



15 edycja konferencji SQLDay

8-10 maja 2023, WROCŁAW + ONLINE



partner złoty

Future Processing

partner srebrny



partner brązowy





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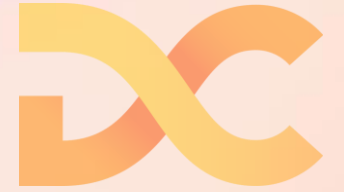
Key insights from my 25 years of experience with the Microsoft Data Platform



AGENDA



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



Introduction



Let's connect



slido

Joining as a participant?

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sql



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



My university



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



Priority Research Areas



Computational Oncology and Personalized Medicine



Artificial Intelligence and Data Processing



Materials of the Future



Smart Cities and Future Mobility



Process Automation and Industry 4.0



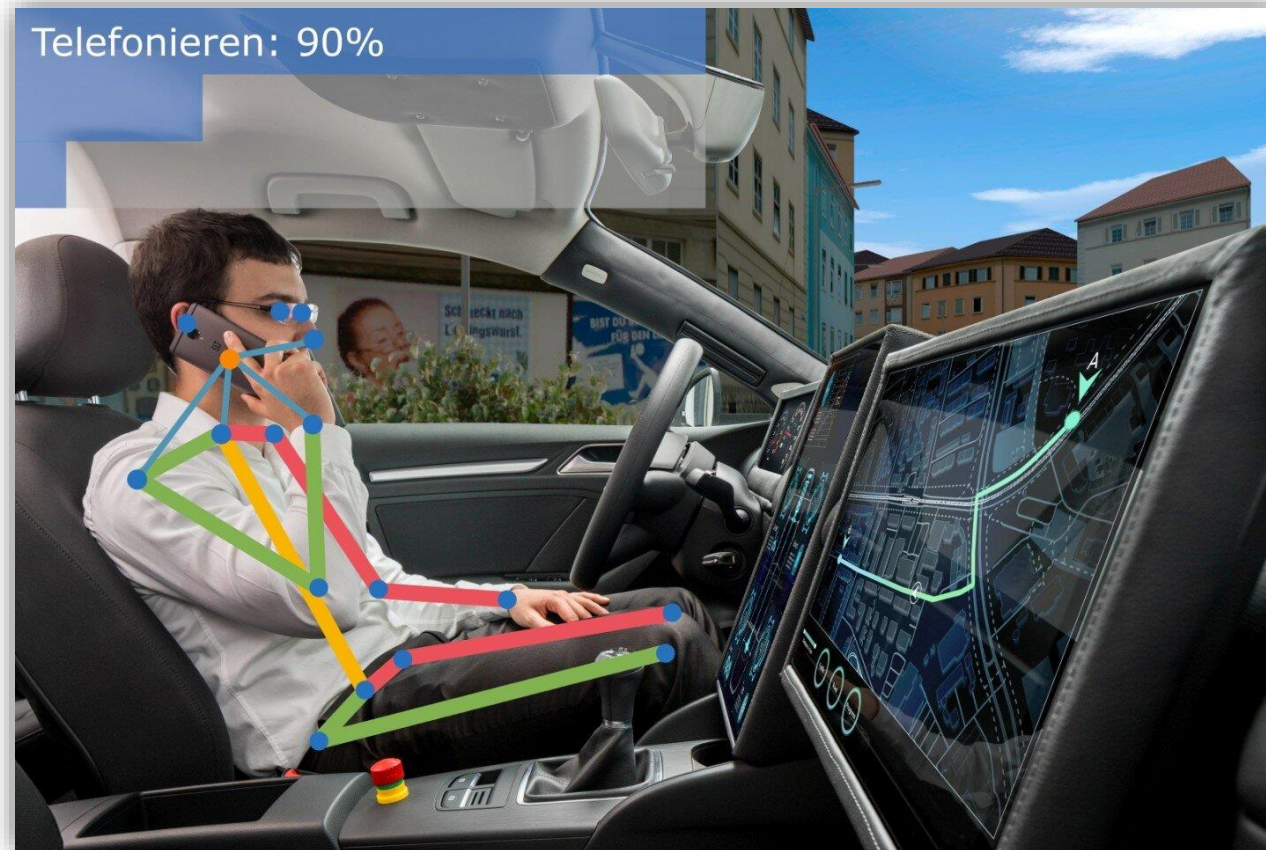
Climate and Environmental Protection,
Modern Energy



