

TOWARDS AN UNIFIED API FOR SPARK AND THE IIOT

Ángel Conde Manjón/ 16-11-2017

1

The Industrial Internet of Things (IIoT)

2

Use Cases & Key Benefits

3

Key Issues Processing IIoT Data

4

Spark Structured Streaming

5

Demo time



: investment is expected to top \$60 trillion during the next 15 years.

accenture : could add \$14.2T to the global economy by 2030

McKinsey & Company : will touch 43% of the global economy by 2025.

Gartner : 20 billion IoT things installed by 2020.

+
efficiency

-
costs

Supply-Demand matching and reduction of Time-to-market.

Human resource optimization

Optimization of energy and raw material consumptions

Manufacturing asset optimization and OEE improvement

Quality Maximization

After sales service optimization

Environment health & security maximization

Improvement of corporate social responsibility

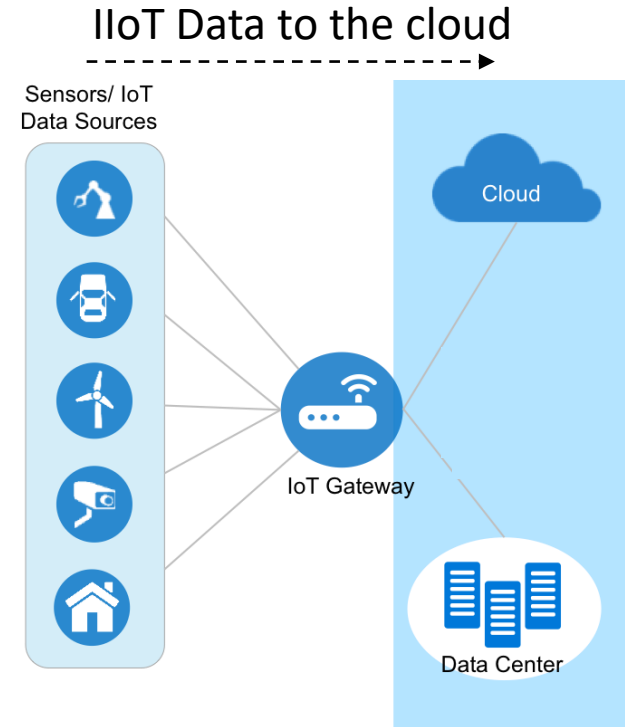


Late Data & Ordering

- Connectivity issues: 2G, 3G.
- Protocol support:  CoAP

Data quality

- Raw sensor values: broken sensors.
- Deal with duplicates: local acquisition systems.



Stream processing on top of SparkSQL engine.

Unified API for batch/stream processing.

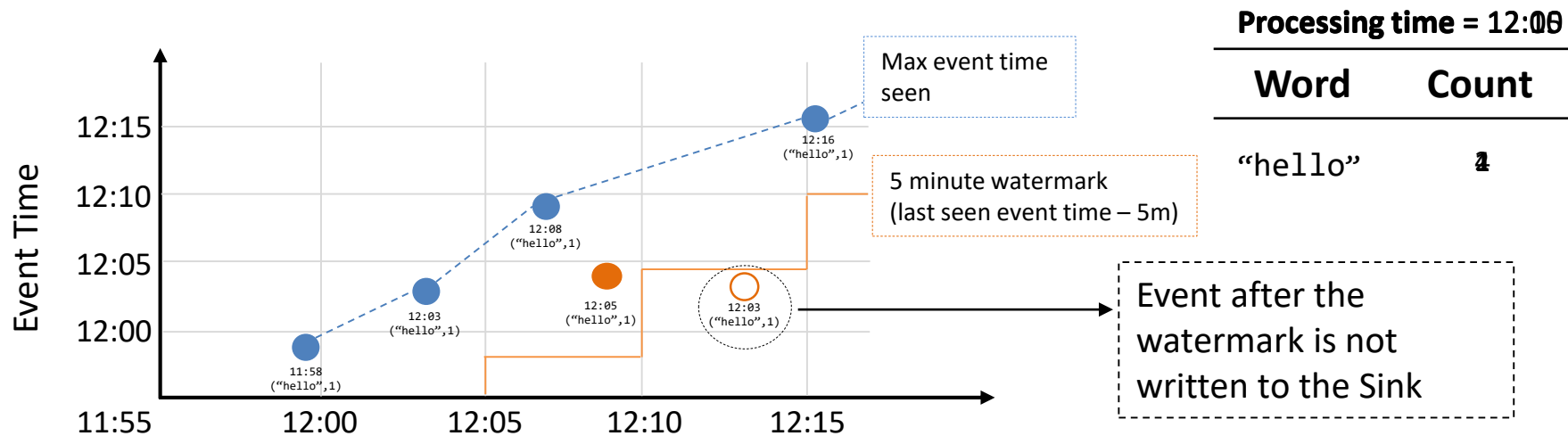
Late data & deduplication support.

