Performance Tuning Azure SQL Database

Monica Rathbun, Consultant

Denny Cherry and Associates Consulting

SQLEspresso

Monica Rathbun

Consultant

Denny Cherry & Associates Consulting

User Group Leader: Hampton Roads VA

Data Saturday VA Beach Organizer

Your Barista For SQL Knowledge!

She, Her

/sqlespresso

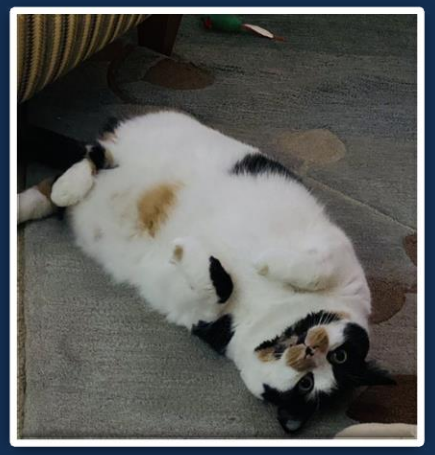
@SQLEspresso

SQLEspresso.com

SQLEspresso

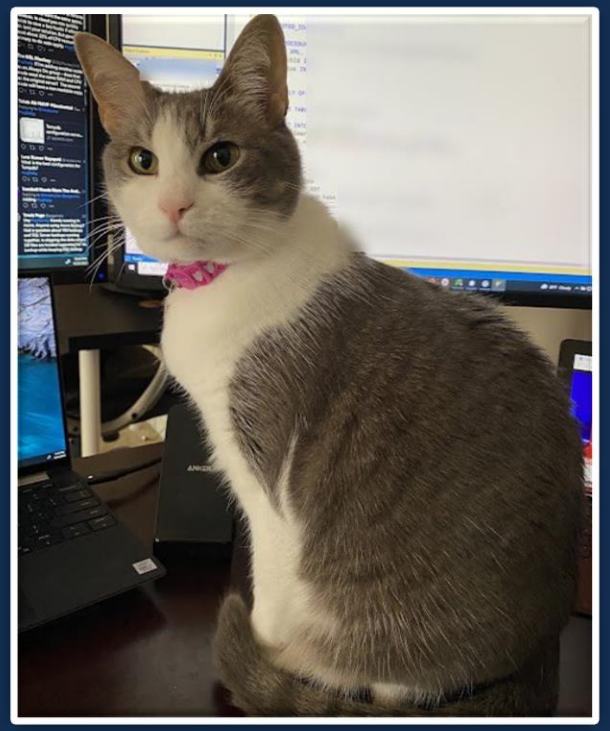
TODAY'S SPECIAL GUESTS

Katie



Kora

Piper



Presentation Rules

Always Ask Questions

Interrupt me

This is a two-way conversation let’s learn from each other’s experiences

AGENDA

01	02	03	04	05	06
WHAT IS IT	MONITOR	INDENTIFY QUERIES	ANALYZE	READABLE SECONDARY	AUTOMATIC TUNING

IF TIME ALLOWS

DEMOS

MOST DATABASE MANAGEMENT IS HANDLED WITHOUT DBA INVOLEMENT

SOME AUTOMATIC TUNING

WHAT IS AZURE SQL DATABASE

RUNS ON AZURE COMPUTING PLATFORM

FULLY MANAGED

TUNING, MONITORING AND MAINTENANCE IS STILL NEEDED !!!!

TUNING COMPONENTS

Azure offers several included components to performance tune your workload and database within the portal

