

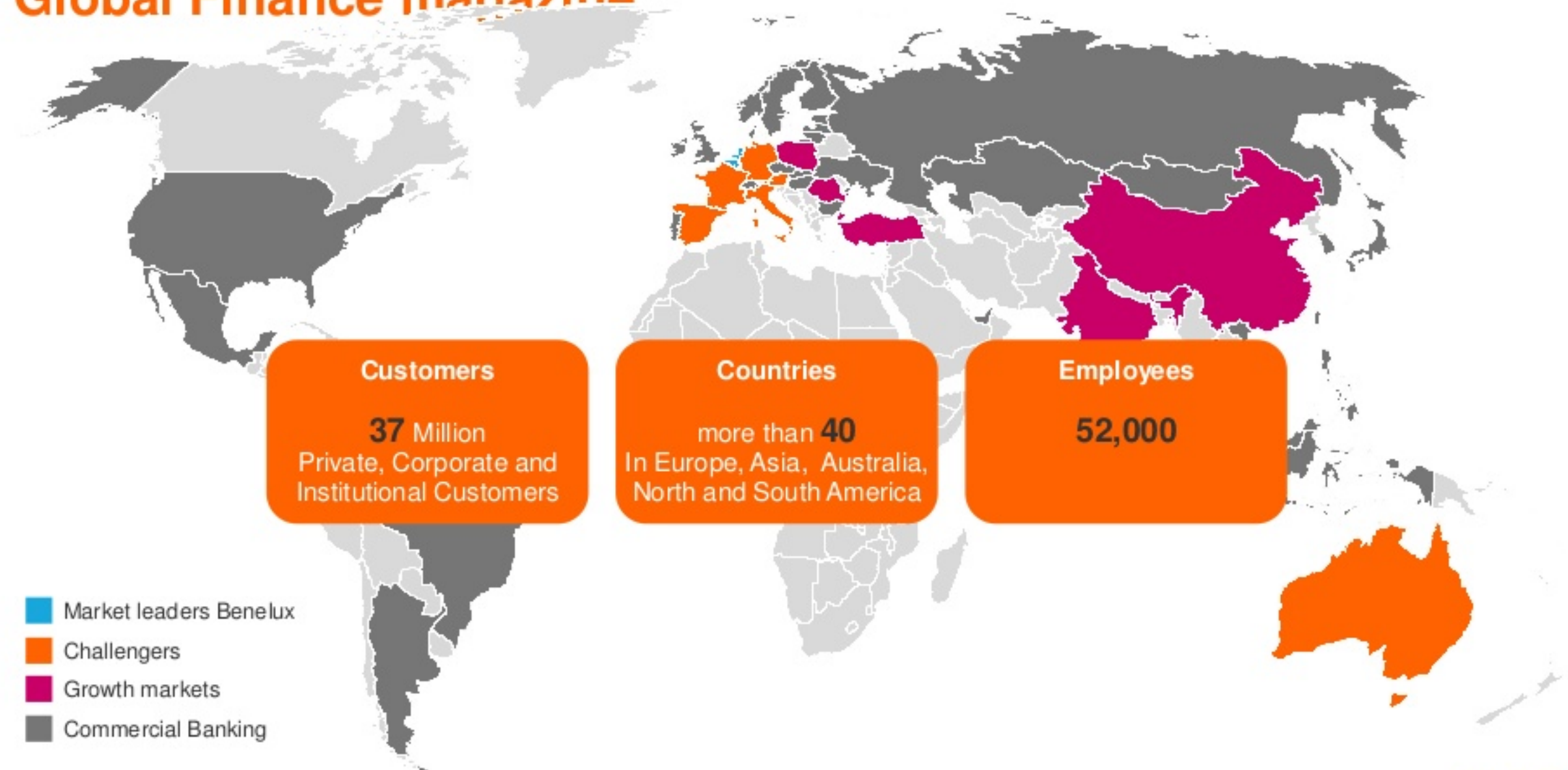
Taking away customer friction through streaming analytics

How ING uses data in real time with Apache Flink to enable it's data driven journey

FlinkForward Berlin
Ferd Scheepers. Chief Information Architect ING.

Sept. 2017

The world of ING- The best global bank in the world according to Global Finance magazine



Purpose



Empowering people to stay a step ahead in life and in business.

Customer Promise



Clear and Easy



Anytime, Anywhere



Empower



Keep Getting Better

Strategic Priorities



Creating a differentiating customer experience

1. Earn the primary relationship
2. Develop analytics skills to understand our customers better
3. Increase the pace of innovation to serve changing customer needs
4. Think beyond traditional banking to develop new services and business models

Enablers



Simplify &
Streamline

Operational
Excellence

Performance
Culture

Lending
Capabilities

Trends in the banking landscape continue to evolve, our strategy is there to adapt and come out on top



"ING is an IT company with a banking license" – Ralph Hamers

58 Datacenters world wide

ING Software Development Centre outranks Microsoft as IT employer of choice

"Software is eating the world"
Marc Andreessen

IT is the Bank!

