SenX™

The **Most Advanced**
Time Series Platform

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01
Introduction

Time Series are becoming ubiquitous

From IT monitoring to sensors in IoT devices, Time Series are gaining traction

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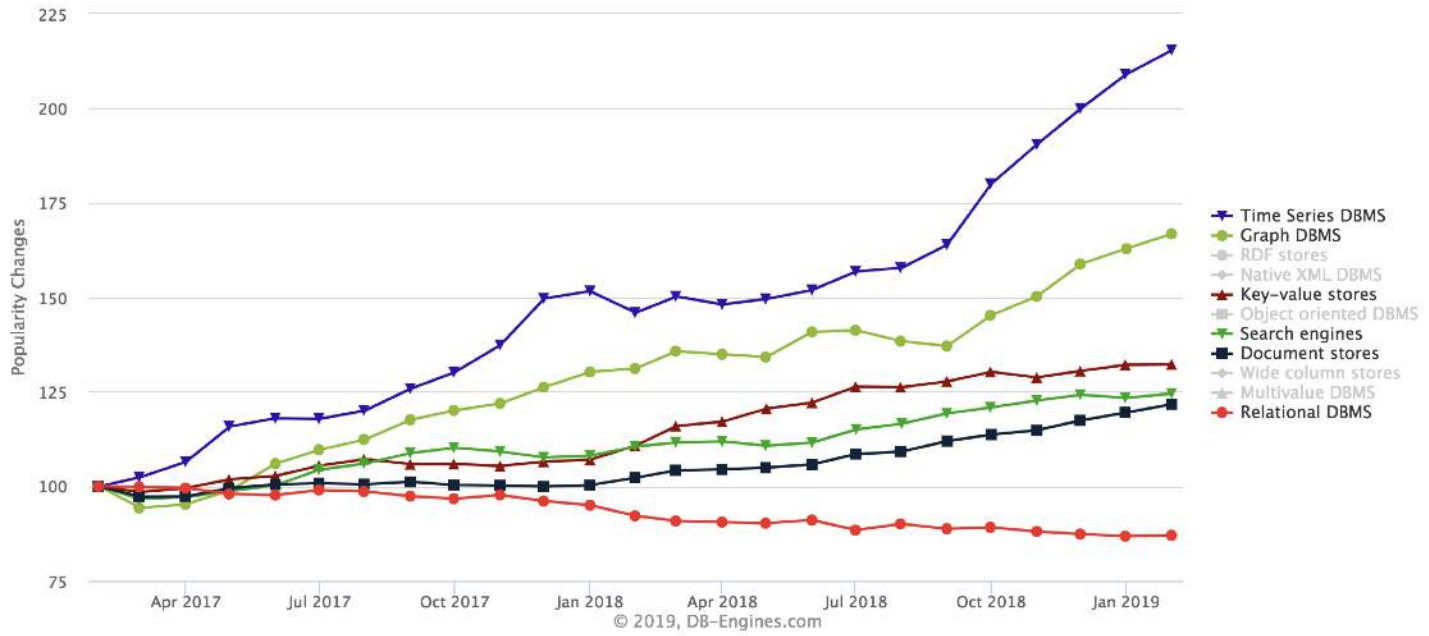
DataBase category with the most growth: TSDB*

