SQL Day

15 edycja konferencji SQLDay

8-10 maja 2023, WROCŁAW + ONLINE

Data Community

partner złoty

Future Processing

partner srebrny

Objectivity

summ-it

kursySQL.pl

VOLVO

partner brązowy

devart

Adrian Kapczyński
adrian@1753c.io

Key insights from my 25 years of experience with the Microsoft Data Platform

AGENDA

- Introduction
- Microsoft Data Platform
  - SQL Server 7.0
  - …
  - SQL Server 2022
- Summary

Introduction

Let’s connect

sli.do

https://bit.ly/sqlday-keynote-slido

My university

UNIVERSITY OF SILESIA
IN KATOWICE

Silesian University of Technology

Silesian Centre for Legal Engineering, Technology, and Digital Competence
CYBER SCIENCE

NASK

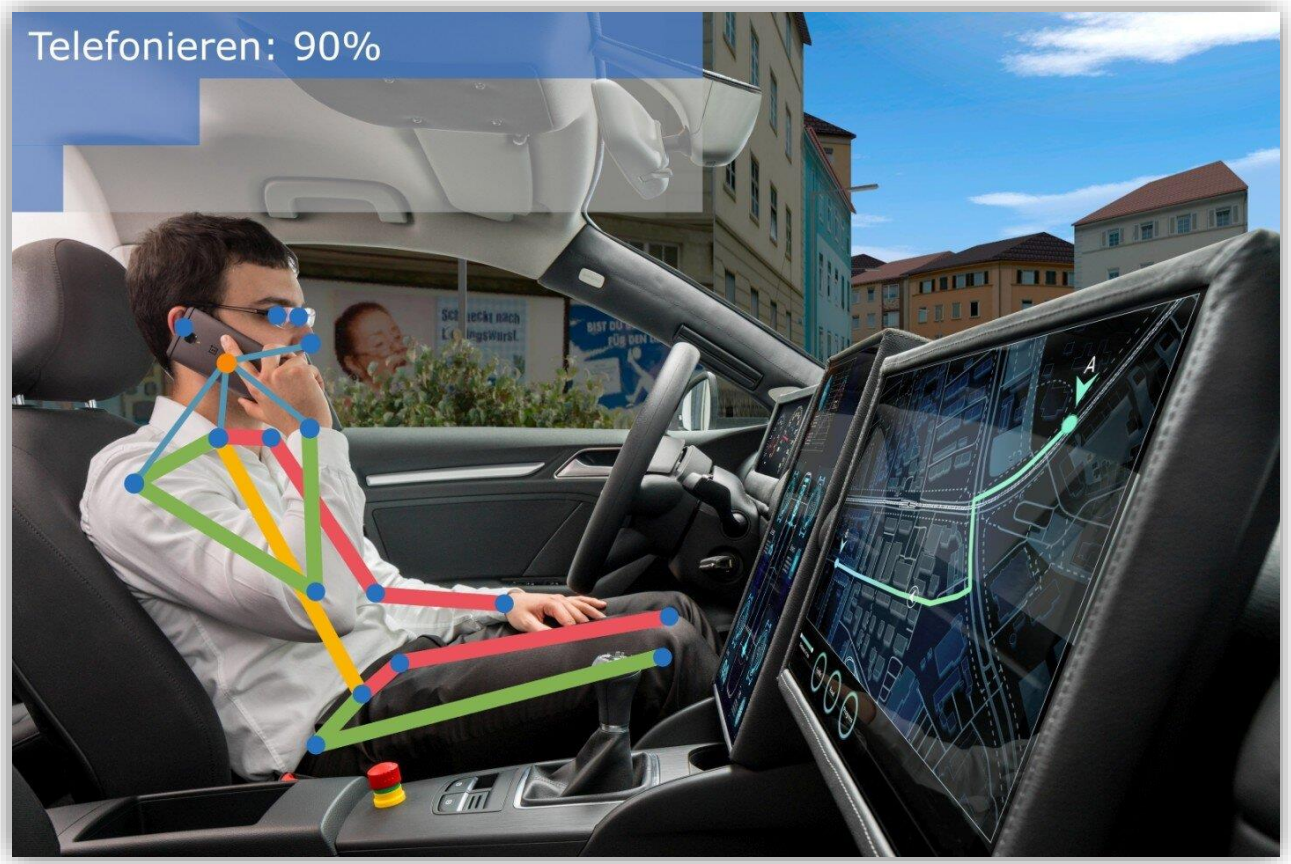
University of Economics in Katowice

https://us.edu.pl/centra-badawcze/cyberscience

My university

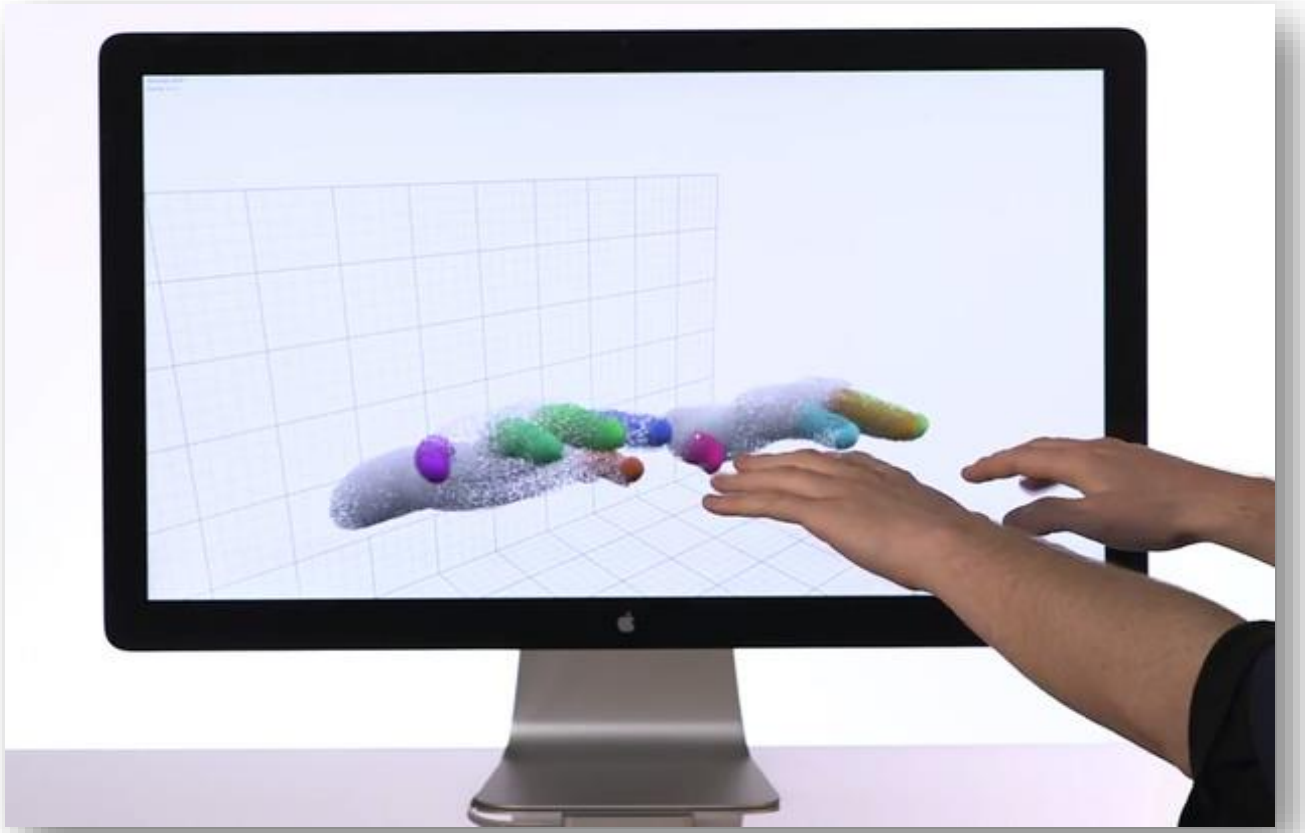
https://www.polsl.pl/pob2/en/

My research interests



https://techxplore.com/news/2021-09-vehicle.html

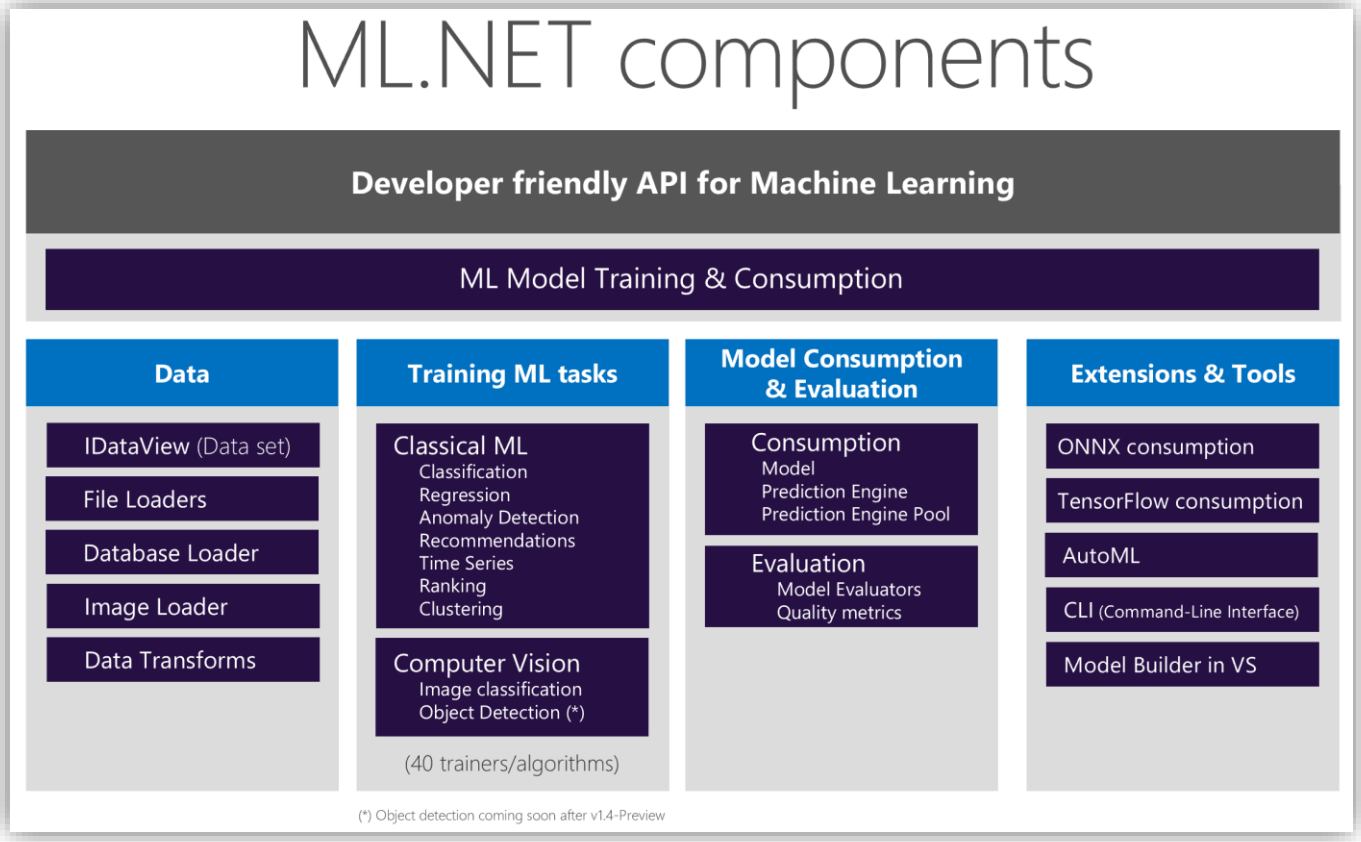
My research interests



https://www.ultraleap.com/developers/

My research interests

ML.NET



https://www.codemag.com/Article/1911042/ML.NET-Machine-Learning-for-.NET-Developers

My Community (17 53c)

