

Sessions start at: 5.00PM and 6.15PM

# Online Meeting Rules



- If not muted, mute yourself.
- Ask your questions in the chat window.
- Use mic if you are explicitly asked.
- If you want to show something, we will make you be a presenter
- If you like you can activate your camera. We love to see you all 😊
- Please do not spam the chat window.
- Do not post inappropriate content.
- Have fun. 😊



# Azure Meetup

## FRANKFURT





GFU Cyrus AG

gfu.net

FOCUS

TOP

ANBIETER FÜR  
WEITERBILDUNG

2022

FOCUS 43/2021  
IN KOOPERATION MIT  
FACT<sup>2</sup> FIELD

# PRÄSENZ- UND ONLINESCHULUNGEN

FÜR ENTWICKLER, SOFTWAREARCHITEKTEN, ADMINS UND PROJEKTMANAGER



Offene Schulungen



Inhouse- / Firmenschulungen



Individualschulungen



8.031

EKOMI BEWERTUNGEN



100.542

TEILNEHMENDE

1.658

SEMINARTHEMEN

26.236

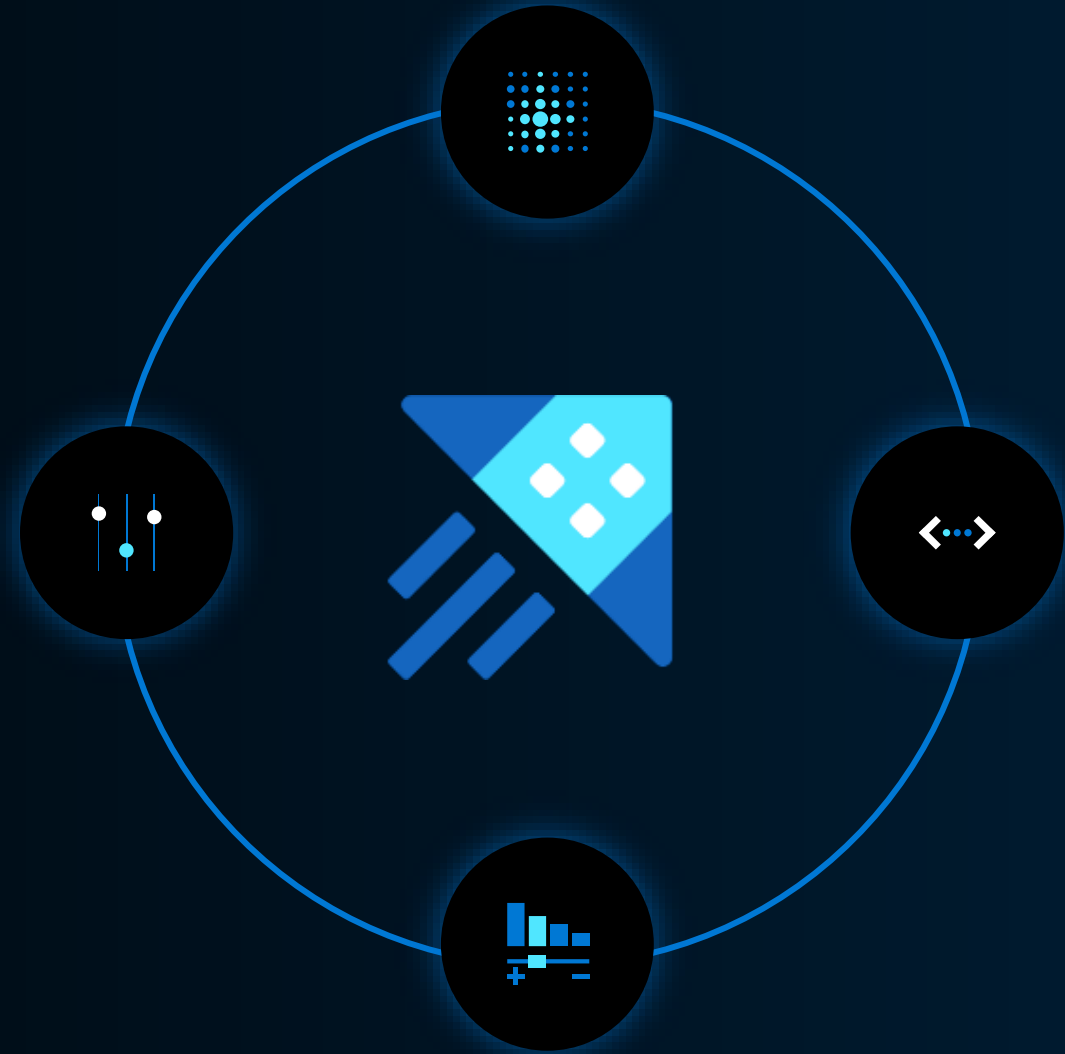
DURCHGEFÜHRTE SEMINARE

# Azure Data Explorer Overview

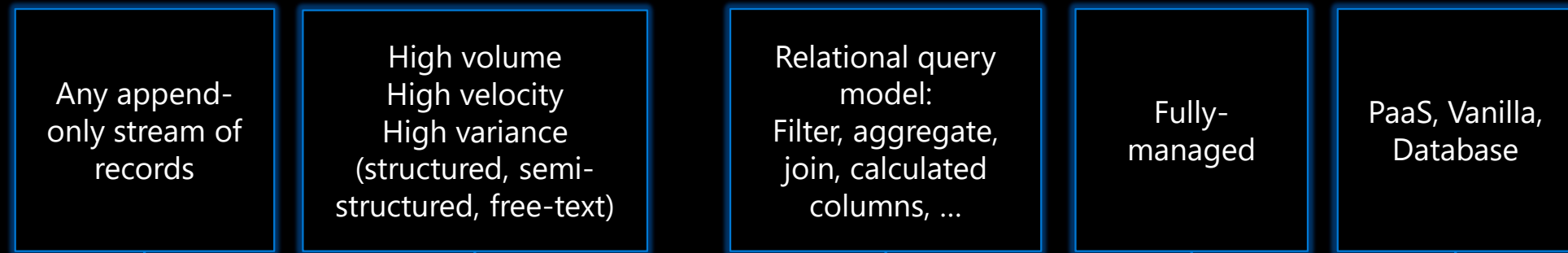


**Henning** Rauch, Principal Program Manager, Kusto

Feb 9<sup>th</sup>, 2022



# Introducing Azure Data Explorer!



A big data analytics cloud platform

optimized for interactive, ad-hoc queries

Purposely built

Rapid iterations to  
explore the data