*Time Series DataBase



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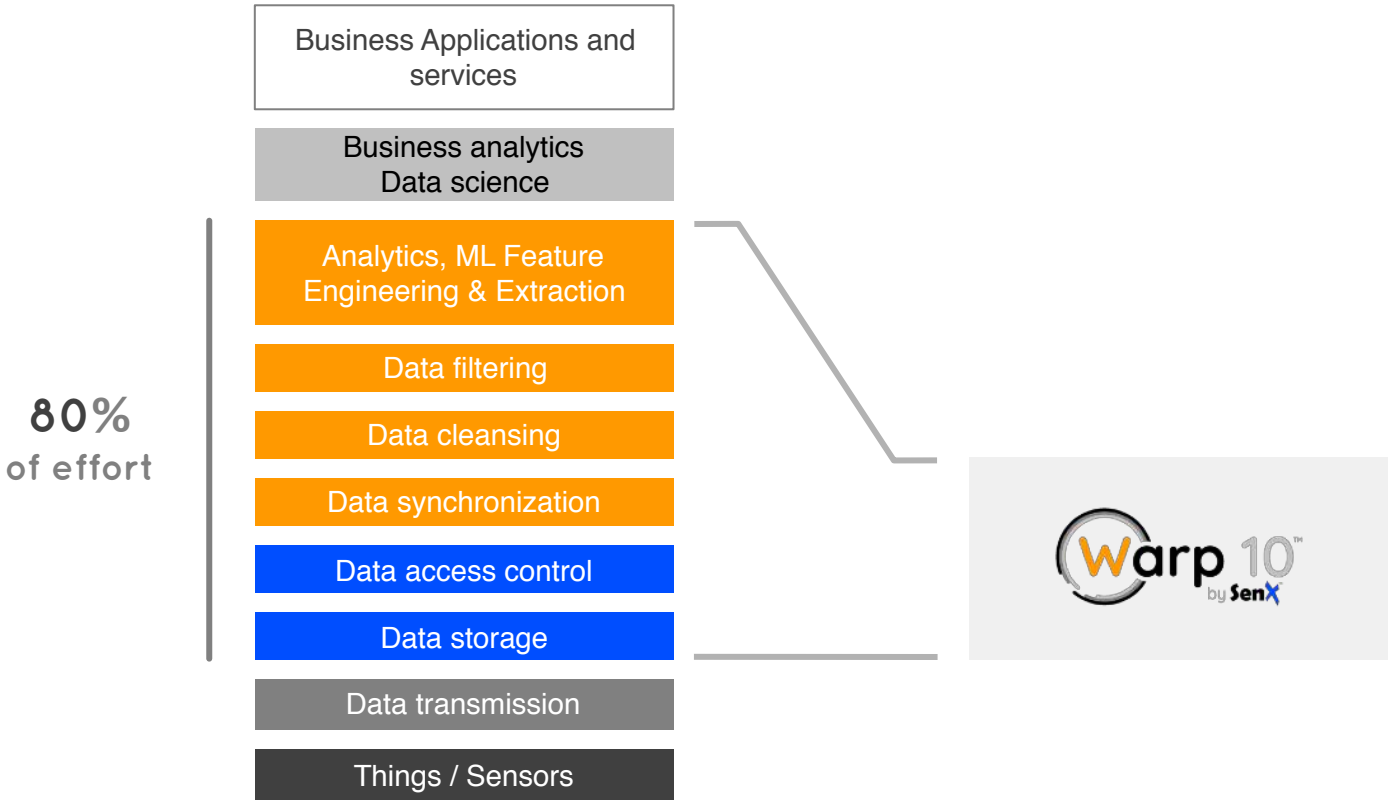
Warp 10™ simplifies data management & analytics



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Fast, Scalable and Secure Storage Engine

- Native support for Geo Time Series™ data model
- Disk or in-memory storage
- Flexible token mechanism for authentication and authorization
- Configurable encryption levels

Use of the Warp 10™ Storage Engine is optional

Analytics Environment can access third party data stores

Advanced Analytics Environment

Warp 10™

A library of **900+** functions

From summary statistics to advanced signal processing and pattern detection

Efficient framework for application developers
Speeds up development process, allowing a sharper focus on core business issues
Greatly improves performances and enables scaling of analytics

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Flexible Deployment Options

Build coherent data pipelines with identical features available at each level

Warp 10™ addresses key challenges

Performances	Ingestion from 100ks of measures/s (standalone) to tens of millions (distributed). Around 15k/s on edge.
Scalability	From low data rates to more than 100 million measures/s with live historical datasets of several 100s trillion datapoints
Interoperability	Easy to interface with any environment and data format, including support for vertical standard ontologies
Usability	Retention policies, background processing, deletions, data governance, compliance
Security	Secure by design, dynamic allocation of encrypted tokens, metadata encryption, optional datapoints encryption
Industrialization	Warp 10™ goes from interactive data analytics to an integration into operational processes