My projects

ATLAS™

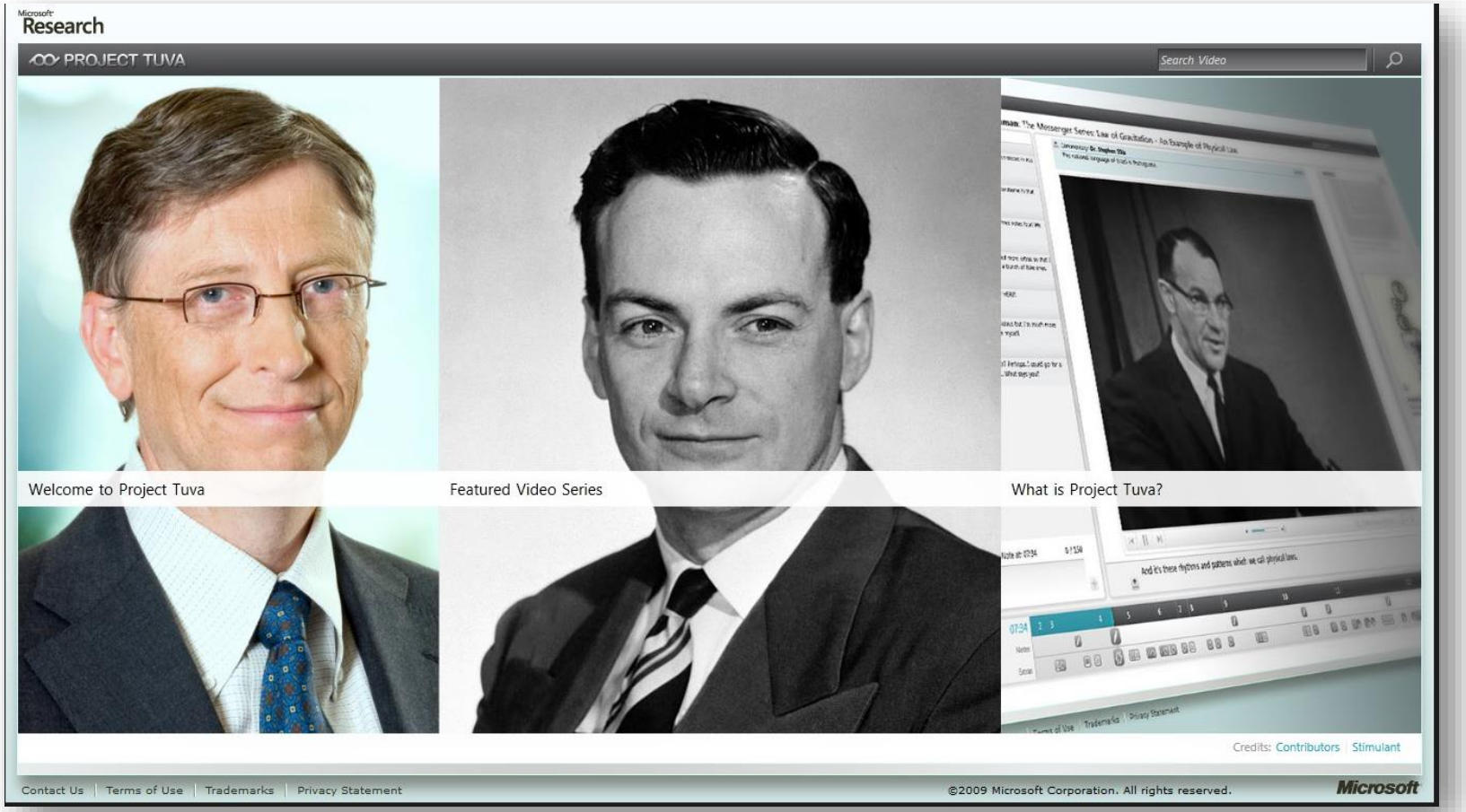
The ATLAS Matrix below shows the progression of tactics used in attacks as columns from left to right, with ML techniques belonging to each tactic below. & indicates an adaptation from ATT&CK. Click on links to learn more about each item, or view ATLAS tactics and techniques using the links at the top navigation bar.

Reconnaissance & (5 techniques)	Resource Development & (7 techniques)	Initial Access & (4 techniques)	ML Model Access (4 techniques)	Execution & (2 techniques)	Persistence & (2 techniques)	Defense Evasion & (1 technique)	Discovery & (3 techniques)	Collection & (3 techniques)	ML Attack Staging (4 techniques)	Exfiltration & (2 techniques)	Impact & (7 techniques)
Search for Victim's Publicly Available Research Materials	Acquire Public ML Artifacts	ML Supply Chain Compromise	ML Model Inference API Access	User Execution &	Poison Training Data	Evade ML Model	Discover ML Model Ontology	ML Artifact Collection	Create Proxy ML Model	Exfiltration via ML Inference API	Evade ML Model
Search for Publicly Available Adversarial Vulnerability Analysis	Obtain Capabilities &	Valid Accounts &	ML-Enabled Product or Service	Command and Scripting Interpreter &	Backdoor ML Model		Discover ML Model Family	Data from Information Repositories &	Backdoor ML Model	Exfiltration via Cyber Means	Denial of ML Service
Search Victim-Owned Websites	Develop Adversarial ML Attack Capabilities	Evade ML Model	Physical Environment Access				Discover ML Artifacts	Data from Local System &	Verify Attack		Spamming ML System with Chaff Data
Search Application Repositories	Acquire Infrastructure	Exploit Public-Facing Application &	Full ML Model Access						Craft Adversarial Data		Erode ML Model Integrity
Active Scanning &	Publish Poisoned Datasets										Cost Harvesting
	Poison Training Data										ML Intellectual Property Theft
	Establish Accounts &										System Misuse for External Effect