# Key pillars of Azure Data Explorer



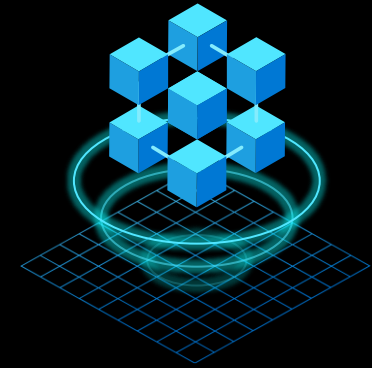
Near real-time  
insights on big  
data



Optimized engine  
to interactively  
query on log data



Integrated  
cloud data  
platform for  
time series and  
IoT data



Automated scaling  
from Gigabytes  
to Petabytes

# Proven Technology

In production since 2015 for internal Microsoft workload, GA since Feb 2019.



## Battle tested for Microsoft internal workload



## The platform for analytical solutions (SaaS)



## Available as PaaS



[#PoweredByADX](#)



# Kusto by the numbers



**85 PB**

Data ingested  
daily

**1.3 Billion**

Queries per day

**6.6 Exabyte**

Total Data Size

**2.4M**

VM Cores running

**>350K**

KQL Developers

A key to Microsoft's digital transformation journey



# Common use cases across industries



## Retail

Web Analytics,  
IoT Analytics



## Financial

Audit Logs



## Oil/Gas & Energy

Industrial IoT, Historian,  
Time Series, Grid Analytics



## Security

Security Analytics, Threat  
Detection, SIEM



## Healthcare

IoT device  
Analytics



## Advertising

Personalized offers,  
campaign management



## Media Entertainment

Content Delivery Network  
Analytics, Viewer  
Experience Analytics, Live  
Event Analytics