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



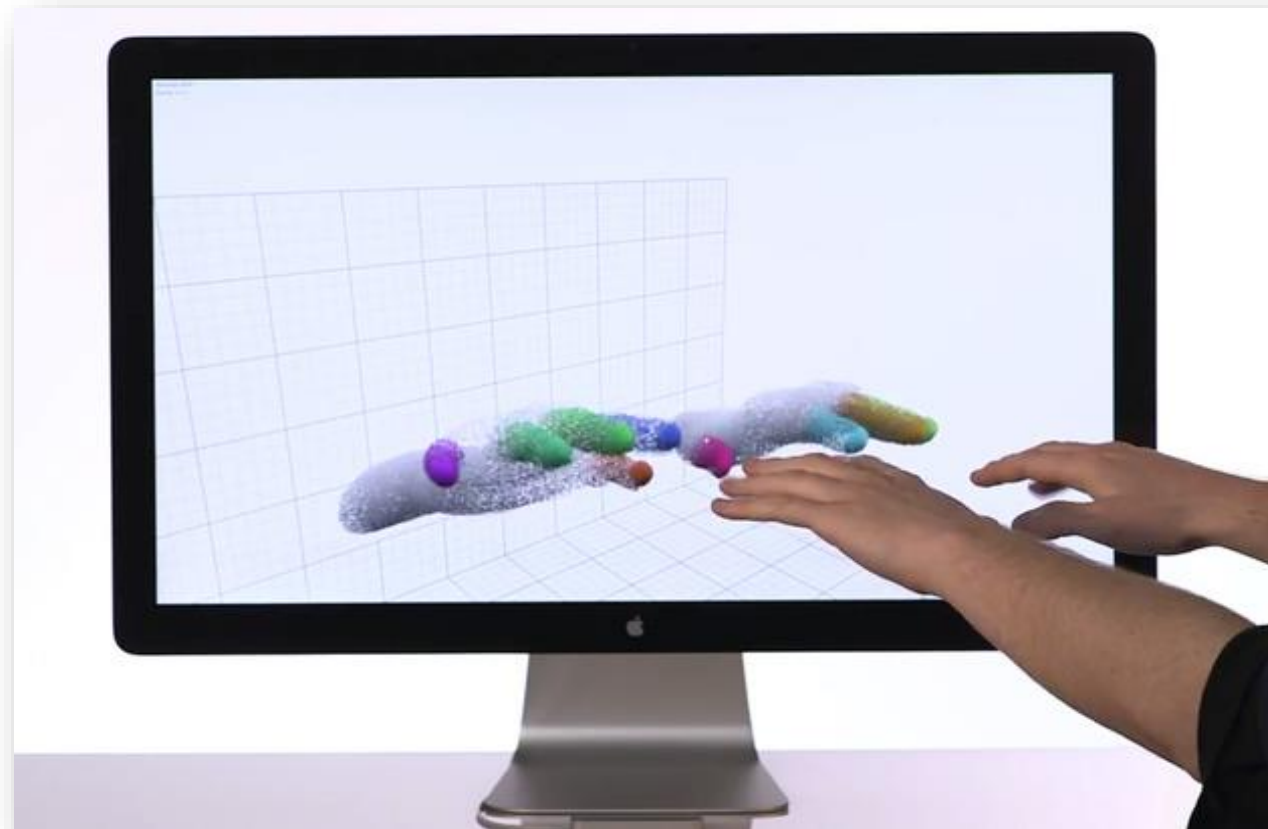
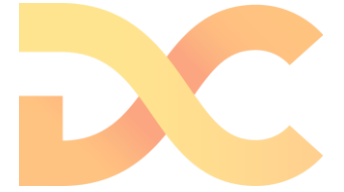
My research interests



