Real-Time Predictions on the Factory Floor

MATE GULYAS
20MIN
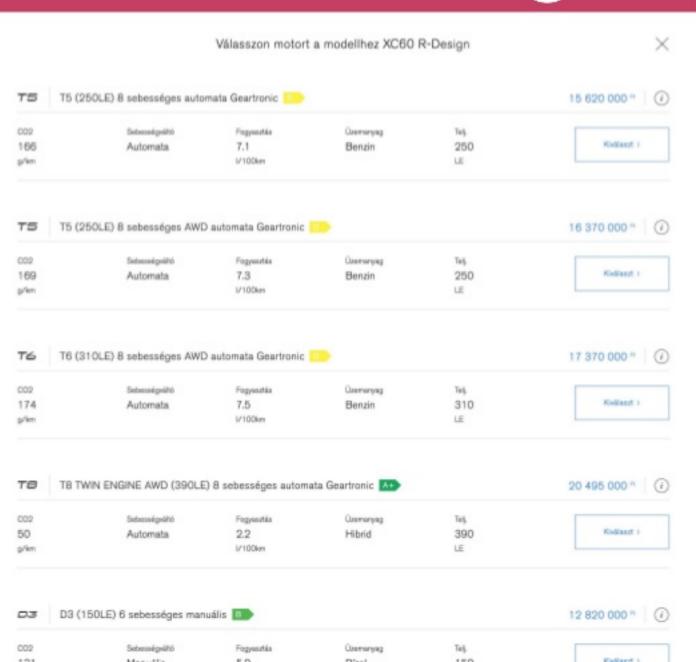
DATA PAO

Spark Summit EU

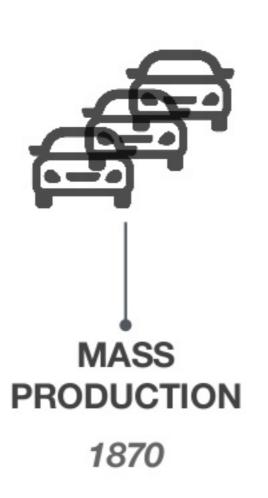# INDUSTRY 4.0
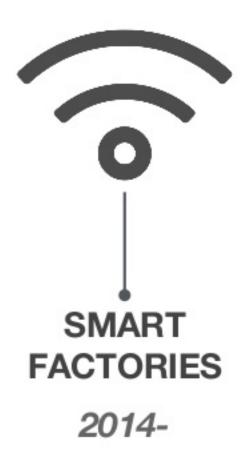
DATA
PAO

