alumni

X-PRESS FEEDERS

SMDG Keynote: Data Streaming

EDI vs API vs Data Streams

SECTION 01

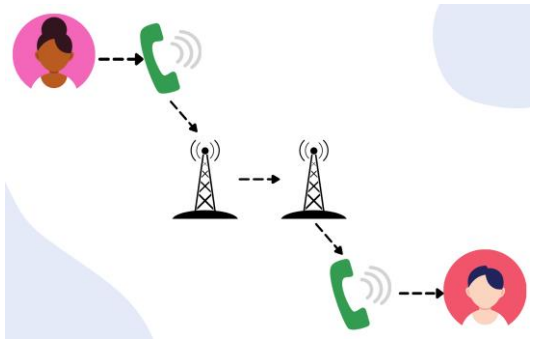
Why are we even here ?

Communication has changed a lot in the last 100 Years

Morse Code Message

- Structure is crucial
- Medium of exchange is limited

Land Line Telephone Call



- Structure is less important
- Medium for exchange is more important

Modern Data Based Communication

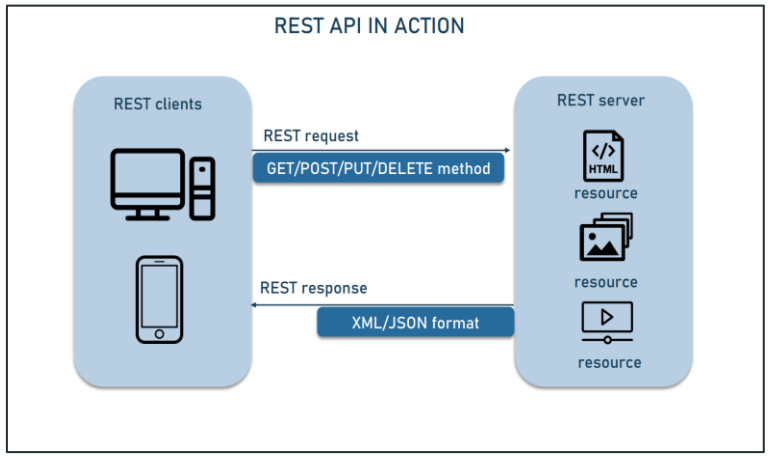
- Structure is almost irrelevant
- Medium of exchange is everything

This is analogous to what we are currently experiencing in the way we communicate

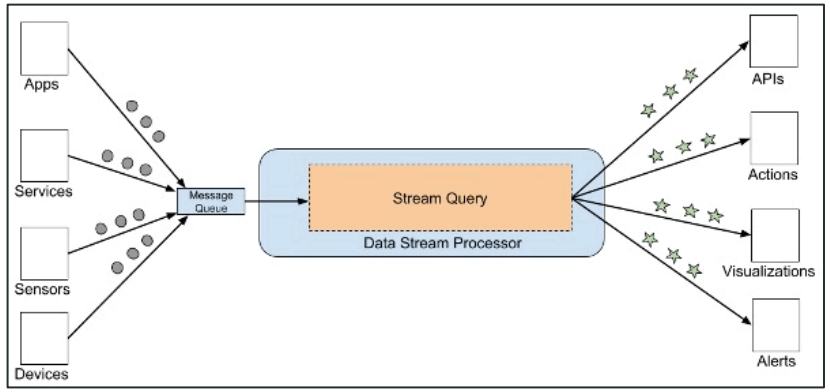
EDI Message

UNA:+.? '
(UNB = Interchange header) UNB+UNOC:3+54321:92+12345:92+211023:1517+REF1'
(UNH = Message header) UNH+1234+INVOIC:1:911:UN:FI0021' (segment)
BGM+380+932466303+9' (code)
DTM+3:20211023:102' (composite data element)
NAD+PL+CC99AABB::92++Customer X Ltd' (qualifier)
LIN+10++64148933300000' (simple data element)
IMD+F+8+-::91:SALMON' (segment tag)
QTY+47:1.000:KGM' (code)
PRI+INV:12.85' (component data elements)
TAX+7+VAT+++:::14.00+S' (separators)
(UNT = Message trailer) UNT+10+1234'
(UNZ = Interchange trailer) UNZ+1+REF1'

API Call



Modern Stream Communication



So, what exactly is a Stream ?

