



What's new for developers in SQL Server 2022

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Partners

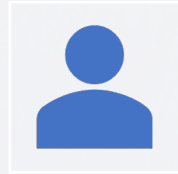


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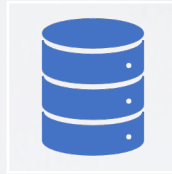
About me



Danilo Dominici
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Independent
consultant



Working with SQL
Server since 1999

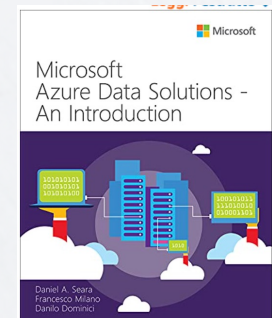


Microsoft Certified
Trainer since 2000



Microsoft MVP
(2014 – 2020)

SQL Server
(Azure/AWS/on-prem)
PostgreSQL
Redis



Agenda

What's new in SQL Server 2022

JSON functions


WINDOW clause

Time series functions

Other T-SQL functions

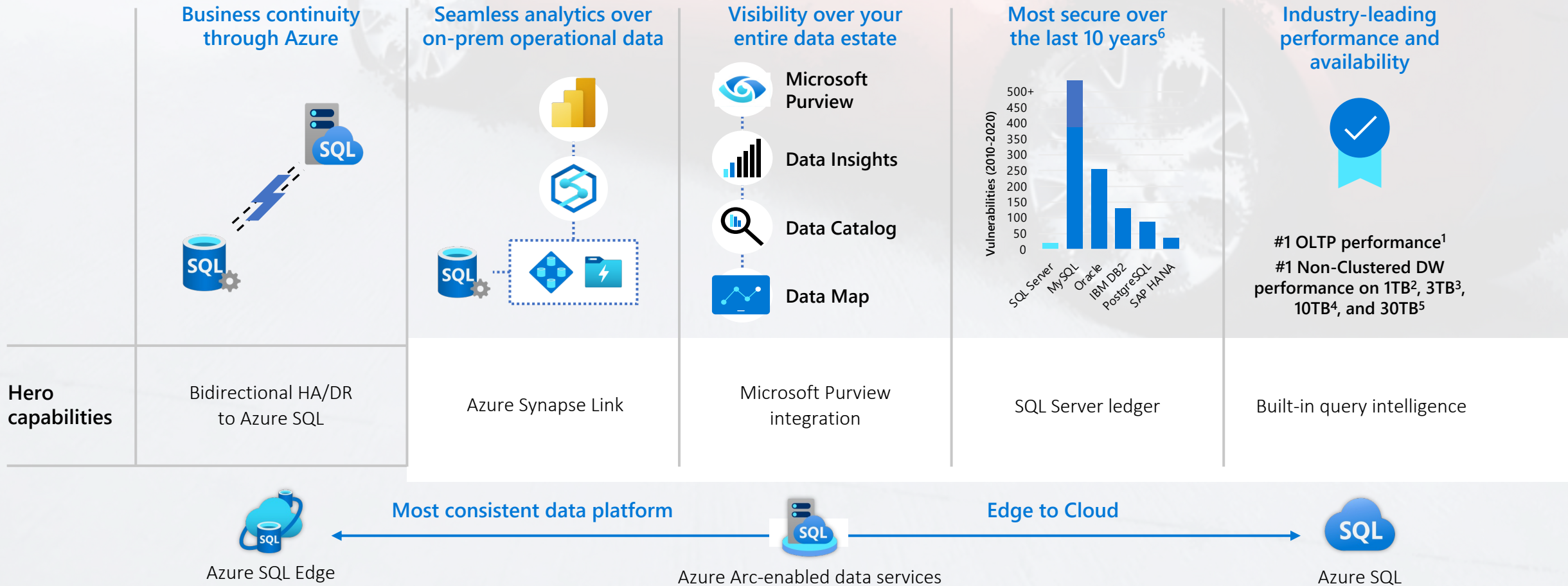
Query store improvements

Azure SQL Database ne



Go to the Resources slide for links
to documentation and videos

Azure-enabled with continued performance and security innovation



What's new in SQL Server 2022 😊

During the latest MS Build conference, Microsoft released the first public preview of SQL Server 2022