## Automotive

Manufacturing, Connected  
cars, Fleet management

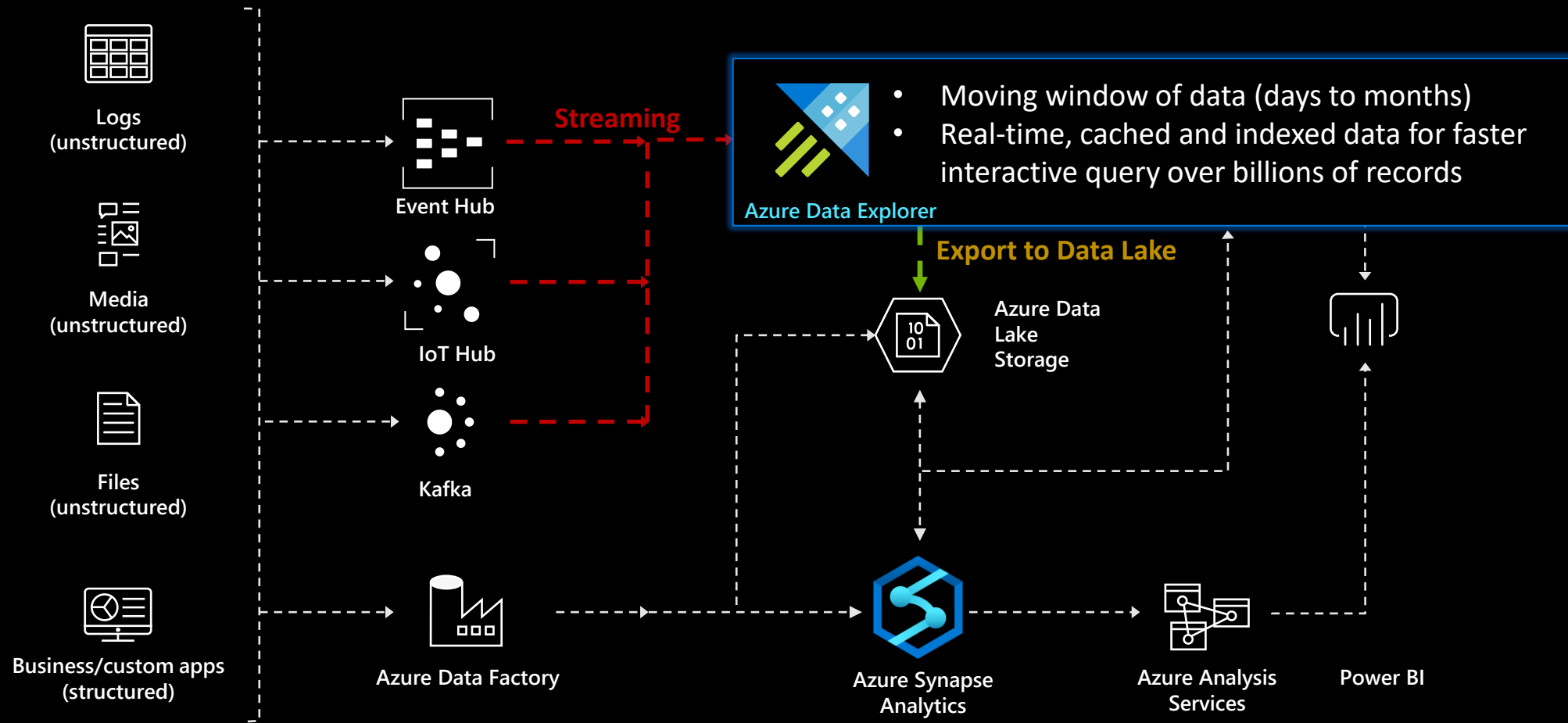


Central Observability (Logs, Traces, Metrics) and Time Series

