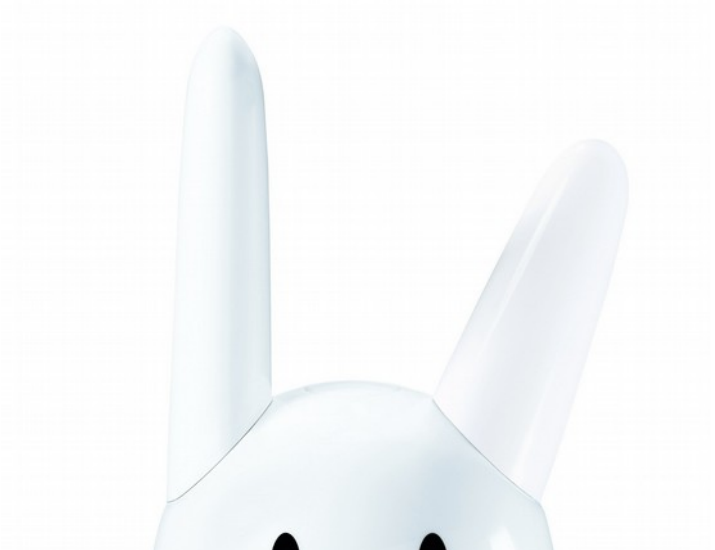
Big Data & IoT

afnic

#JSCA14



Mathias Herberts – Cofounder and CTO

@herberts

Smart Sensing

D-Shirt ™

~~New~~ challenges for Big Data

exciting

How Big is Big Data?