A lot of news, both in Azure and on-premise version

Some of the newly added features are for you, developers! 😊

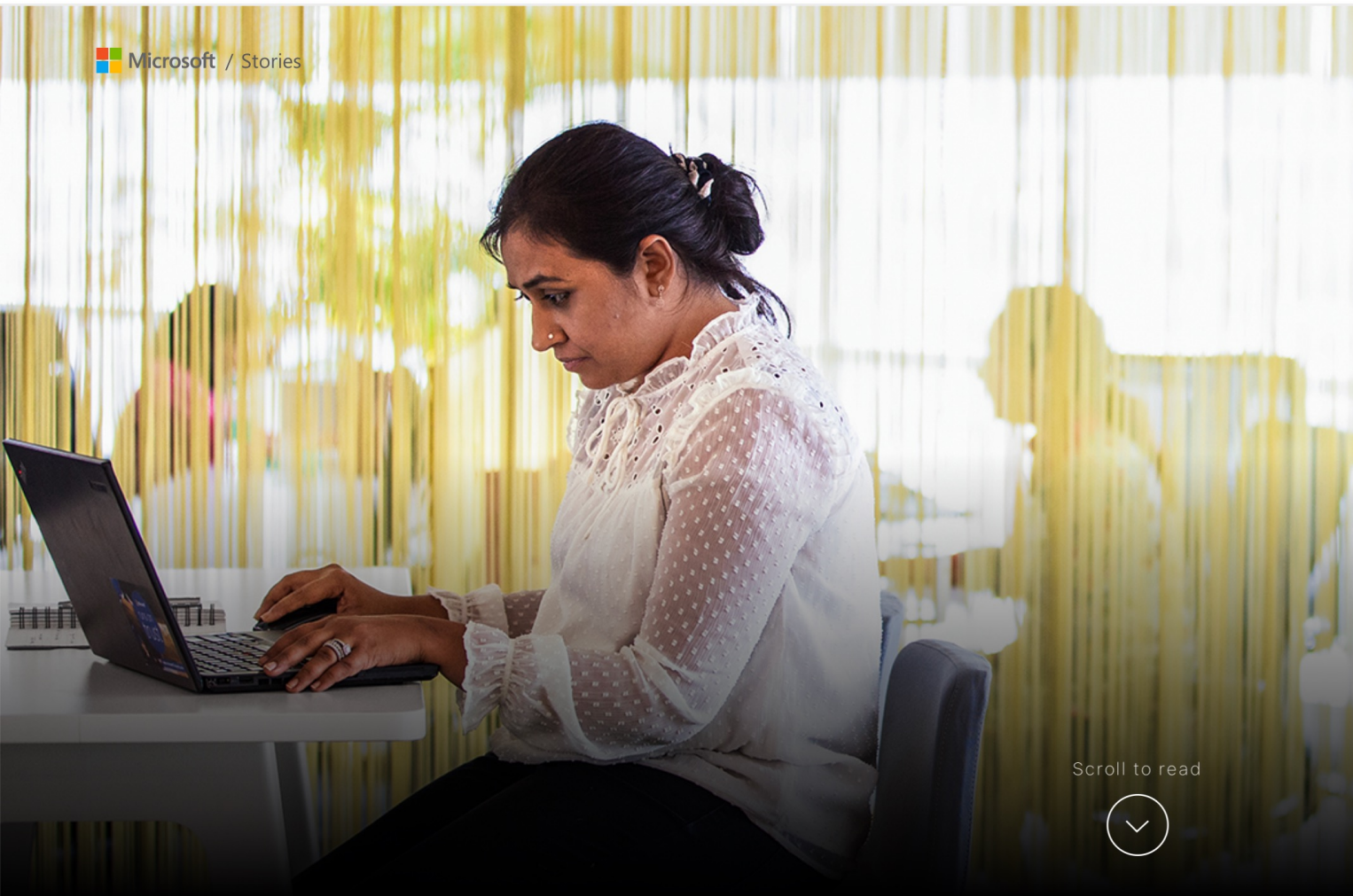
- JSON-handling functions
- WINDOW clause
- New time-series functions
- New T-SQL functions
- Query store improvements (used in Intelligent Query Processing Gen2)

What's new in SQL Server 2022 😞

We also have some bad news...

