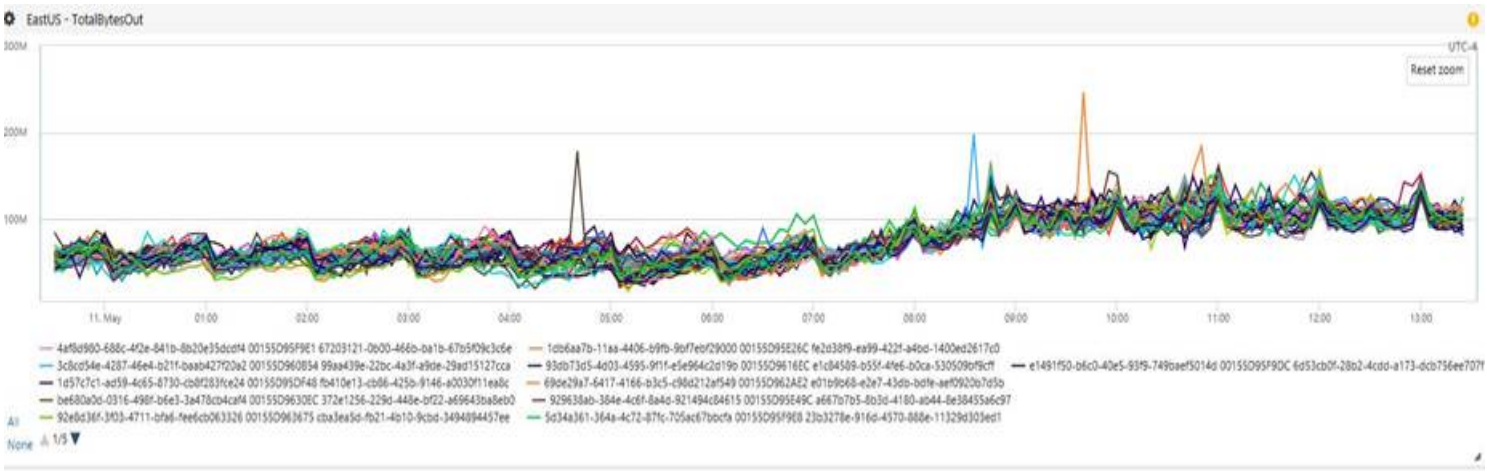
Until the ADM engaged the azure networking PG:

This is a sample of ***dropped packets*** on May 2

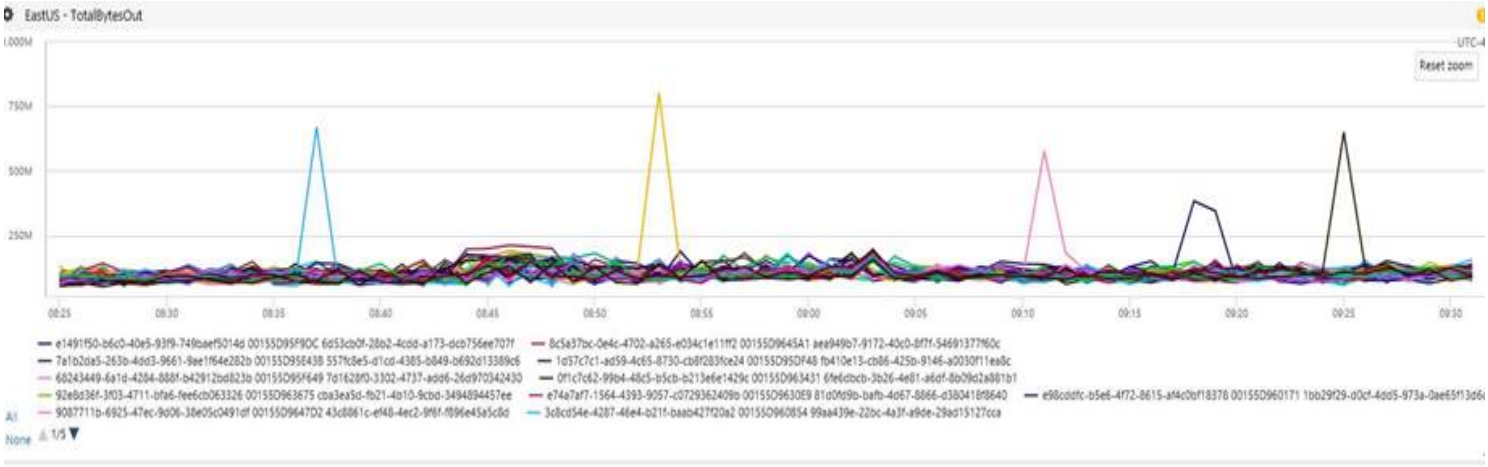


Identifying these scenarios isn't obvious because most telemetry systems aggregate data peaks a period of time and mask spikes when you average the data out, however, if you zoom into very short periods the spikes become apparent. Stratustime is all about the burst periods.

250MN/s (2000Mbps) is the outbound limit on A4s. This is a sample of some instances today…



Above, the outbound looks pretty good on average. Zooming in though, we see a more detailed picture of some spikes over 250M:



Mitigation

In terms of resolving this issue there are several options:

- Load leveling in the code/architecture would give you more control over handling big spikes in activity with more control of the resource used to process them (we've talked about this in the past).
- You could work to reduce the outbound data footprint (you would need to first asses all the different types of operations contributing to it to know where to focus that effort).
- You could add instances to spread the workloads out (outbound bandwidth is a per instance limit having more instances spreads out the load on any one)
- You could re-evaluate the VM choices compared to A4 to see if there are better options (these all come with varied cost/resource options)
- When you split out the services in their own App Services, this will spread out the network workloads

The easiest short term option would be to add some instances and just make sure you monitor for behavior that is characteristic of the problem.

Root Cause Classification

Cases resolved by this TSG should be coded to the following root cause:
Root Cause: Azure SQL DB v2\Connectivity\Network Reliability\Client Network

How good have you found this content?