GET THE WHOLE PICTURE

Azure Metrics

Monitoring, Dashboarding

Query Performance Insights

Query Identification

Azure SQL Analytics

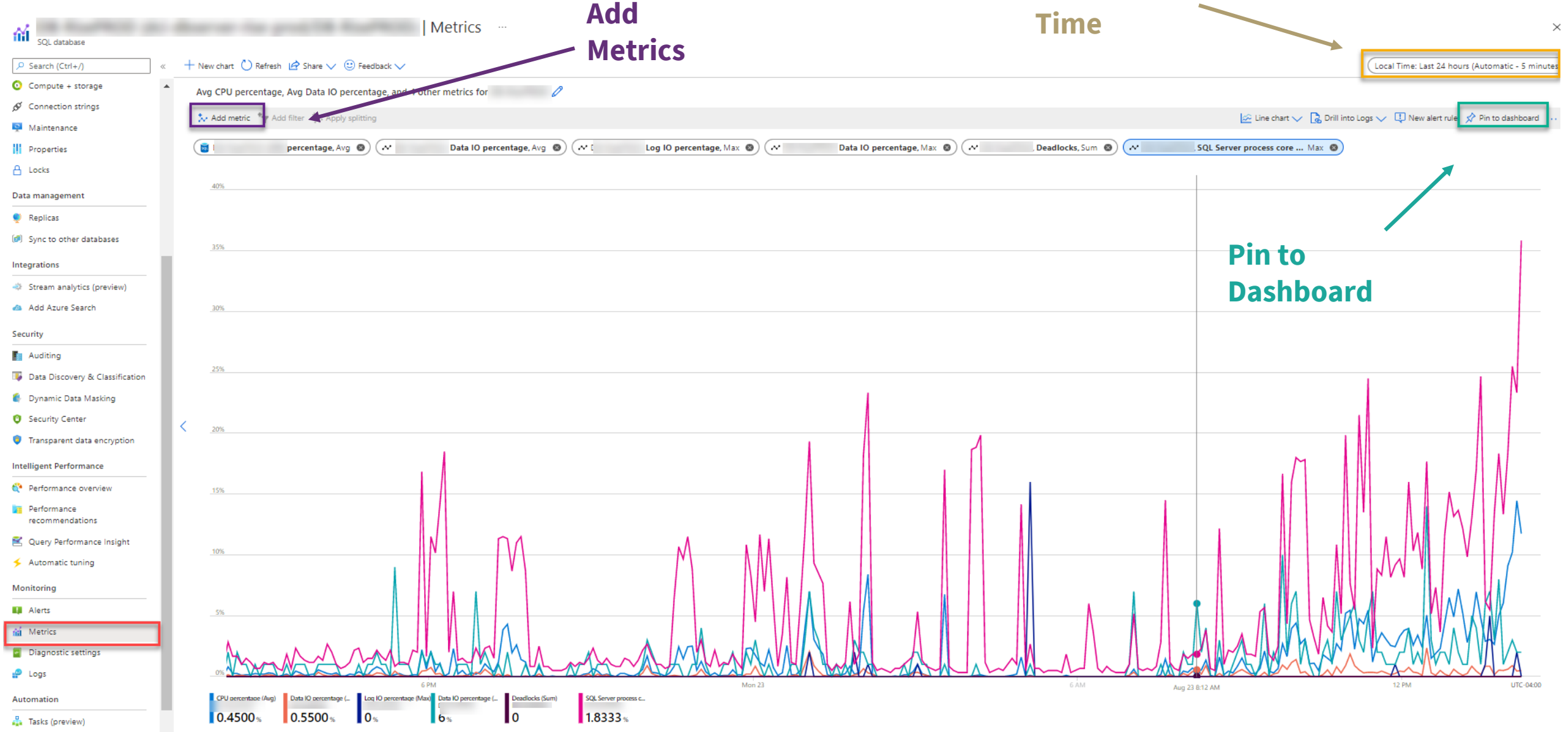
Analyze SQL Performance Stats

MONITOR

Before we can tune you need to know your workload to identify performance issues

METRICS

45 days



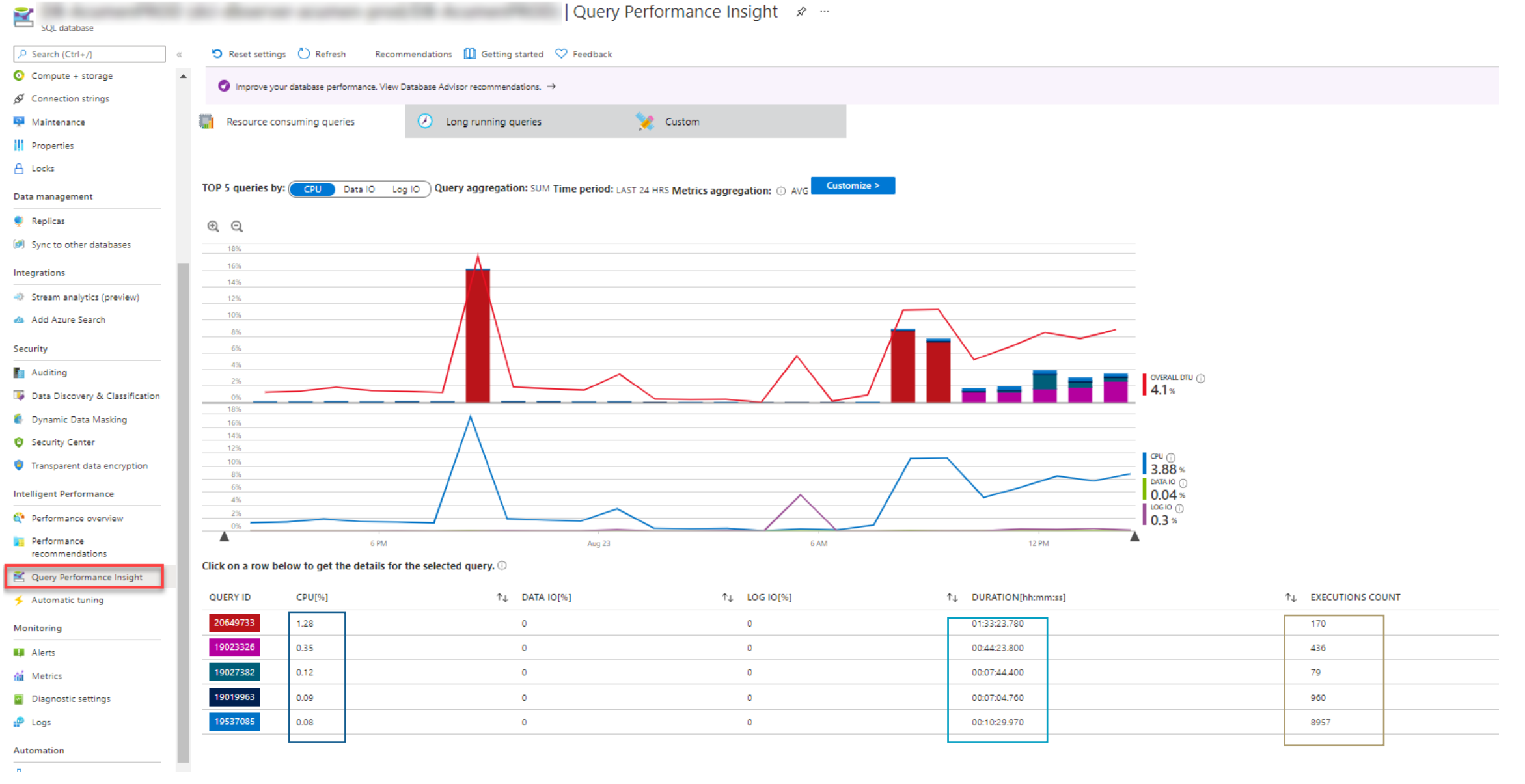
QUERY STORE

Understanding where the insights come from

WHAT IS QUERY STORE

Execution Plan History
Runtime Statistics
Regression Over Time
(hours, day, week, etc)
Top Resource Consumption
Wait Stats

QUERY PERFORMANCE INSIGHTS



QUERY ID	CPU[%]	DATA IO[%]	LOG IO[%]	DURATION[hh:mm:ss]	EXECUTIONS COUNT
20649733	1.28	0	0	01:33:23.780	170
19023326	0.35	0	0	00:44:23.800	436
19027382	0.12	0	0	00:07:44.400	79
19019963	0.09	0	0	00:07:04.760	960
19537085	0.08	0	0	00:10:29.970	8957