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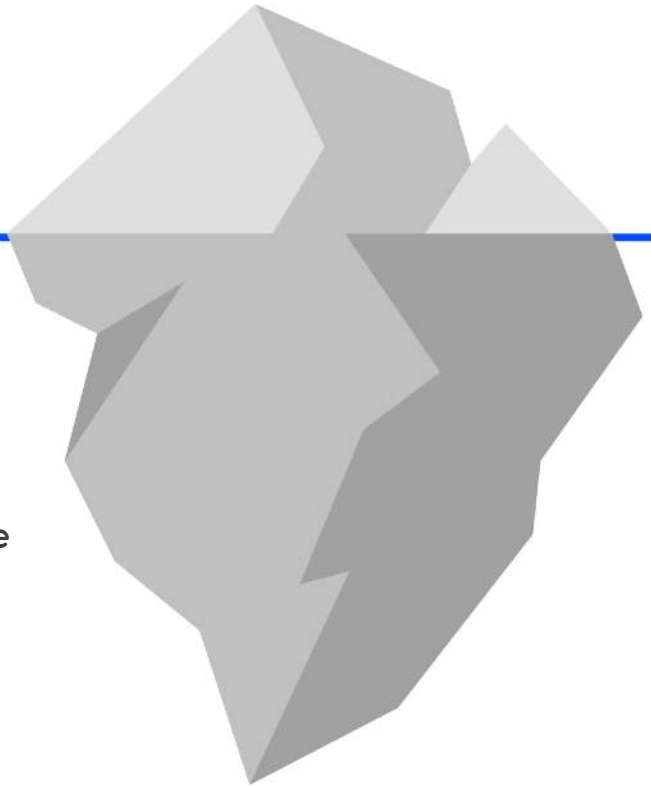
Machine Learning / Artificial Intelligence

Business



Data Science

Machine Learning Model

Data collection
Data cleansing
Data synchronization
Feature extraction
Analytics tools

Warp 10™

The solution that makes the major part of the job

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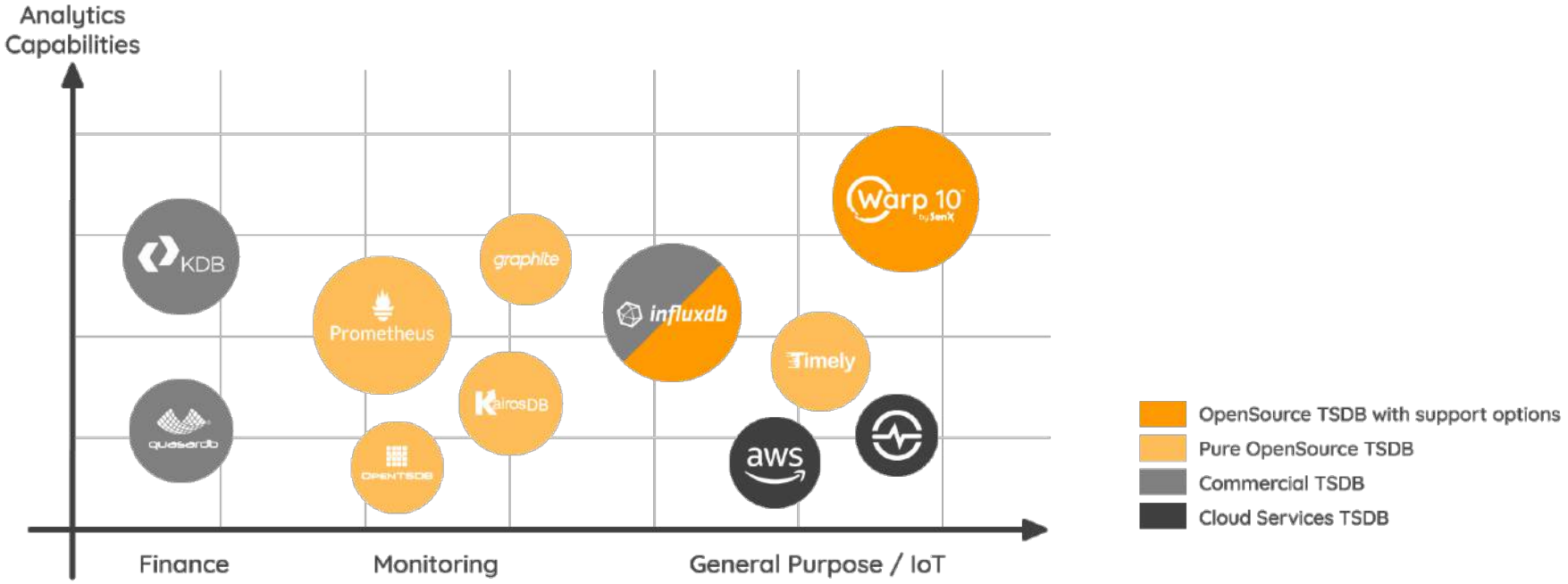
Open Source Distribution