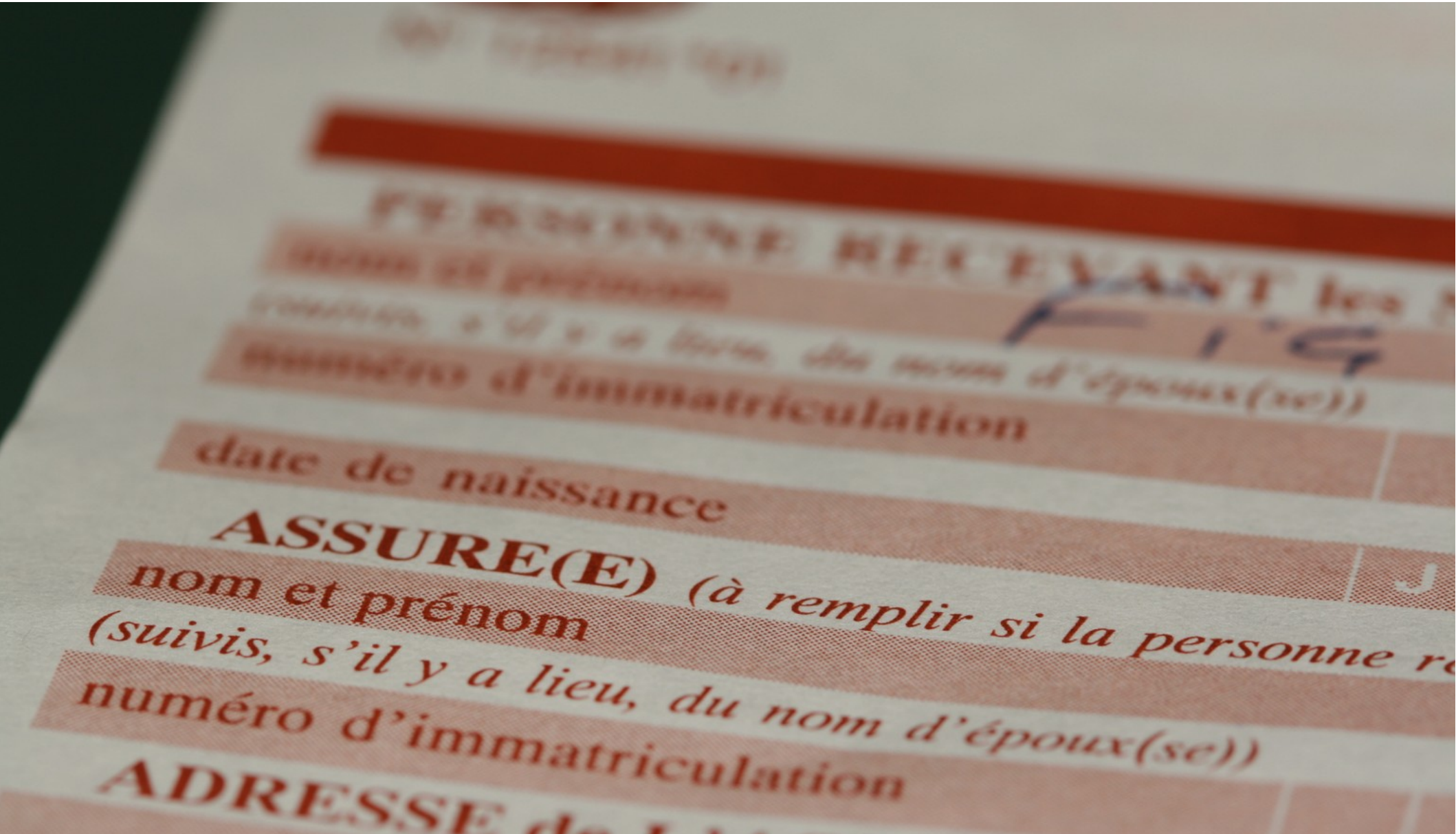
~200 monthly transactions per customer

325M travelers in 20 years

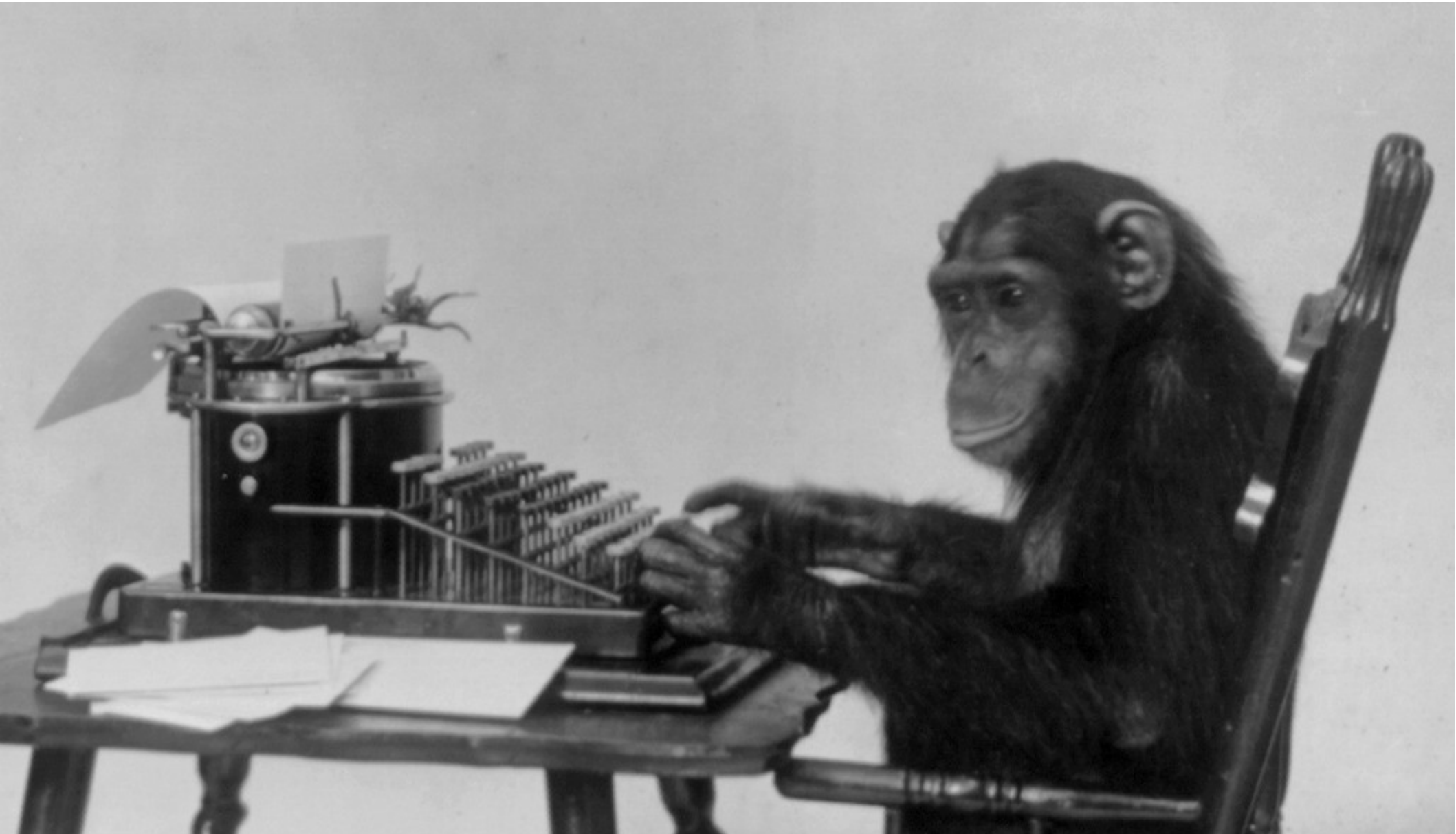
1.2B passengers transported every year

1.5B passengers transported every year

1.2 B forms processed per year by CNAM TS



Living creatures produce slow and few data



Machines are different...