https://atlas.mitre.org

My (first) company

My (first) company



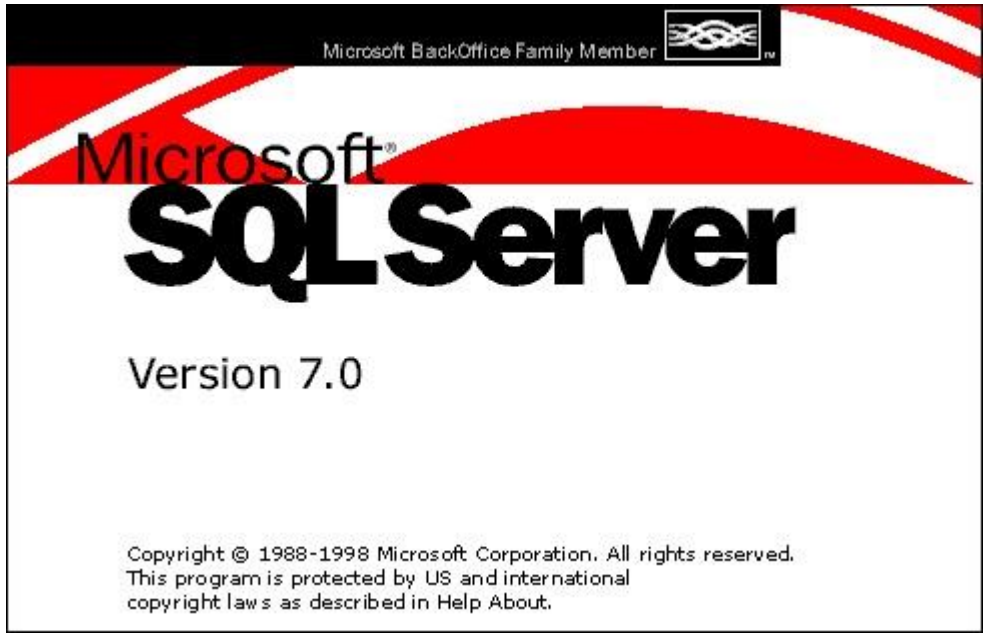
Microsoft Data Platform

- 1998

1998 (in a nutshell)

- The Institute of Electrical and Electronics Engineers (IEEE) created the 802.11 standard, which is the basis for the wireless networking technology.
- Apple launched the iMac, which was the company's first major product release since Steve Jobs returned as CEO.
- Larry Page and Sergey Brin (two Stanford University students) have launched Google.

Microsoft Data Platform (1998)



https://archive.org/details/X04-70487

Microsoft Data Platform (1998)

- Hardware requirements:
  - CPU: Pentium 166 MHz or higher
  - Memory: 32MB RAM (minimum), 64MB RAM and more (recommended)
  - Disk: 180MB (full installation), 170MB (typical), 65MB (minimum), 90MB (management tools only)
    - plus 50MB for OLAP Services
    - plus 12MB for the English Query
- Versions:
  - Desktop Edition
  - Standard Edition
  - Enterprise Edition

Microsoft Data Platform (1998)

- Microsoft SQL Server version 7.0 was released in 1998, and it was a significant upgrade from its predecessor, version 6.5.
- One key insight from using SQL Server 7.0 is the importance of proper database design.
- This version of SQL Server had limitations in terms of database size, and it could easily become slow or unstable if the database was not properly optimized.

Microsoft Data Platform (1998)

- It was crucial to ensure that the database was well-designed and that regular maintenance tasks, such as backup and defragmentation, were performed.
- Another lesson learned from using SQL Server 7.0 was the importance of security. This version of SQL Server had some security vulnerabilities. It was essential to implement appropriate security measures to protect the data, such as using strong passwords and encrypting sensitive data.

Microsoft Data Platform

- 2000

2000 (in a nutshell)

- Microsoft released Windows 2000 (the successor to Windows NT).
- As the year 2000 approached, there were widespread concerns that computer systems would not be able to handle the change from 1999 to 2000 (Y2K bug).
- The Bluetooth Special Interest Group was founded, with the goal of creating a wireless standard for short-range communications between devices.

Microsoft Data Platform (2000)

https://archive.org/details/X10-22959

Microsoft Data Platform (2000)

- Microsoft SQL Server 2000 was a popular relational database management system (RDBMS) that was released in 2000 and became widely adopted in enterprise environments.
- It offered new features, among others: user-defined functions, Multiple SQL Server Instances and log shipping.
- SQL Server 2000 was tightly integrated with other Microsoft technologies, such as the .NET Framework and Visual Studio.

Microsoft Data Platform (2000)

- SQL Server 2000 introduced new security features such as Kerberos authentication, encrypted connections, and database-level roles which made easier to secure SQL Server instances and protect sensitive data.
- SQL Server 2000 included tools for data warehousing, analysis, and reporting, such as Analysis Services and Data Transformation Services which made it easier to extract insights data stored in Microsoft SQL Server database.

Microsoft Data Platform (2000)

- Improving database performance is critical to maintaining application performance (reducing latency).
- Flexibility in data management is important, especially as data types and structures evolve over time.
- Integration between different components of a technology stack can help improve developer productivity.

Microsoft Data Platform (2000)

- Security must be a top priority when designing and deploying database systems, especially as data breaches and cyber attacks become more common.
- Another lesson learned is that it is important to keep database systems up-to-date to ensure security and continuity of operations.

Microsoft Data Platform

- 2005

2005 (in a nutshell)

- In February 2005 three former PayPal employees launched YouTube.
- Microsoft released the Xbox 360 (the successor to the original Xbox console).
- Microsoft released Visual Studio 2005, which included significant updates to the integrated development environment (IDE) and introduced new features such as support for the .NET Framework 2.0 and improved debugging tools.