QUERY DETAILS

Note the Query ID this links directing to Query Store

See RunTime Stats per hour

Pay Attention to CPU/Data IO

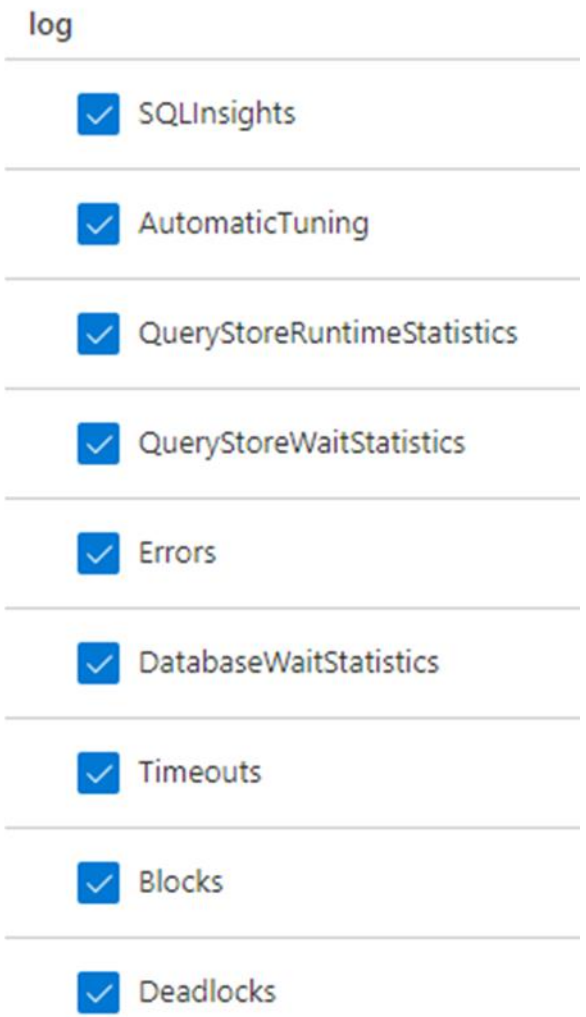
Execution Counts can be HUGE indicator of death by 1000 cuts

AZURE SQL ANALYTICS

NOT GA YET (Public Preview)

What is it?

- Relies on Log Analytics, Storage Acct or Event Hub
- Extra Cost
- Query with Kusto Query Language KQL
- Multiple database can write to one LA Workspace

