

Shabnam Watson

Performance Monitoring Analysis Services Tabular

A decorative graphic consisting of several overlapping, curved teal shapes that sweep across the right side of the slide, creating a sense of motion and depth.

Shabnam Watson

BI Consultant

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BLOG: <https://shabnamwatson.wordpress.com>

Work: BI Consultant

Fifteen years of experience developing data warehouse and business intelligence solutions with focus on Analysis Services.

Speaking

PASS Summit, SQL Saturdays, Women In Technology Virtual Chapter and Atlanta user groups.

Background

Master's degree in computer science. Certified Business Intelligence Professional (CBIP) by The Data Warehouse Institute (TDWI).

Who's this session for?

Familiar with Analysis Services: Learn SSAS from server side.

Key takeaways

What to look for when monitoring SSAS performance?

What tools to use?

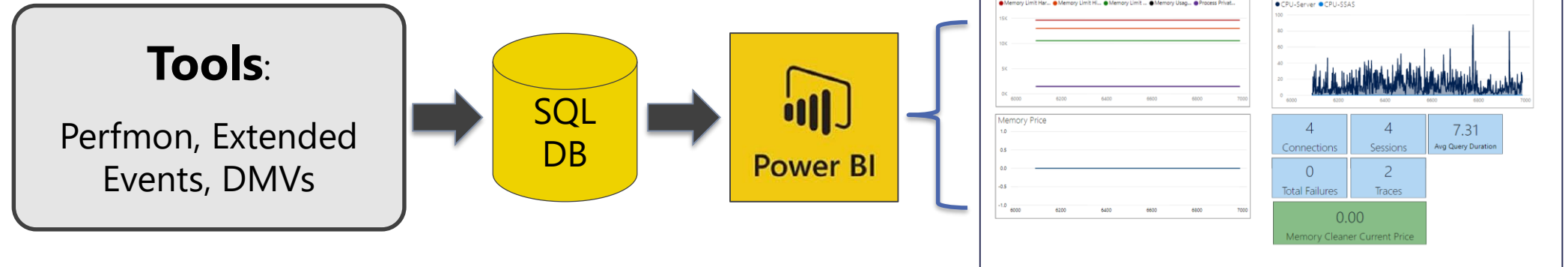
How to store them?

What's not covered ?

Development/data modeling for Analysis Services, Power BI



Agenda




Why Monitor Performance?

Server and SSAS:

Point in time, Benchmarks, History




SSAS Process: msmdsrv


 Resource Monitor

File Monitor Help

Overview CPU Memory Disk Network


Processes

 11% CPU Usage

 119% Maximum Frequency

<input checked="" type="checkbox"/> Image	PID	Description	Status	Threads	CPU	Average CPU
<input checked="" type="checkbox"/> msmdsrv.exe	216	Microsoft SQL Server Analysis Services	Running	37	0	0.00