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



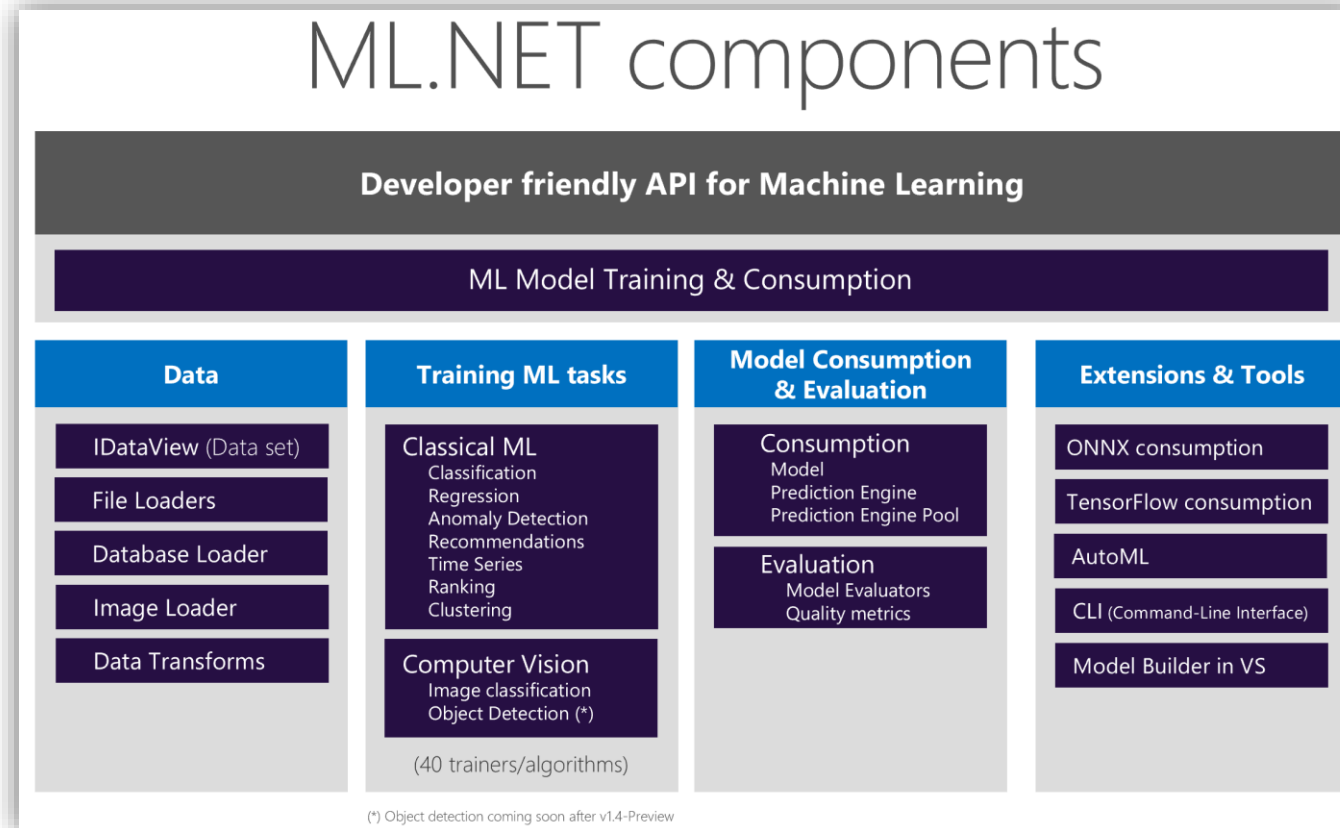
My research interests



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



My research interests



<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



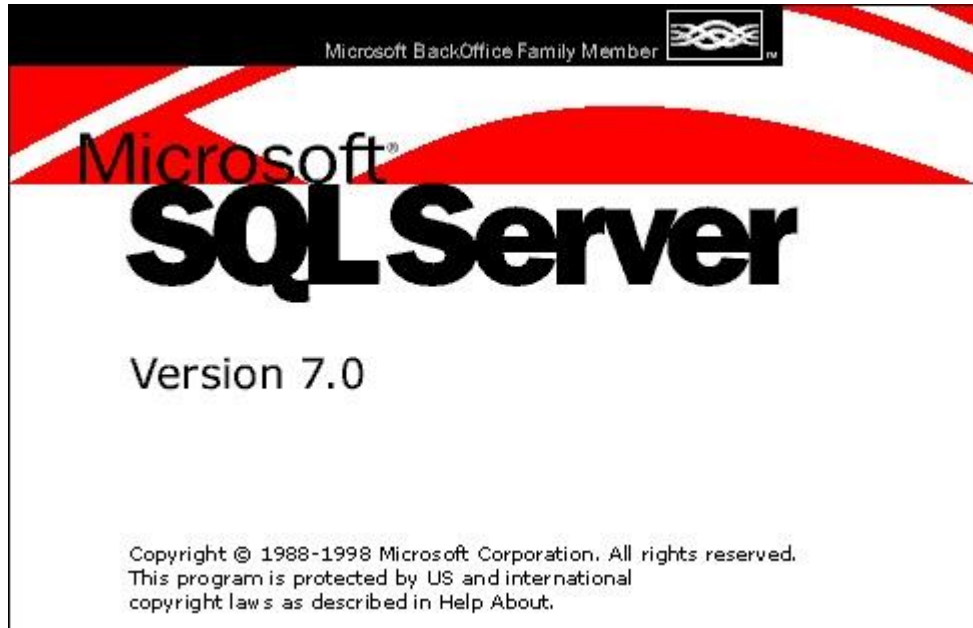
1998 (in a nutshell)