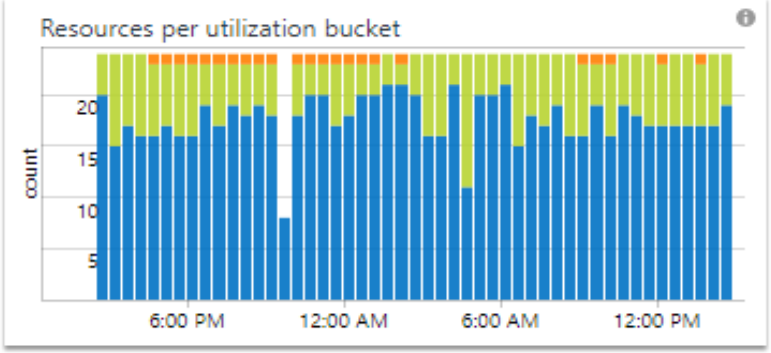


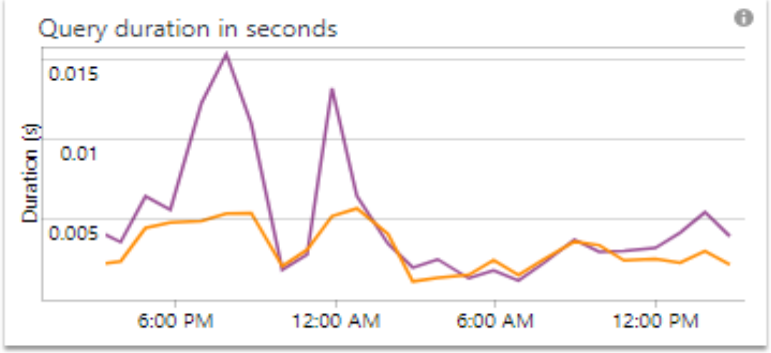
ANALYZE

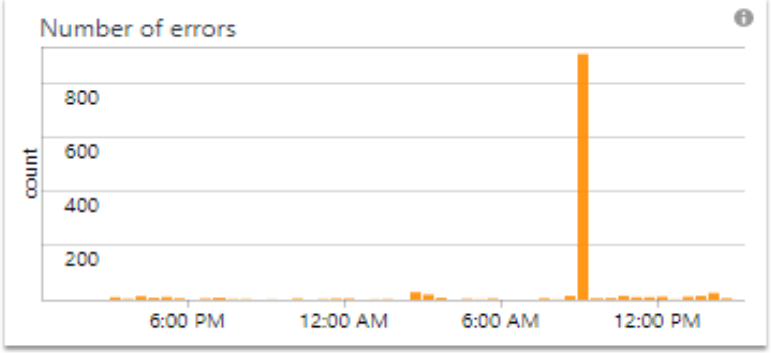
See your workload in terminals of analytics over time including things like deadlocks and blocking