Aggregations, UDFs, stateful ops.

Joins with static data (Spark 2.3 will support joins between streams).

```
spark.readStream
  .format("kafka")
  .option("subscribe","in")
  .load()
  .groupBy('value')
  .agg(count("*"))
  .writeStream
  .format("kafka")
  .option("topic","out")
  .trigger("1 minute")
  .outputMode("update")
```

The *(in)famous* word count example.



Processing time
With 5 minutes triggers

Deduplication within the watermark is also supported!

DEMO TIME



nifi



APACHE

kafka®

A distributed streaming platform



docker



Apache

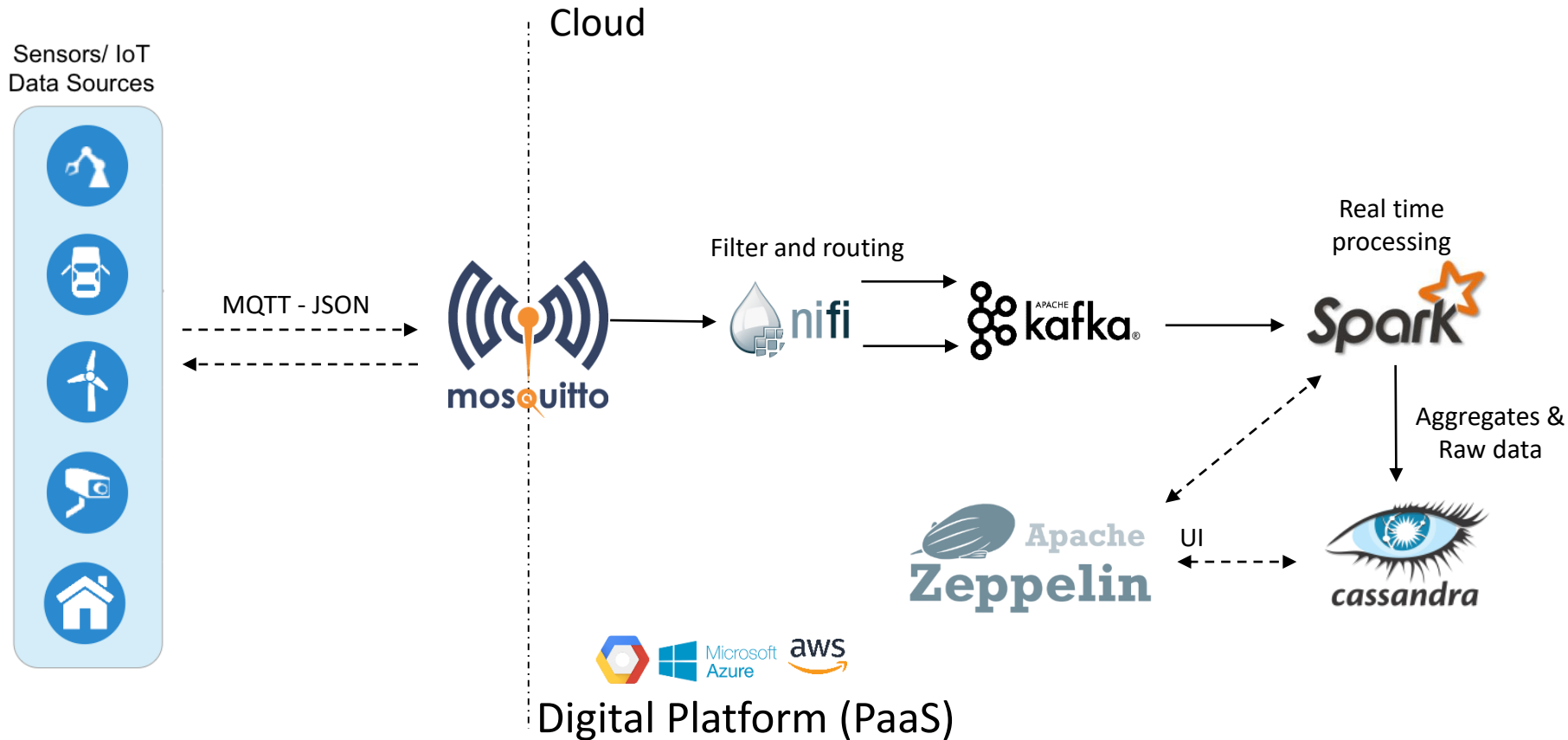
Zeppelin



mosquitto



cassandra



THANK YOU



<https://github.com/Neuw84/bds2k17>



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