Some features are discontinued in SQL Server 2022 Preview:

- Machine Learning Services are no longer included in SQL Server installation (but you can install them separately as custom packages)
- SQL Server Big Data Clusters (BDC) will be retired and no longer supported after February 28, 2025
- SQL Server PolyBase scale-out groups will be retired



Scroll to read



MICROSOFT BUILD
BOOK OF NEWS
 May 24-26, 2022

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New/improved JSON functions

New/improved JSON functions



JSON_PATH_EXISTS

Tests whether a specified SQL/JSON path exists in the input JSON string



JSON_OBJECT

Constructs JSON object text from zero or more expressions



JSON_ARRAY

Constructs JSON array text from zero or more expressions



DEMO

New/improved JSON functions

WINDOW clause

- Named window definition in the WINDOW clause determines the partitioning and ordering of a rowset before the window function which uses the window in OVER clause is applied
- requires database compatibility level 160 or higher
- Can be used multiple times
- Can be recursive
- Scope is the query/table where is defined (e.g. no CTE, derived table, inline table valued function)

```
WINDOW window_name AS (  
    [ reference_window_name ]  
    [ <PARTITION BY clause> ]  
    [ <ORDER BY clause> ]  
    [ <ROW or RANGE clause> ]  
)  
  
<PARTITION BY clause> ::=  
PARTITION BY value_expression , ... [ n ]  
  
<ORDER BY clause> ::=  
ORDER BY order_by_expression  
    [ COLLATE collation_name ]  
    [ ASC | DESC ]  
    [ ,...n ]  
  
<ROW or RANGE clause> ::=  
{ ROWS | RANGE } <window frame extent>
```



DEMO

New WINDOW clause

Time-series function



DATE_BUCKET



GENERATE_SERIES



FIRST_VALUE and LAST_VALUE improvements



DEMO

Time-series functions

Other T-SQL functions

GREATEST

- This function returns the maximum value from a list of one or more expressions

LEAST

- This function returns the minimum value from a list of one or more expressions

Other T-SQL functions

STRING_SPLIT

- A table-valued function that splits a string into rows of substrings, based on a specified separator character
- Included in SQL Server 2016+
- SQL Server 2022 adds the `enable_ordinal` third optional parameter, which returns the ordinal output column
 - Before 2022 available only on Azure SQL database, Azure SQL MI and Azure Synapse Analytics
- In previous versions it returns an error:

```
Msg 8144, Level 16, State 3, Line 4  
Procedure or function STRING_SPLIT has too many arguments specified.
```