Services

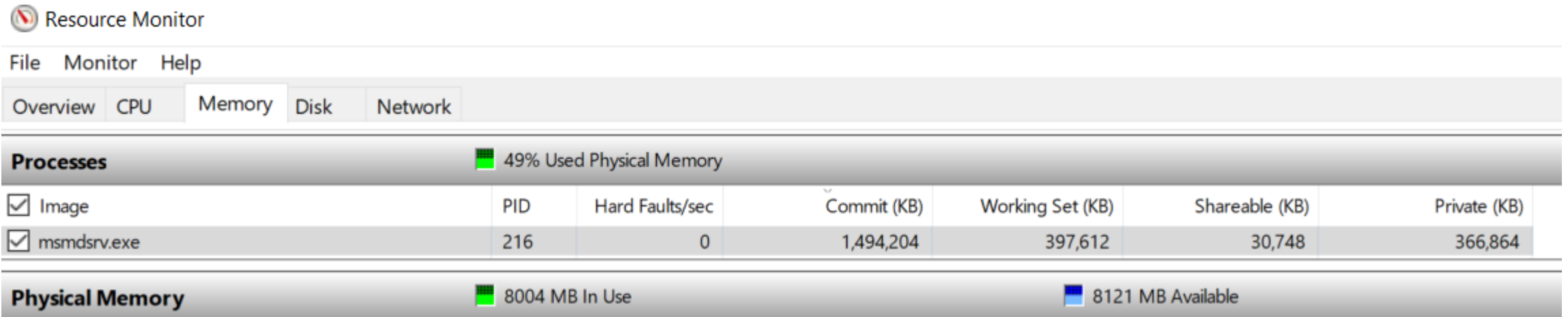
 2% CPU Usage

Filtered by msmdsrv.exe

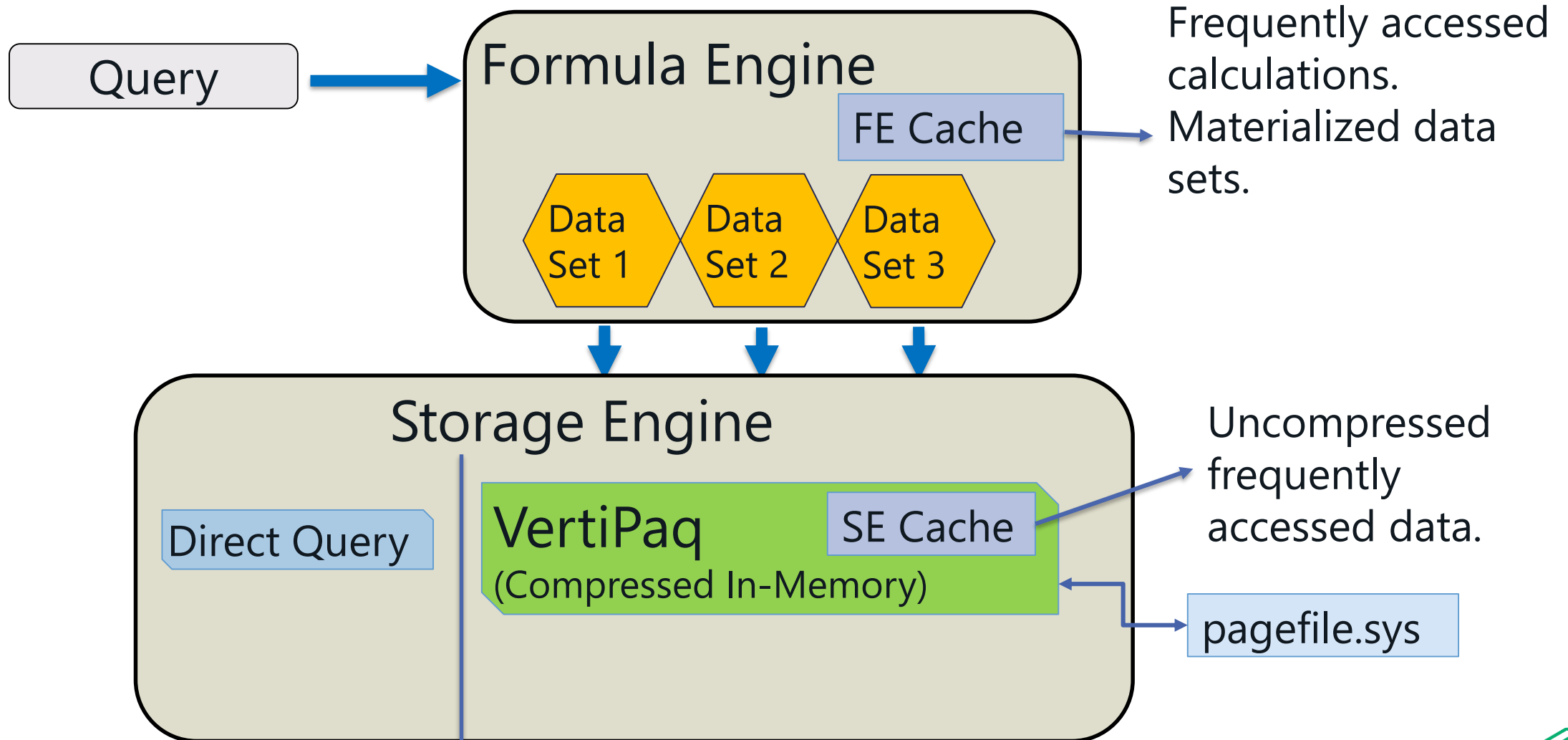
Name	PID	Description	Status	Group	CPU	Average CPU
MSSQLServerOLAPService	216	SQL Server Analysis Services (MSSQLSERVER)	Running		0	0.00