We need to start with: What is an EVENT

An EVENT STREAM is a continuous collection of Events

Event Stream PROCESSING is the process of taking actions on the events generated

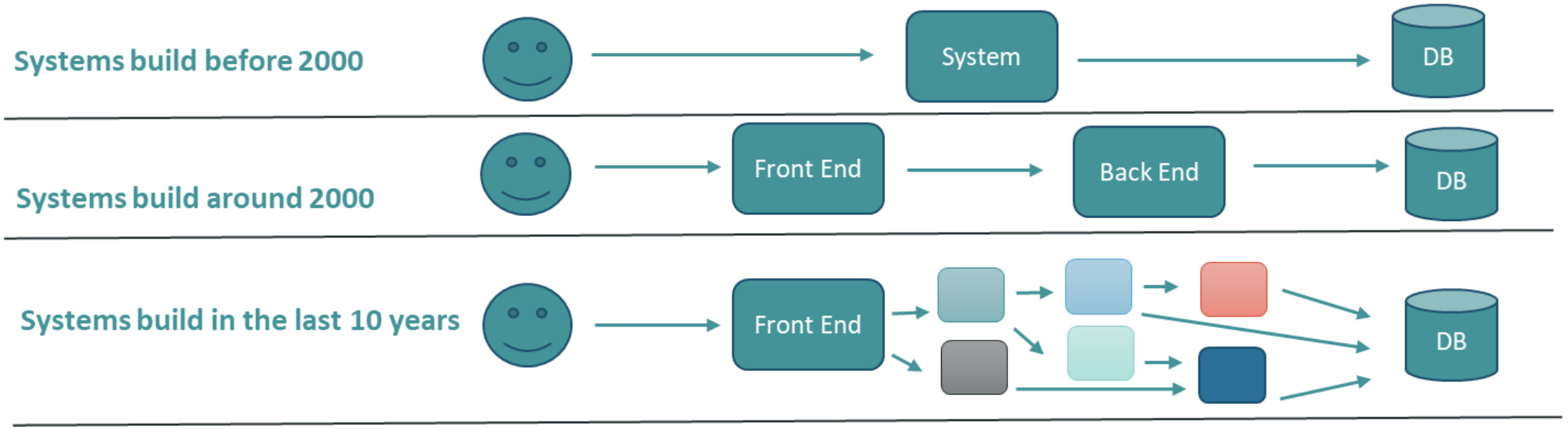
In a system that continuously generates data, each data point refers an Event

Event Streams are also called Data Streams as they consist of continuous stream of data points

- Performing Calculations
- Transforming Data
- Analysing Data
- Enriching Data

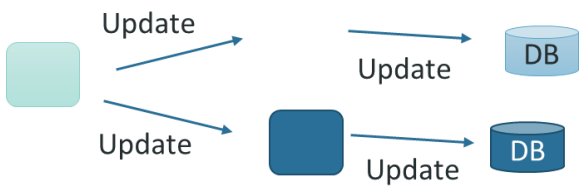
Unlike APIs which provide specific information when requested. Streams treat every action and an Event and do not wait for systems or people to request information but rather immediately notify all interested parties every time an Event takes place