DEMO

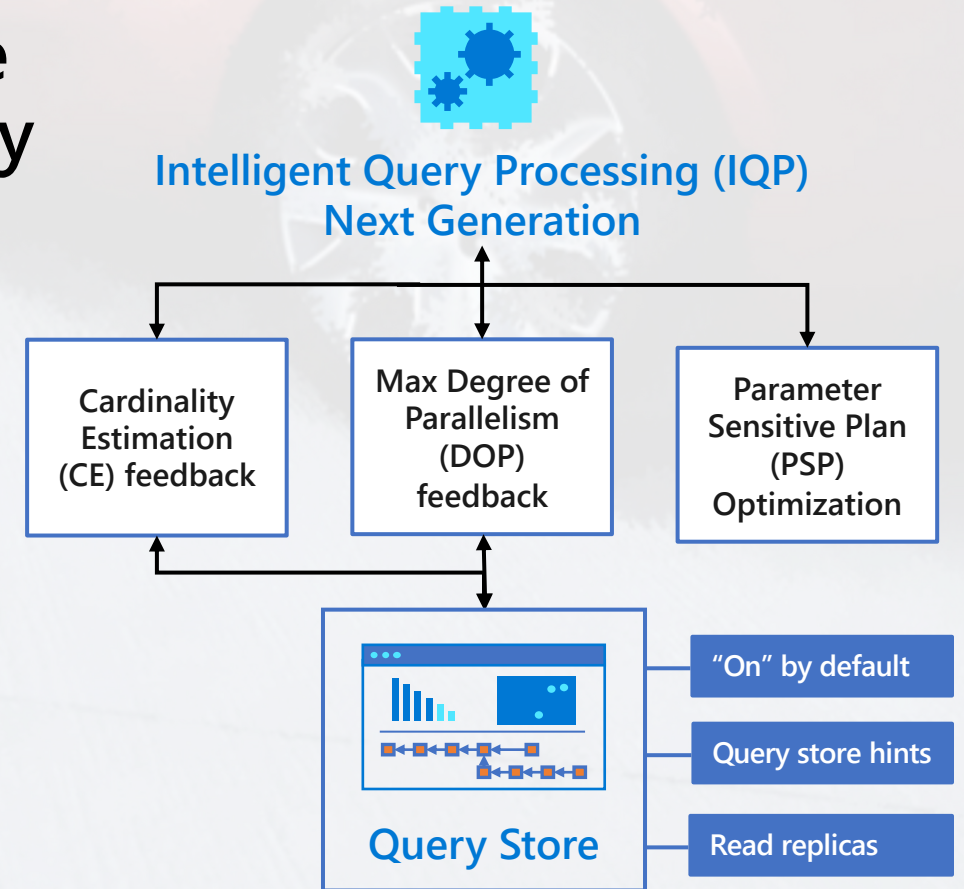
New/improved functions



Query Store improvements

Query Store improvements

- Query Store enhancements and the next generation of Intelligent Query Processing (IQP)



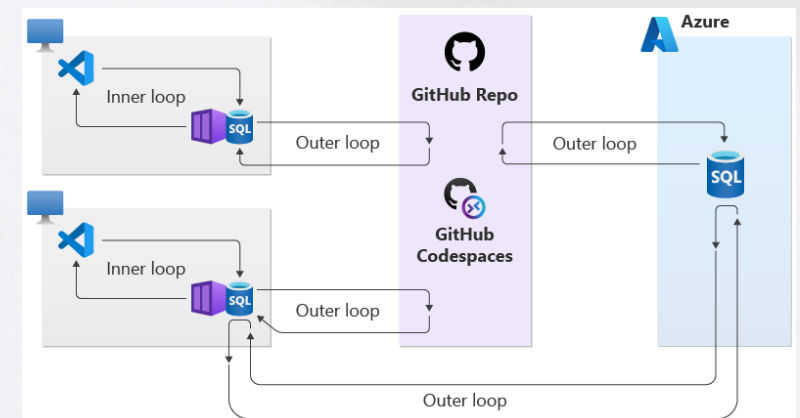
What's new in Azure SQL Database

- Public preview
 - Local developer experience
 - Azure Functions bindings
 - JSON enhancements
- Private preview
 - HTTPS endpoints
- General Availability
 - Ledger table

Local development experience

Combination of tools and procedures that empowers application developers and database professionals to design, edit, build/validate, publish, and run database schemas for databases while working offline:

- Visual Studio Code extensions
 - mssql and SQL Database Projects
- Azure SQL Database emulator
 - local containerized database for development and testing, with functionalities close to Azure SQL Database