- 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



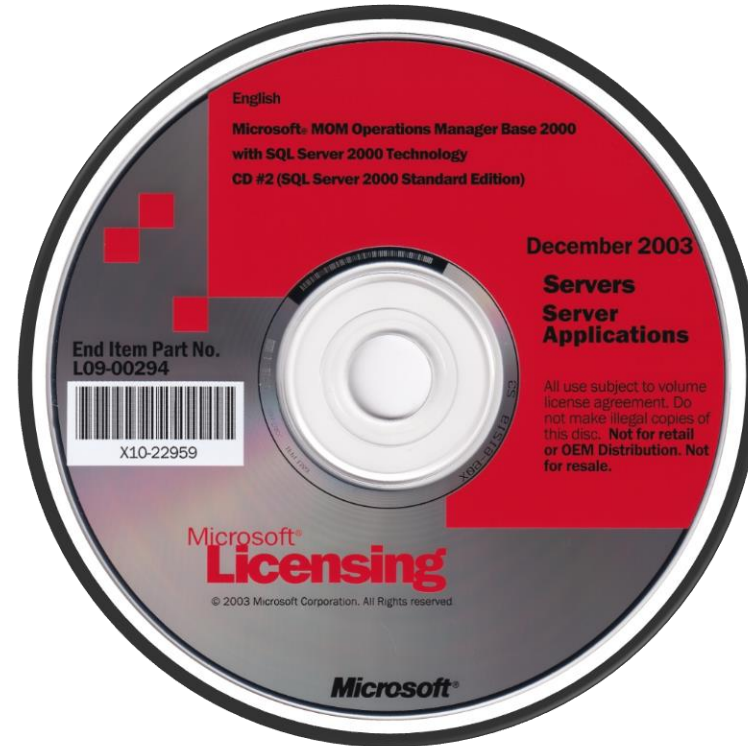
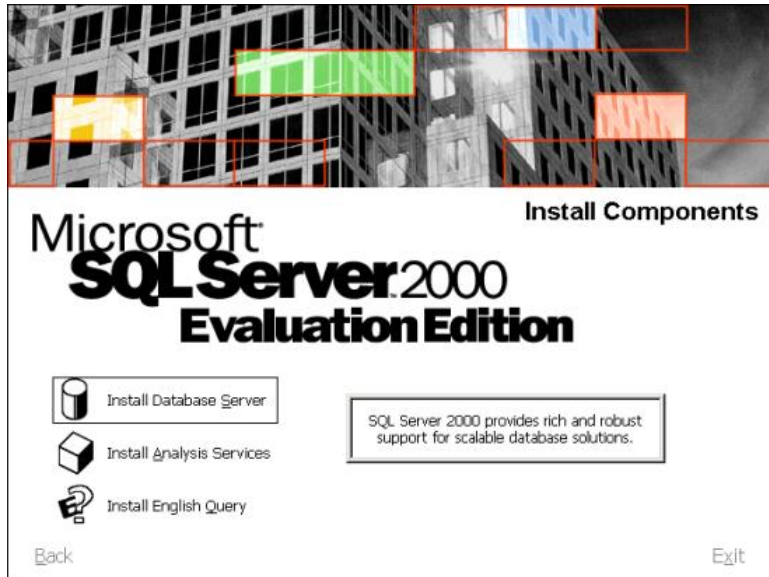
2000 (in a nutshell)