globally scalable banking platform

#INGlovesIT

10.000 Dev/ops Engineers

ING adopts Spotify model

Develop analytics skills to understand our customers better

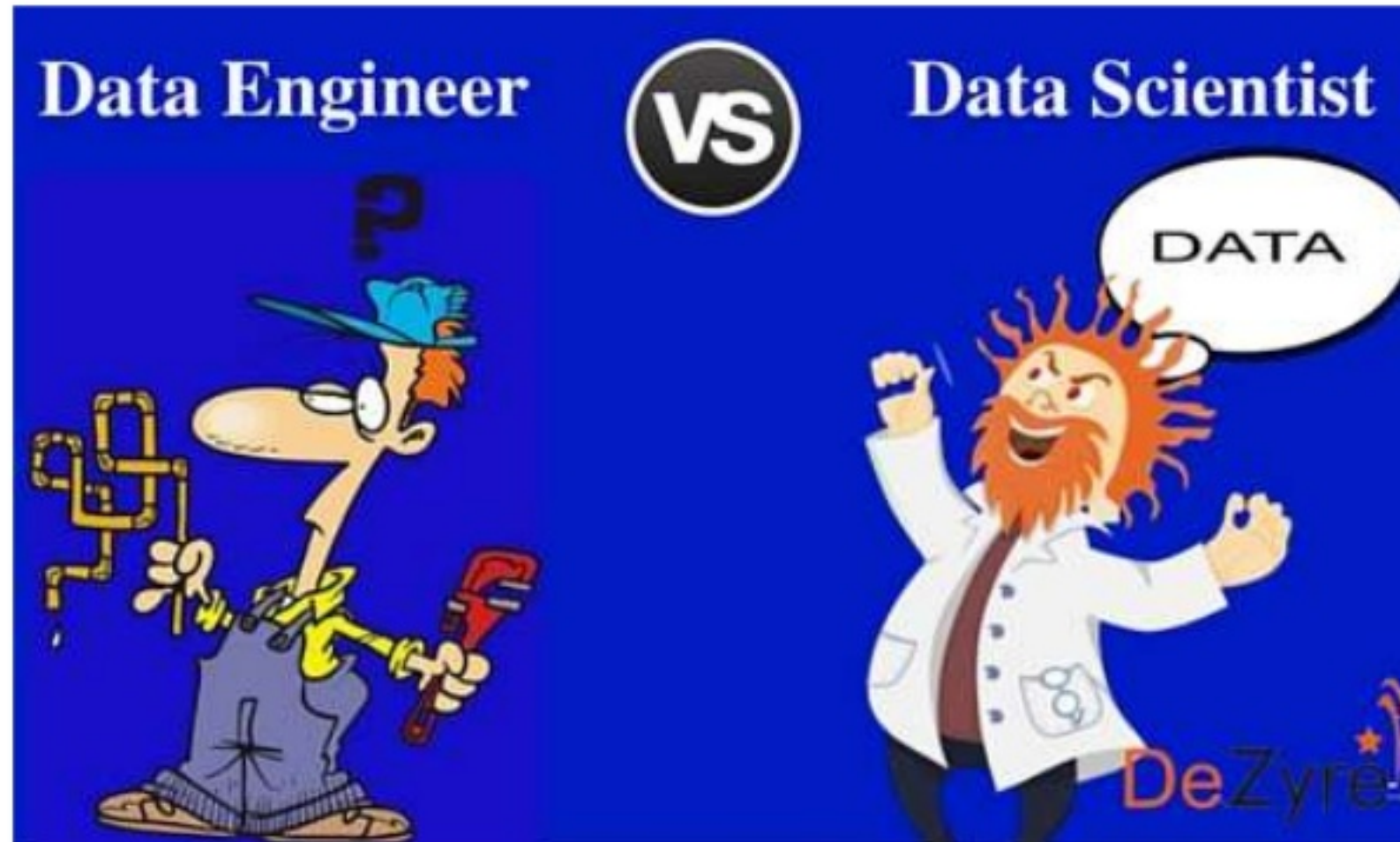
360° Agile way of working by ING

In 2017, a few companies are making huge amounts of money with data. The data world is maturing.

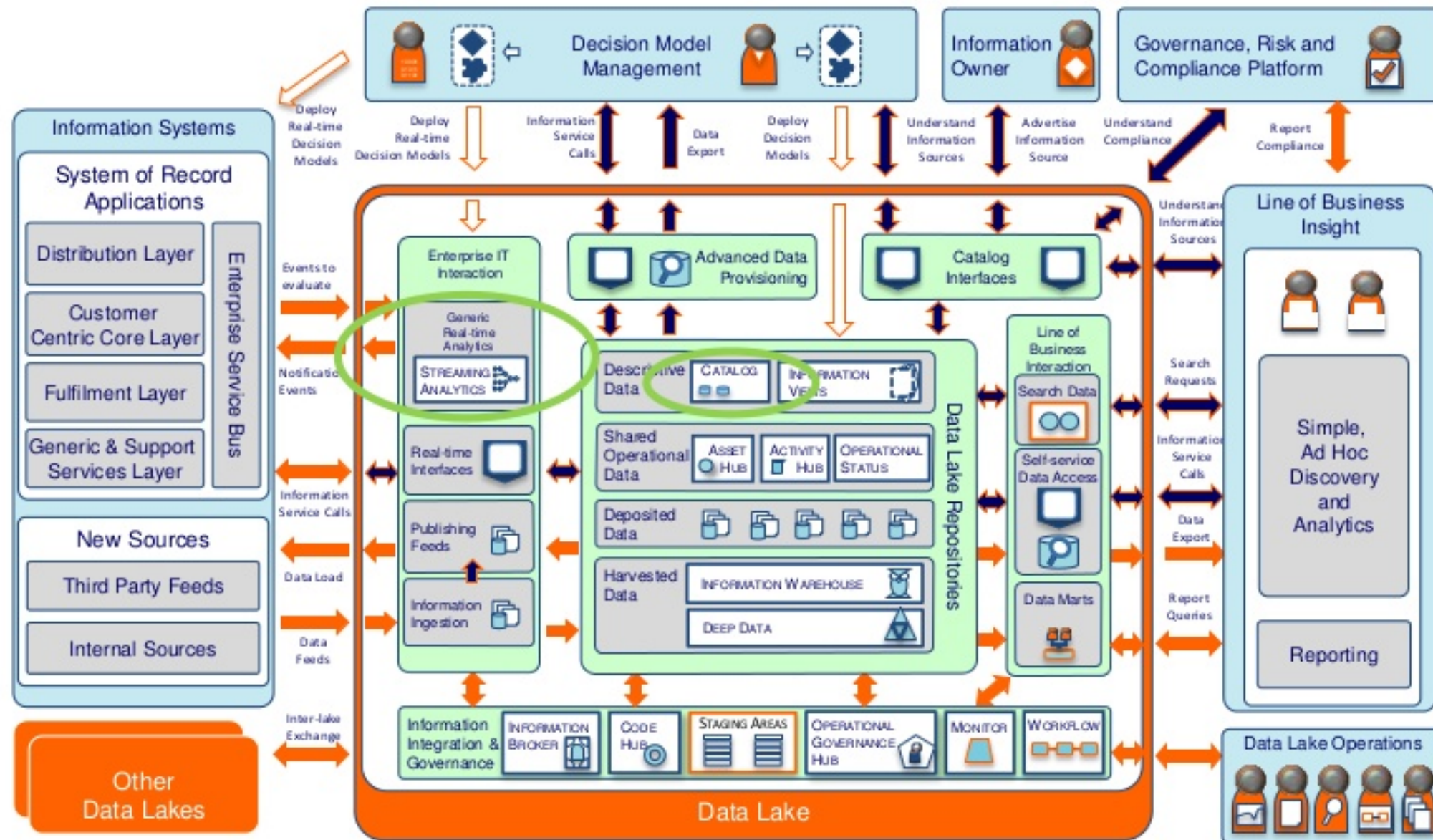
The Economist: “The world’s most valuable resource is no longer oil, it’s data”