Just as Communication has Changed, So has Technology

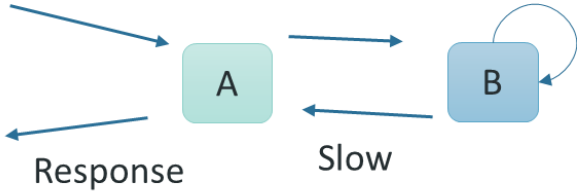


But this has come with problems and streaming addresses these problems in 3 ways

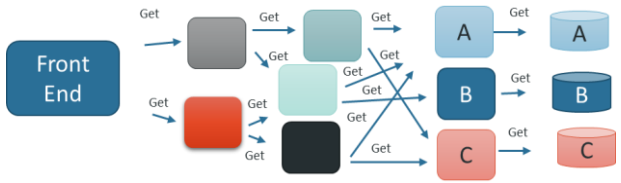
Transactional Issues



Compounding issue - Isolated performance (reliant on the slowest service)



Stateless – “Get splosion” – can result in many service calls (sub optimal)



Immutability

- Streams are immutable commit logs
- Unchanging over time or unable to be changed
- Can replay data timeline

State

- State introduces a 3rd dimension to data handling … Time
- The Standard request / response model is inherently stateless

Scalability

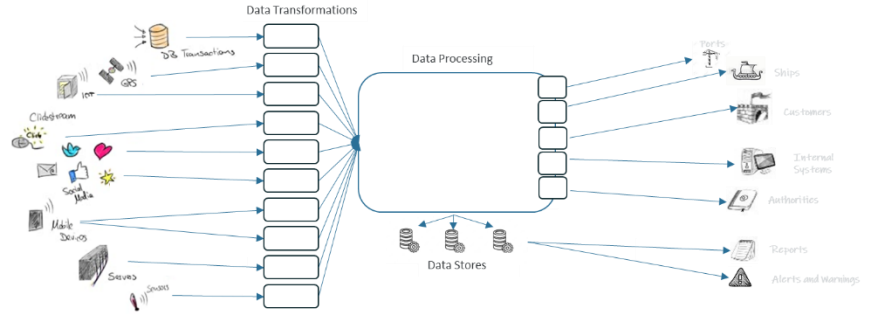
- Request / Response in inherently unable to scale exponentially
- Streams are distributed by design and do not suffer from request congestion

We must change the way we think and behave when it comes to Data

high volume real-time, accurate data ➡ efficient in time and cost

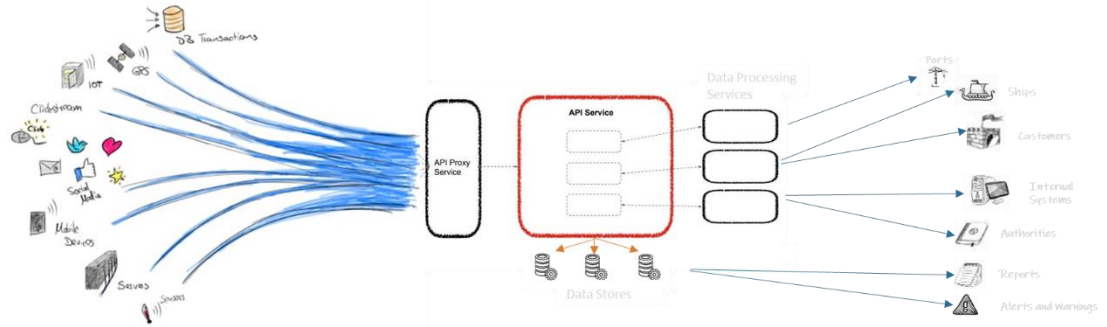
EDI is the oldest form of information exchange and is very ridged, costly & complex to maintain

- Near-real time
- Time consuming to change
- Low scalability and Low extendibility
- Limited Volume handling capability
- Loosely coupled



