Stream Processing on Big Data

Stream Processing is an approach to process a continuous and fast incoming stream of data efficiently. It enables applications to execute analytics and to process and filter data on the fly as it comes in. It is most effective for applications where there is a high ratio of event throughput versus changes of queries. Therefore, it is very useful for example in the real-time analytics field where the application can calculate mathematical or statistical analytics on the fly within the stream. Additionally, the typical stream processing architecture allows to easily incorporate external databases and other processing engines.

Batch Processing

Use Cases: ad-hoc queries, data exploration, static data, ML training, (hyper) parameter tuning

Data changes slowly

Queries change frequently

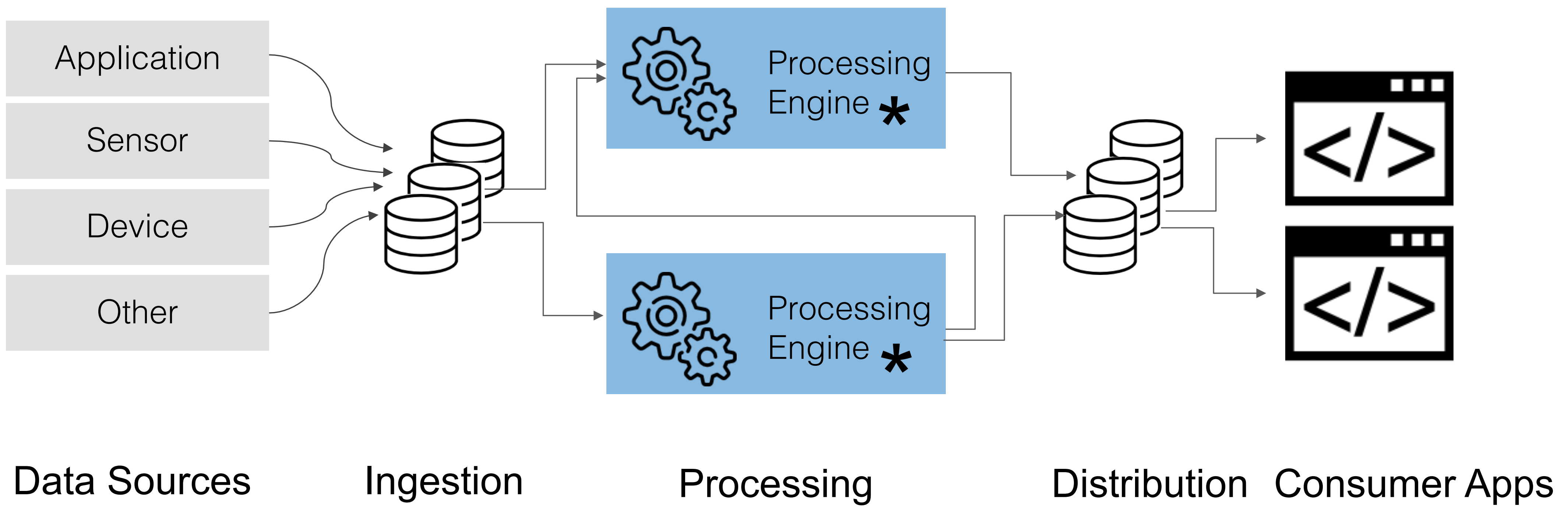
Stream Processing

Use Cases: data pipelines, standing queries, anomaly detection, ML evaluation, continuous applications

Long-lived queries

Rapid data input

Stream Processing Architecture



* **Popular Stream processing frameworks:**

APACHE Spark™

Apache Flink

APACHE STORM™
Distributed • Resilient • Real-time

The Future of Stream Processing

Stream processing started off as a means to enable development of real time analytics platforms with dashboards. Right now however, it is on the verge of advancing in many more territories. As the number of fields for applications of Big Data is increasing so do new use cases for stream processing come up. Especially the combination with deep learning has a lot of potential. Moreover, the most popular apache frameworks for stream processing (eg. Spark, Storm, Flink) are rather young. They only got released a few years ago and still leave room for adapting many more use cases.

Common Use Cases

- Monitoring systems
- Filtering & analyzing news data
- Intelligence and surveillance
- Fraud detection
- Smart order routing
- Risk management

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