# Integration Patterns

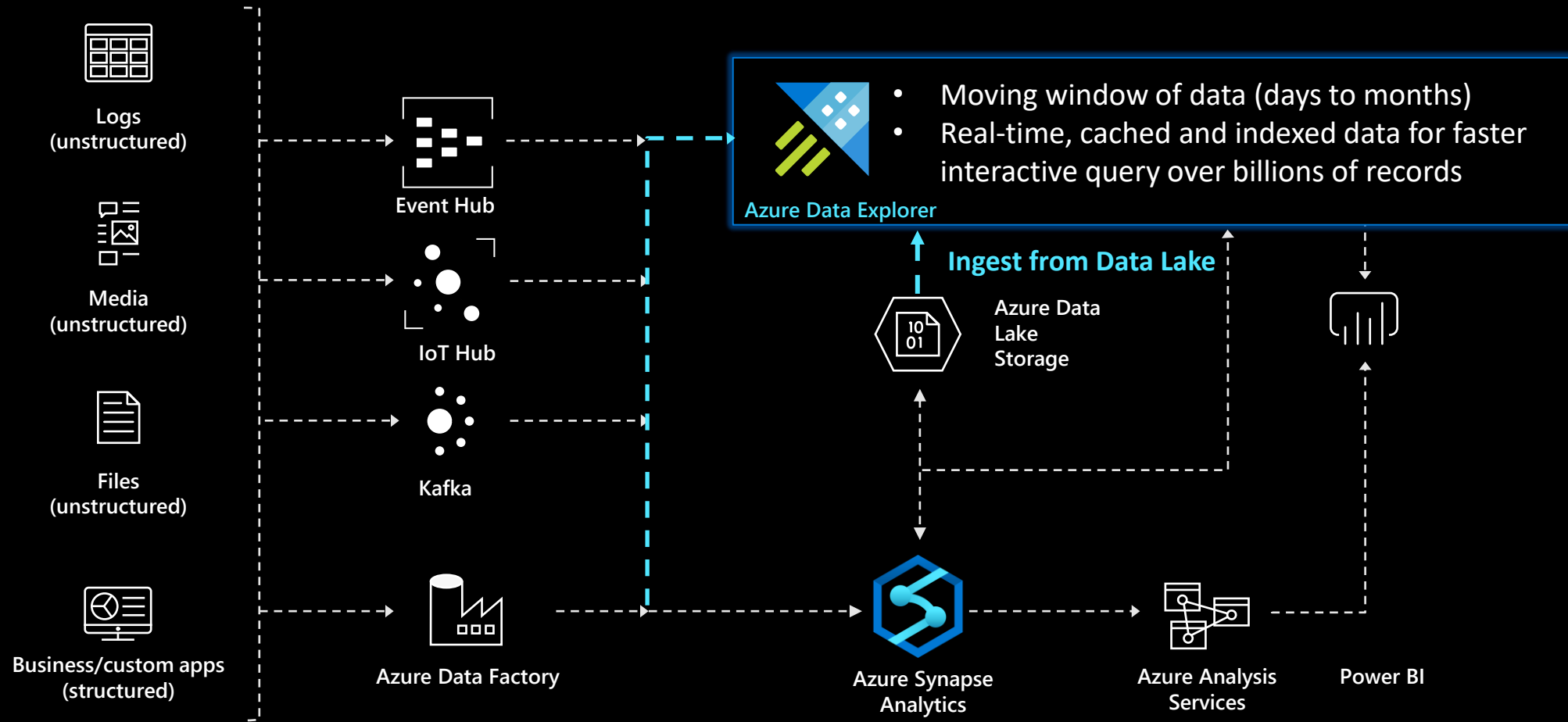
# Integration: Streaming Ingestion

Land your data in ADX and then export to the data lake



# Integration: Batch Ingestion