SSAS Process: msmdsrv



SSAS Tabular Query Processing



Memory Settings

SQL Server Management Studio or msmdsrv.ini

SSAS Setting	Default value
LowMemoryLimit	65
TotalMemoryLimit	80
HardMemoryLimit	0

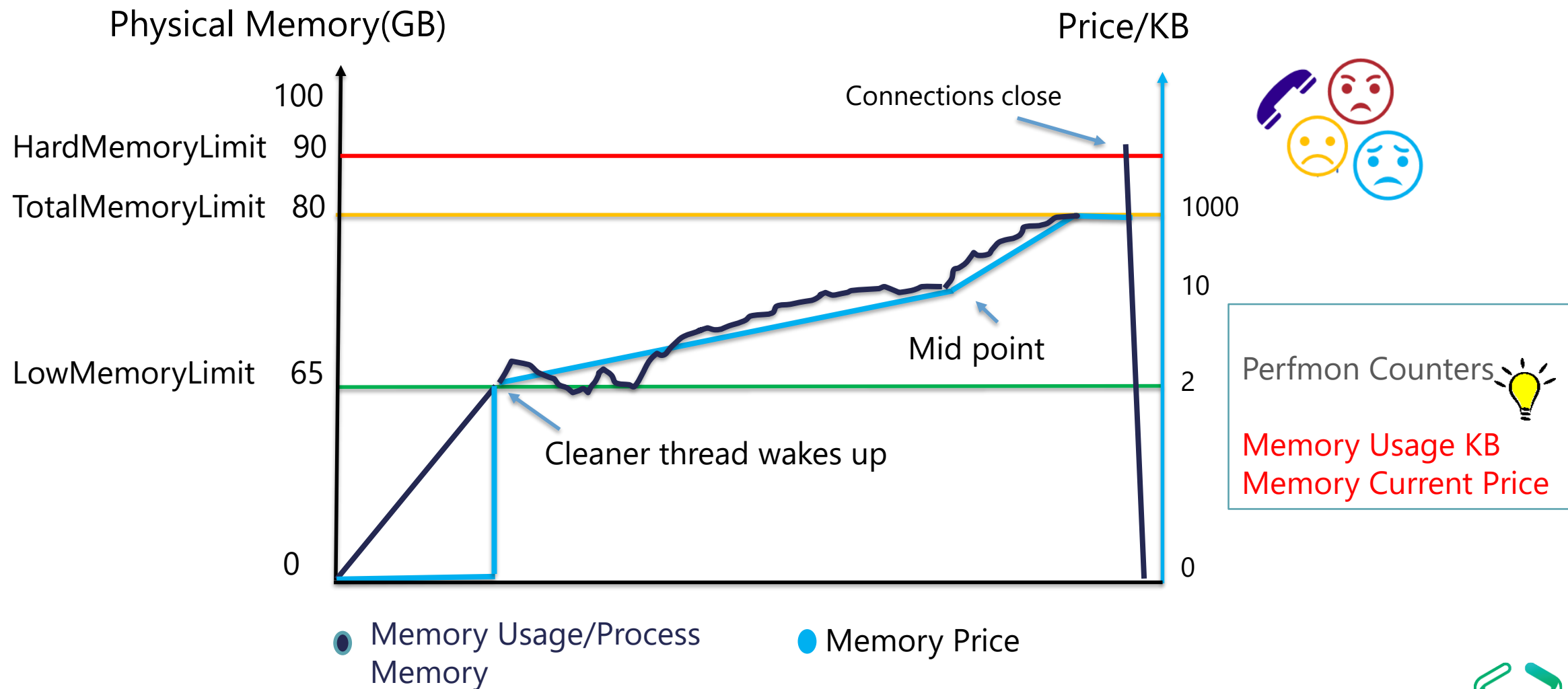


Perfmon Counter
Memory Limit Low KB
Memory Limit High KB
Memory Limit Hard KB

Memory Usage KB



Memory Management



Controlling Memory - Tabular

SSAS Setting	Default value
VertiPaqPagingPolicy	1
VertiPaqMemoryLimit	60

VertiPaqPagingPolicy = 0 ➡ No paging allowed.

VertiPaqPagingPolicy = 1 ➡ VertiPaqMemoryLimit comes into play.