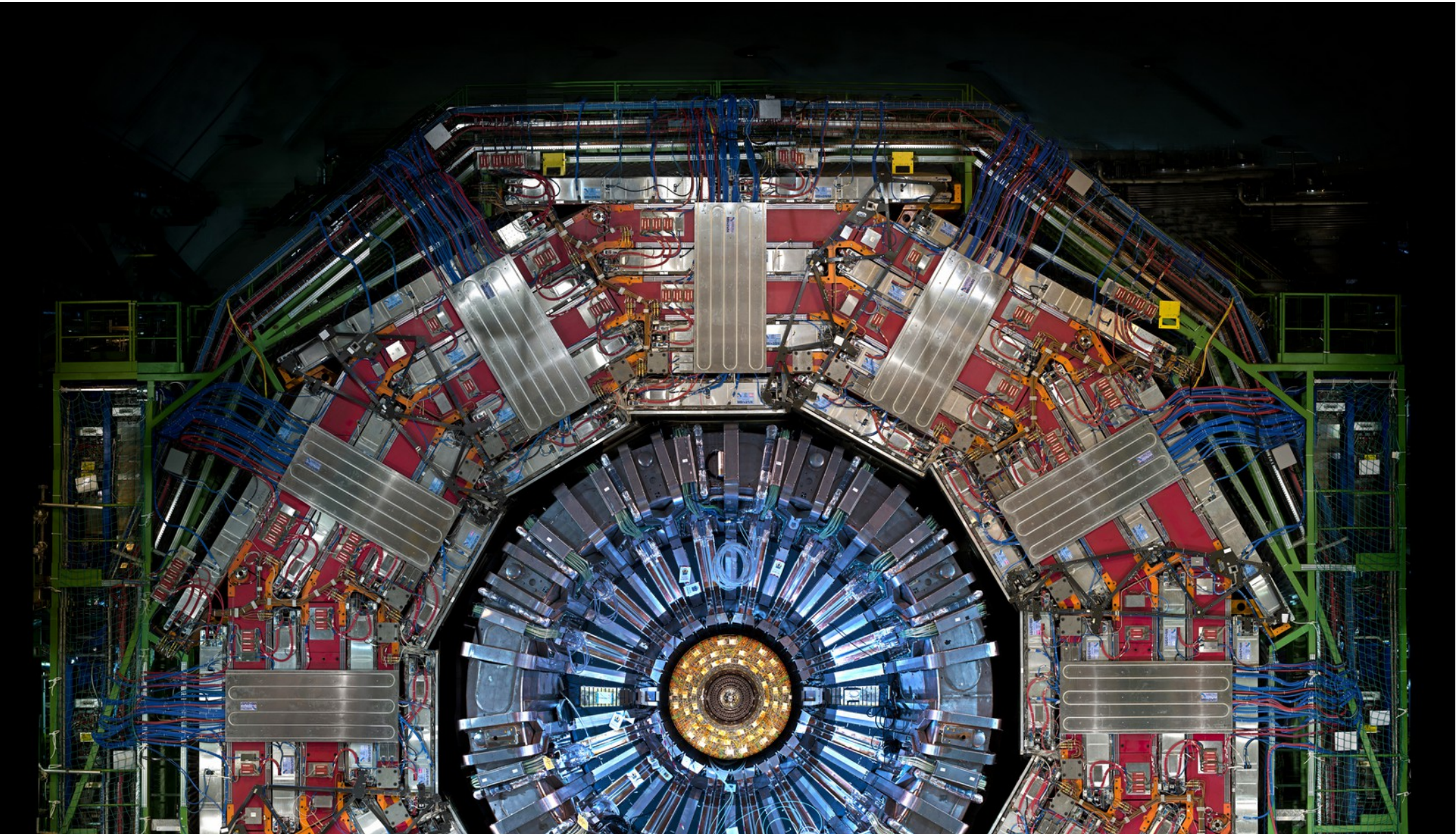
Really Massive Datasets

200 000 datapoints per hour

10 000+ datapoints per second

600 000 parameters

600M collisions per second



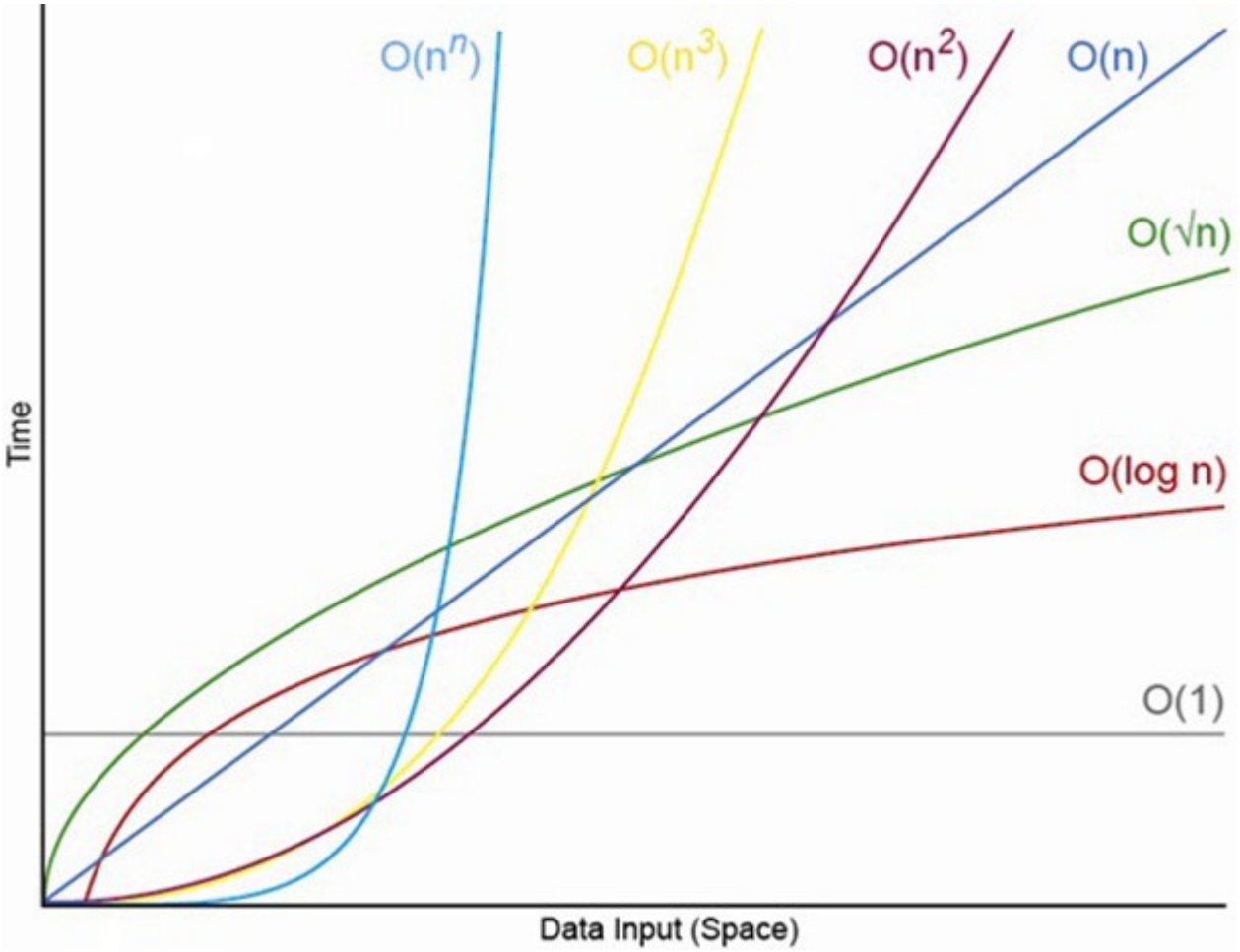
(Byte) Size does not matter