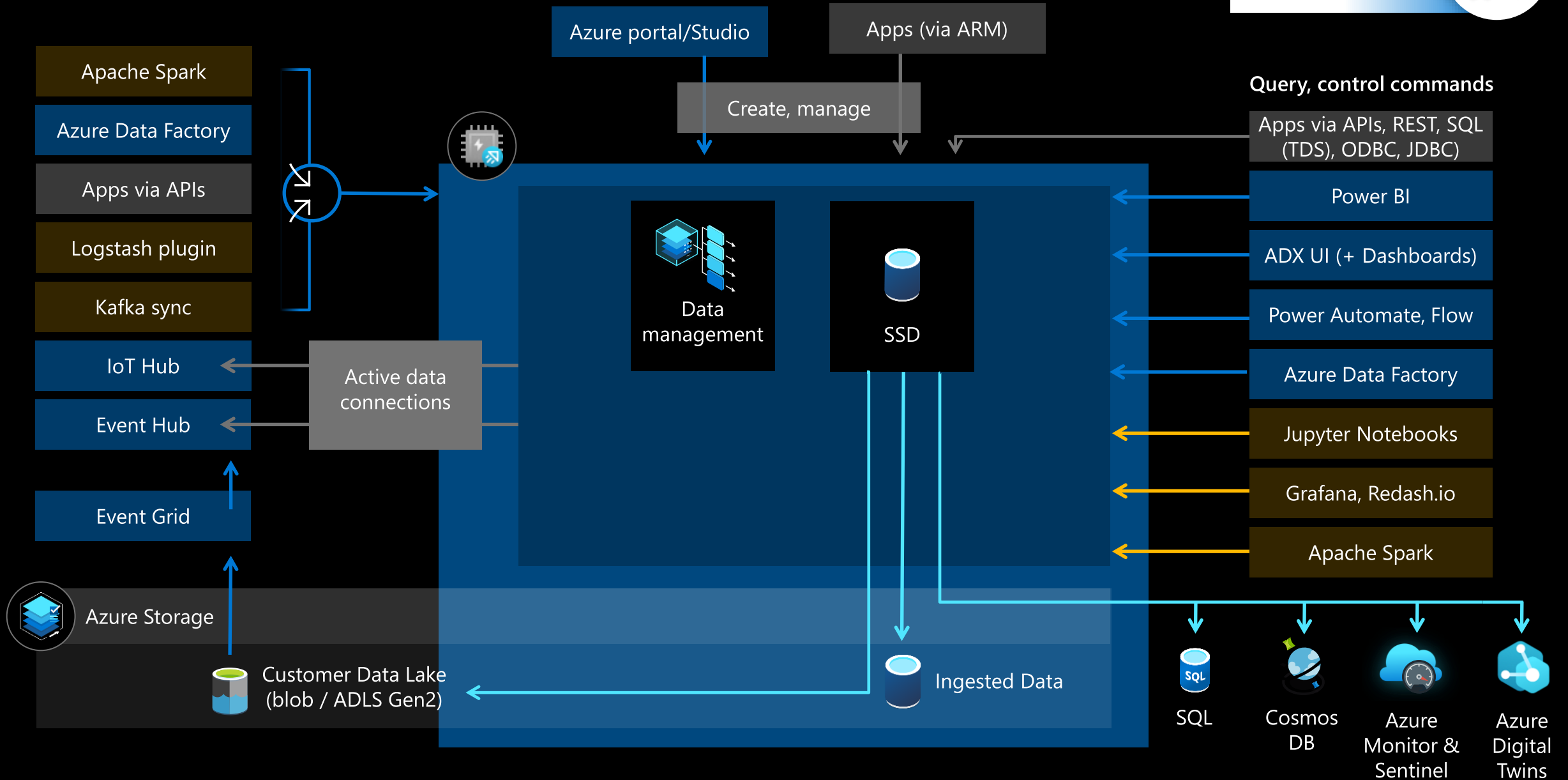
Ingest data from Data Lake or other sources in batch mode



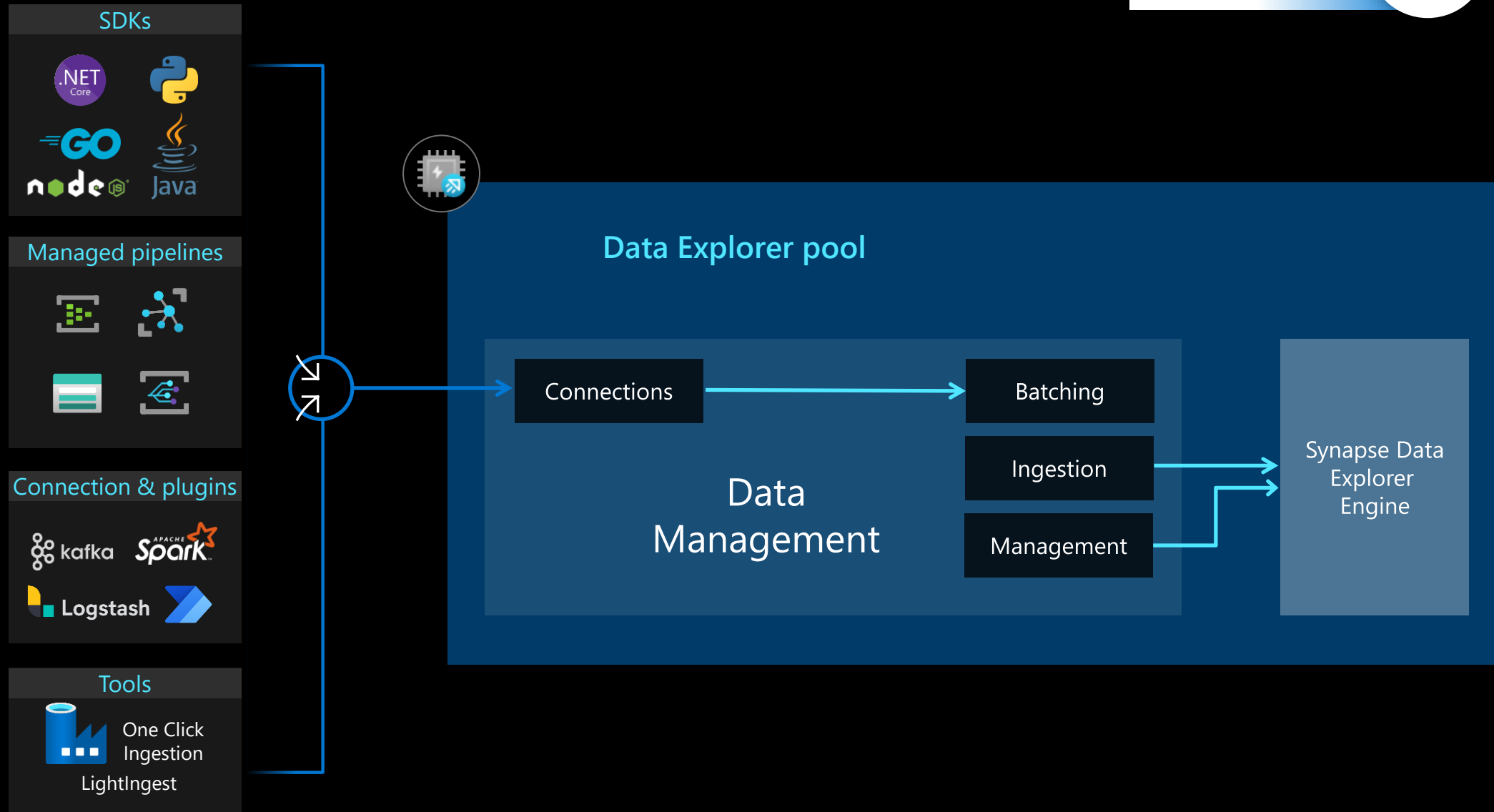
Henning, what the  
hack is ADX?