- 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



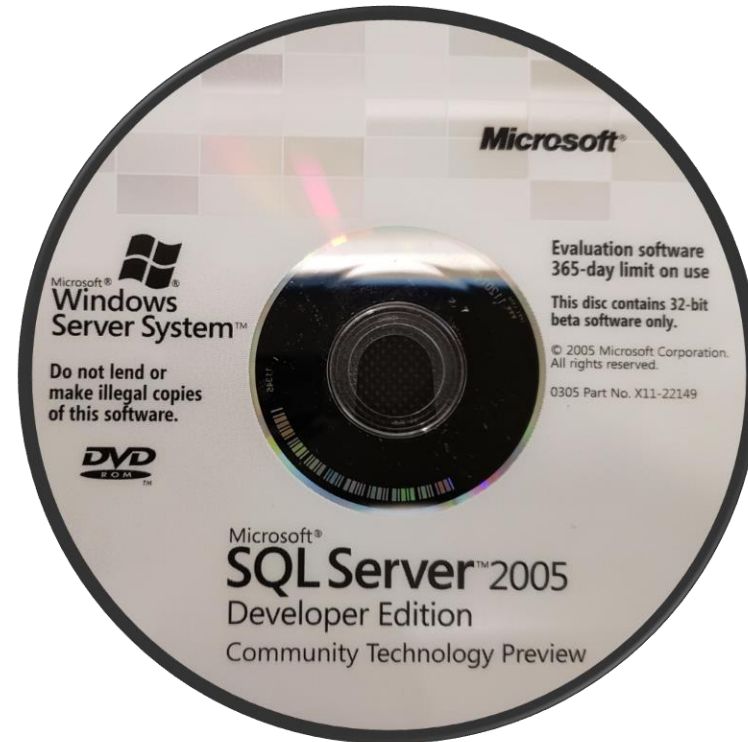
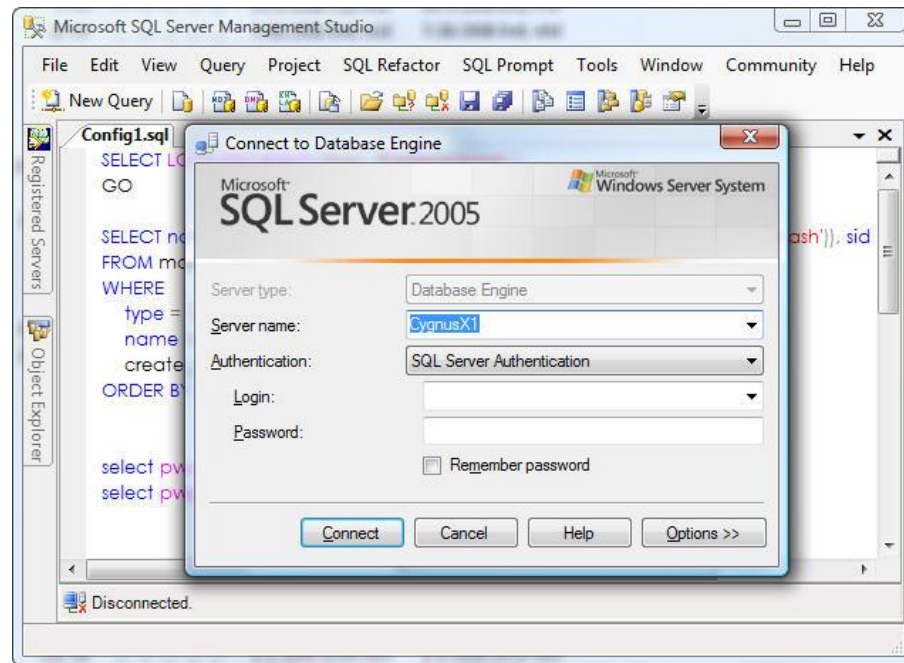
2005 (in a nutshell)



- 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)



Books Online - SQL Server 2005 Books Online (November 2008) - Microsoft Document Explorer

File Edit View Tools Window Help

Back Forward Stop Home Search A? How Do I Index Contents Help Favorites Ask a Question

Contents

Filtered by: (unfiltered)