MECHANISATION

~1800

MASS PRODUCTION

1870

AUTOMATION

1969

SMART FACTORIES

2014-

DATA
PAO
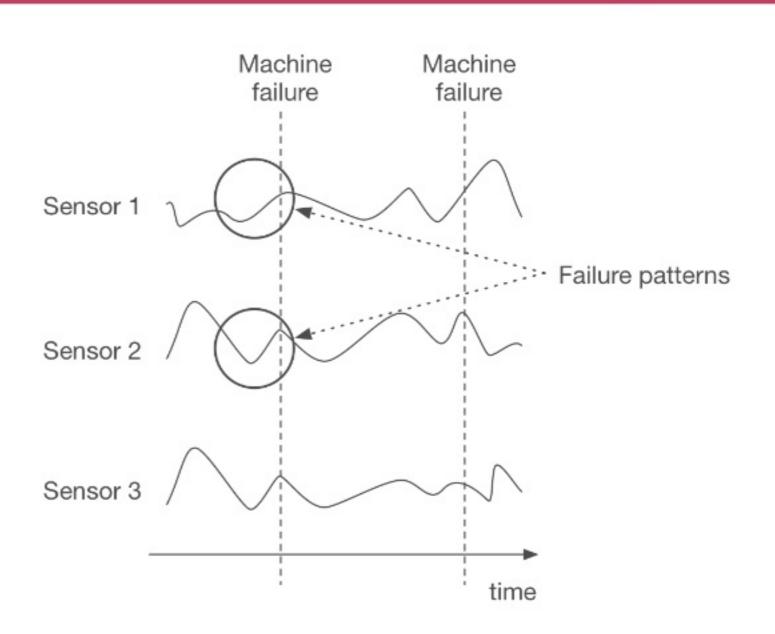
PREDICTIVE MAINTENANCE

Machine failure

Machine failure

Sensor 1

Failure patterns

Sensor 2

Sensor 3

time

CHALLENGES

DATA PAO

DATA
PAO

ACTUAL
BIG DATA

200 ms /
32 byte
* 200 sensors
* 20 measurements

DATA PAO

*200 ms / 32 byte * 200 sensors * 20 measurements*

ACTUAL BIG DATA

0.61 MB   / sec

2 GB   / hour

360 GB   / week

18.7 TB   / year

DATA
PAO

*200 ms / 32 byte * 200 sensors * 20 measurements*

18.7 TB / year

ACTUAL
BIG DATA
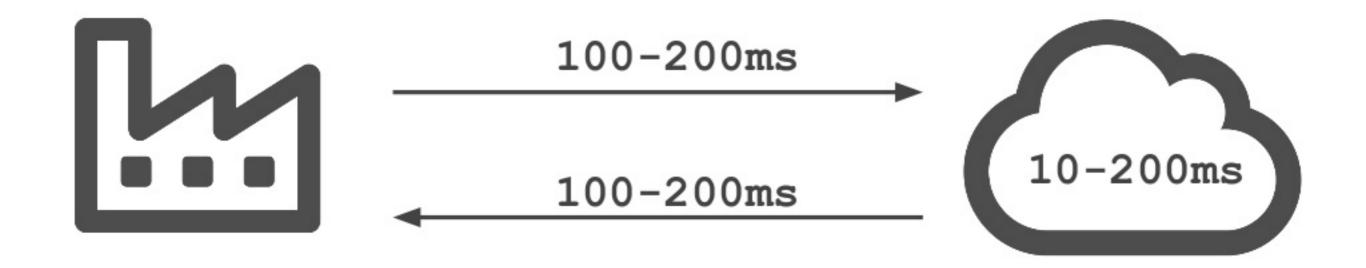
5 years retention

93.7 TB

fixed dataset size

ALSO, IT'S NOT JUST THE SIZE...

LATENCY

DATA PAO

100-200ms →

← 100-200ms

10-200ms

TOTAL
200-600ms

TECHNOLOGIES

EVERY TECHNOLOGY EXISTS *ALREADY!*

EVERY TECHNOLOGY EXISTS ALREADY!

DATA
PAO

100-200ms

10-200ms

100-200ms
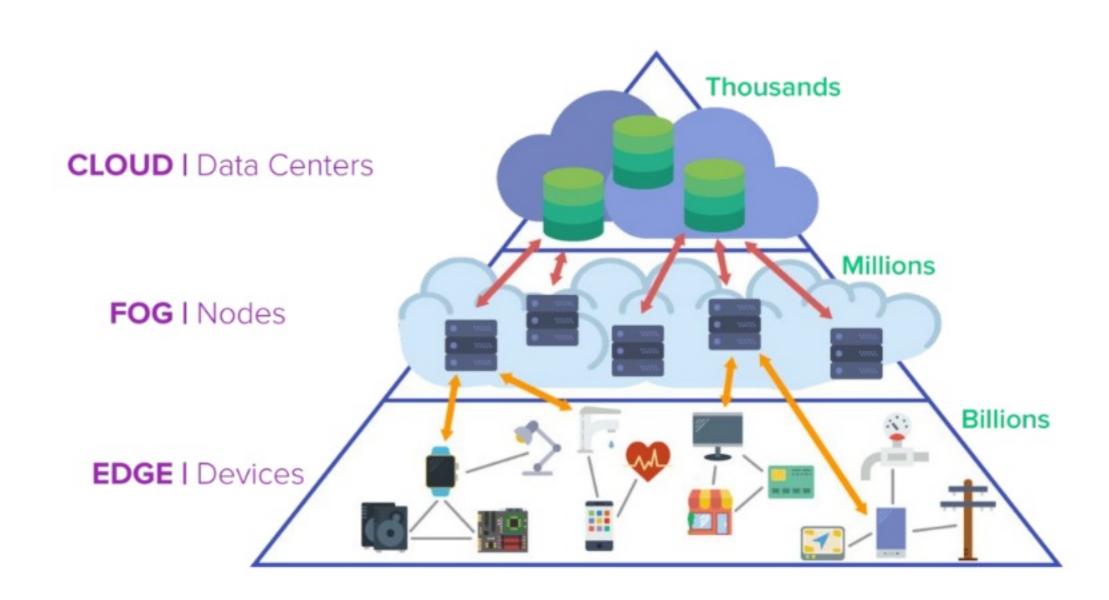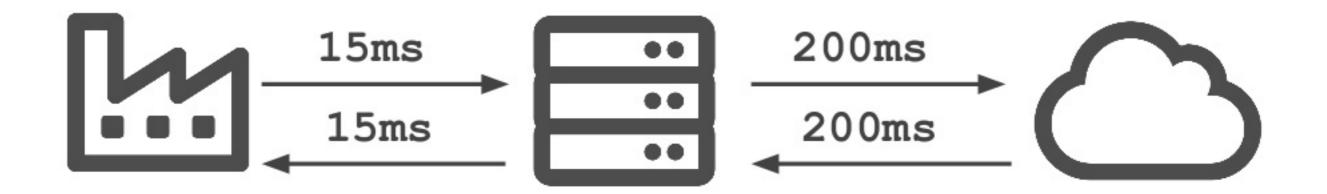
TOTAL
200-600ms