# Data Explorer pool architecture



# Data Management and Ingestion



# Distributed Query Engine



- Storage and Compute isolated
- Auto compression, indexing, optimization
- Semi-structure (JSON) and unstructured data (free text) indexing
- Data is sharded, distributed, cached across nodes on local SSDs and persisted on cloud storage
- Ingestion time-based partitioning + custom partitioning
- Hot and cold data management
- Table level caching + results set caching
- Workload management
- Partitioning
- Materialized views
- External tables for Blob, Data Lake, and SQL

# Demo

Provisioning / service

# Kusto Query Language (KQL)



## Simple and powerful

- Rich rational query language (filter, aggregate, join, calculated columns, and more)
- Built-in full-text search, time series, user analytics, geospatial, and machine learning operators
- Out-of-the box visualization
- Easy-to-use syntax + Microsoft IntelliSense
- Highly recognizable hierarchical schema entities

## Extensible

- In-line Python and R
- T-SQL

```
1 GithubEvent
2 | where CreatedAt between(now() .. ago(1d))
3 | summarize count() by
```

- Actor
- CreatedAt
- Id
- Payload
- Public
- Repo
- Type
- abs(number)
- acos(number)
- ago(timespan)
- array\_concat(array, ...)
- array\_iff(condition\_array, when\_true, when\_fals...



# Advanced Analytics – Built-in & Extendible



## Out of the box

- Auto Clustering for Diagnosis and RCA
- Anomaly Detection
- Regression
- Forecasting
- Time Series Analysis library



## Distributed Custom Code Execution

- Distributed Python and R execution
- Custom code is embedded in the KQL query



## Spark Integration

- Native Spark connector for heavy duty model training
- Operationalize model into DX pool for scoring