XML vs binary

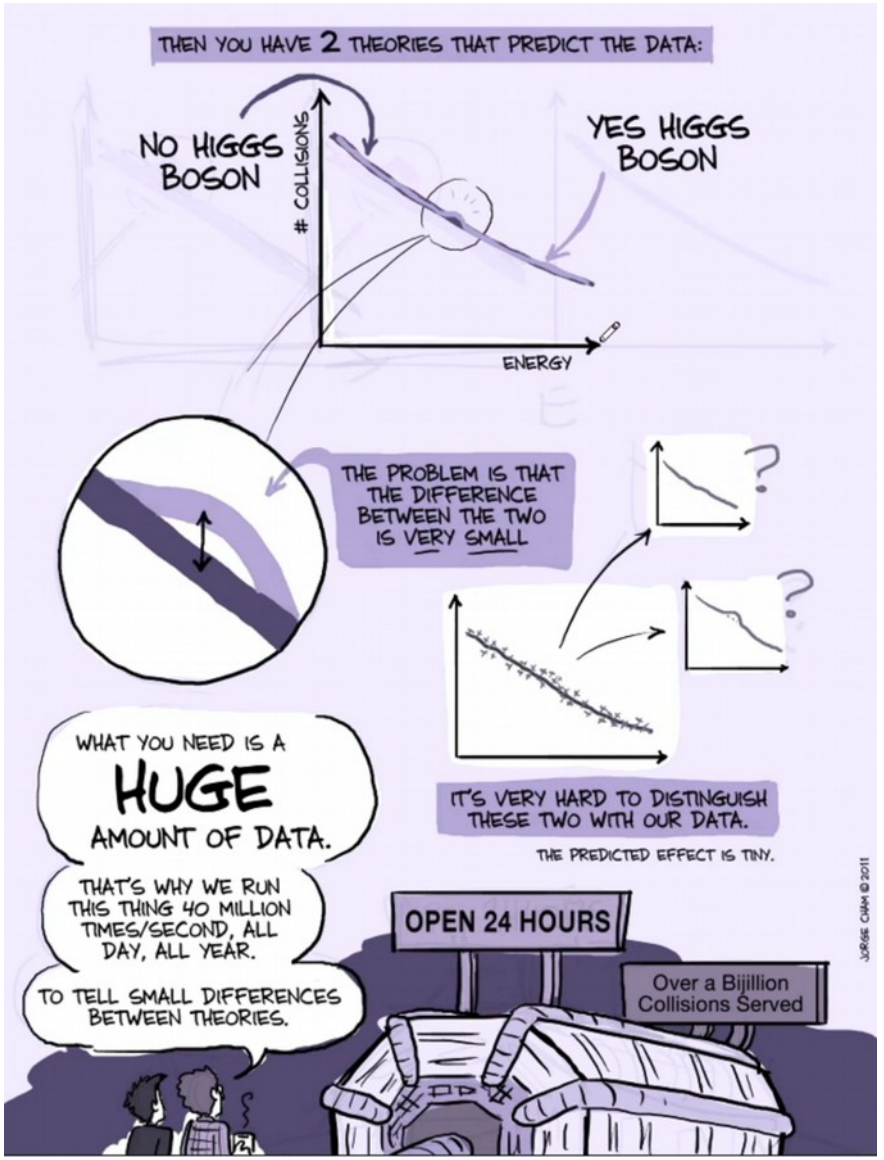
```
<byte>
  <bit id="7">0</bit>
  <bit id="6">0</bit>
  <bit id="5">1</bit>
  <bit id="4">0</bit>
  <bit id="3">1</bit>
  <bit id="2">0</bit>
  <bit id="1">1</bit>
  <bit id="0">0</bit>
</byte>
```