LATENCY

DATA PAO

15ms →

← 15ms

200ms →

← 200ms
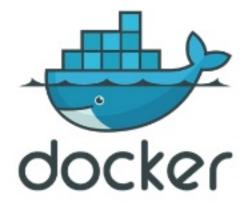
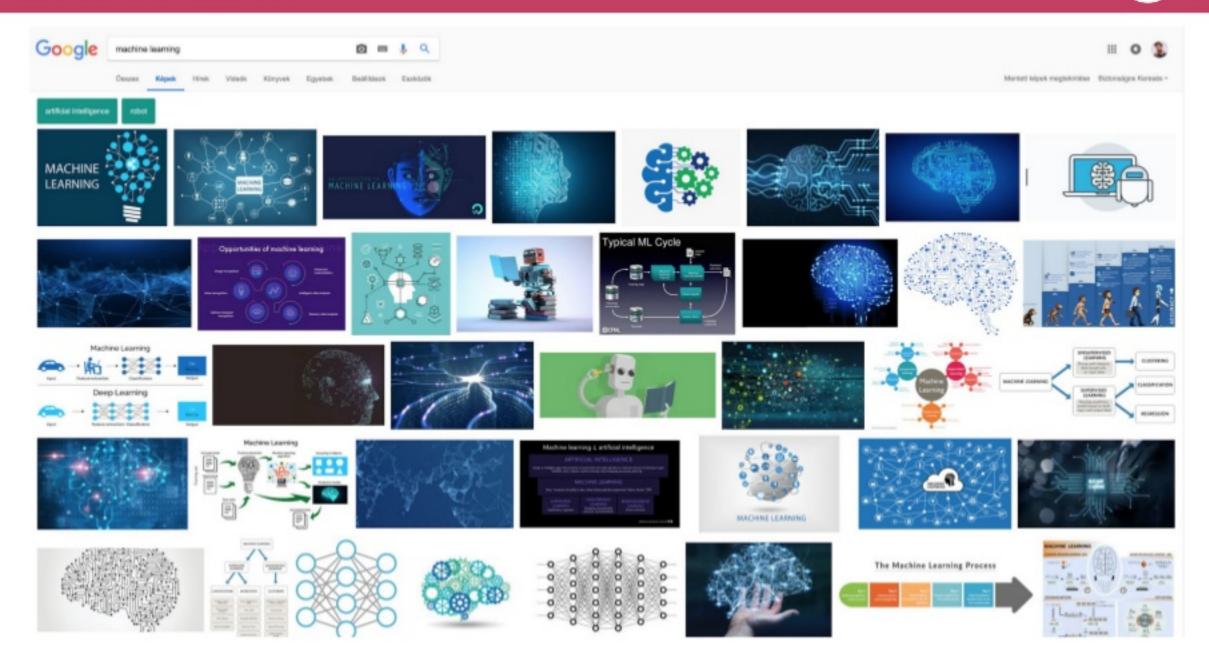**TOTAL**
(to response)
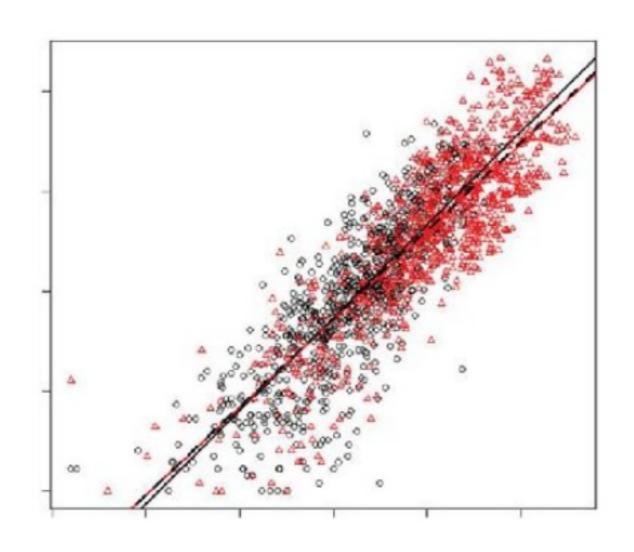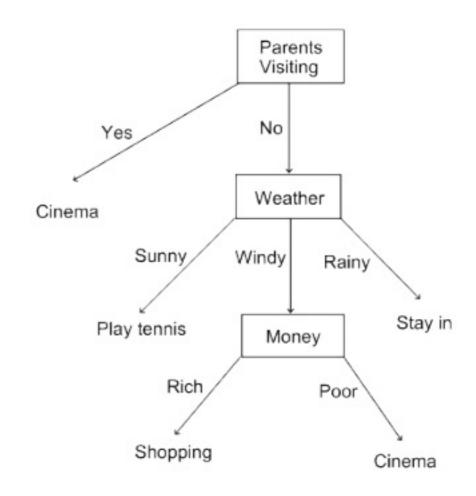
50 ms

BEST PRACTICES

CURRENT TECHNOLOGICAL CHALLENGES

DATA PAO

MACHINE LEARNING LIFECYCLE

COLLECTING GOOD DATA

STATEFUL STRUCTURED STREAMING

EXPLAINABLE MODELS

DISCOVER TOGETHER

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THANK YOU!

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