open source™

Apache 2.0 License

warp10.io

Time Series Solutions Landscape



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02
Use cases

ENERGY

Grid Monitoring, Asset & Infrastructure Supervision, Load Management, Smart Metering

AERONAUTICS & SPACE

Flight Data Management & Analytics, Safety & Maintenance, Telemetry, Satellite Imaging Management

AIRBUS PILATUS MATTERNET

SMART CITIES & BUILDINGS

Transportation Monitoring, Facility Management, Equipment Supervision, Behavior Analysis

VILLE DE LYON

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IT & NETWORKS

Observability, Cloud Monitoring, Network Supervision, Application Metrics

OVH McKay Brothers Crédit Mutuel ARKEA

AUTOMOTIVE

Connected Vehicles, Engineering Data Management, Customer Data Analysis, Parts/Vehicle Validation Plans Improvement

RENAULT

INDUSTRY 4.0

Traceability, Process Optimization, Predictive Maintenance, Testbeds

AMZAIR industrie KOHLER SDMO

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HEALTH, SPORTS & WELLNESS

High Performance Sailing Data Analysis, Physiological Monitoring, Medical Sensor Data Management

AIM45 data conscience

AGRICULTURE & ENVIRONMENT

Weather Data Management, Field Sensors Data Analytics, Sat Images Time Series Extraction

Sierentz GLOBAL MERCHANTS

DEFENSE & SECURITY

Radar Data Analysis, SIGINT (ELINT, COMINT), Maritime & Airspace Surveillance

THALES afnic DGA

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03

Technical Description

Working with **spatio temporal** **sequence** data

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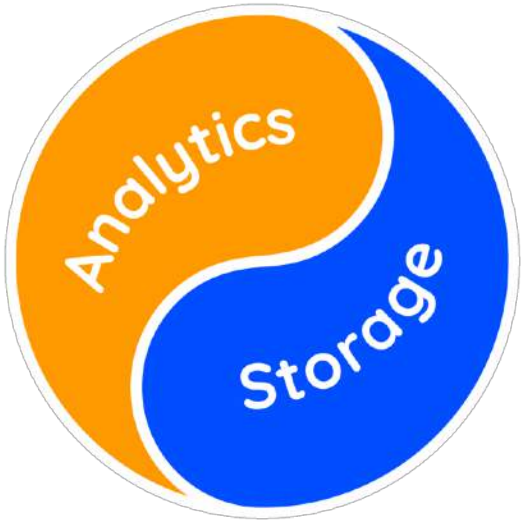
A complete solution for improved efficiency