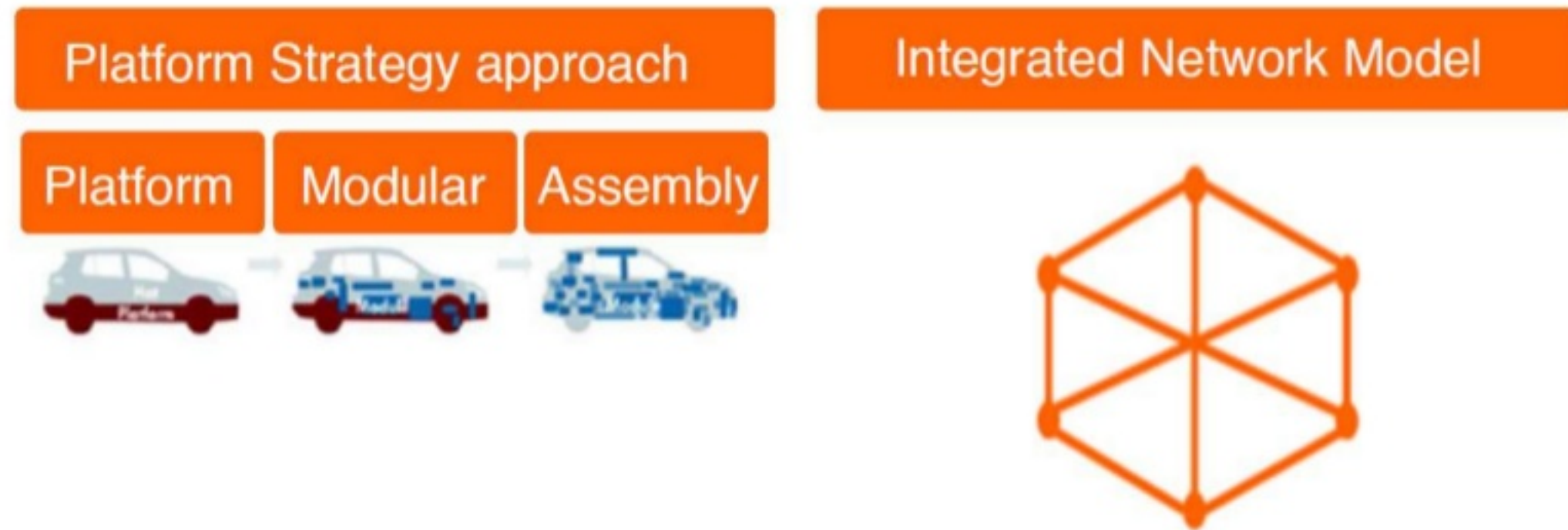
5 years ago, everybody needed data scientists, now we need data engineers, we are out of experimentation only.



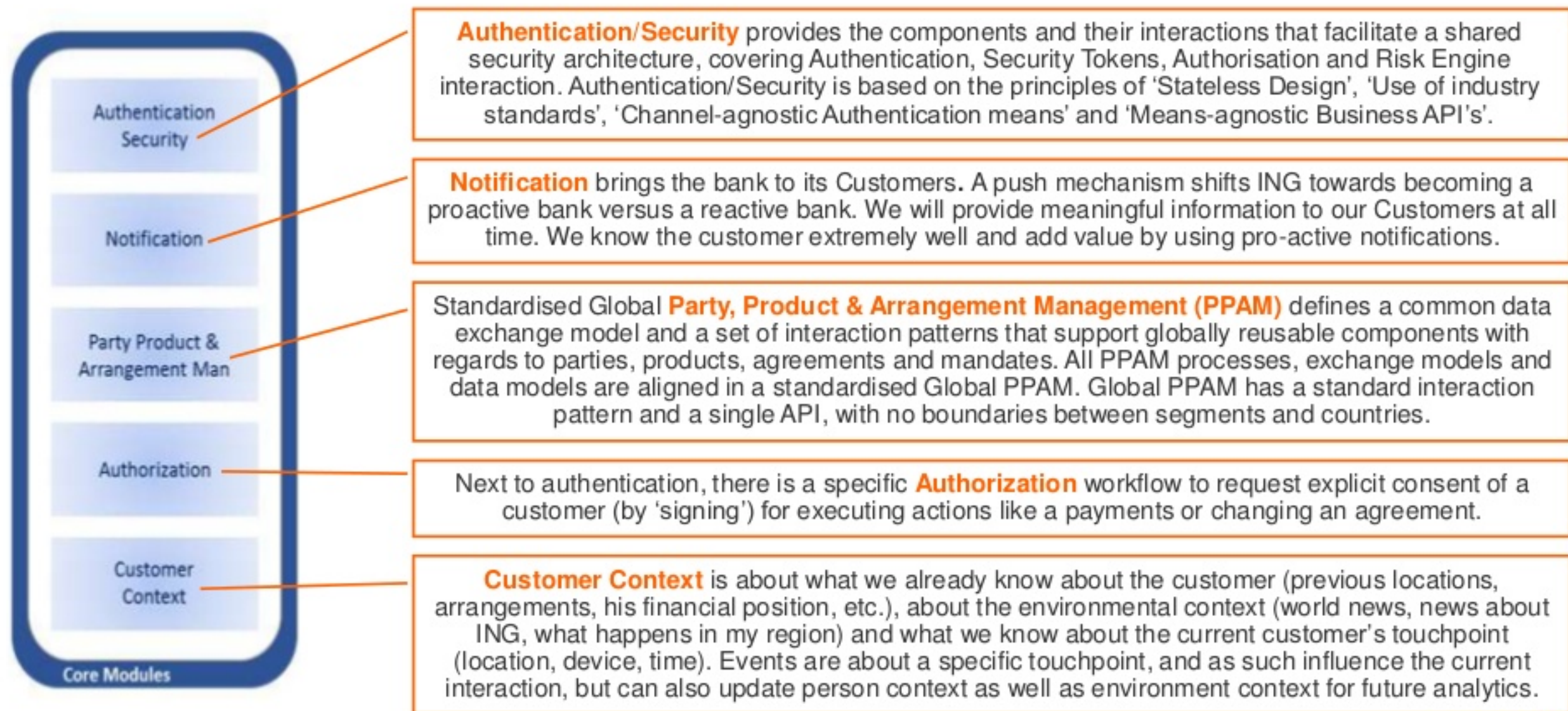
Our data driven journey started around 5 years ago, even before the CEO vision. Enter the ING Data Lake architecture.