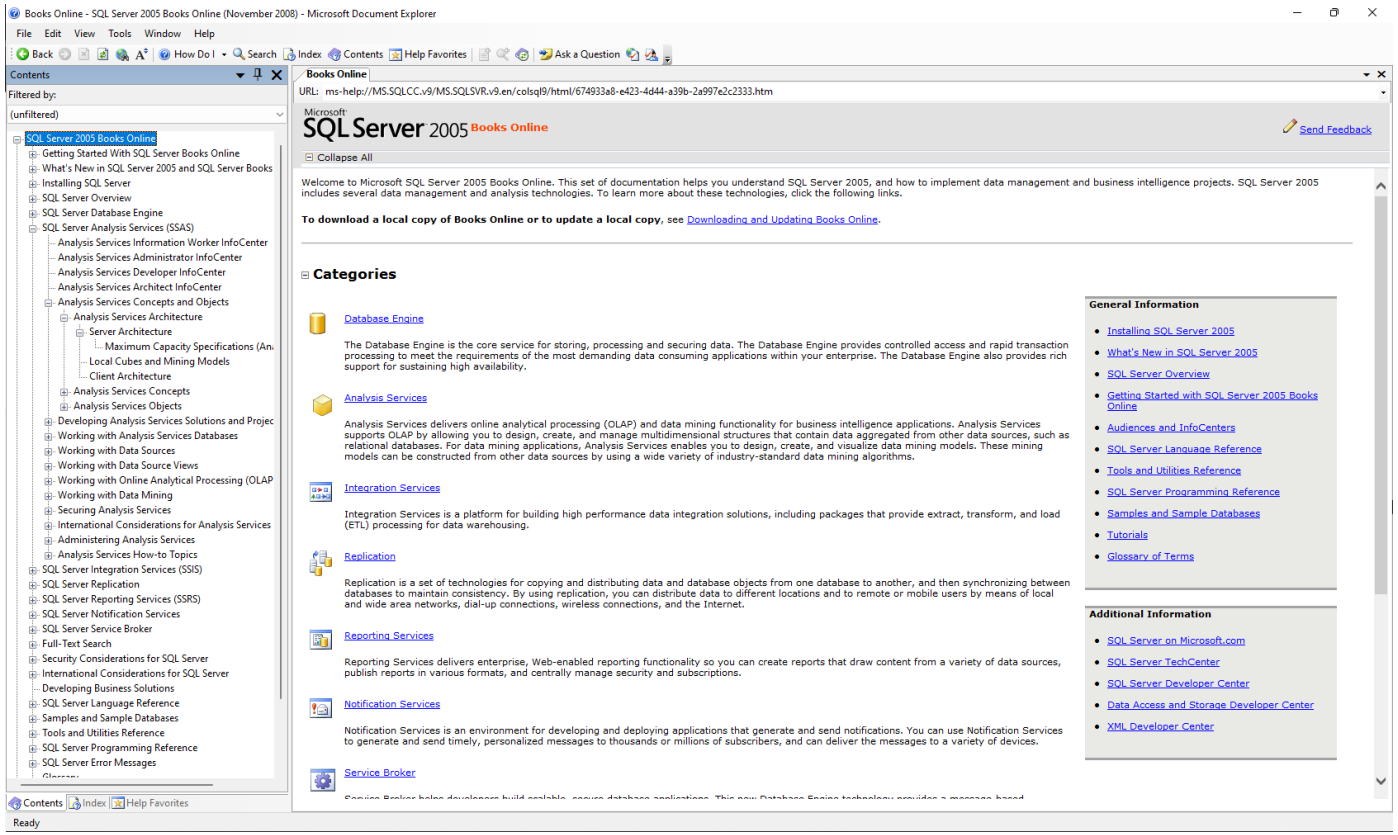
Microsoft Data Platform (2005)

https://archive.org/details/sql-server-2005-developer-edition-community-technology-preview

Microsoft Data Platform (2005)

- The importance of new tools for managing databases and SQL Server instances, such as the SQL Server Management Studio.
- The potential of business intelligence capabilities: Analysis Services, Reporting Services, and Integration Services.
- New security features: native support for encryption, improved authentication mechanisms, database mirroring and failover clustering.

Microsoft Data Platform (2005)



https://bit.ly/sqlday-sql2005-book

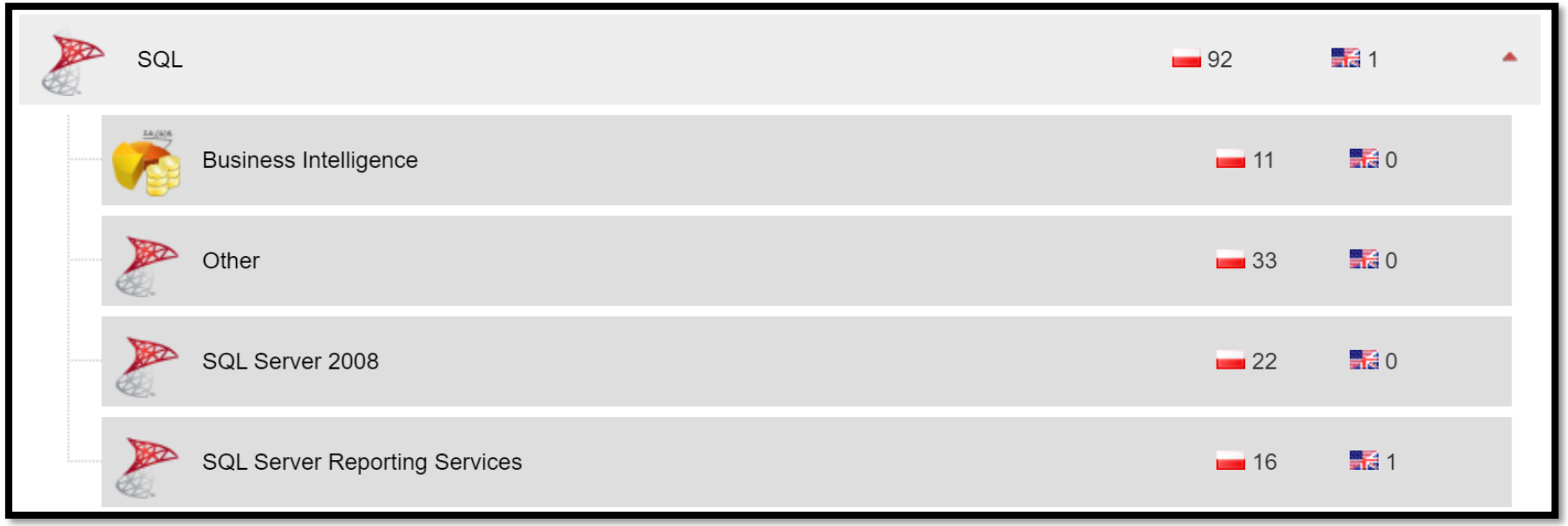
Data platform history

https://www.sqlshack.com/history-sql-server-evolution-sql-server-features

https://learnsql.com/blog/history-ms-sql-server

Data platform history

VirtualStudy



https://virtualstudy.pro

Microsoft Data Platform

- 2022

Microsoft Data Platform (2022)

- Datafication
- Everything-as-a- service
- Artificial Intelligence

Microsoft Data Platform (2022)