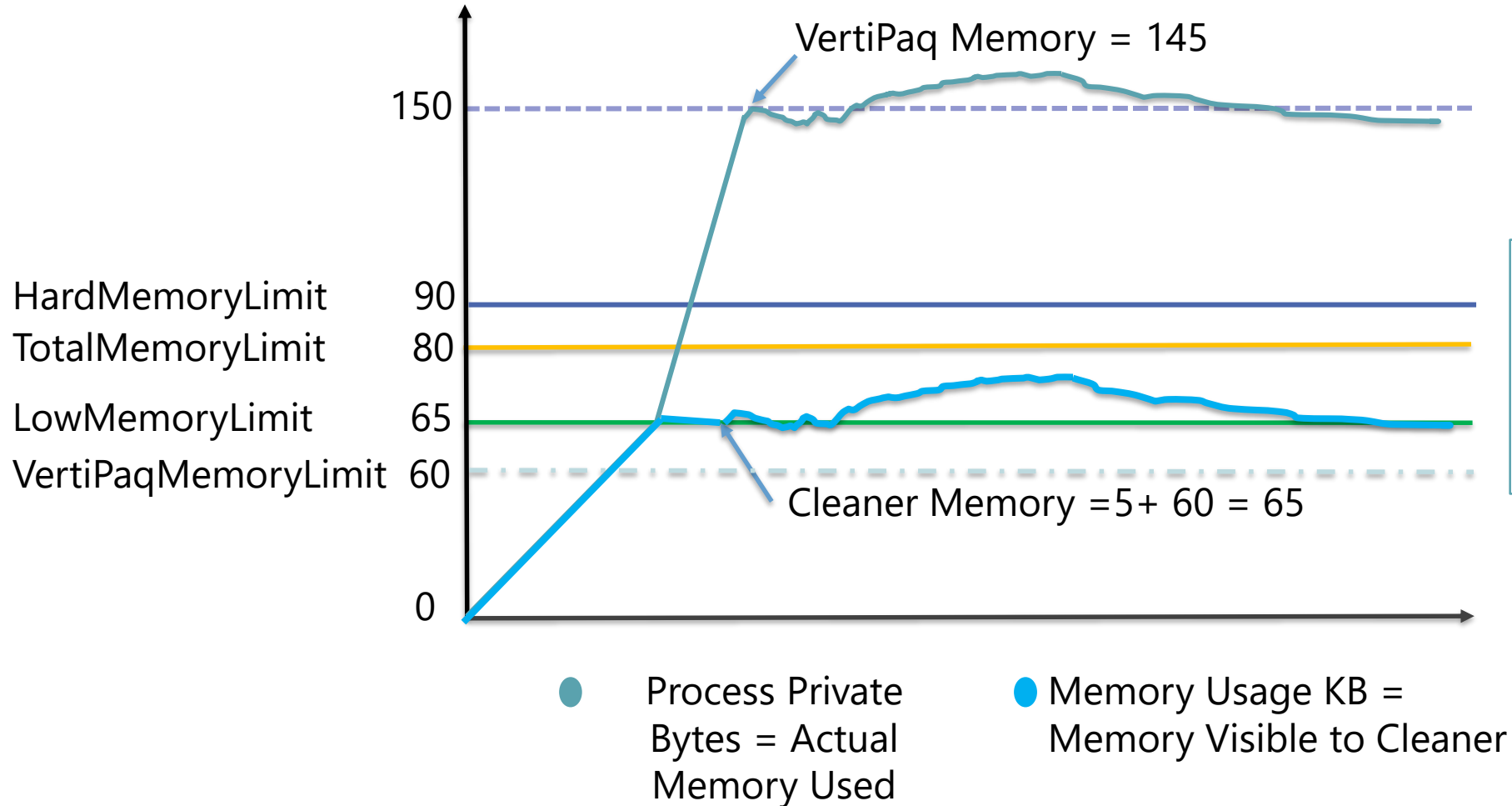
Memory Usage KB: Includes VertiPaq data up to VertiPaqMemoryLimit


Process(msmdsrv): Private Bytes



Memory Management – Paging allowed

Virtual Memory (GB)