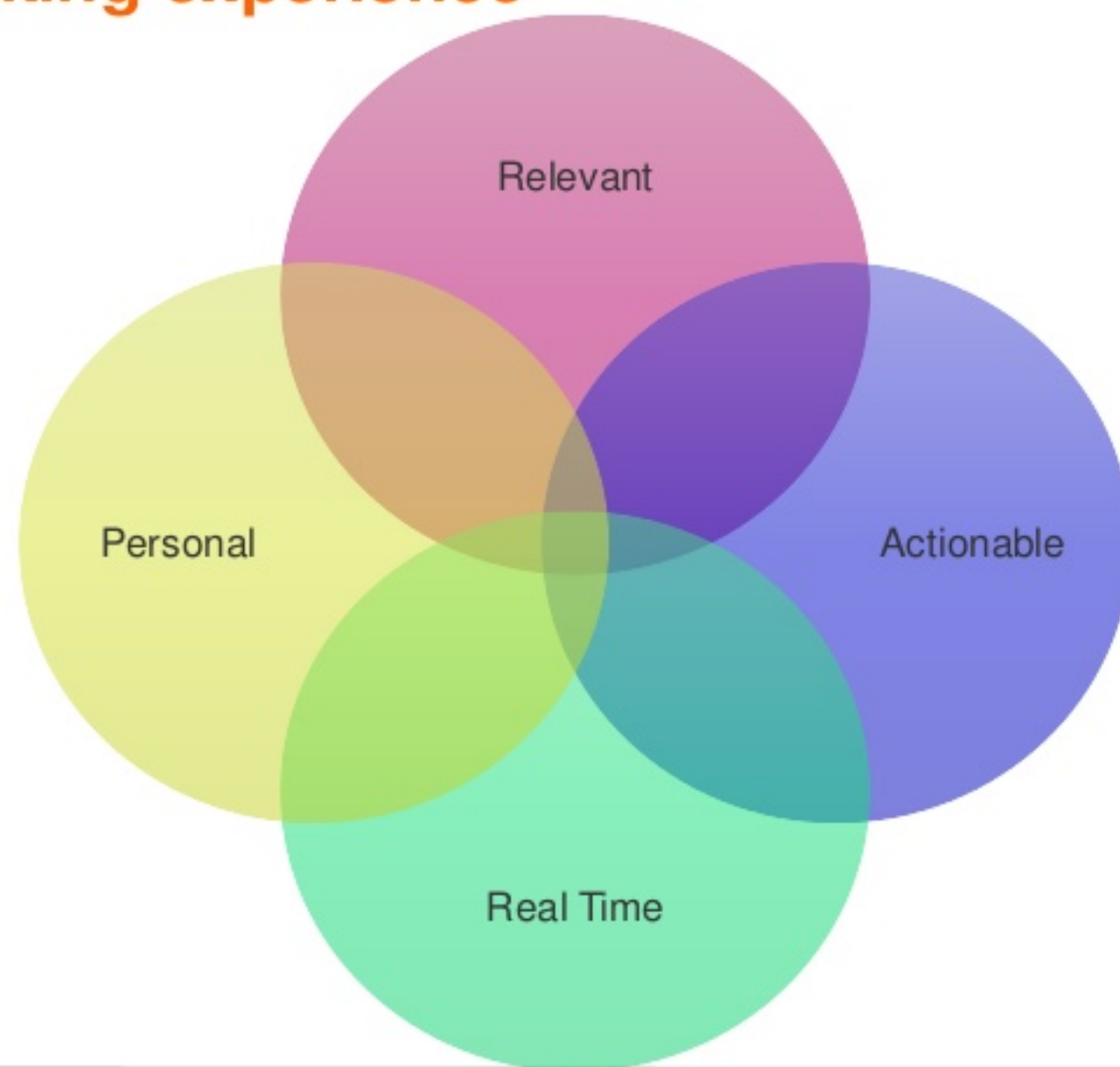
In 2015, we started to work on the Touch Point Architecture, loosely based on platform thinking in the automotive industry.



We identified the essential components of the new modular bank, focussing on the customer and customer interaction



Offering our customer actionable insights is the foundation of the new banking experience



To deliver on the promise of TPA, we combined some workstreams, and started to look at solutions already in place.

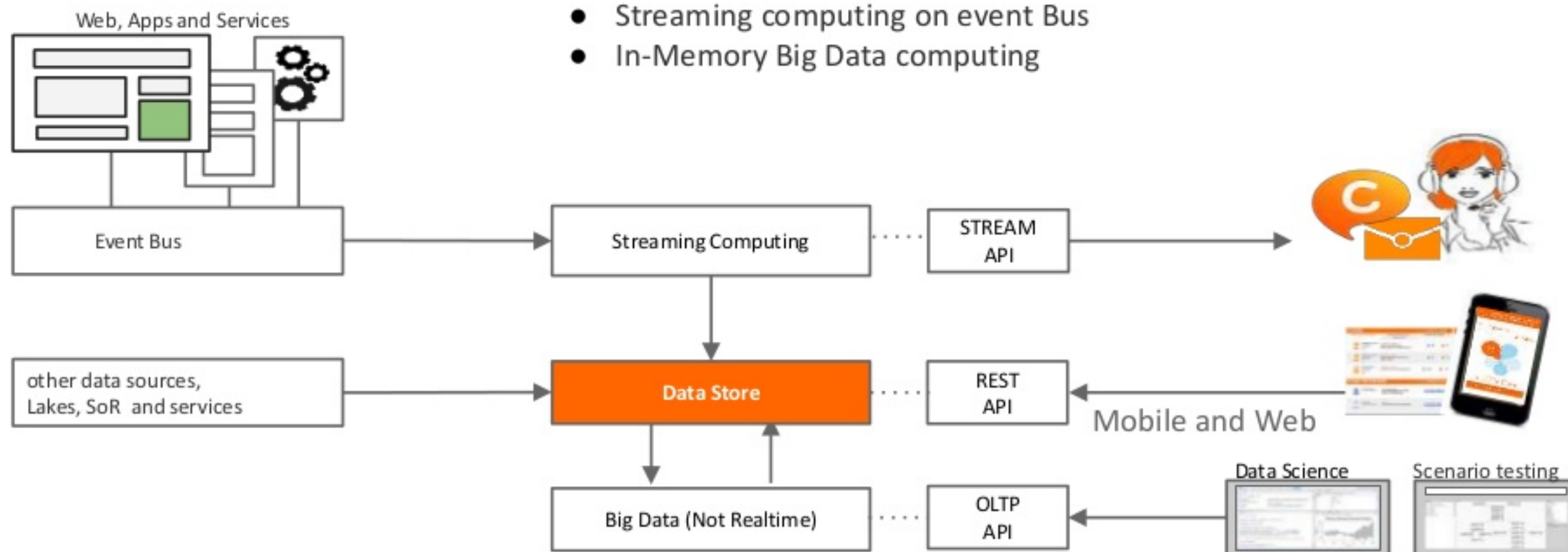


Customer Context Notification and Analytics: Differentiate in the experience with an **Instant, Personal. Frictionless** and **Relevant** dialogue with our customers.