*

Number of records is important



P(value | more records) > P(value | records)

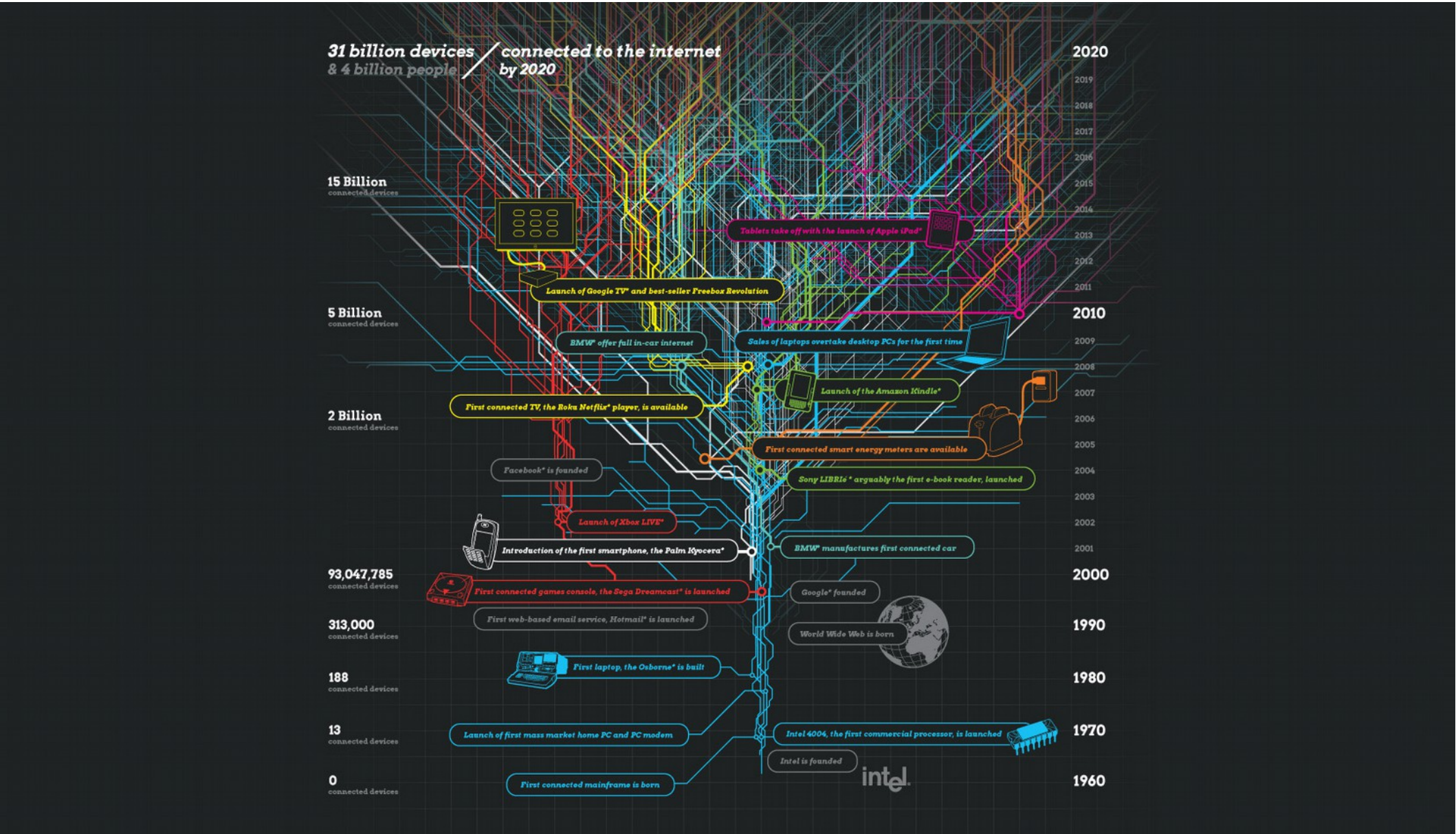


M2M is evolving

Not simply an industrial problem anymore

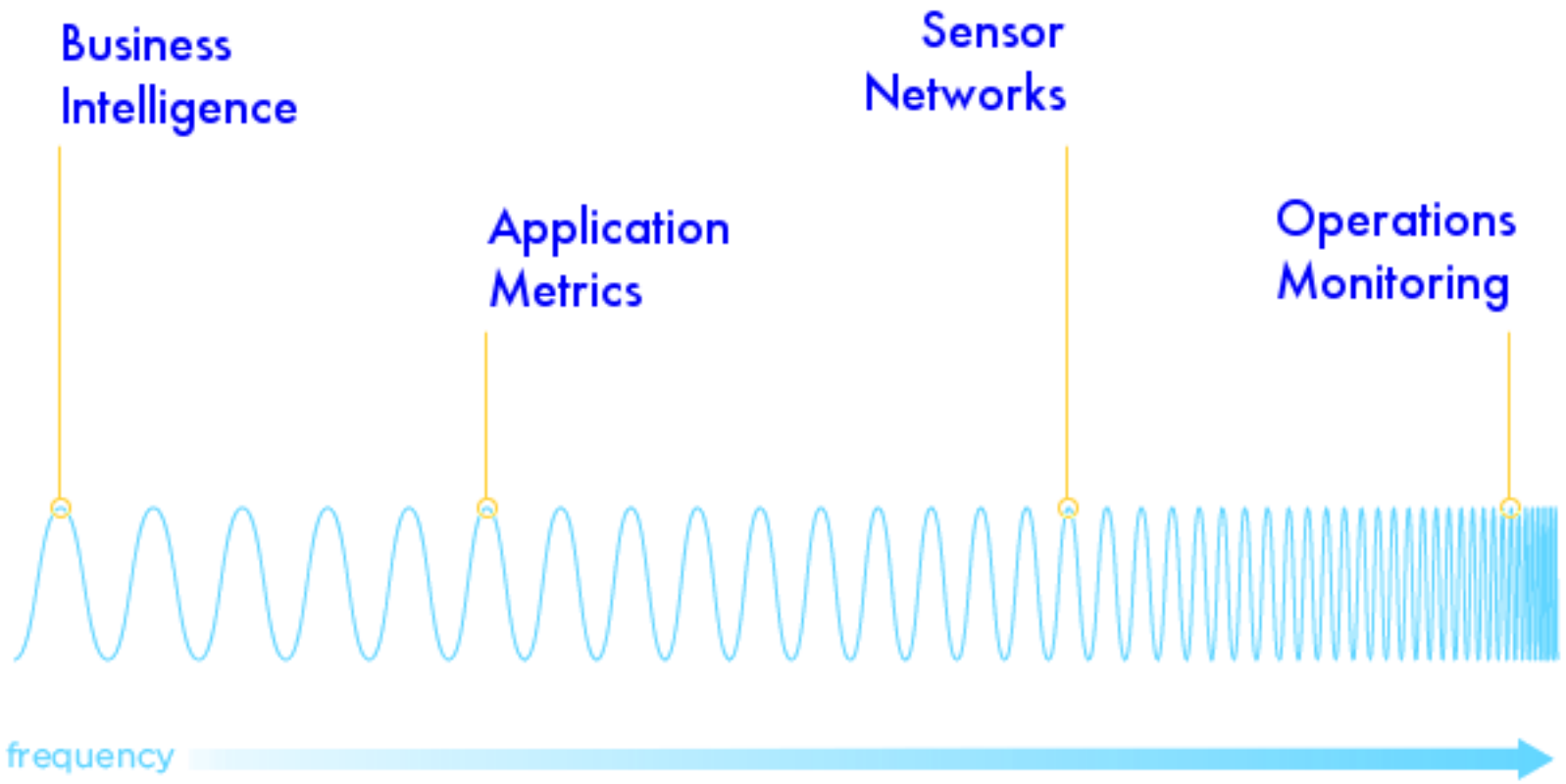
Consumer grade data producers taking over