- Datafication
- Everything-as-a- service
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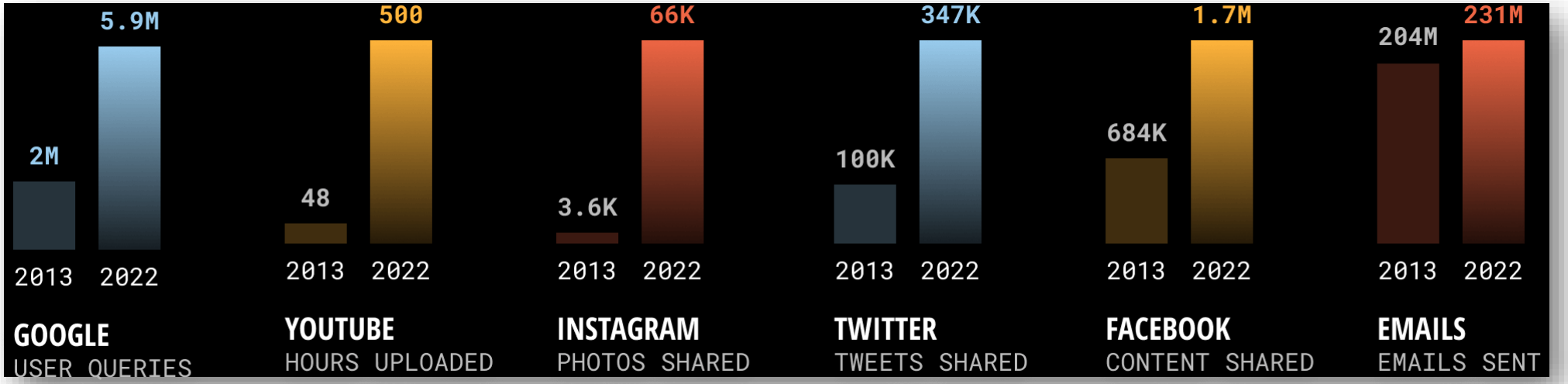
https://www.domo.com/data-never-sleeps

Microsoft Data Platform (2022)

- Datafication



https://www.domo.com/data-never-sleeps

Microsoft Data Platform (2022)

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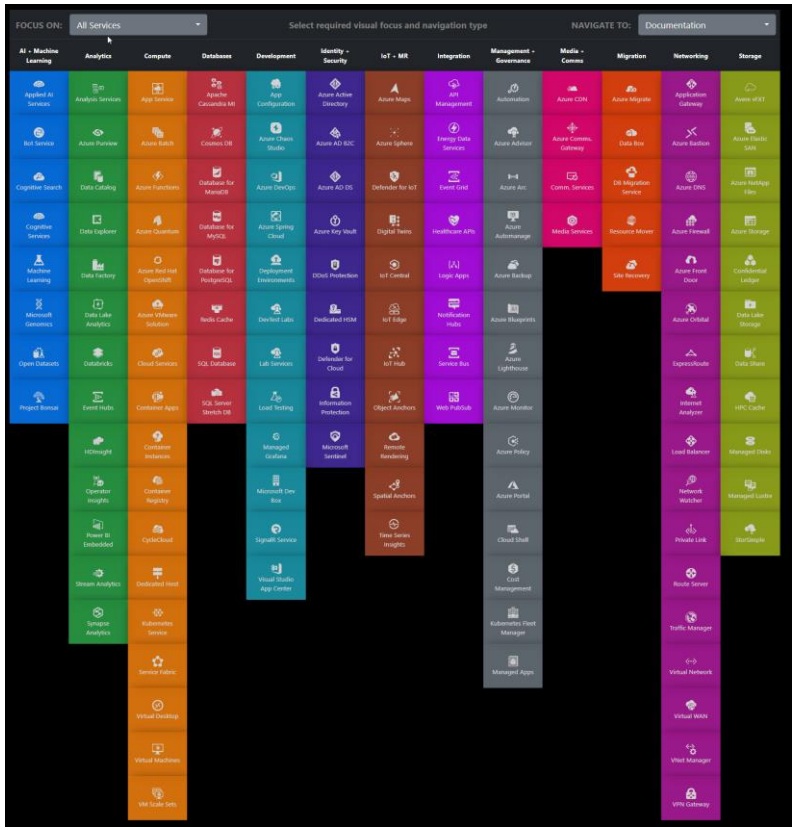

https://azurecharts.com

Microsoft Data Platform (2022)

- Datafication
- Everything-as-a- service
- Artificial Intelligence

https://www.newworldai.com/microsoft-bets-1-billion-holy-grail-artificial-intelligence

Microsoft Data Platform (2022)