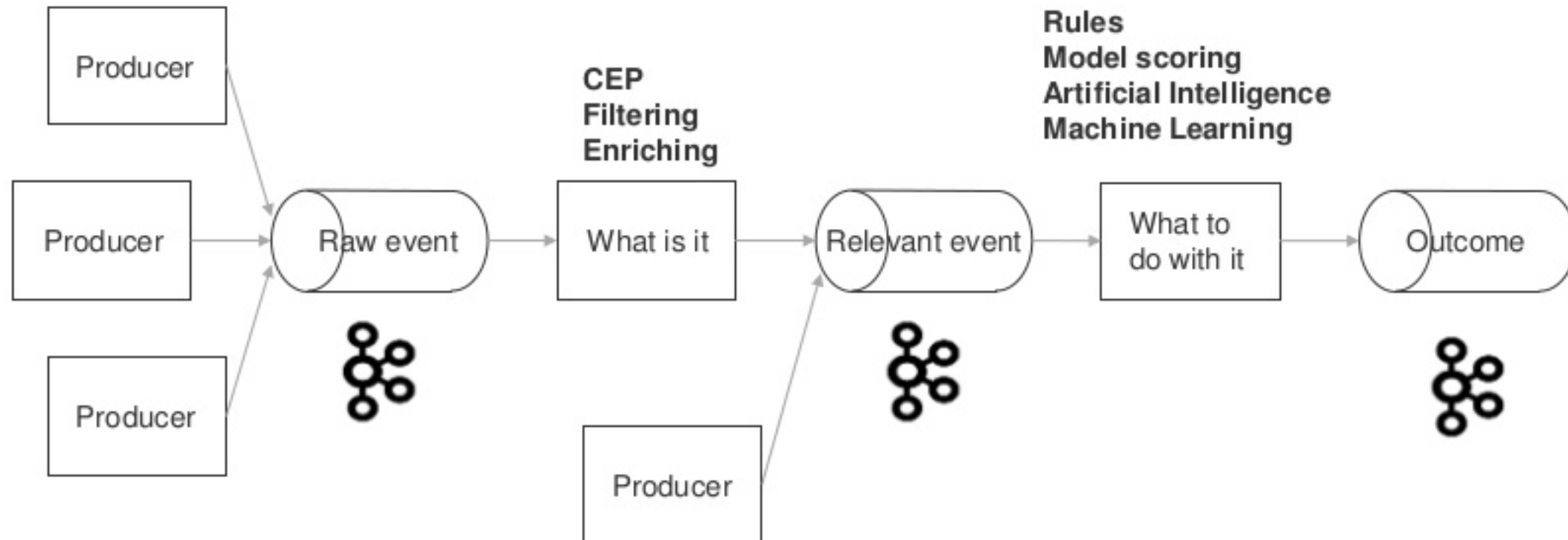


Except for Coral, none of the existing solutions really suited the architecture, and Coral turned out to be hard to develop.

- Low Latency Data store
- Streaming computing on event Bus
- In-Memory Big Data computing



As we started looking at patterns for streaming analytics, they always looked alike. Fraud and customer use cases are identical.



To re-use all the analytics, and to share state, we decided on one global platform for all streaming analytics in ING.

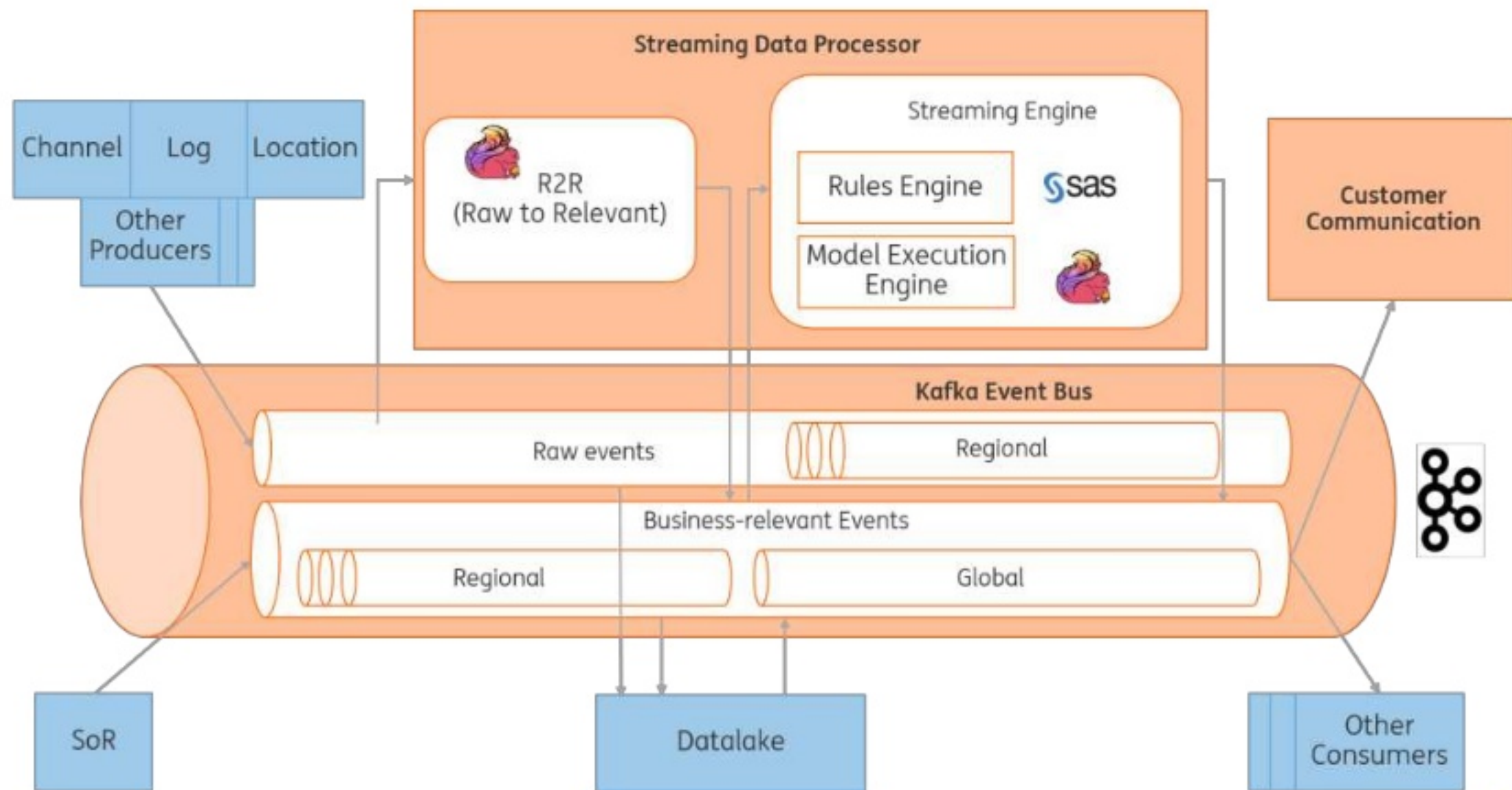
And we did a beauty contest for the technology choice