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Universal Data Model

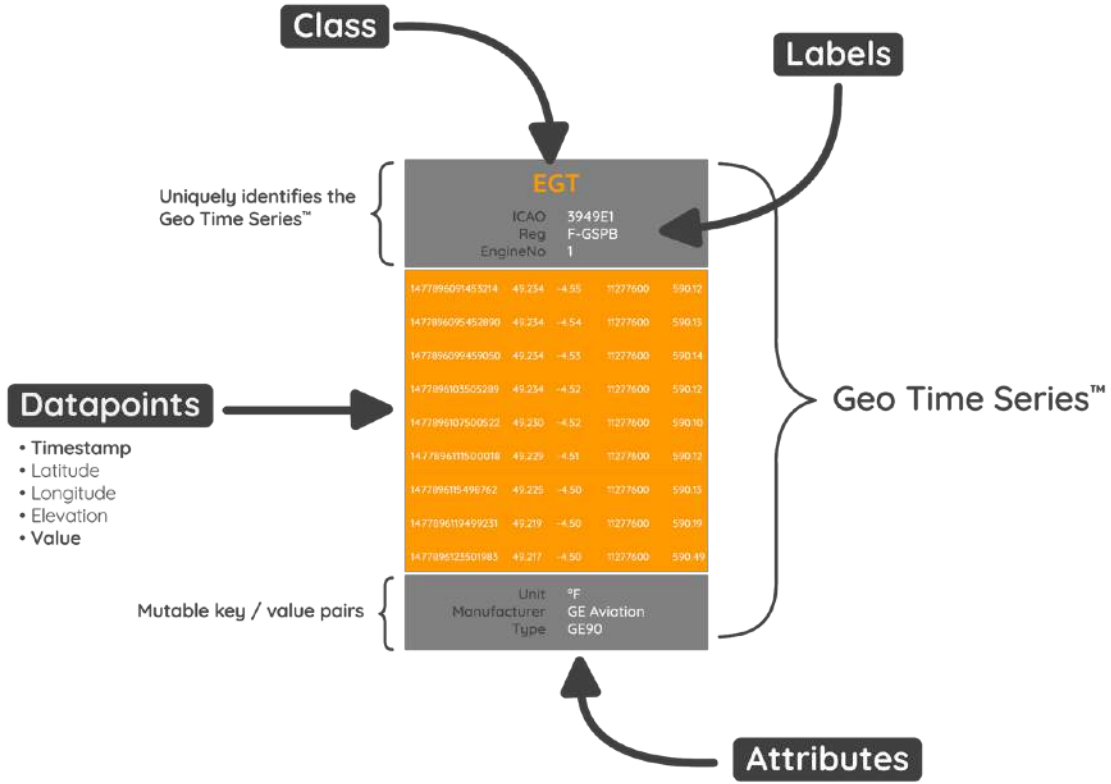
Time Series

Location data

Geo Time Series™

By merging time and space, Warp 10™ enables efficient spatio-temporal analytics

Geo Time Series™ data containers



Able to represent any sequence data

Events (sporadic) - Logs, alarms, alerts

Time Series (regular, irregular) - Sensor readings, metrics

LONG, DOUBLE, BOOLEAN and STRING values support

Full UTF-8 support

Flexible metadata can adapt to any domain/ontology

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Warp 10™ Storage Engine (Continuum)

Geo Time Series™ data model support

Built for performance and scalability

Secure by design, strong authentication/authorization

Use of standard protocols and formats for ease of use

```
TS/LAT:LON/ELEV CLASS{LABELS} VALUE
```