AZURE SQL ANALYTICS

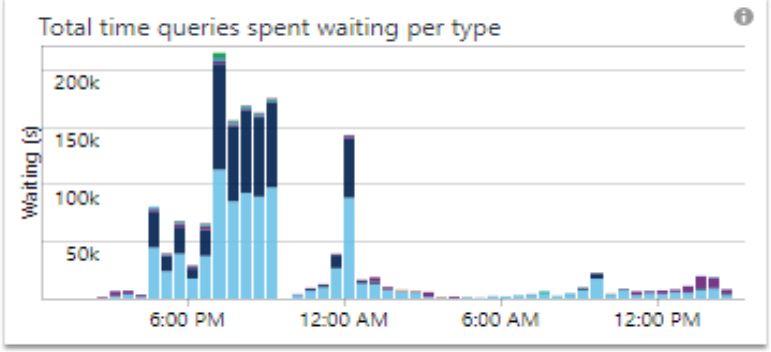
DATABASE FLEET OVERVIEW

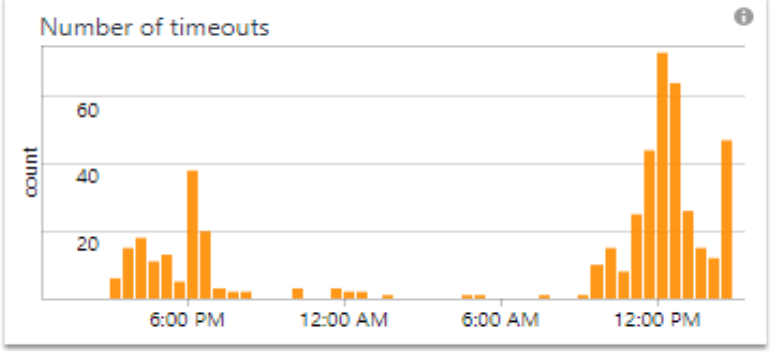


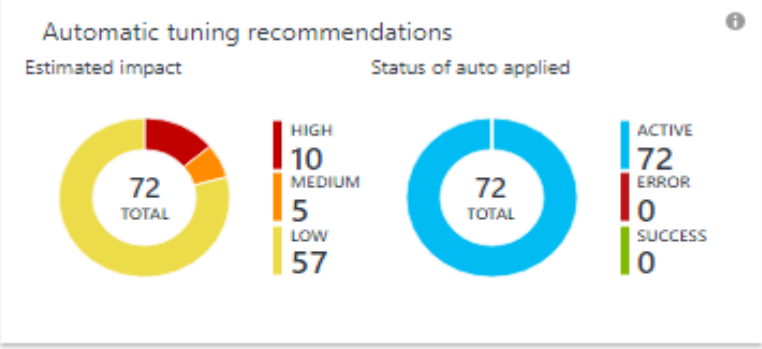


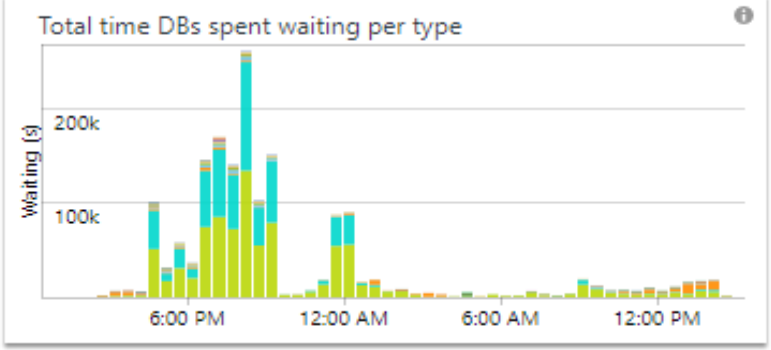


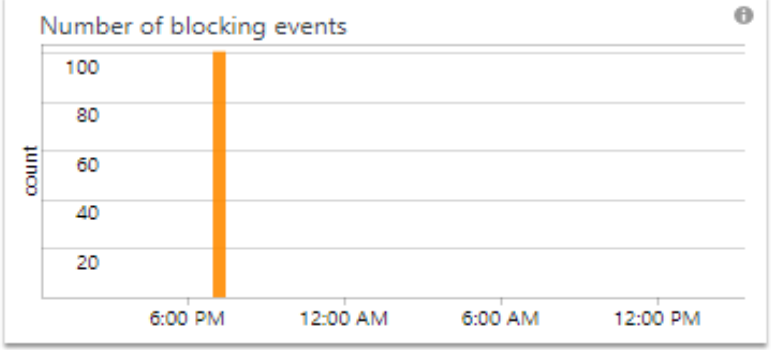
There are no **SQLInsights** issues detected for your resources.
Learn more about SQL Diagnostics logs