vs

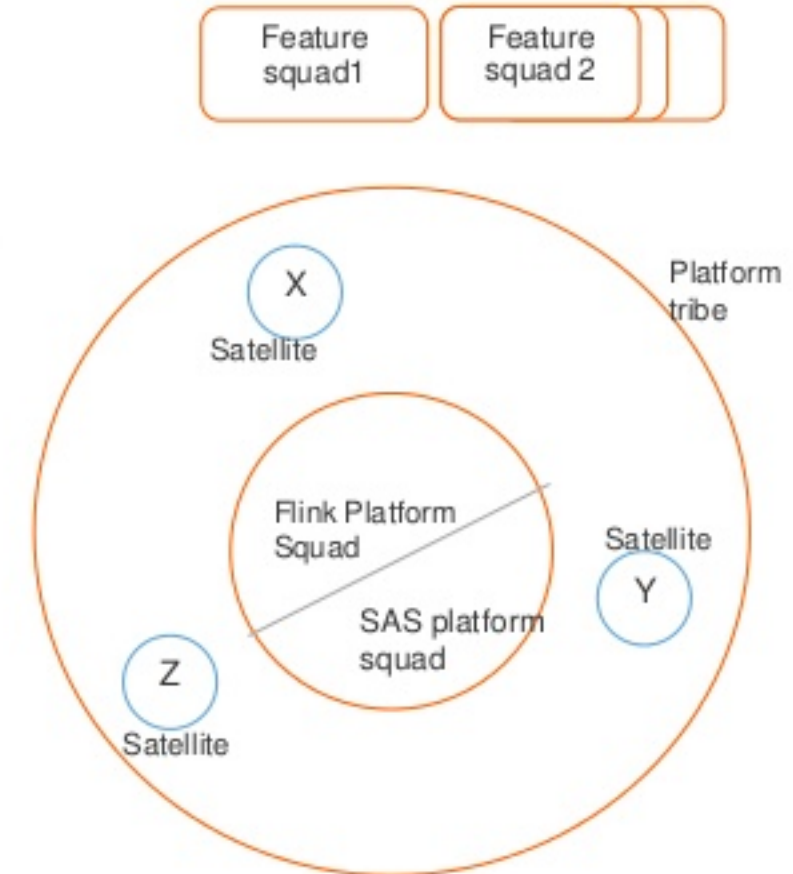


The result is an Event based architecture, with Apache Kafka and Apache Flink at the heart of it. Delivered as one platform.



The Operating Model for all IPA platforms is global, one tribe, one product owner, a platform squad, potentially satellite squads

Organization	<ul style="list-style-type: none">• Platform team builds the core• Satellite teams across different regions do first line support• Feature teams build on top of the platform
Code base	<ul style="list-style-type: none">• Maintained by Platform team
Deployment	<ul style="list-style-type: none">• Handled by platform team• Multiple instances in different regions under same Life Cycle Management
Use case jobs	<ul style="list-style-type: none">• Build and maintained by feature team
Support/ Monitoring	<ul style="list-style-type: none">• Platform squad and satellite squads will both perform monitoring.• First-line support will be done by the satellite squads. Second-line support will be done by the platform squad.



Multiple startups have declared ETL dead, and that streaming will take over. Is batch just a slower version of real time?



What is Flink

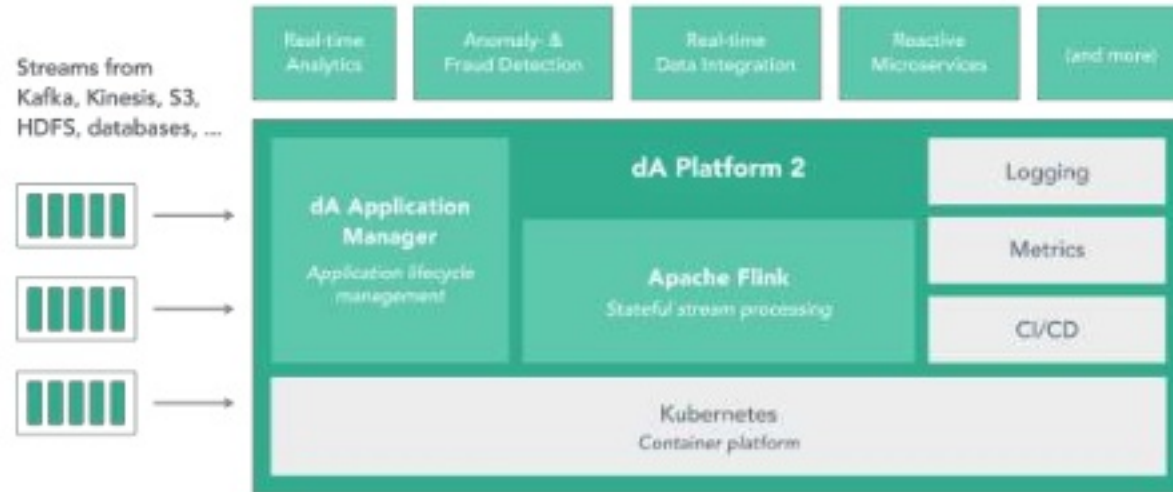
A "use-case complete" framework to unify batch and stream processing