Perfmon Counters 

Process Private Bytes
Memory Pages/Sec



Perfmon Counters - Memory

Memory Limit Low KB

Memory Limit High KB

Memory Limit Hard KB

VertiPaqMemoryLimit

Memory Usage KB

VertiPaq Paged KB

VertiPaq NonPaged KB

Process(msmdsrv): Private Bytes

Cleaner Current Price

Memory Pages/Sec

Memory: Available Mbytes



Perfmon Counters - Others

Processor : % Processor Time

Process(msmdsrv): %Processor Time

Storage Engine: Avg time/ query

Storage Engine: Queries answered/sec

Connections: Current Connections

Connections: Current Sessions

Connections: Failures/Sec





Demo

Perfmon Data Collectors

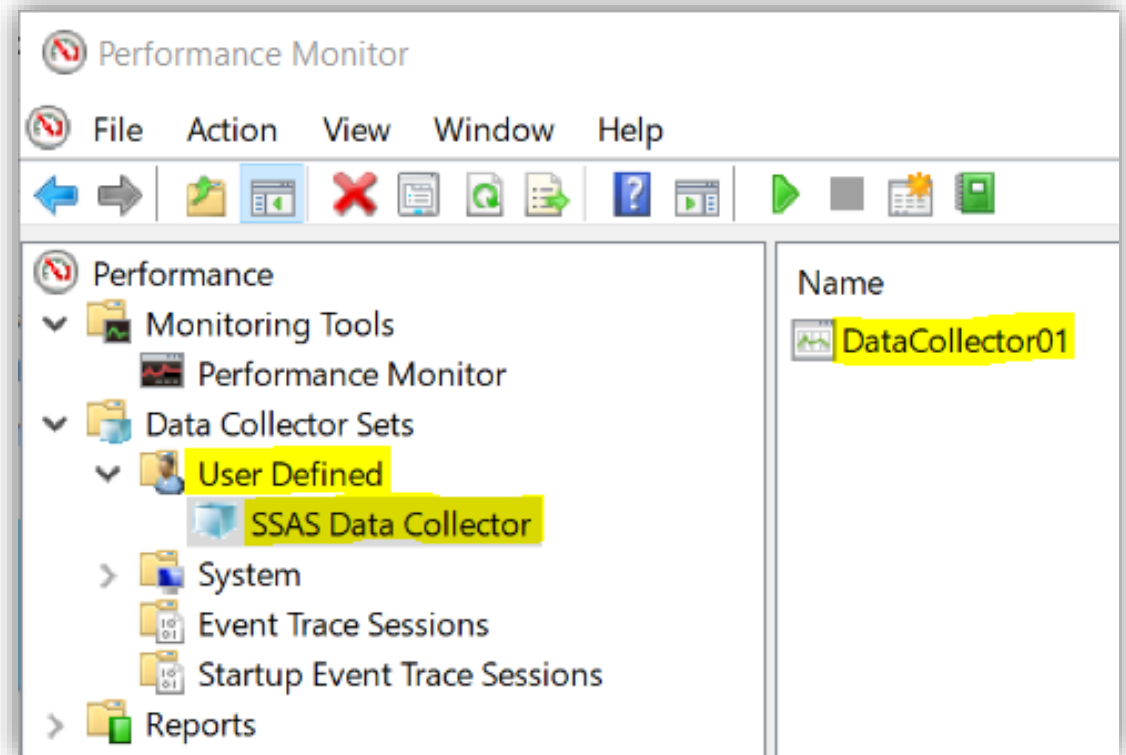
How to save to SQL Server?

