# Interoperability vs. Performance
# Can you have the best of both?

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# KX STAC M3 Benchmarks - Results





- KX is the winning database in 24 out of 24 Kanaga (3 queries, large data: 60 TB) tests
- KX is the winning database in 15 out of 17 Actuco (7 queries, medium data: 3.5 TB) tests



# **Interoperability** – functionality and performance

## Native SQL Support

- **Unlock** your KX data estate with ANSI SQL compliant SQL interface
- Access **advanced q functionality** through SQL interface while within **1% performance** of q*
- **Integrate seamlessly** using pgwire

Power BI

+ableau

Grafana

trino

## PyKX

- Truly **Python first** approach to kdb+
- Run **q analytics anywhere Python** will run with **officially supported** interface to kdb+
- Quicker query and conversion to Pandas
- More expansive **type conversions between q and Python**
- Query in **qsql** or **SQL** or write **advanced q analytics** through **context interface**

## REST & OpenAPI

- Kurl is a **REST client** that provides sync and async methods callable from q
- Kurl provides **ease-of-use cloud integratio**n by registering Azure, Amazon, and Google Cloud Platform authentication information.
- **REST-server** library: expose a RESTful interface to a kdb+ based system

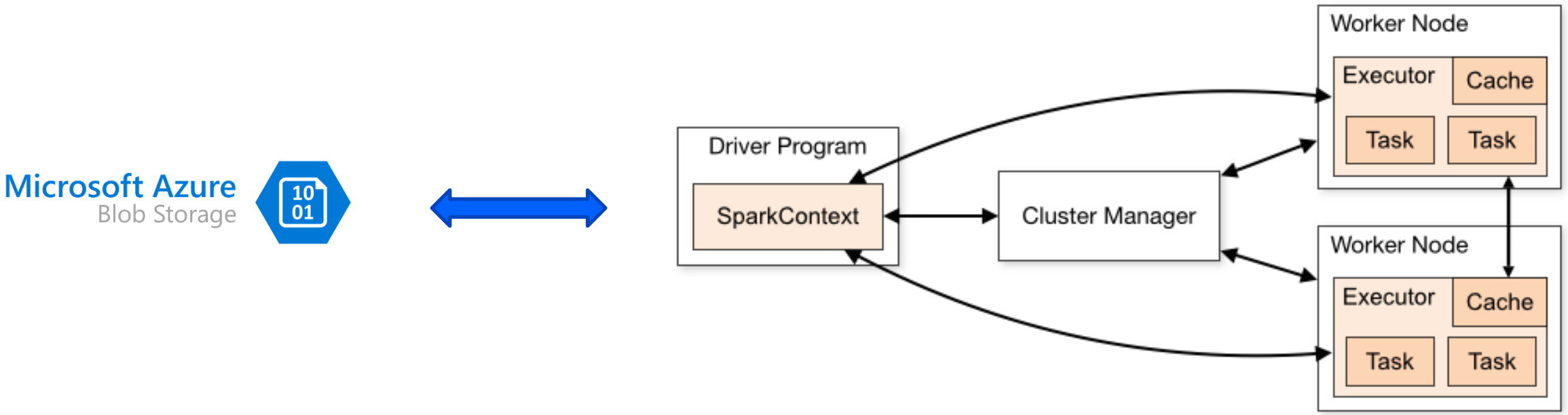
OPEN API INITIATIVE

*Not a STAC Benchmark

# Accelerating Spark workflow with PyKX

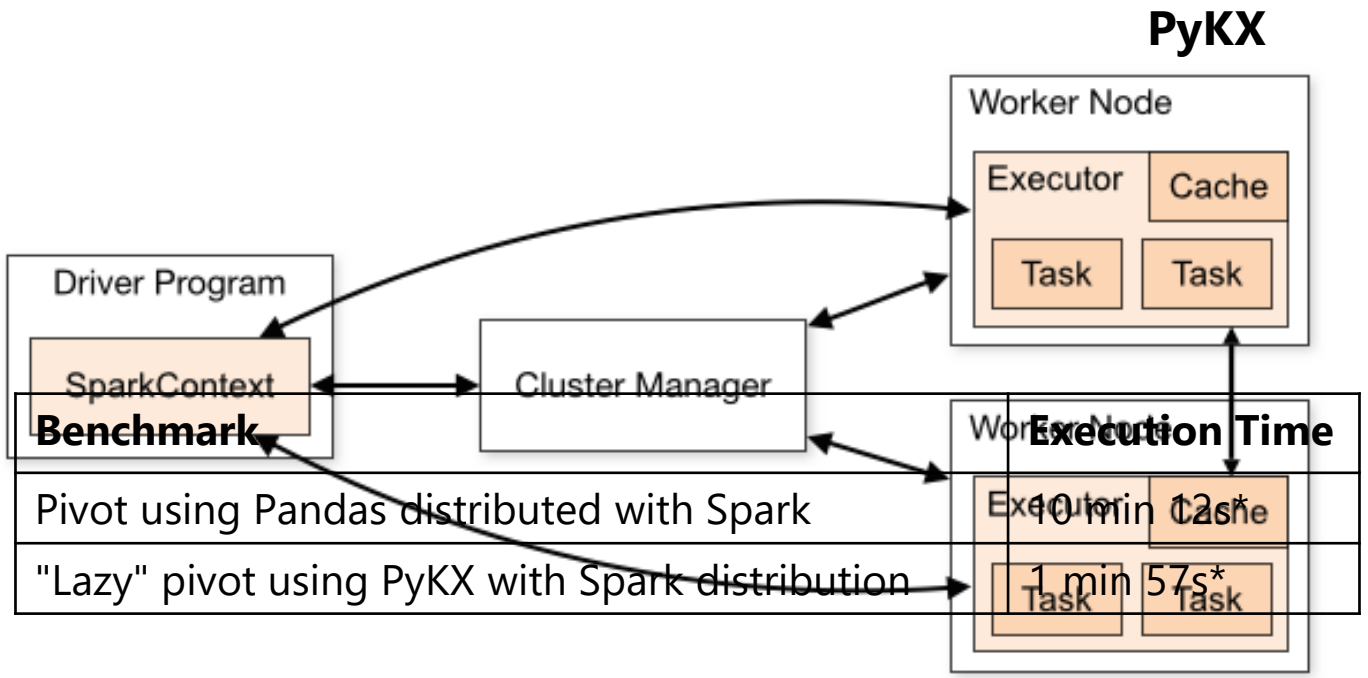
- Open-source NASA aircraft sensor data
- Data stored on Blob Storage in Parquet format
- Perform a large-scale distributed pivot on the dataset

## Pivot using Pandas distributed with Spark



# Accelerating Spark workflow with PyKX

## "Lazy" pivot using PyKX with Spark distribution




| Benchmark | Execution Time |
|---|---|
| Pivot using Pandas distributed with Spark | 10 min 12s* |
| "Lazy" pivot using PyKX with Spark distribution | 1 min 57s* |

*Not a STAC Benchmark


Total number of flights: 180,000

Analysis time saved over pandas: ~ 35hrs

# Thank You

For more information:

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Visit **www.kx.com**

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