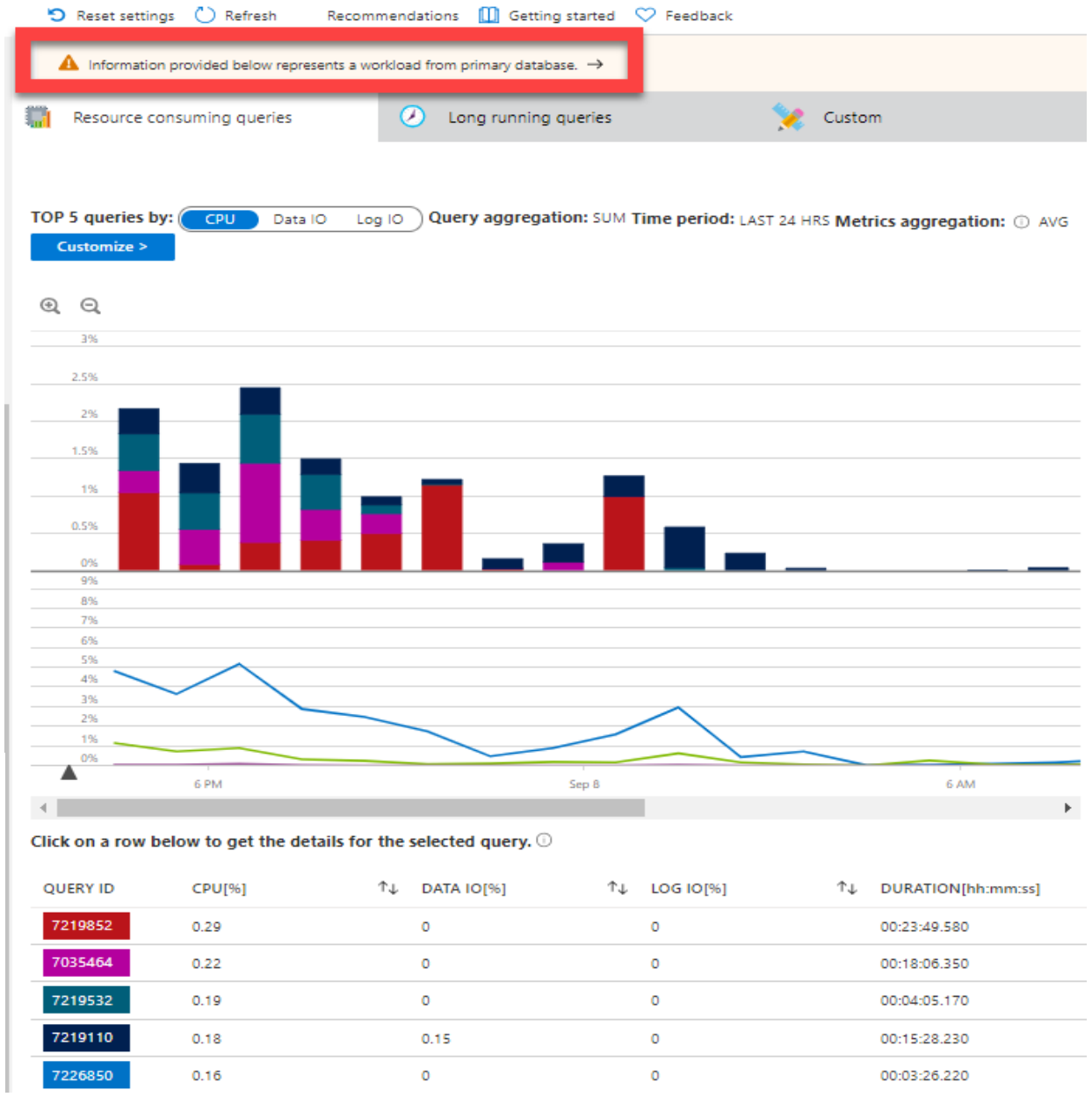
READ ONLY REPLICAS

Things to watch out for when you offload your workload and need to performance tune.

QUERY STORE IS REPLICATED

Data is **Primary Workload**

This is of NO USE TO YOU!



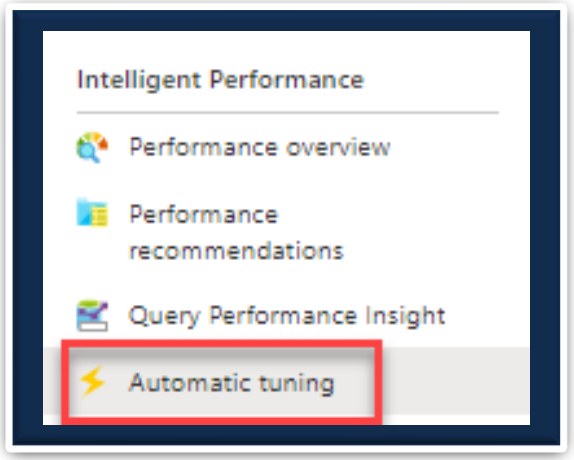
QUERY ID	CPU[%]	DATA IO[%]	LOG IO[%]	DURATION[hh:mm:ss]
7219852	0.29	0	0	00:23:49.580
7035464	0.22	0	0	00:18:06.350
7219532	0.19	0	0	00:04:05.170
7219110	0.18	0.15	0	00:15:28.230
7226850	0.16	0	0	00:03:26.220