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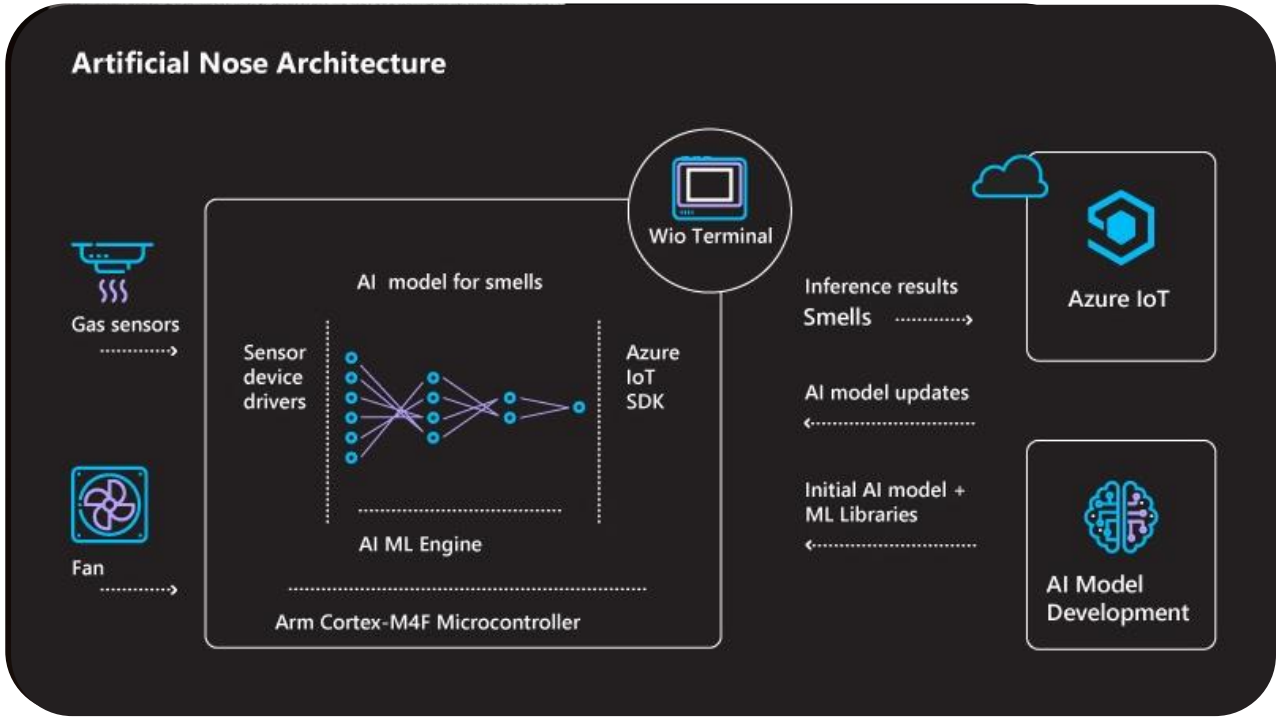
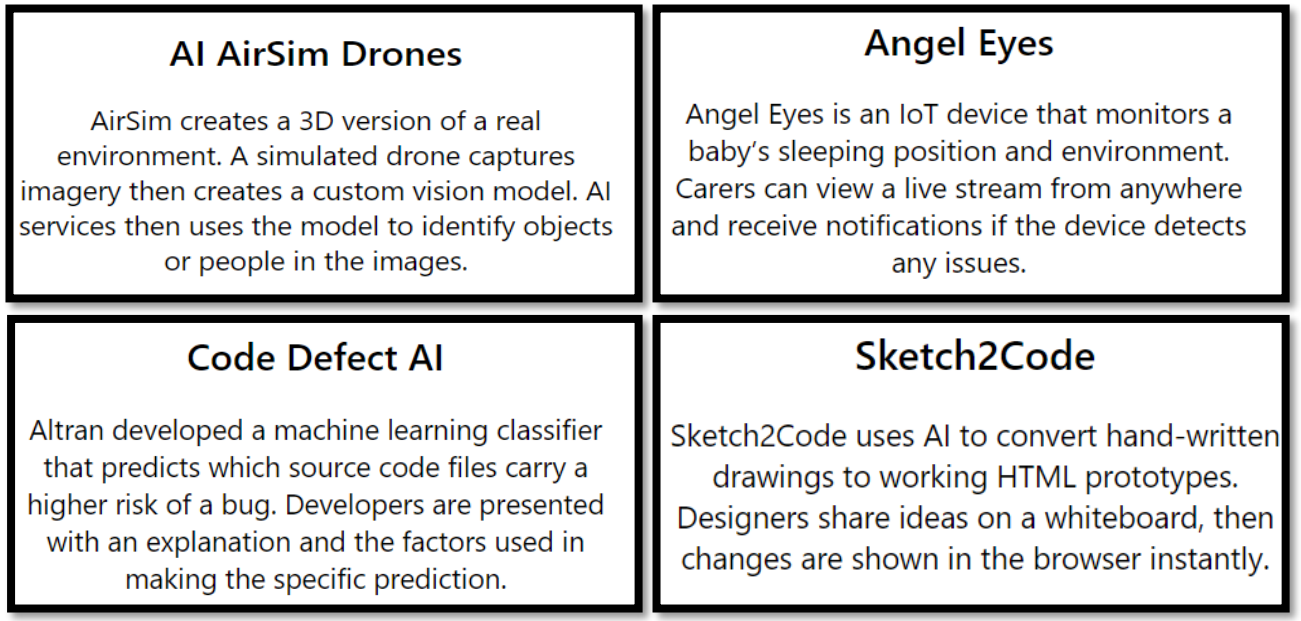
- Artificial Intelligence



https://www.microsoft.com/en-gb/ai/ai-lab-artificial-nose

Microsoft Data Platform (2022)

- Datafication
- Everything-as-a- service
- Artificial Intelligence



Summary

Closing remarks

- Microsoft SQL Server as a data platform:
  - is designed to handle large and complex database workloads and can scale to support enterprise-level applications,
  - includes a range of business intelligence tools, such as Reporting Services, Analysis Services, and Integration Services, which allow organizations to extract insights and intelligence from their data.