Number of devices growing at a fast pace



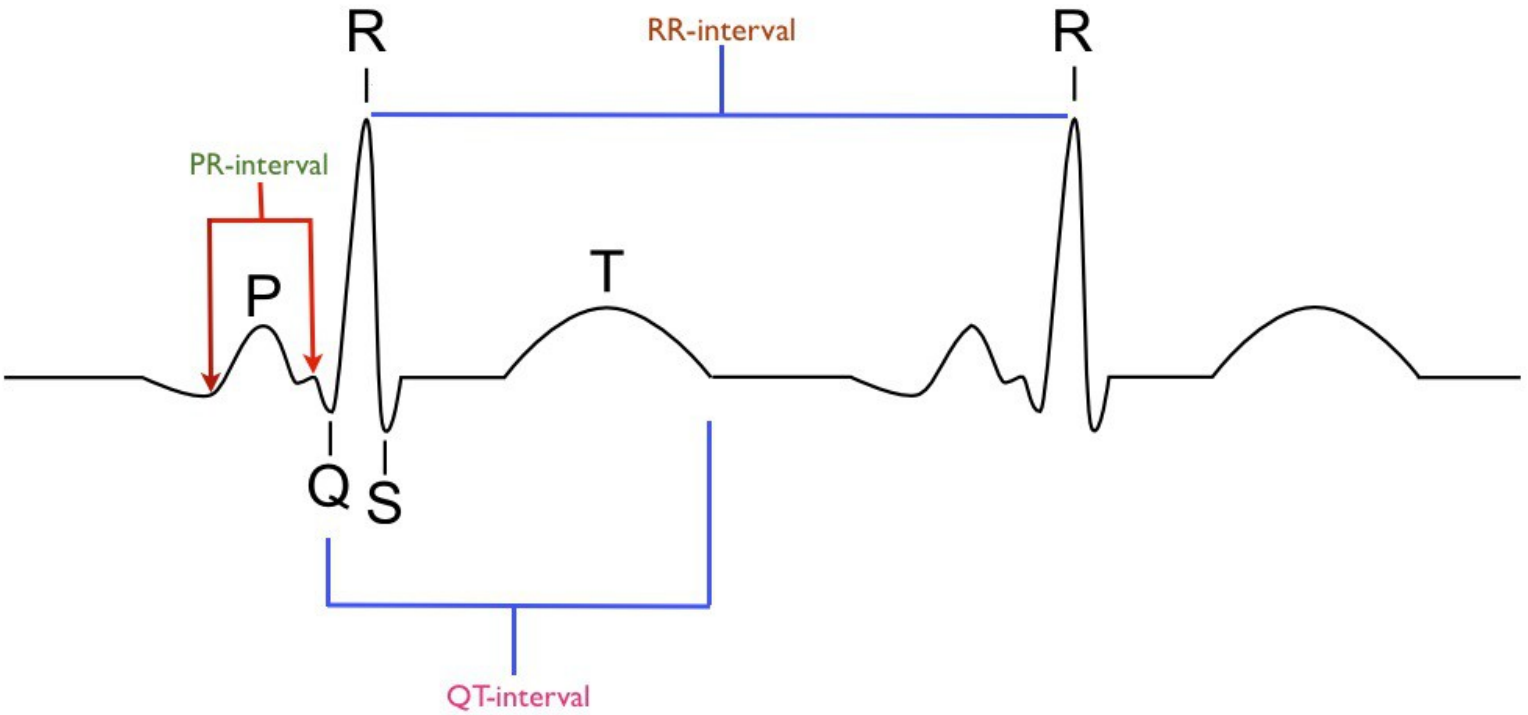
Shift in data rates

More data more quickly

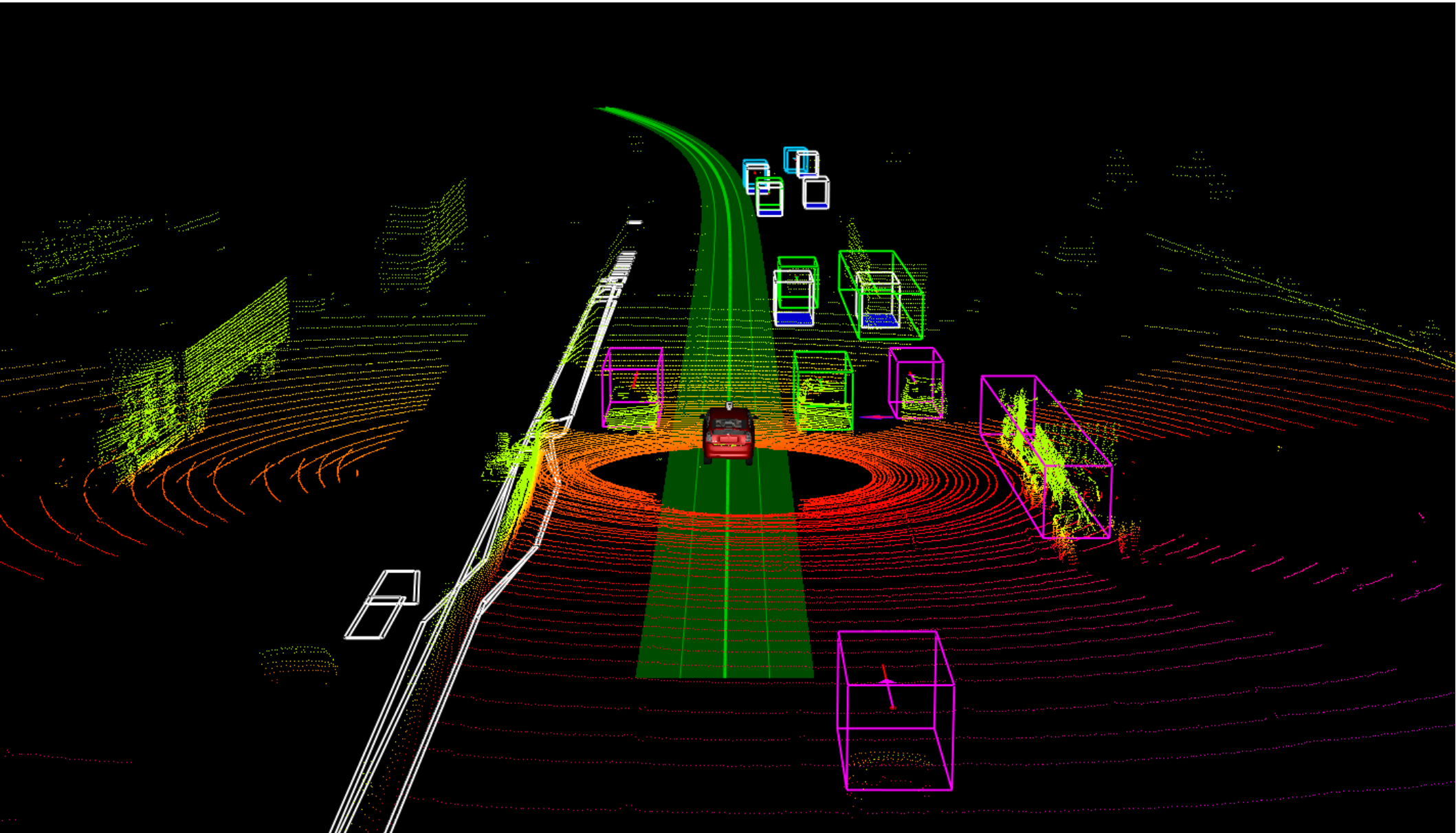


Intelligence at the edge