SQL Server 2005 Books Online

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- What's New in SQL Server 2005 and SQL Server Books
- Installing SQL Server
- SQL Server Overview
- SQL Server Database Engine
- SQL Server Analysis Services (SSAS)
 - Analysis Services Information Worker InfoCenter
 - Analysis Services Administrator InfoCenter
 - Analysis Services Developer InfoCenter
 - Analysis Services Architect InfoCenter
 - Analysis Services Concepts and Objects
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 - Samples and Sample Databases
 - Tools and Utilities Reference
 - SQL Server Programming Reference
 - SQL Server Error Messages

Ready

Books Online

URL: ms-help://MS.SQLCC.v9/MS.SQLSVR.v9/en/colsg9/html/674933a8-e423-4d44-a39b-2a997e2c2333.htm

Microsoft

SQL Server 2005 Books Online

Send Feedback

Collapse All

Welcome to Microsoft SQL Server 2005 Books Online. This set of documentation helps you understand SQL Server 2005, and how to implement data management and business intelligence projects. SQL Server 2005 includes several data management and analysis technologies. To learn more about these technologies, click the following links.

To download a local copy of Books Online or to update a local copy, see [Downloading and Updating Books Online](#).

Categories

- Database Engine**

The Database Engine is the core service for storing, processing and securing data. The Database Engine provides controlled access and rapid transaction processing to meet the requirements of the most demanding data consuming applications within your enterprise. The Database Engine also provides rich support for sustaining high availability.
- Analysis Services**

Analysis Services delivers online analytical processing (OLAP) and data mining functionality for business intelligence applications. Analysis Services supports OLAP by allowing you to design, create, and manage multidimensional structures that contain data aggregated from other data sources, such as relational databases. For data mining applications, Analysis Services enables you to design, create, and visualize data mining models. These mining models can be constructed from other data sources by using a wide variety of industry-standard data mining algorithms.
- Integration Services**

Integration Services is a platform for building high performance data integration solutions, including packages that provide extract, transform, and load (ETL) processing for data warehousing.
- Replication**

Replication is a set of technologies for copying and distributing data and database objects from one database to another, and then synchronizing between databases to maintain consistency. By using replication, you can distribute data to different locations and to remote or mobile users by means of local and wide area networks, dial-up connections, wireless connections, and the Internet.
- Reporting Services**

Reporting Services delivers enterprise, Web-enabled reporting functionality so you can create reports that draw content from a variety of data sources, publish reports in various formats, and centrally manage security and subscriptions.
- Notification Services**

Notification Services is an environment for developing and deploying applications that generate and send notifications. You can use Notification Services to generate and send timely, personalized messages to thousands or millions of subscribers, and can deliver the messages to a variety of devices.
- Service Broker**

Service Broker helps developers build enable, secure database applications. This new Database Engine technology provides a message-based

General Information

- [Installing SQL Server 2005](#)
- [What's New in SQL Server 2005](#)
- [SQL Server Overview](#)
- [Getting Started with SQL Server 2005 Books Online](#)
- [Audiences and InfoCenters](#)
- [SQL Server Language Reference](#)
- [Tools and Utilities Reference](#)
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- [Samples and Sample Databases](#)
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Additional Information

- [SQL Server on Microsoft.com](#)
- [SQL Server TechCenter](#)
- [SQL Server Developer Center](#)
- [Data Access and Storage Developer Center](#)
- [XML Developer Center](#)



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



Data platform history

SQLShack

The history of SQL Server – the evolution of SQL Server features

February 2, 2018 by Daniel Calbimonte



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

A Brief History of MS SQL Server



Karolina Niewiarowska

Sql

Learn Sql

Sql History



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



Data platform history



SQL		🇵🇱 92	🇬🇧 1
Business Intelligence		🇵🇱 11	🇬🇧 0
Other		🇵🇱 33	🇬🇧 0
SQL Server 2008		🇵🇱 22	🇬🇧 0
SQL Server Reporting Services		🇵🇱 16	🇬🇧 1