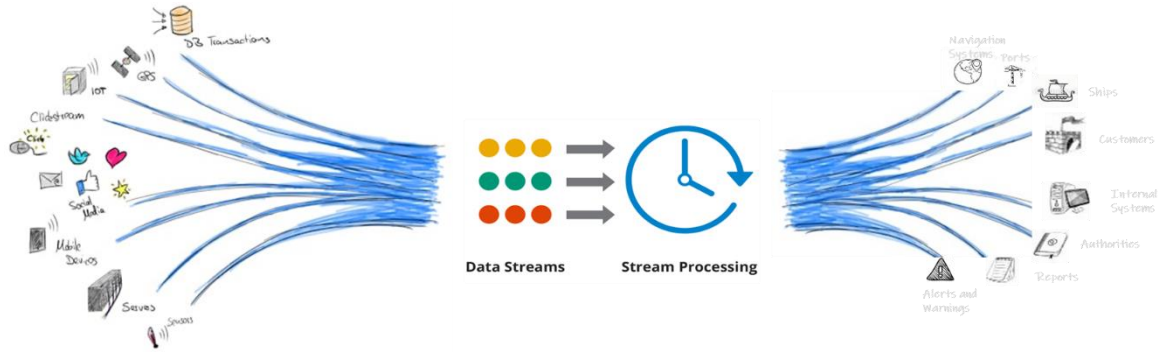
APIs are a very common mechanism for easily exchanging data with low risk and have been used since the turn of the century

- Near-real time
- moderate to change
- Extreme scalability and moderate extendibility
- Linear Volume handling capability
- Semi-decoupled
- Stuck with same Request/Response problems



Data Streaming is the modern approach to data transport and ubiquitous sharing and enables a modern data architecture which stimulates data derived value

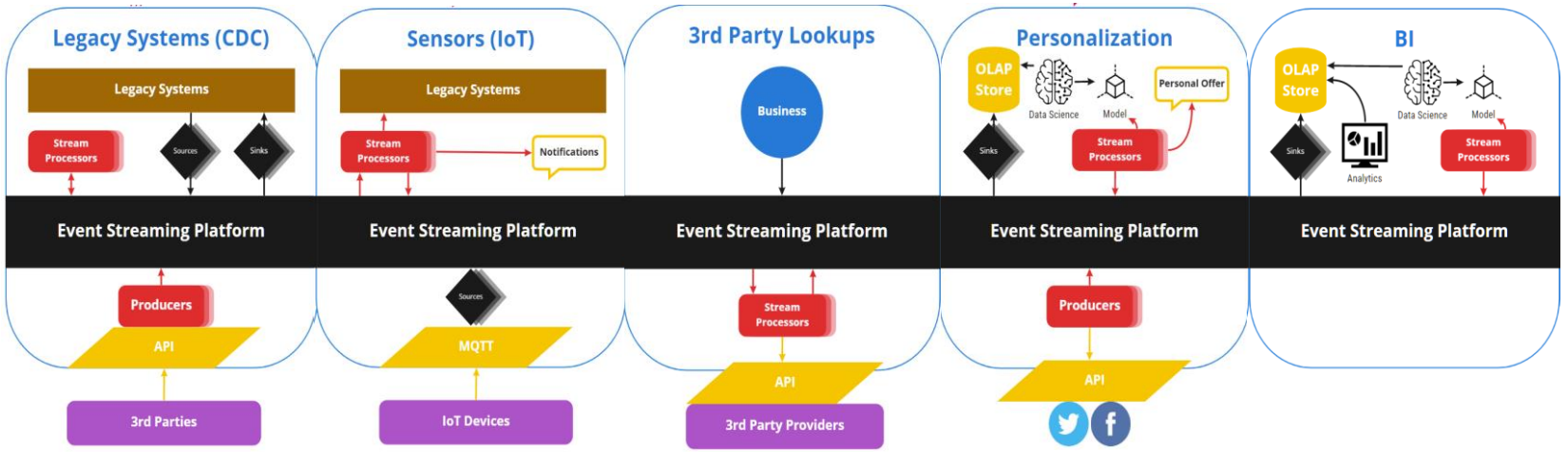
- Real time
- Easy to change
- Extreme scalability and extendibility
- Exponential Volume handling capability
- Decoupled