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Warp 10™ Storage Engine

EDGE | STANDALONE | DISTRIBUTED

LEVELDB RAM Datalog HA

Millions of series

100s Millions of datapoints

~10k datapoints/s

LEVELDB RAM Datalog HA

10s of millions of series

Billions of datapoints

~100k datapoints/s

APACHE HBASE

Billions of series

Trillions of datapoints

Millions of datapoints/s

SenX™

Comprehensive sequence data analytics

WarpScript™ by SenX

Dedicated language

6 frameworks

900+ functions

Turing Complete

Fully extensible

Sandboxed

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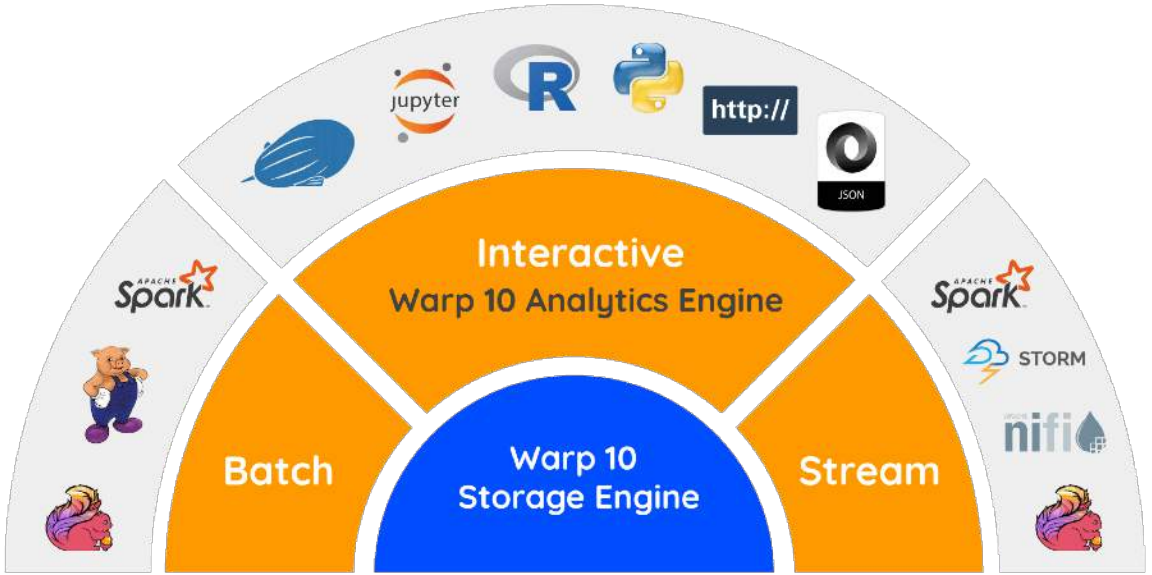
Complementing existing tools & ecosystems



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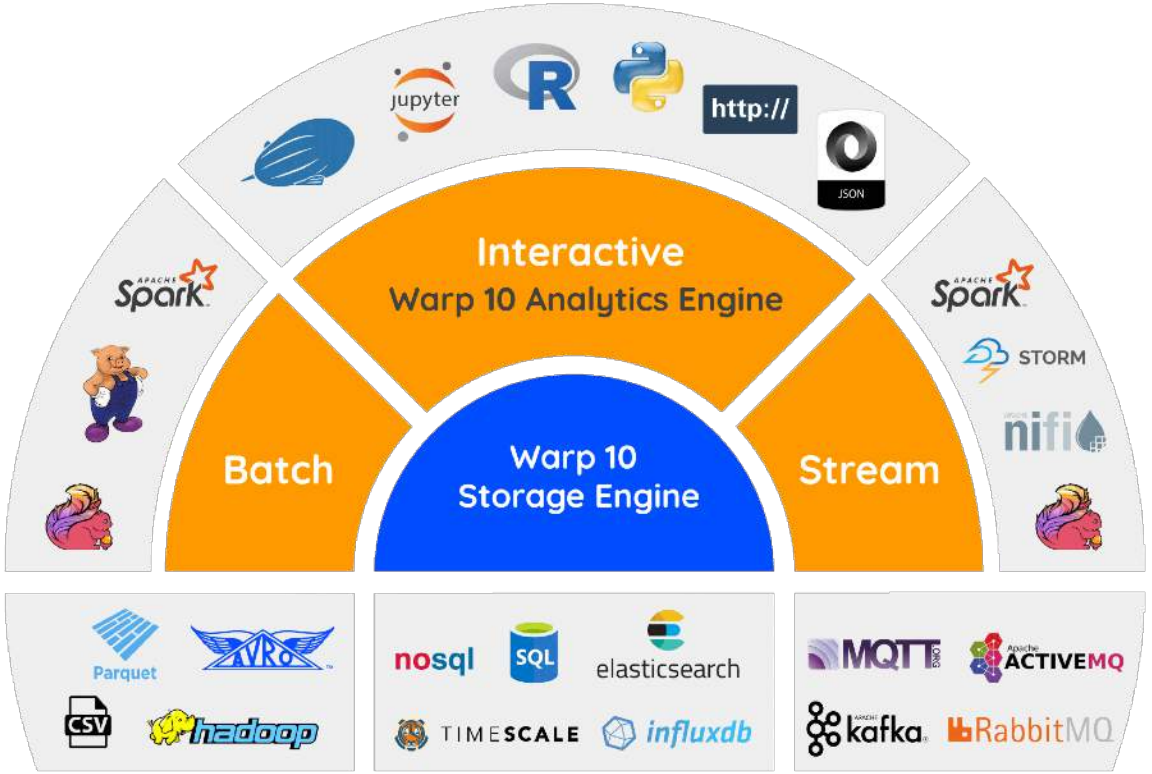
Bringing analytics to any sequence data