<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
- Artificial Intelligence



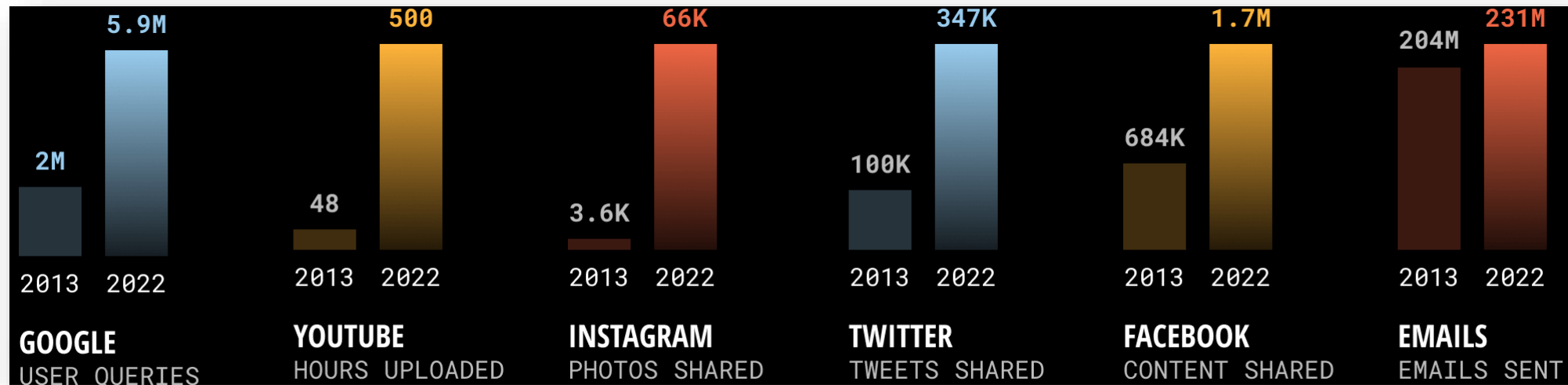
<https://www.domo.com/data-never-sleeps>



Microsoft Data Platform (2022)



- Datafication



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



Microsoft Data Platform (2022)



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

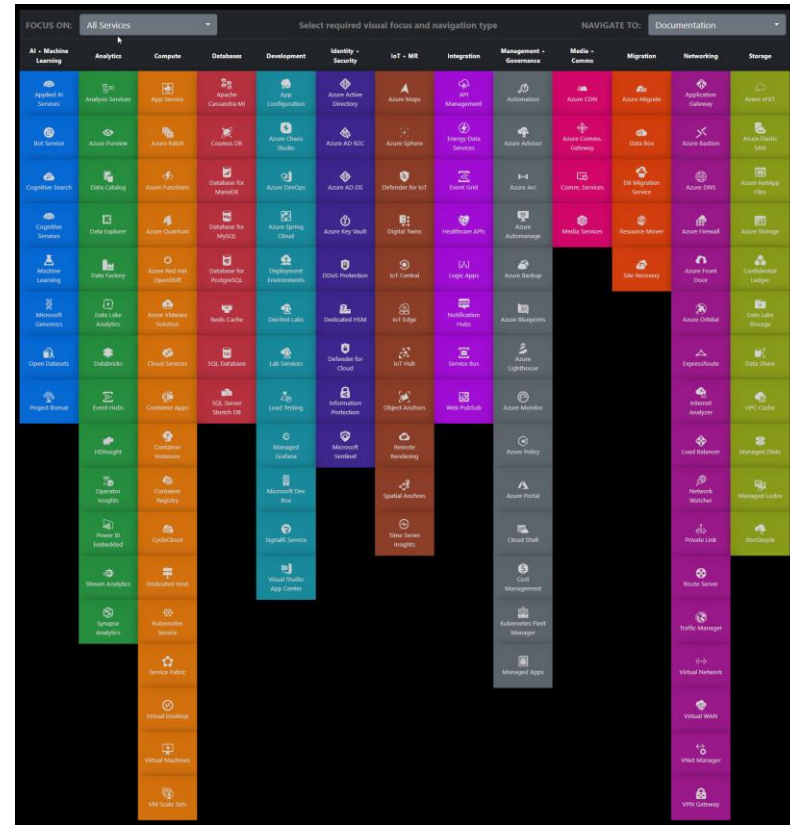




Microsoft Data Platform (2022)



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



<https://azurecharts.com>



Microsoft Data Platform (2022)