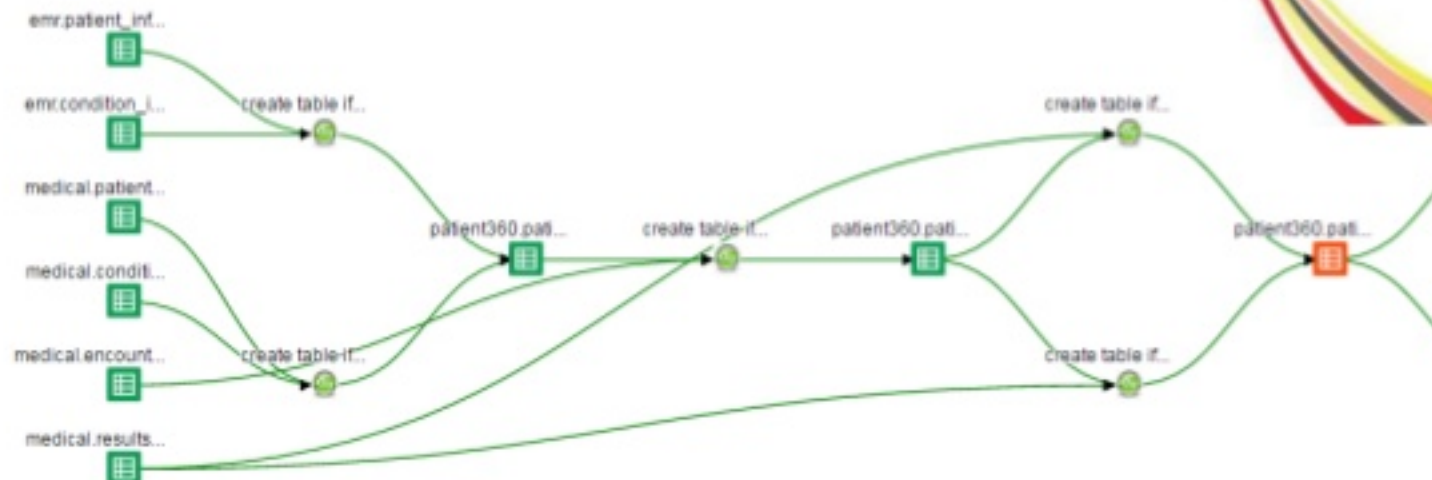
But I have a different opinion on where we are in this journey



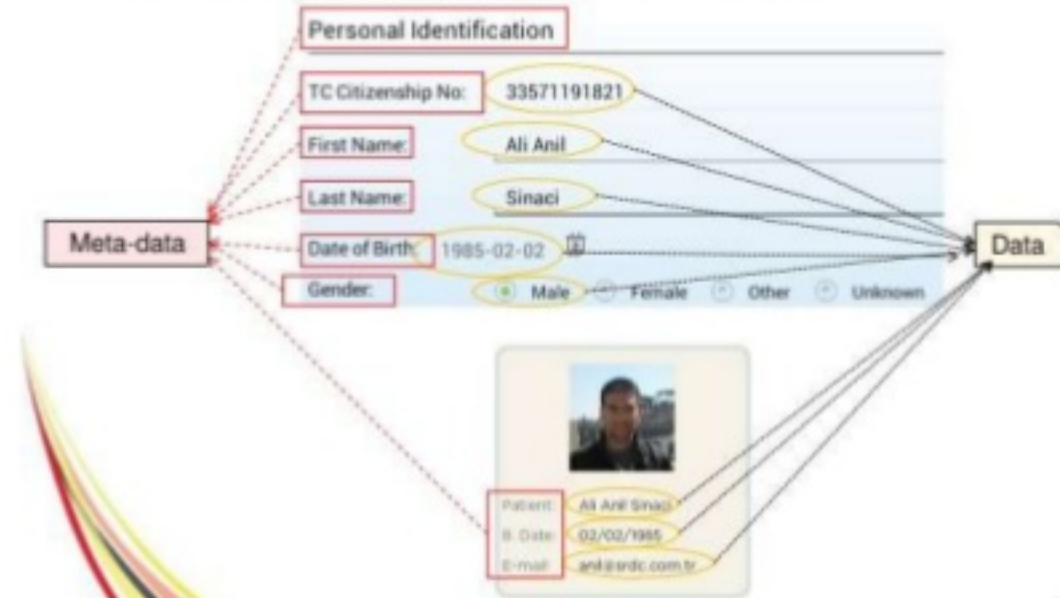
Choosing how to address the needs of the enterprise will determine who will succeed in this space.



