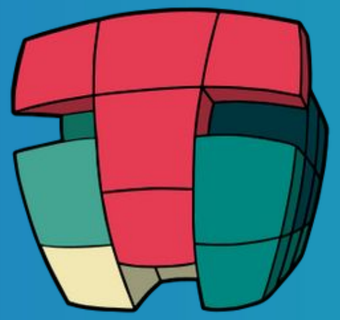


Tentris

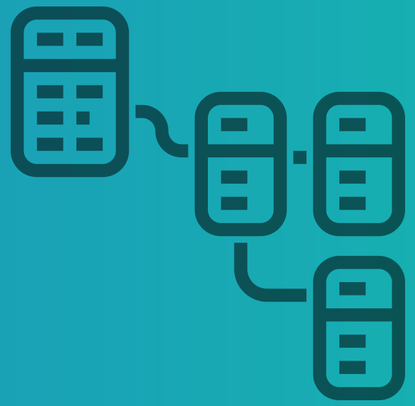
FROM TENSORS TO 10x

LSWT 2024
Leipzig, Germany
18.04.24

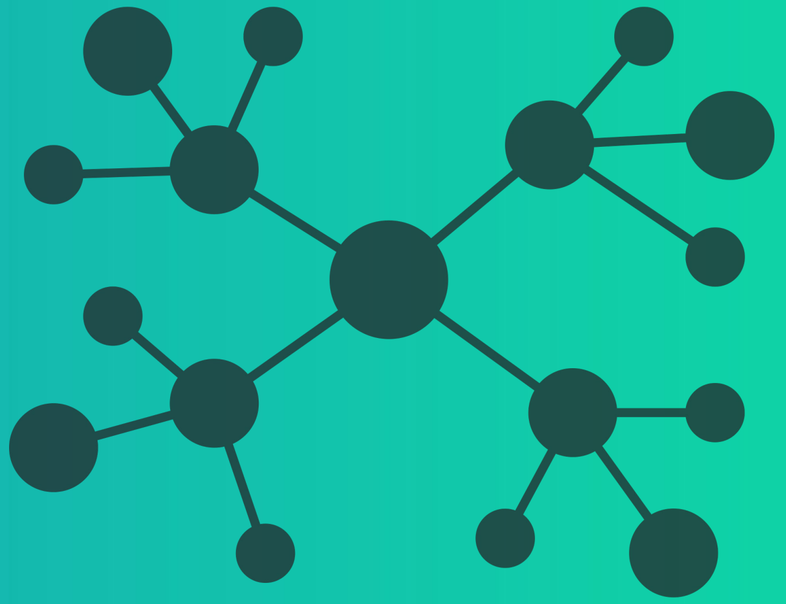
History of Digital Data Processing

Graph technologies will be used in 80% of enterprise data and analytics innovations by 2025.

Analog age



Tables with columns and rows



Knowledge Graphs

Problem

90% of companies face major challenges in storing and managing their data.

Large-scale storage solutions are resource-intensive and costly to administrate.

AI black box* algorithms are not compatible with EU data protection (GDPR).

Current graph databases are too slow for modern query loads.