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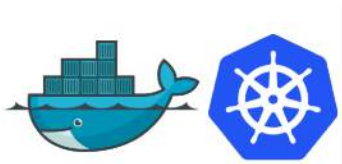
Platform neutrality



Azure

Google Cloud

aws

Palantir

PREDIX

Azure HDInsight

HORTONWORKS
cloudera

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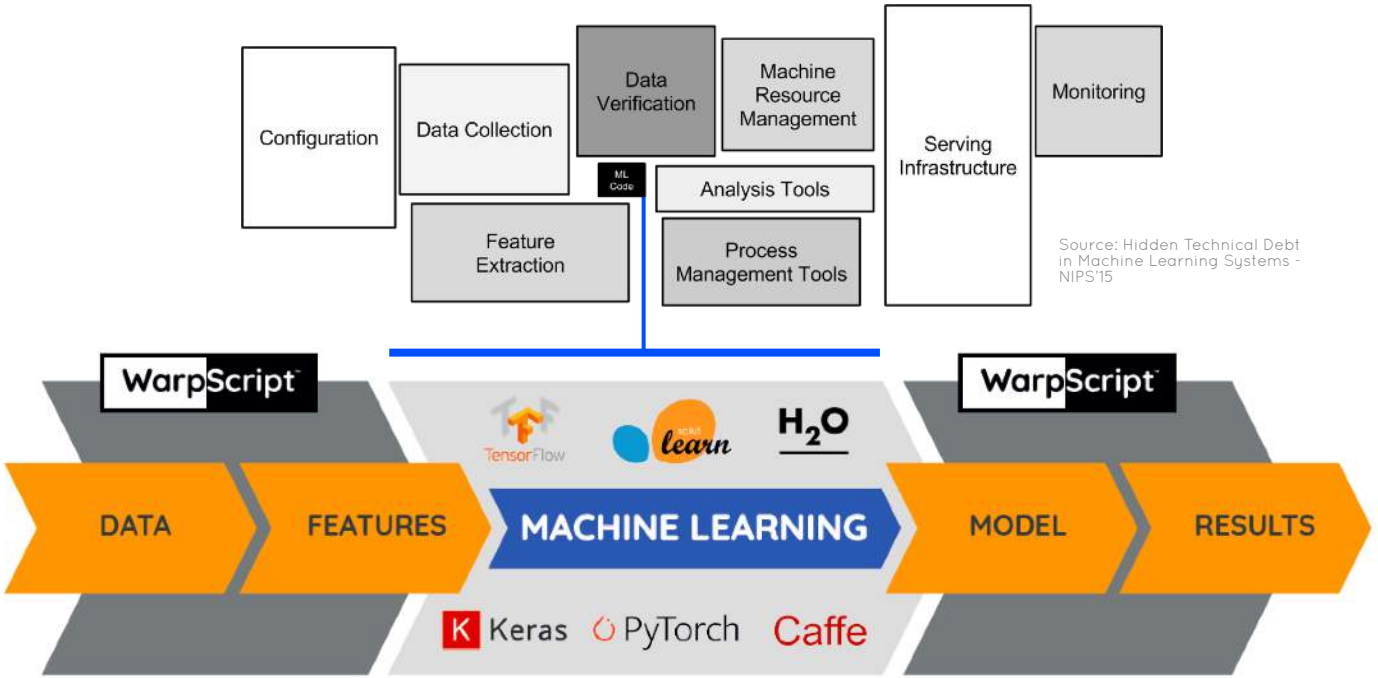
Machine Learning Enabler