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



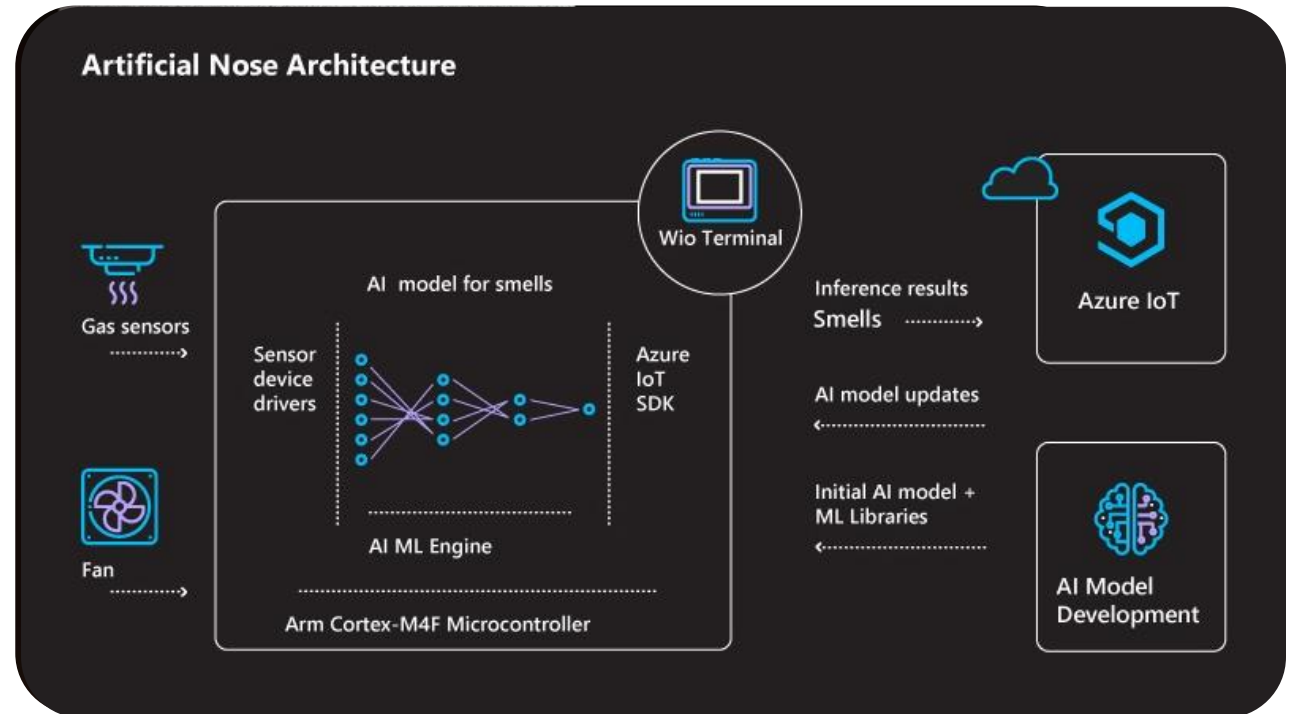
<https://www.newworldai.com/microsoft-bets-1-billion-holy-grail-artificial-intelligence>



Microsoft Data Platform (2022)



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



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



Microsoft Data Platform (2022)



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

AI AirSim Drones

AirSim creates a 3D version of a real environment. A simulated drone captures imagery then creates a custom vision model. AI services then uses the model to identify objects or people in the images.

Angel Eyes

Angel Eyes is an IoT device that monitors a baby's sleeping position and environment. Carers can view a live stream from anywhere and receive notifications if the device detects any issues.

Code Defect AI

Altran developed a machine learning classifier that predicts which source code files carry a higher risk of a bug. Developers are presented with an explanation and the factors used in making the specific prediction.

Sketch2Code

Sketch2Code uses AI to convert hand-written drawings to working HTML prototypes. Designers share ideas on a whiteboard, then changes are shown in the browser instantly.



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.



slide.do



Closing remarks



That was my story. How look yours?

Enjoy the conference!





...and one more thing



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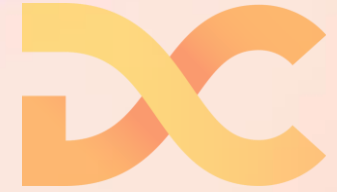
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11.05.2023, online 12.05.2023, Koszykowa 75 (Warsaw)

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Thank you!



hpar3s (Adrian Kapczyński)#6860



Adrian Kapczyński, Ph.D.

📍 Man of Faith, Tech & Science | CISA,
CISM, Ph.D.





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