ODBC Data Source: System DSN

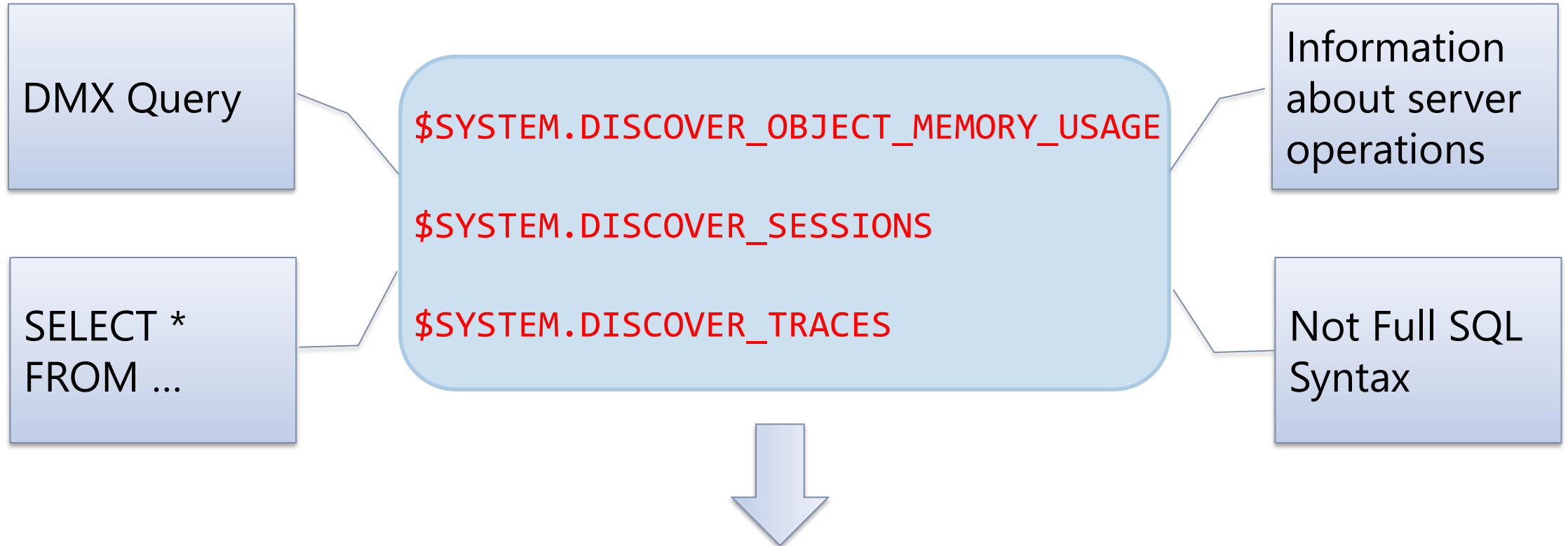
Set Log Format to SQL

Set Data Source Name to the System DSN

Change Run As from System to a privileged account



Dynamic Management Views (*DMVs*)



```
OPENQUERY(LinkServerName, 'SELECT * FROM $SYSTEM.DISCOVER_TRACES')
```



Extended Events (*xEvents*)

Light-weight tracing system

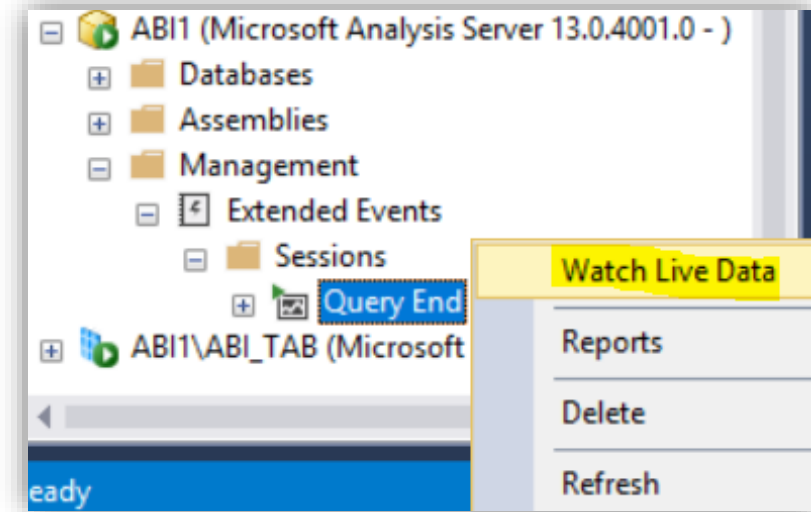
Ideal for monitoring Production environments

GUI starting with SQL Server 2016

Watch Live Data: Export Data

Script to XMLA to Create / Delete

Query End event



SQL Server Profiler: Not deprecated for SSAS



References

[Performance Counters](#)

[OLAP Properties](#)

[Dynamic Management Views](#)

[My Blog](#)

[Reading XEL files](#)

[ExtendedEventsLogFiles](#)

[Window Resource Monitor](#)



Thank you!



Questions?

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Feedback!