Complexity & Time to Integrate

A streaming data paradigm enables business value across several domains

I want to share data between applications in a safe, decoupled and real-time fashion So that I can enable agility and modernization	I want to stream events from IoT devices So that I can build modern applications on real-world sensed events	I want to centralize 3rd party lookups So that I can save money across the group and normalize sourcing of events	I want to build next generation customer engagement apps that can react to, and predict, customer behavior So that I can delight customers and cross sell with personalized offers	I want to let data insights lead So that I can make better business decisions and build smart applications



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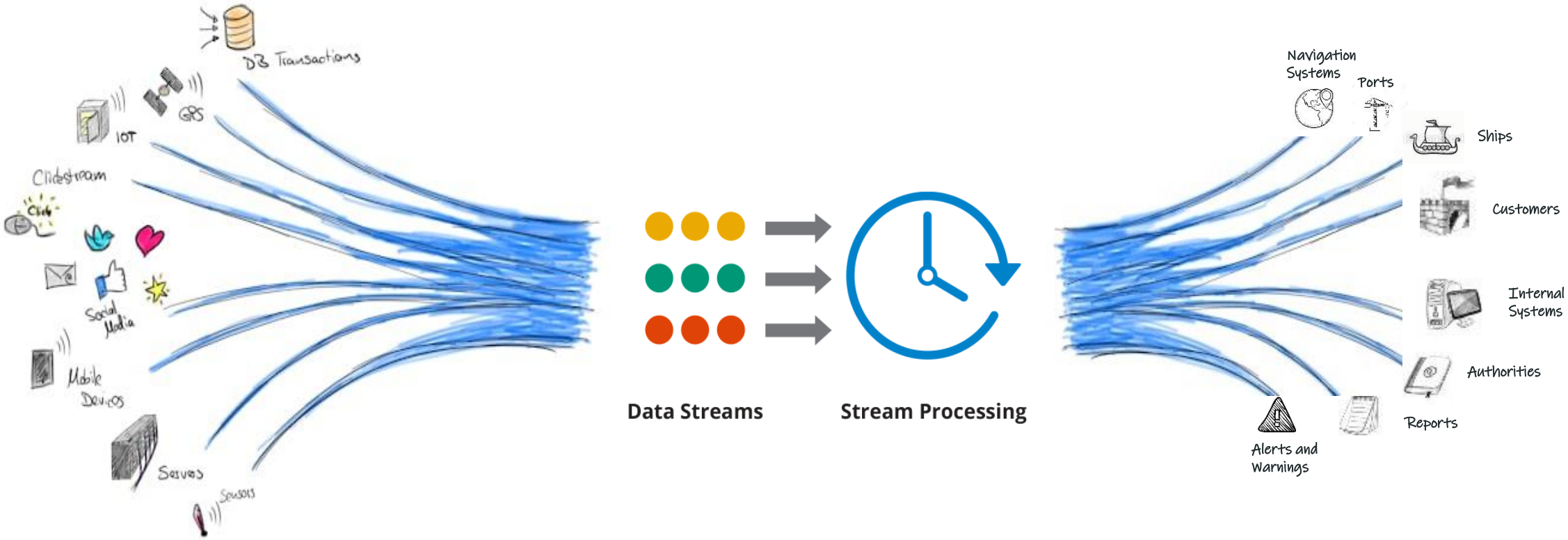