Closing remarks

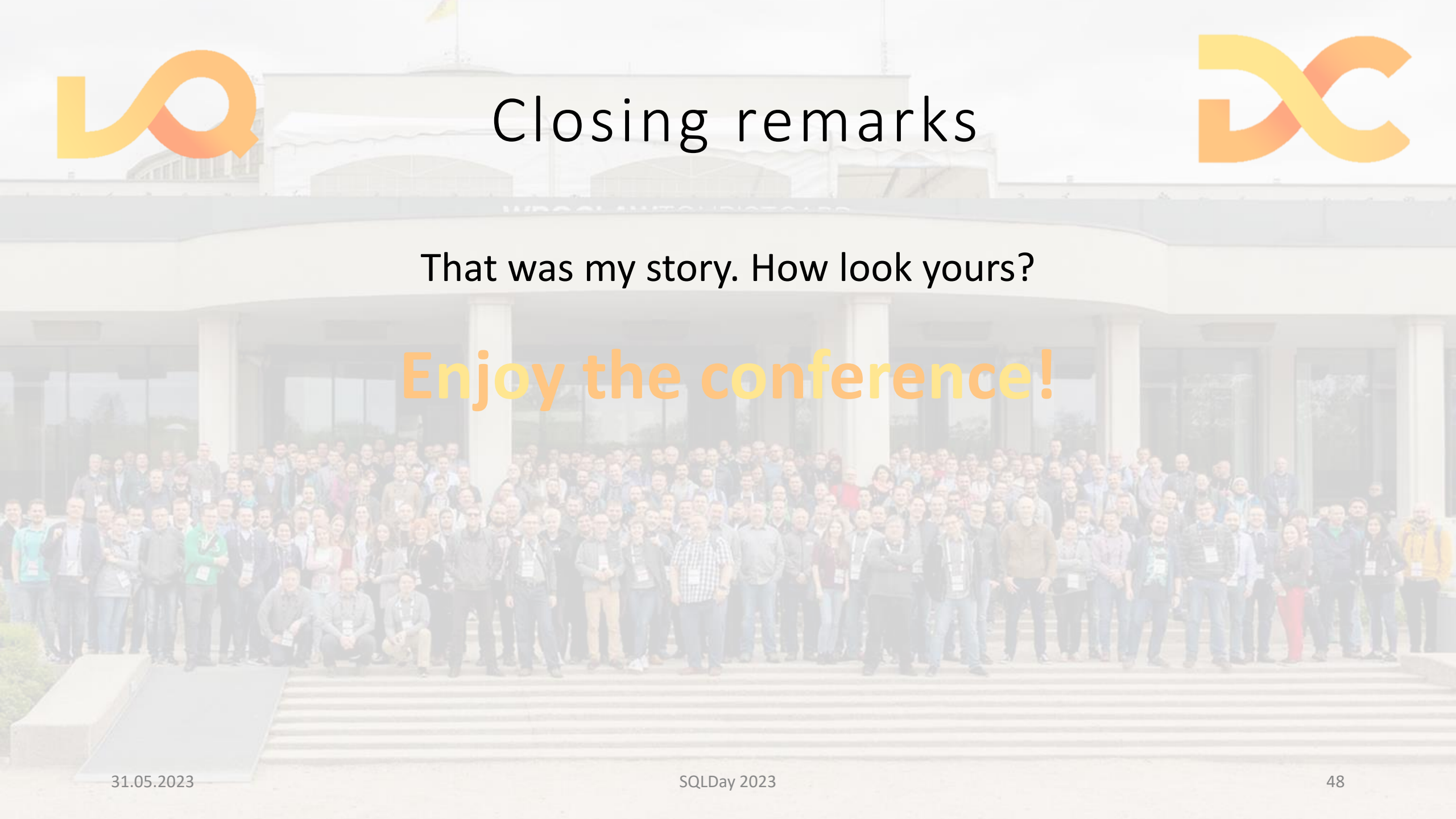
- Microsoft SQL Server as a data platform:
  - has robust security features that allow you to protect sensitive data, comply with industry regulations, and prevent unauthorized access,
  - is designed to integrate with a wide range of other Microsoft technologies and applications, including Microsoft Office, SharePoint, Power BI and Microsoft Azure.

sli.do

Closing remarks

That was my story. How look yours?

Enjoy the conference!



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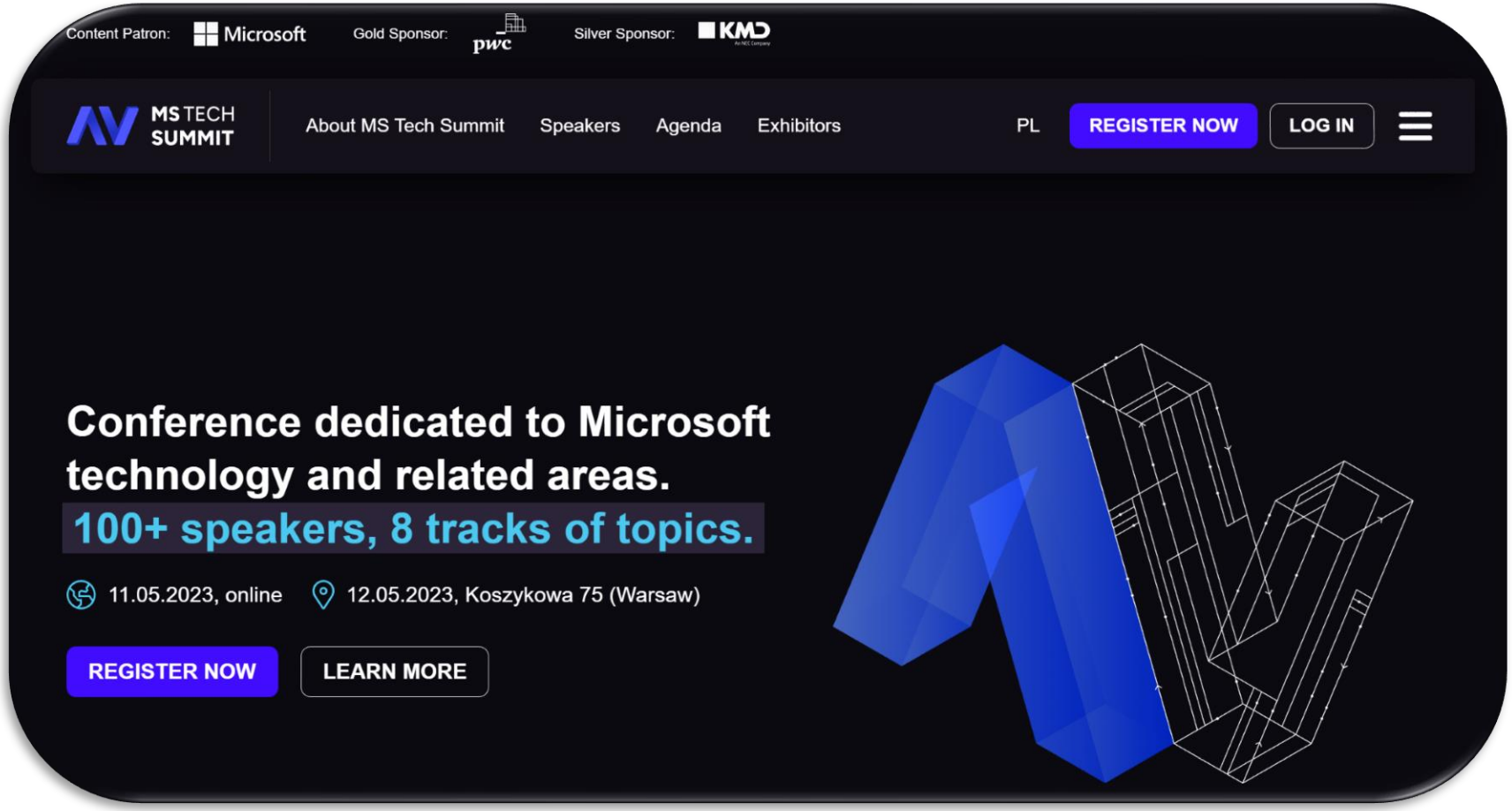

https://mstechsummit.pl/en

Thank you!

hpar3s (Adrian Kapczyński)#6860

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