Azure Functions integration

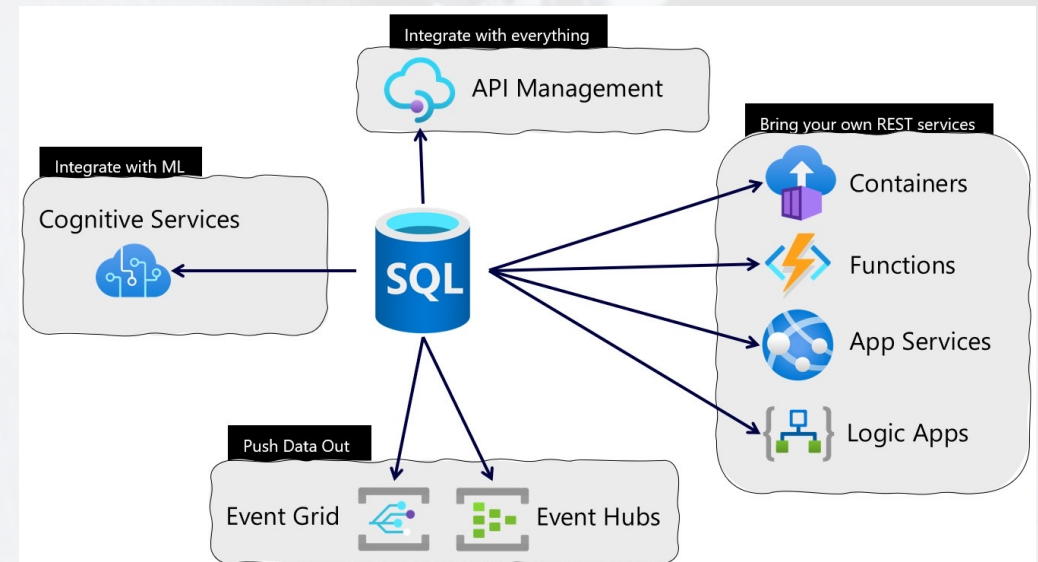
```
[FunctionName("ProductList")]
public static IActionResult Run(
    [HttpTrigger(AuthorizationLevel.Function, "get", Route = "products")] HttpRequest req,
    [Sql("SELECT Id, ProductName, Category FROM dbo.Products",
        CommandType = System.Data.CommandType.Text, ConnectionStringSetting =
            "SqlConnectionString")] IEnumerable<Object> sqlResult,
    ILogger log)
{
    return new OkObjectResult(sqlResult);
}
```



HTTPS API endpoints integration

Enable a quick integration with Azure Functions, Logic Apps, Cognitive Services, Event Hubs, Event Grid, Azure Containers, API management and in general any REST endpoint.

Now available as a private preview for Azure SQL Database



<https://aka.ms/azure-sql-extrest-eap-form>



Resources

Resources

- Download SQL Server 2022 evaluation
<https://www.microsoft.com/en-us/evalcenter/evaluate-sql-server-2022>
- What's new in SQL Server 2022
<https://docs.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-2022?view=sql-server-ver16>
- Discontinued database engine functionality in SQL Server 2022
<https://docs.microsoft.com/en-us/sql/database-engine/discontinued-database-engine-functionality-in-sql-server?view=sql-server-ver16>

Resources

- T-SQL Windowing enhancements in SQL Server 2022
<https://sqlperformance.com/2022/05/t-sql-queries/windowing-improvements-sql-server-2022>

Resources

- Local Development Experience
<https://docs.microsoft.com/it-it/azure/azure-sql/database/local-dev-experience-overview?view=azuresql>
- Azure SQL Database emulator
<https://docs.microsoft.com/it-it/azure/azure-sql/database/local-dev-experience-sql-database-emulator?view=azuresql>

Resources

- Data Exposed – Introduction to SQL Server 2022
<https://www.youtube.com/watch?v=4KoBdx5Zyel>
- Data Exposed – SQL Server 2022 the cloud connected database
<https://www.youtube.com/watch?v=Z7vLzouxI-s>
- Data Exposed – Intelligence Query Processing
<https://www.youtube.com/watch?v=bbXM3Pk9Ejw>
- Data Exposed – Query Store Hints
<https://www.youtube.com/watch?v=CxXLj3-1y7A>
- Data Exposed – Buffer Pool Parallel Scan
<https://www.youtube.com/watch?v=4GvU106Xiag>

Q&A

You have

Questions

We have

Answers