*not explainable or interpretable

Solution

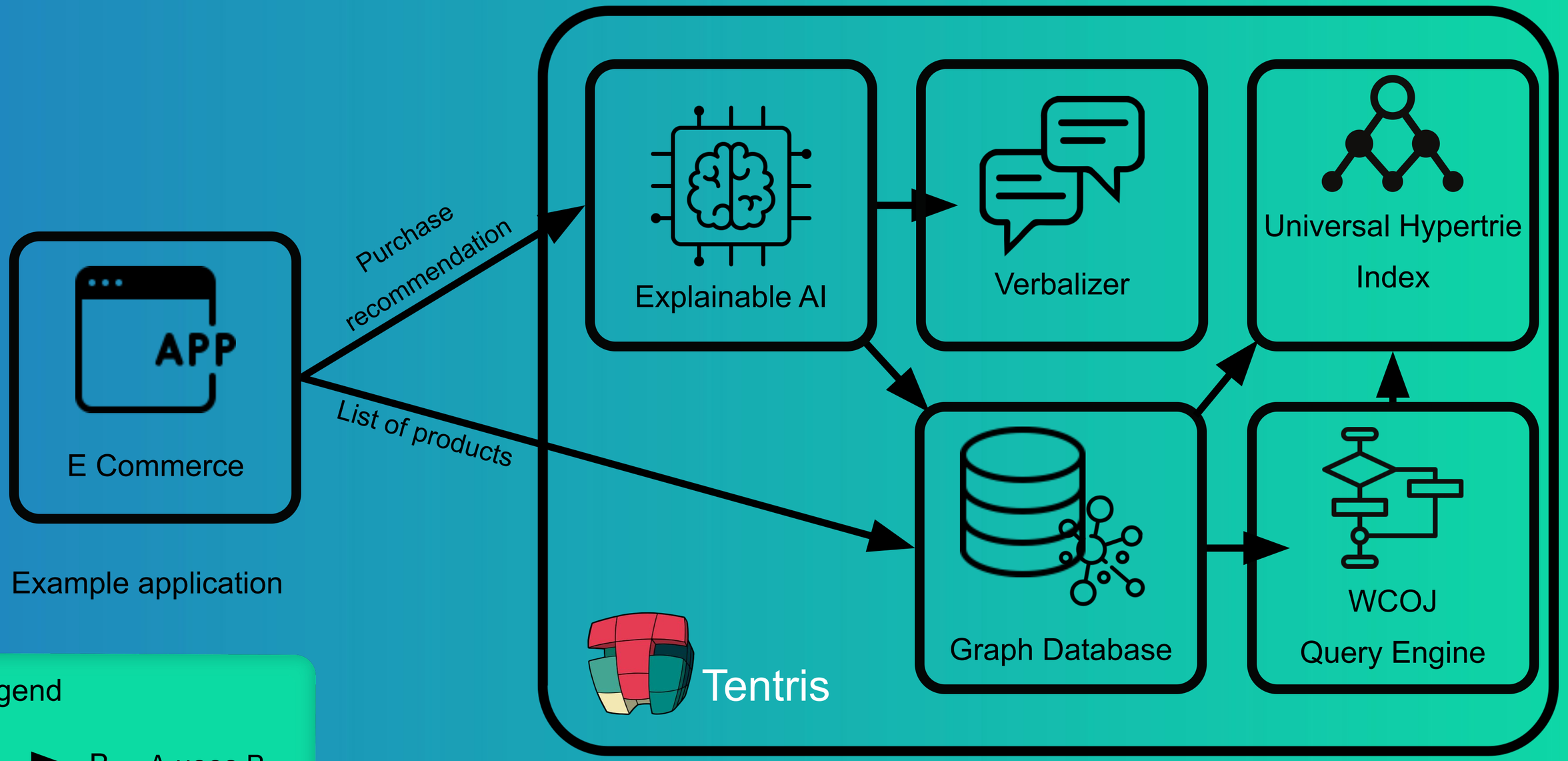
A highly scalable and sustainable next-generation graph database with DSGVO-compliant AI.