Lineage



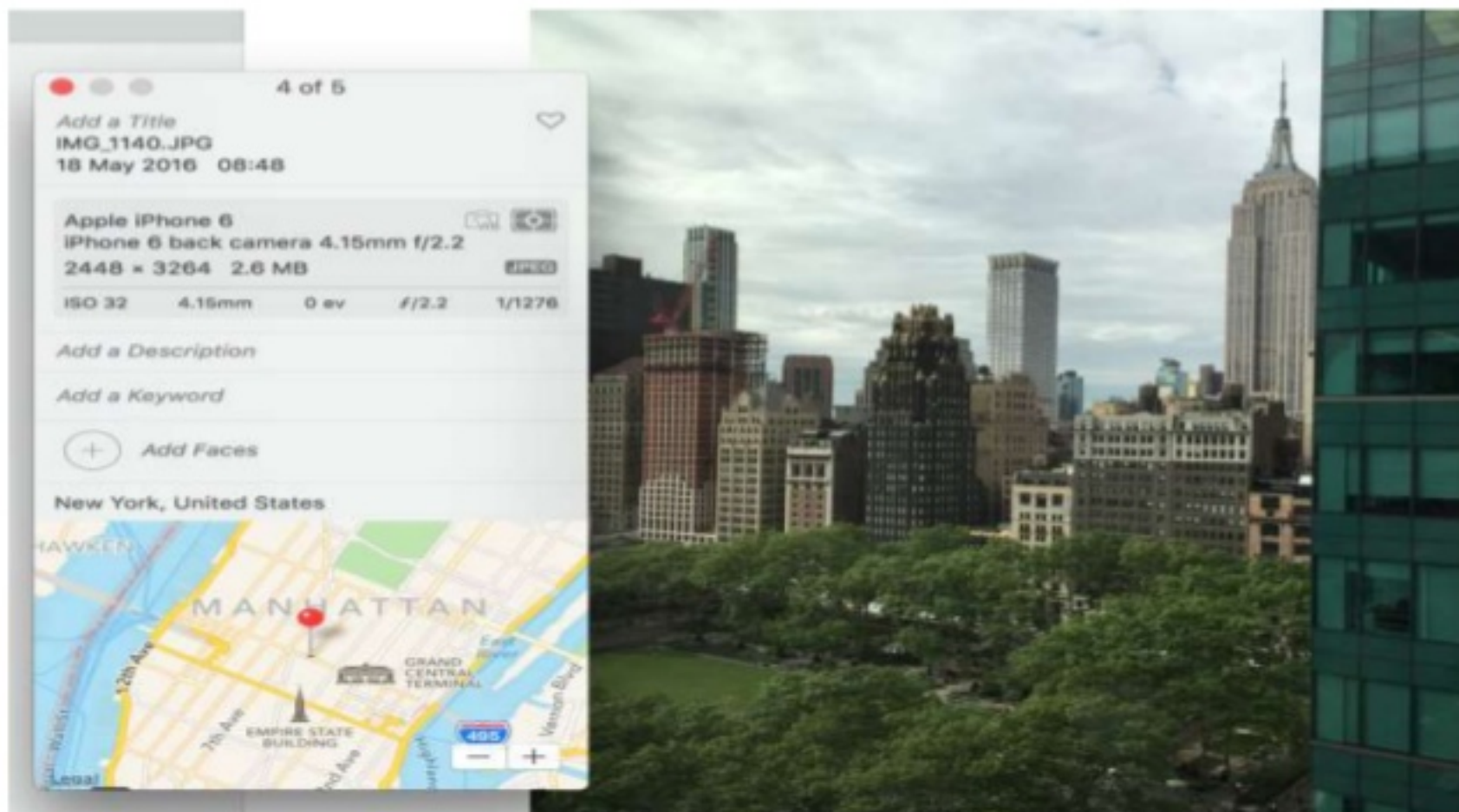
Importance of Meta-data



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ING is championing an Open Metadata and Governance that will allow...

... metadata to be captured when the data is created, moved with the data and be augmented and processed by any of the vendor tools.



All enterprises have a heterogeneous data landscape, and the need for managing meta data across technology boundaries.



The Open Metadata and Governance initiative will allow easy implementation of meta data in any platform

- **Common base:**



an open set
of APIs



an open set
of metadata
types



an open set of
exchange
protocols



- Automate the collection, management and use of metadata across an enterprise



Governance



Discovery

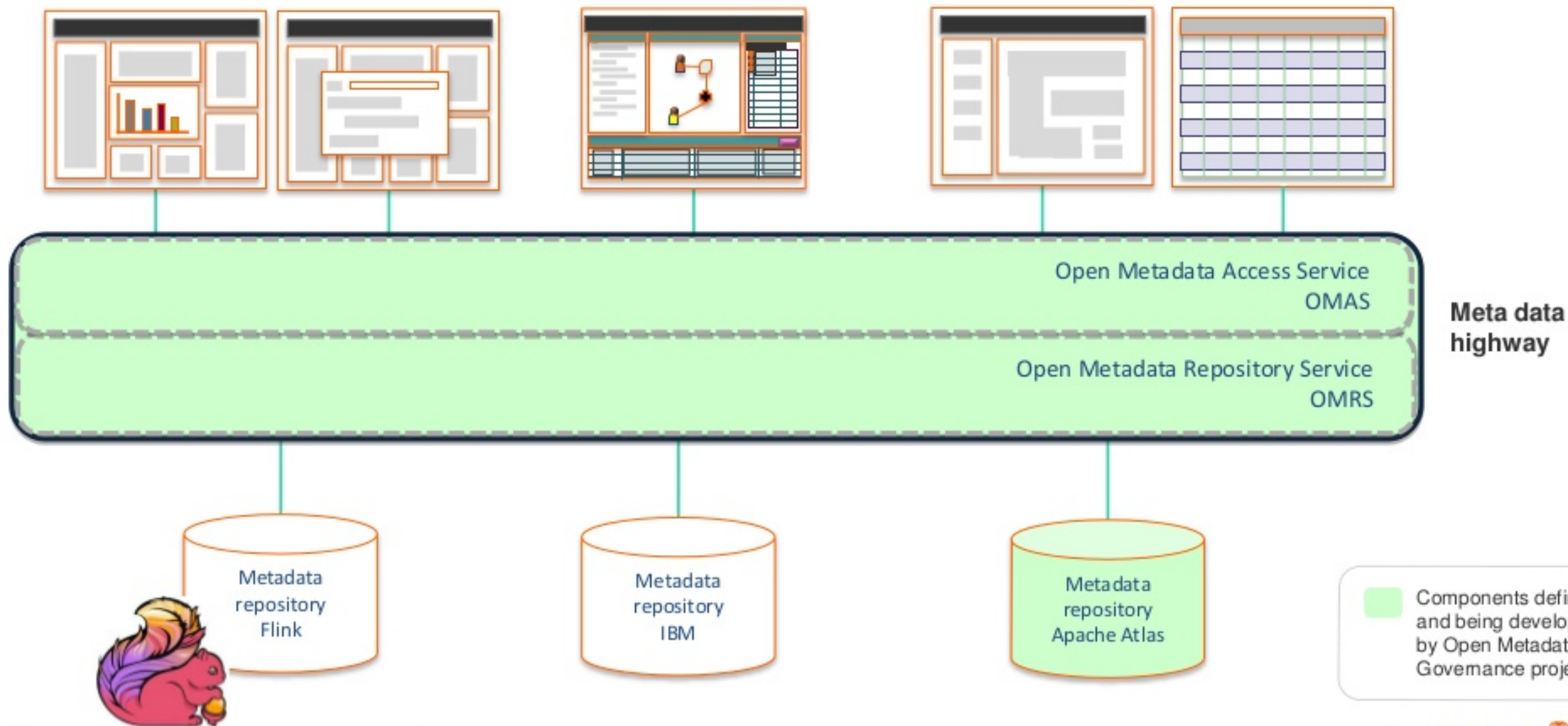


Access
Frameworks



An enterprise catalog of data resources that are transparently assessed, governed and used in order to deliver maximum value to the enterprise.

We will deliver through Apache Atlas both a meta data highway, and an implementation that can be used by all



Before I sign off, there is more from ING tomorrow:

1. Tink, a temporal graph analytics library for Apache Flink.
13-9 at 14:00 – Palais Atelier
2. Fast Data at ING – building a streaming data platform with Flink and Kafka
13-9 at 15:20 - Kesselhaus

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Or: @Ferdscheepers