SQL SERVER 2022 TO THE RESCUE

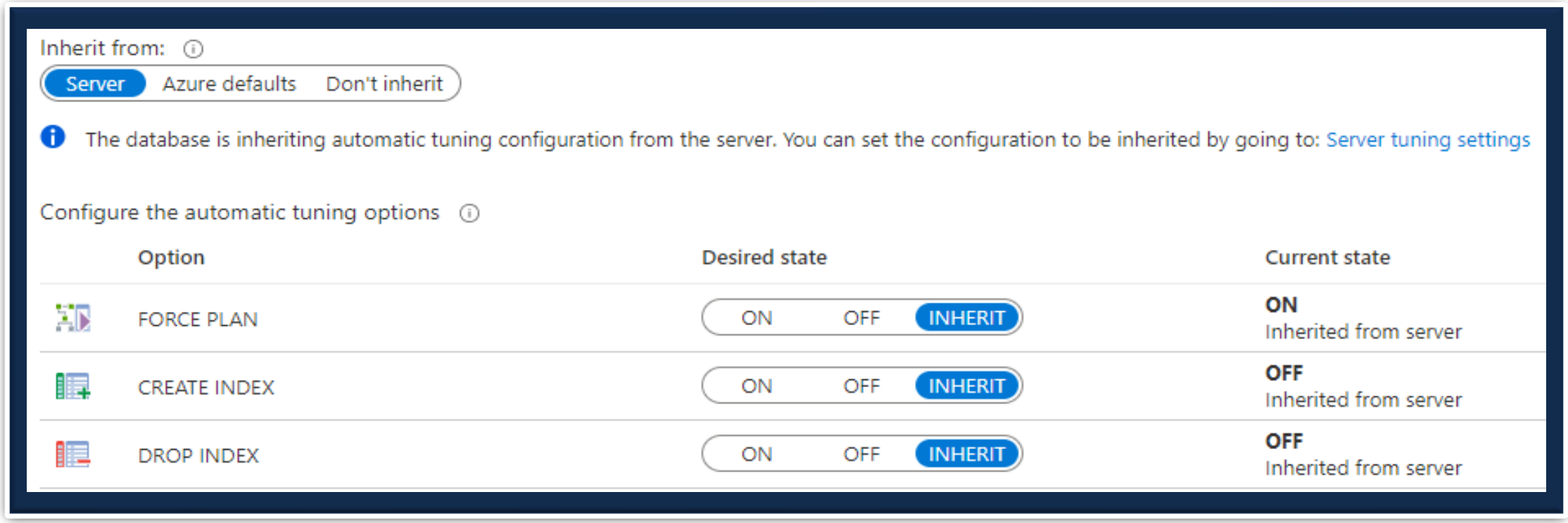
AUTOMATIC TUNING

For lazy database administrators, like me, Automatic Tuning can be an easy win.

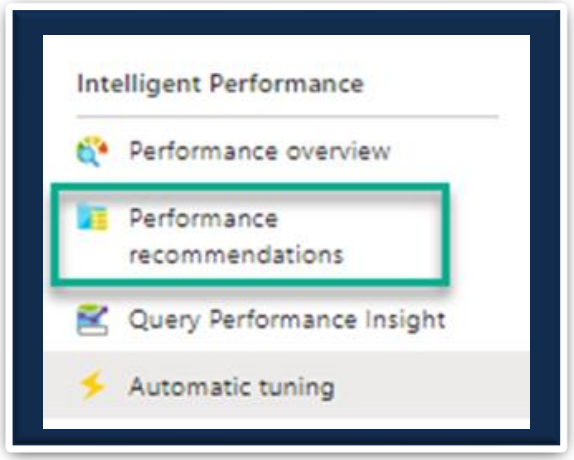
AUTOMATIC TUNING



- Continuously monitors query
- Remains in the portal for 24-48 hours
- Roll back mechanisms
- Implements Indexes & Automatically forces plan corrections



PERFORMANCE RECOMMENDATIONS



Tuning history

Action	Recommendation description	Status	Time
Drop index Initiated by: System	Index name: IX_Person_LastName_FirstName_MiddleName_Demo1 Reason: Duplicate index	Validating	7/16/2020 11:12:23 AM
Drop index Initiated by: System	Index name: AK_Product_Name_Dup Reason: Duplicate index	Executing	7/16/2020 11:11:21 AM
Create index Initiated by: System	Table: [SalesOrderDetail] Indexed columns:[UnitPrice]	Validating	7/16/2020 11:10:54 AM
Create index Initiated by: System	Table: [SalesOrderDetail] Indexed columns:[CarrierTrackingNumber]	Reverted	7/16/2020 2:36:33 AM
Drop index Initiated by: System	Index name: AK_Document_rowguid Reason: Duplicate index	Success	7/10/2020 11:43:02 PM
Drop index Initiated by: System	Index name: IX_Person_LastName_FirstName_MiddleName_DUP Reason: Duplicate index	Success	7/10/2020 6:59:28 PM

DEMO

PERFORMANCE TUNING IN AZURE SQL DATABASE

Monica Rathbun

MRathbun@sqlespresso.com

@SQLEspresso

sqlespresso.com

/in/sqlespresso

DCAC

Denny Cherry
& Associates Consulting

Your Data, Our Expertise
www.dcac.com

SQLEspresso