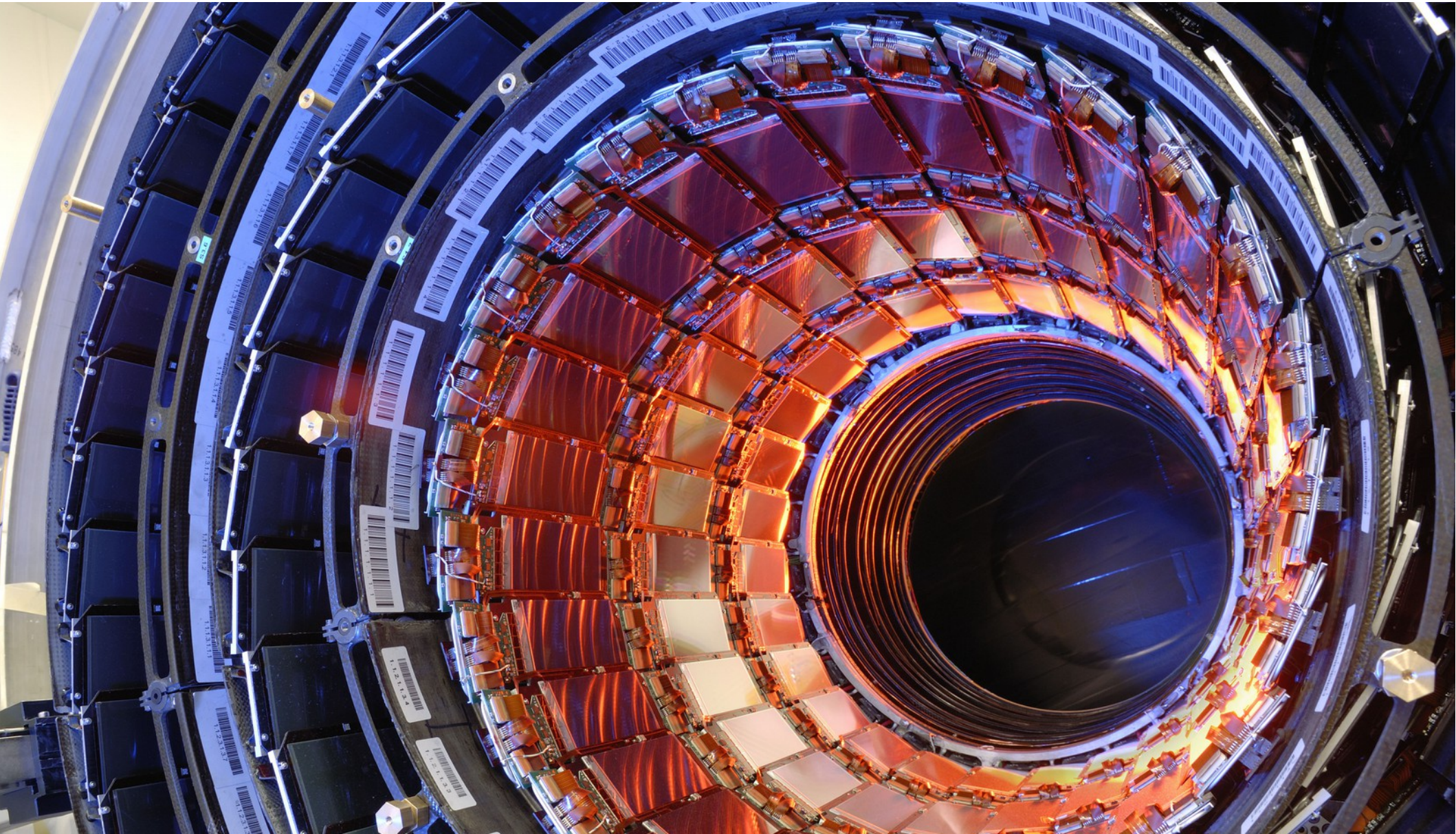
Extract features at the sensor level



Or close to the sensor



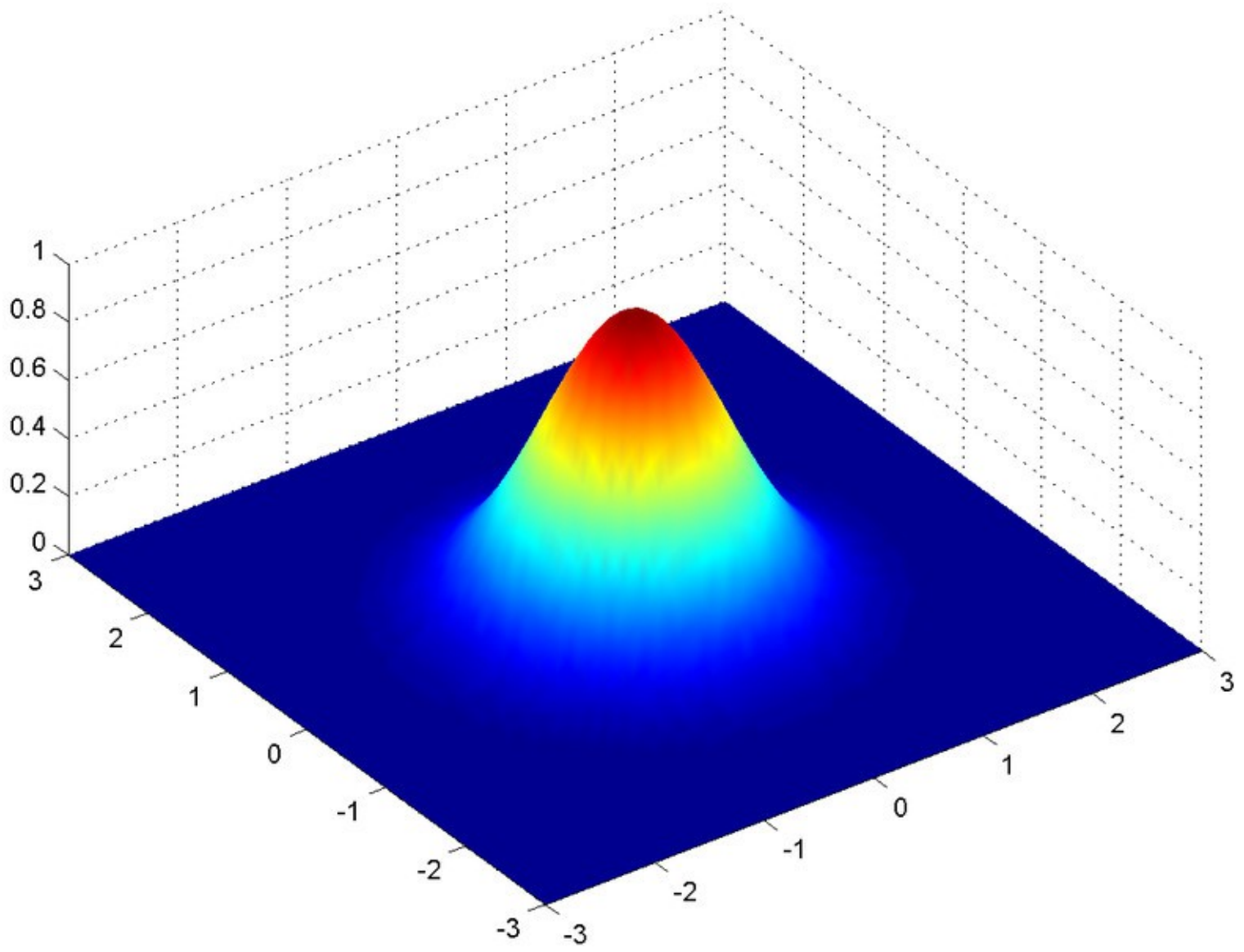
Preselect events (triggering)



