

Why is Streaming Data Different?



After this video you will be able to..

- Compare and contrast “data-in-motion” and “data-at-rest”
- Differentiate between streaming and batch data processing
- List management and processing challenges for streaming data

Data-at-Rest

- Mostly static data from one or more sources
- Collected prior to analysis

Data-in-Motion

- **Analyzed as it is generated**
 - Example: sensor data from self-driving vehicles
- **Stream processing**

Data Processing Algorithms

Static / Batch

Processing

Size determines
time and space

Streaming

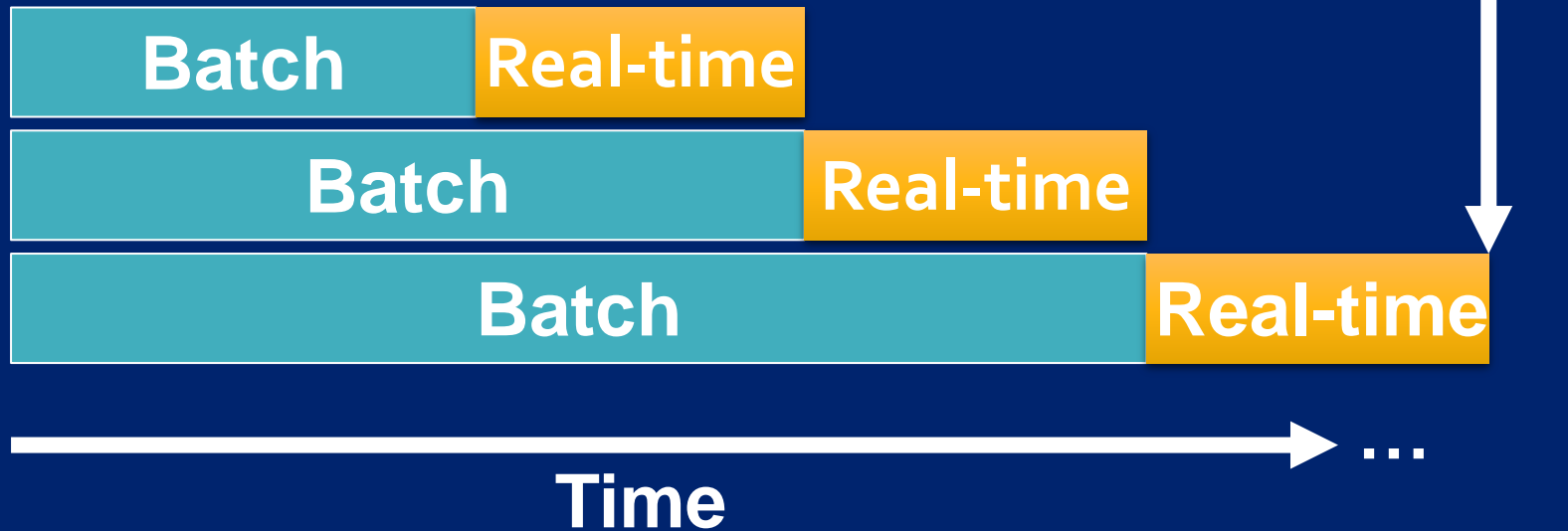
Processing

Unbounded size,
but finite time
and space

Streaming Data Management and Processing

- Compute one data element or a small window of data elements at a time
- Relatively fast and simple computations
- No interaction with the data source

Lambda Architecture

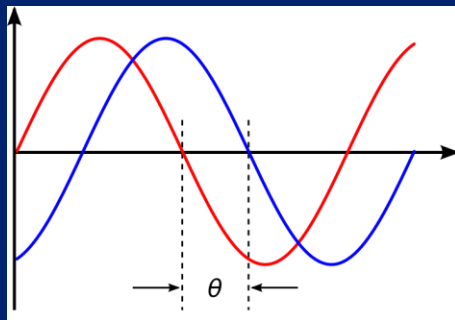


Streaming Data Changes Over Time

Size

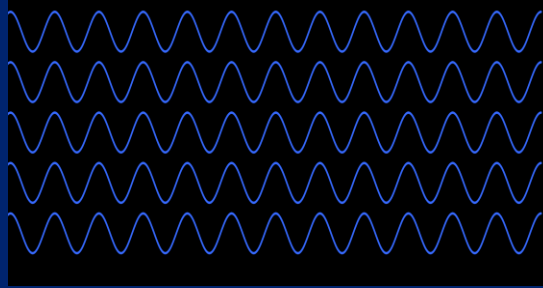


Frequency



Changes can be periodic or sporadic

Periodic: evenings,
weekends, etc.



Sporadic: major
events



Example of extreme change: World Record for Tweets

Average
Tweets / Second

= 6000

Record
Tweets / Second

> 144,000

Streaming Data Summary

- Size → Unbounded
- Size and Frequency → Unpredictable
- Processing → Fast and Simple