Fast, scalable and easy to administrate

Resource-efficient database engine and algorithms

Correct explanations for AI and data

Architecture

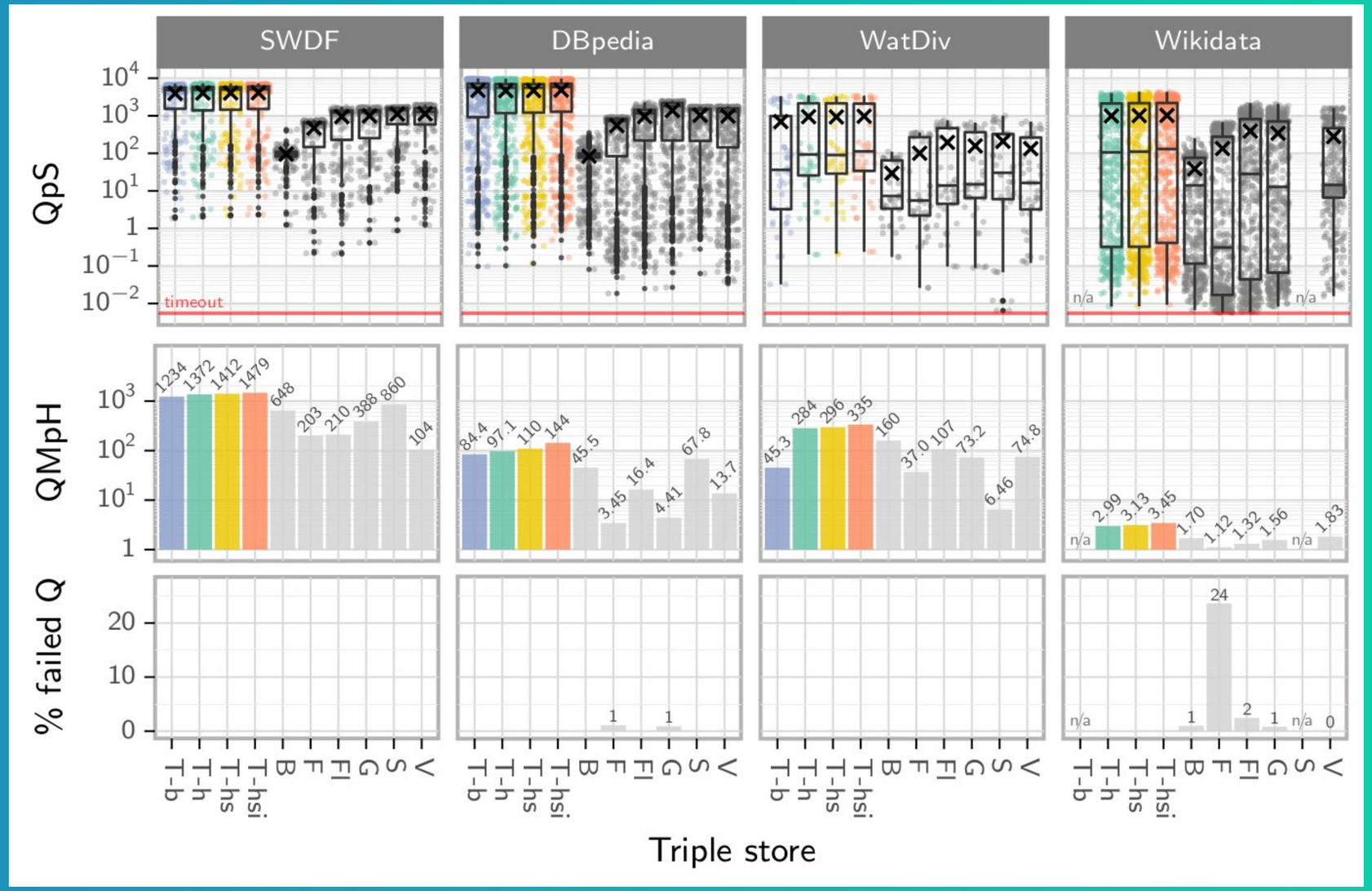


Example application

Legend

A → B A uses B

Tentris Benchmarking Results



Tentris Benchmarking Results

	Runtime (sec.)			
	Carcinogenesis	Mutagenesis	Semantic Bible	Vicodi
CELOE	268.90±116.04	165.27±145.11	172.04±140.27	334.99±43.87
EvoLearner	62.21±26.11	70.77±47.53	18.44±5.53	236.92±80.90
ELTL	26.15±2.11	15.83±16.56	4.73±0.98	335.90±205.39
ECII	25.62±6.11	20.40±4.00	6.73±1.67	37.12±25.12
$\text{NCES2}_{m=32}$	**0.02***±0.00	**0.02***±0.00	**0.01***±0.00	**0.03***±0.00
$\text{NCES2}_{m=64}$	<u>0.03</u>±0.00	<u>0.03</u>±0.00	<u>0.01</u>±0.00	<u>0.03</u>±0.00
$\text{NCES2}_{m=128}$	0.03±0.00	0.03±0.00	0.02±0.00	0.04±0.00
$\text{NCES2}_{m=\{32,64\}}$	0.05±0.00	0.05±0.00	0.03±0.00	0.06±0.00
$\text{NCES2}_{m=\{32,128\}}$	0.06±0.00	0.06±0.00	0.03±0.00	0.06±0.00
$\text{NCES2}_{m=\{64,128\}}$	0.06±0.00	0.06±0.00	0.03±0.00	0.07±0.00
$\text{NCES2}_{m=\{32,64,128\}}$	0.09±0.00	0.09±0.00	0.05±0.00	0.10±0.00

Competitive Advantage

Our storage efficiency, request performance and short AI computing times reduce costs and CO_2 emissions.

bis zu **10x**

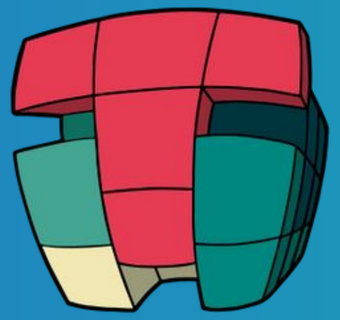
Lower operational costs

bis zu **100x**

Reduktion der CO_2-Emissionen

bis zu **1000x**

Reduction of AI and query runtime



Tentris

THE FASTEST GRAPH DATABASE.
WITH GDPR-COMPLIANT AND EXPLAINABLE AI.

Die Europäische Union fördert zusammen mit dem Bundesministerium für Wirtschaft und Klimaschutz über den Europäischen Sozialfonds Plus (ESF Plus) das Programm „Existenzgründungen aus der Wissenschaft (EXIST)“ in Deutschland.

Gefördert durch:

Bundesministerium für Wirtschaft und Klimaschutz

Kofinanziert von der Europäischen Union

eXIST Existenzgründungen aus der Wissenschaft

aufgrund eines Beschlusses