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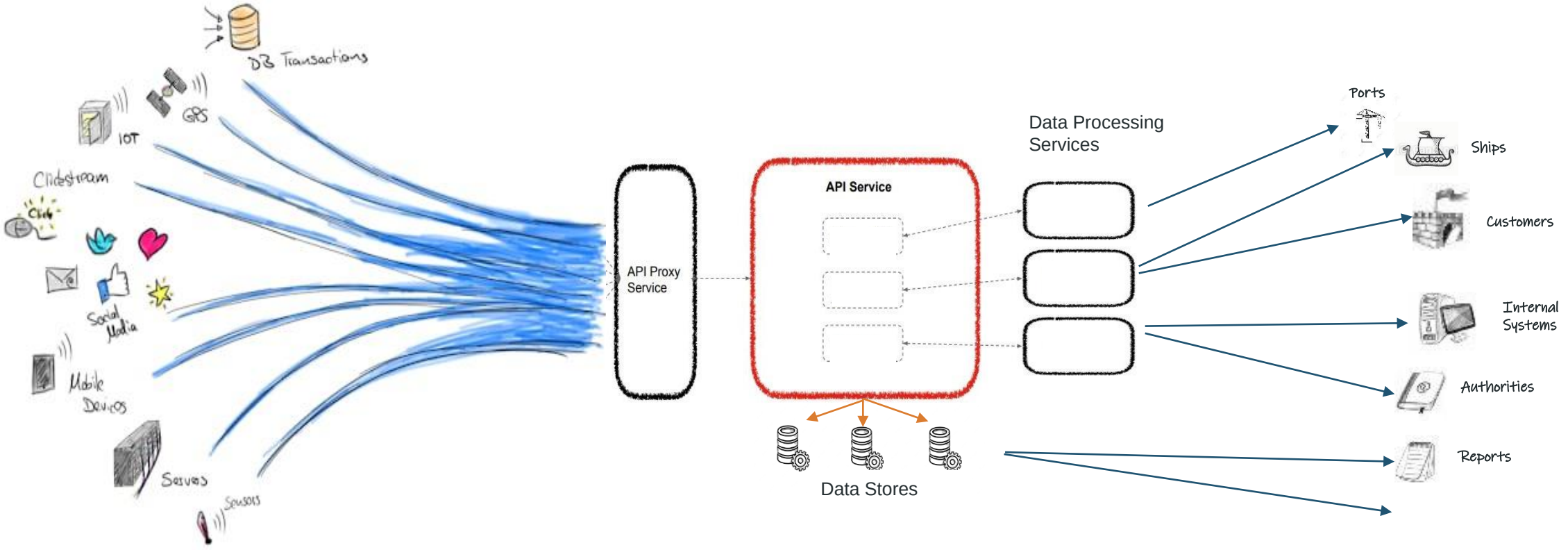