## Tools

- Jupyter Integration with KQL Magic
- Python, Java SDKs

# Data Sharing



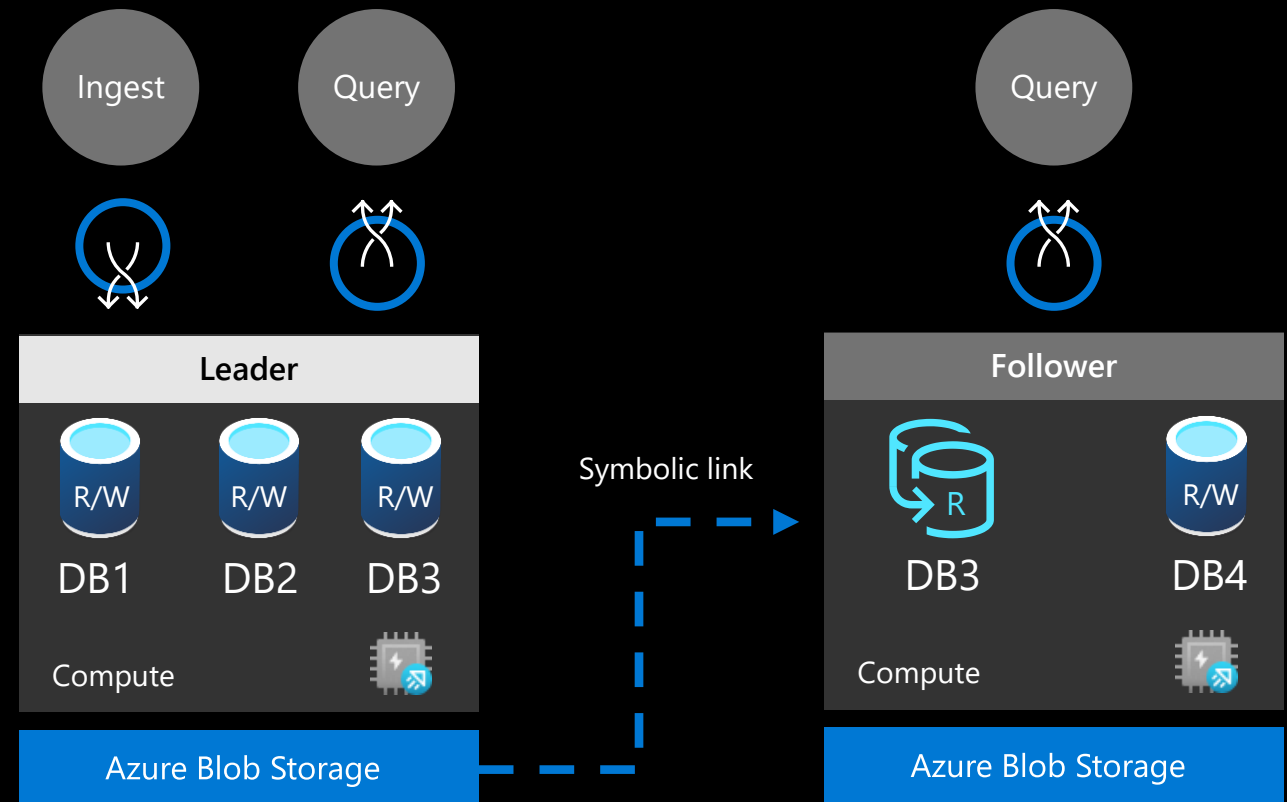
## Share data within the company

- Load balancing
- Data-as-a-service
- Hub and Spoke model
- Chargeback



## No Maintenance

- In-Place Data Sharing
- No data pipeline to maintain
- Near real-time updates



# Demo

Queries (logs/cars/iot/github)