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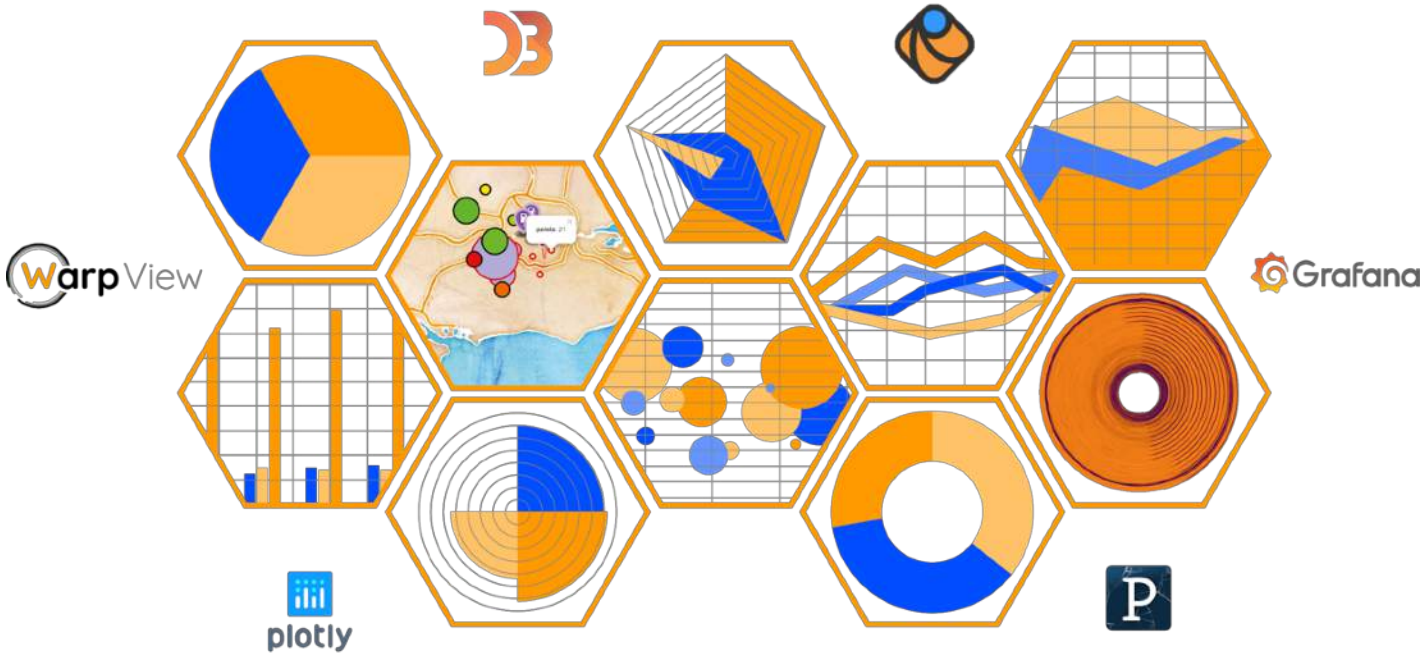
Visualization capabilities



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