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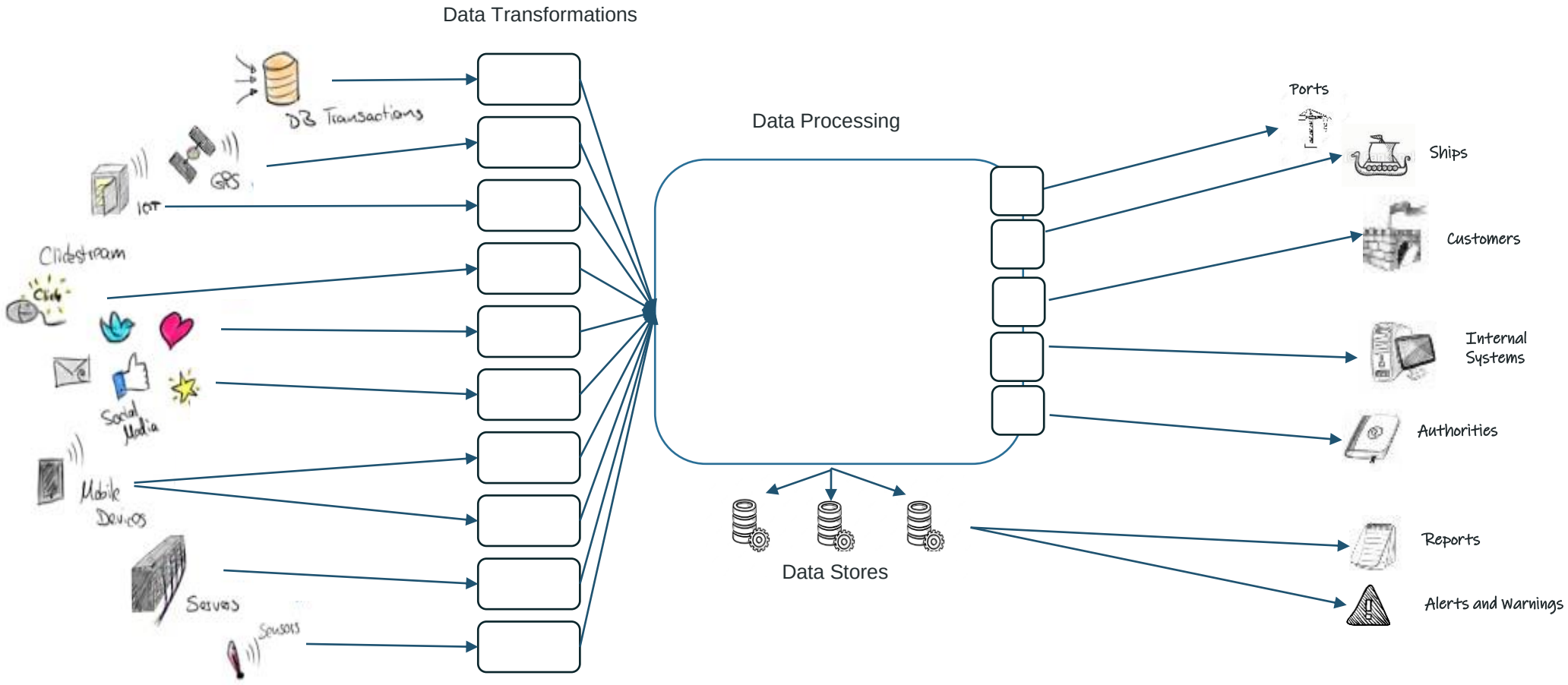

SECTION 02

What next for the SMDG

EDI is not going away, but we don't have to ignore advances that can improve the timeliness, visibility and accuracy of our data and the data we share with partners

IBM believes that EDI in its various formats will remain highly useful and widely used in its established areas for years to come, however, it **will not** be the primary tool to **solve new challenges** in supply chain that require more than a typical B2B document exchange. They see the **true future** lying in using and evolving B2B integration alongside **disruptive technologies** such as Streaming, IoT, blockchain and AI, to deliver **innovative levels of multi-party supply chain collaboration**

Starting simple and prove value while everyone becomes familiar with the new technology

EDI works really well, no immediate value driver to change

Opportunity to transform the industry though real time data streaming

EDI still relies on a file to be generated and transmitted, received and translated.

While we can still leverage the structure of EDI documents within the API or stream context, even standard EDI structures have, in the shipping industry today, been customized to the extent that each translation is essentially fully customized

If standardizing formats and structures is not important, what is?

Data Domain Ownership

- **Standardizing the data set is critical (not the format or structure)**
- **Reference data standardisation and mappings**

Data Domain Governance

- **Defining security standards per data set that align with global requirements (not all data is sensitive and needs to be GDPR compliant)**
- **Industry data exchange user journey's (high-level, not partner specific)**
- **Data improvement loop**
- **Data Discovery standards (industry alignment)**
- **Versioning and support**

Insights

- Common insights (utilising black box theory, provide insight which is commonly valuable but does not impact individual competitiveness)

Future proofing

- Active meta data management (While passive metadata provides basic technical data, active metadata shows you how data moves through your data pipeline and what changes it undergoes)
  - Technical
  - Operational
  - Business
  - Social

It depends on how much enablement responsibility SMDG wishes to take on ?

THANK YOU

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