# Burning topics



# Azure Synapse data explorer



Distributed storage & query engine  
optimized for log & telemetry data



# What's the diff between Azure Synapse Data Explorer and Azure Data Explorer?

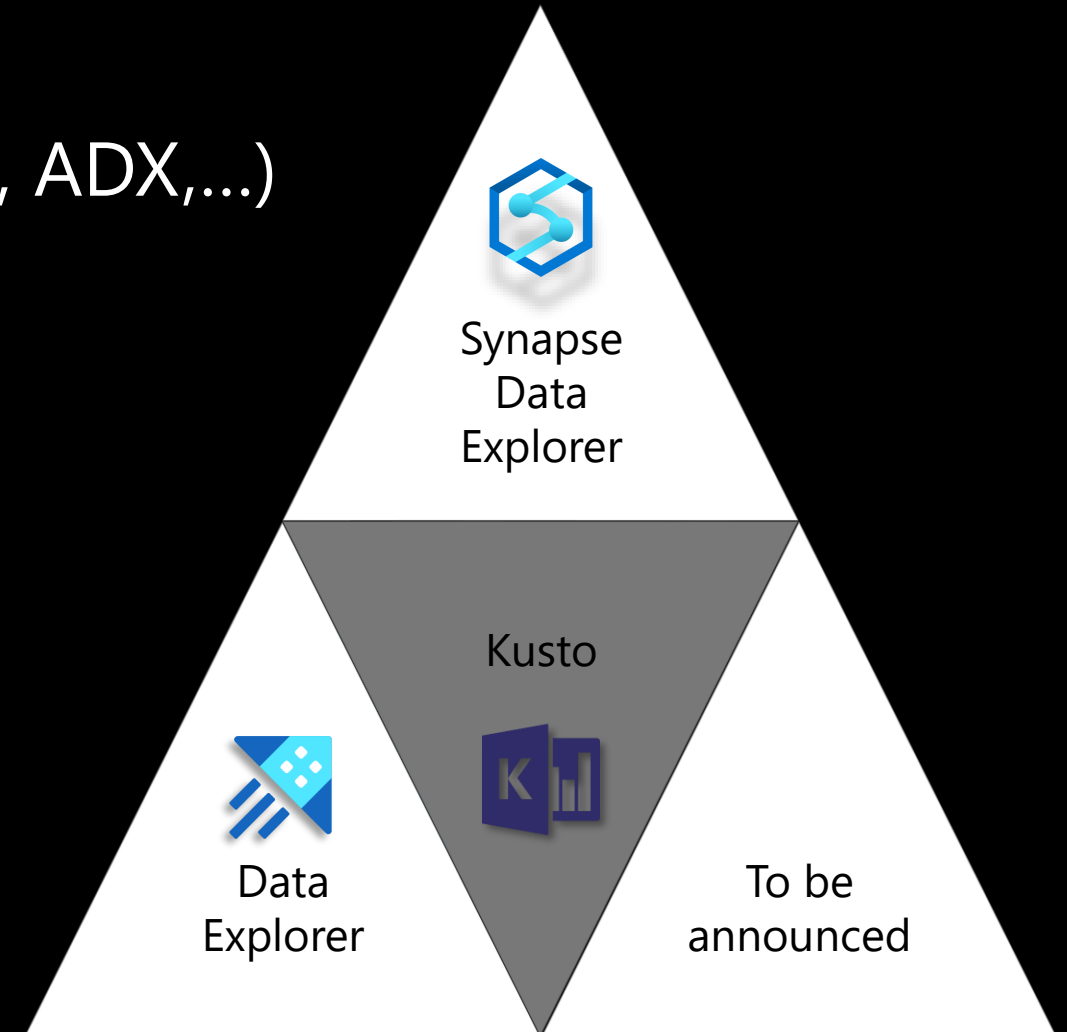


## The engine is Kusto

- Regardless of its deployment (SDX, ADX,...)
- Same capabilities

## ADX vs SDX

- Integration work into Synapse
- Low friction integration with other Synapse engines



# How to become an ADX expert



## Product

- Product Page: <https://aka.ms/adx.pp>
- Docs: <https://aka.ms/adx.docs>
- Cost Estimator: <https://aka.ms/adx.cost> (Excel)
- Whitepaper: <https://aka.ms/adx.techwhitepaper>
- 101 blog: <https://aka.ms/adx.blog.101>
- Reference Architectures - <https://aka.ms/adx.architectures>

## Free Online Courses

- MS Learn: <https://aka.ms/learn.kql>, <https://aka.ms/learn.adx>
- Pluralsight: <https://aka.ms/adx.pluralsight>:  
[KQL from Scratch](#), [Azure data exploring](#), [How to start with ADX \(blog\)](#), [Advanced KQL \(blog\)](#)

## Social and Community

- Twitter: [@AzDataExplorer](#)
- Stack overflow: <https://aka.ms/adx.sof>
- Tech Community Blog: <https://aka.ms/adx.blog>
- Tech Community Forum: <http://aka.ms/adx.techcommunity>
- YouTube Channel: <https://aka.ms/adx.youtube>

## Hands on

- Lab: <https://aka.ms/adx.lab>
- Help and samples - <http://aka.ms/adx.try>
- Microhacks (available soon)

Please comment:

**What other things do you need to help people becoming experts on ADX?**

# Partner program



# Partner Program



## Free POC for ADX/SDX resources

- No charges on the Kusto resources
- Well defined POC scope and goals
- <https://aka.ms/adx.freepoc.request>

## Partner ECIF for AMD powered deployments

- [AAAP](#) ECIF offer & [blog post](#)

## Training, upskilling and technical backup during projects

## Partner discovery experiences

- Based on geo, reference projects and more

| join us: <https://aka.ms/adx.partnersinfo>



# Thanks!

## Q&A

## Reach out to me on

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[Henning Rauch | LinkedIn](#)

[@cosh23 | Twitter](#)