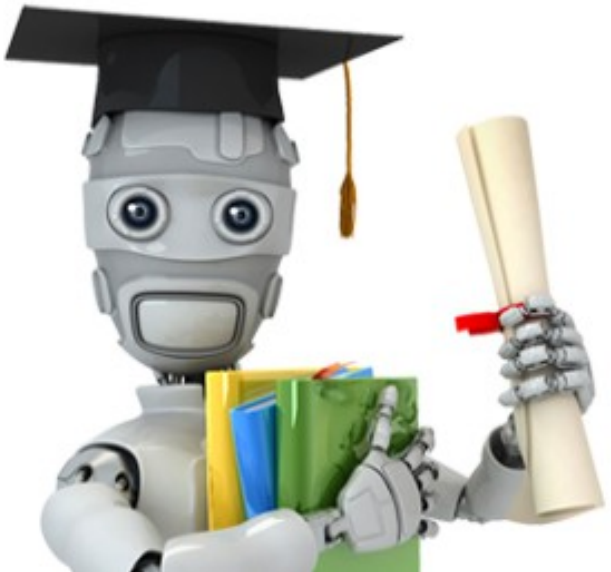
Shift in types of analysis

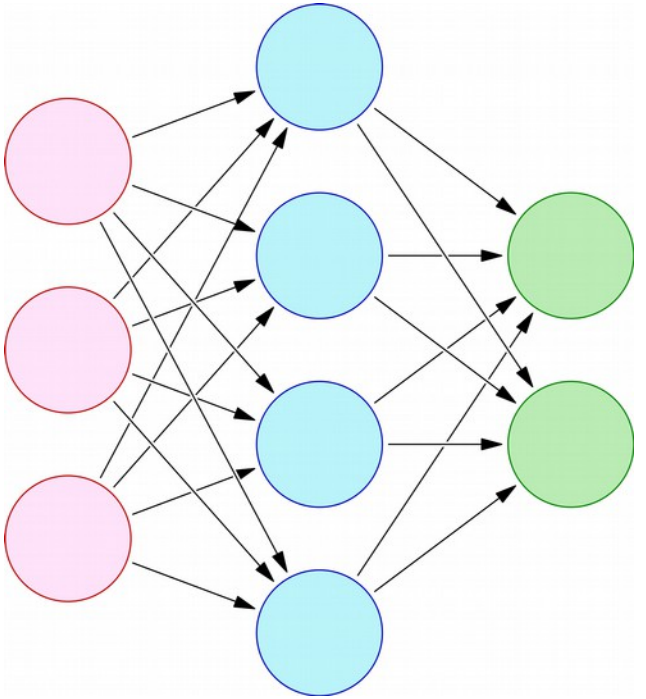
Basic statistics create little value

Advanced statistics create more

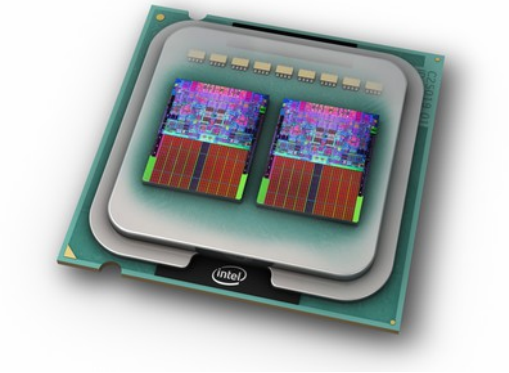


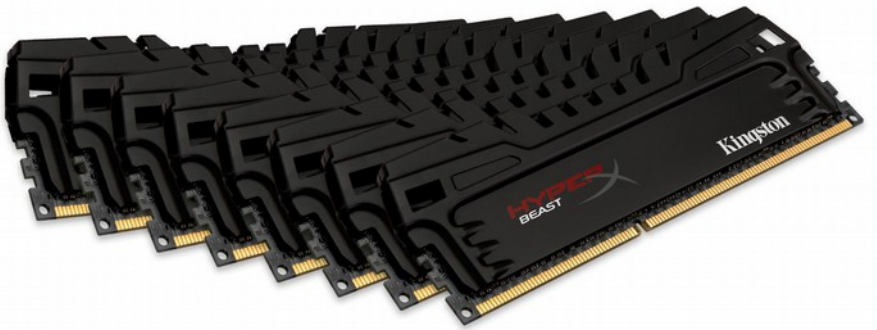
Machine Learning may create even more

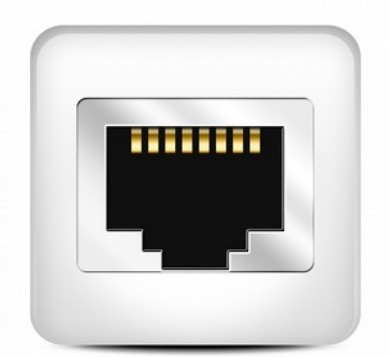




Algorithms are resource hungry







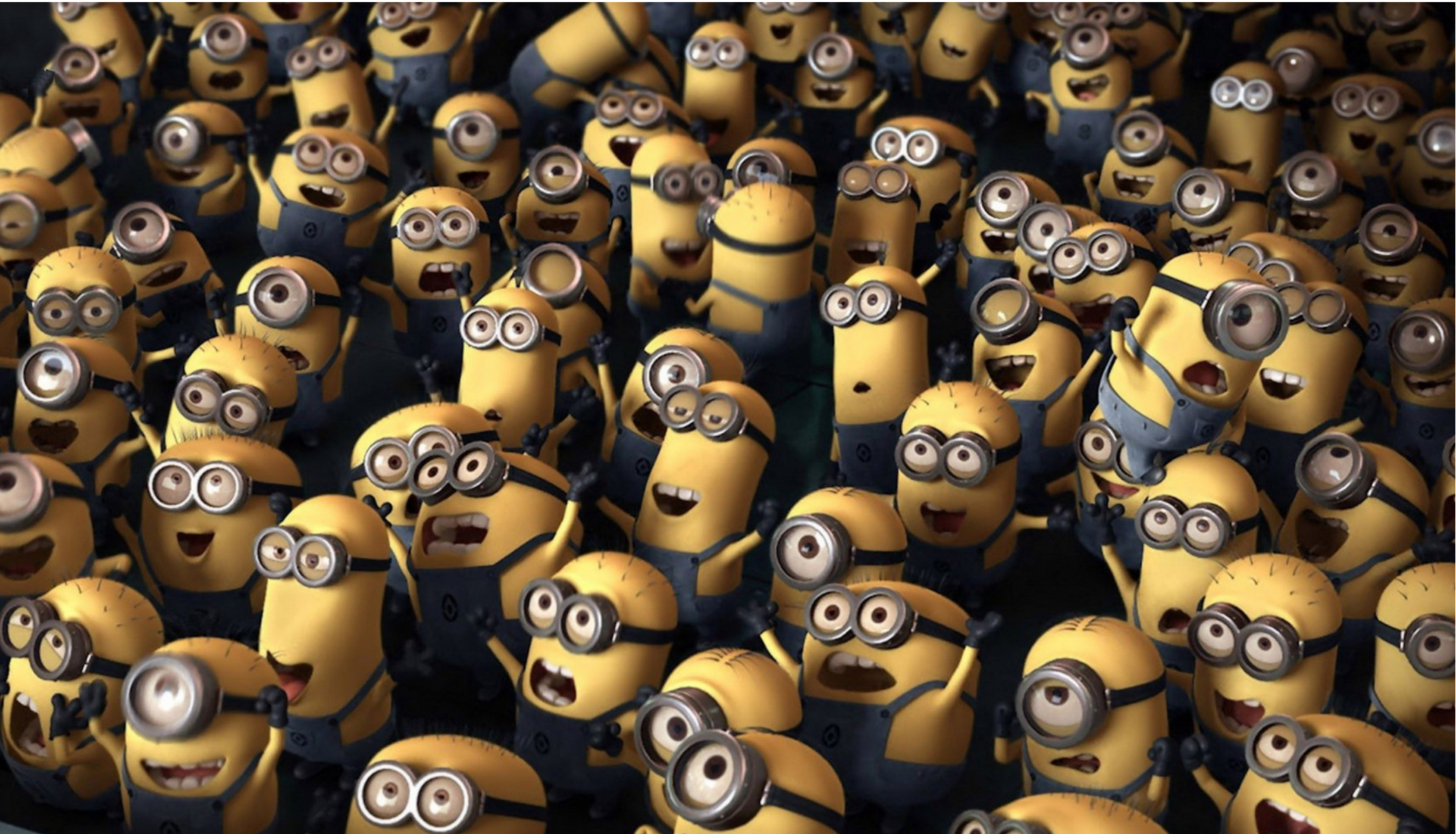
Ad hoc queries over canned reports

Beyond batches, streams

Shift in type of audience

Not aimed at a handful of business analysts

But to many end users



The Need for Speed

Instant gratification of new audience

IoT Data used in rapid decision processes

Security for our Safety

Some breaches are funny

The IoT bridges the real and digital worlds

The IoT bridges those worlds literally

Privacy and Control

Those Things know a lot about us

Need to control how our data are used

(Connected objects are not free, so there's no reason we should be the product!)

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