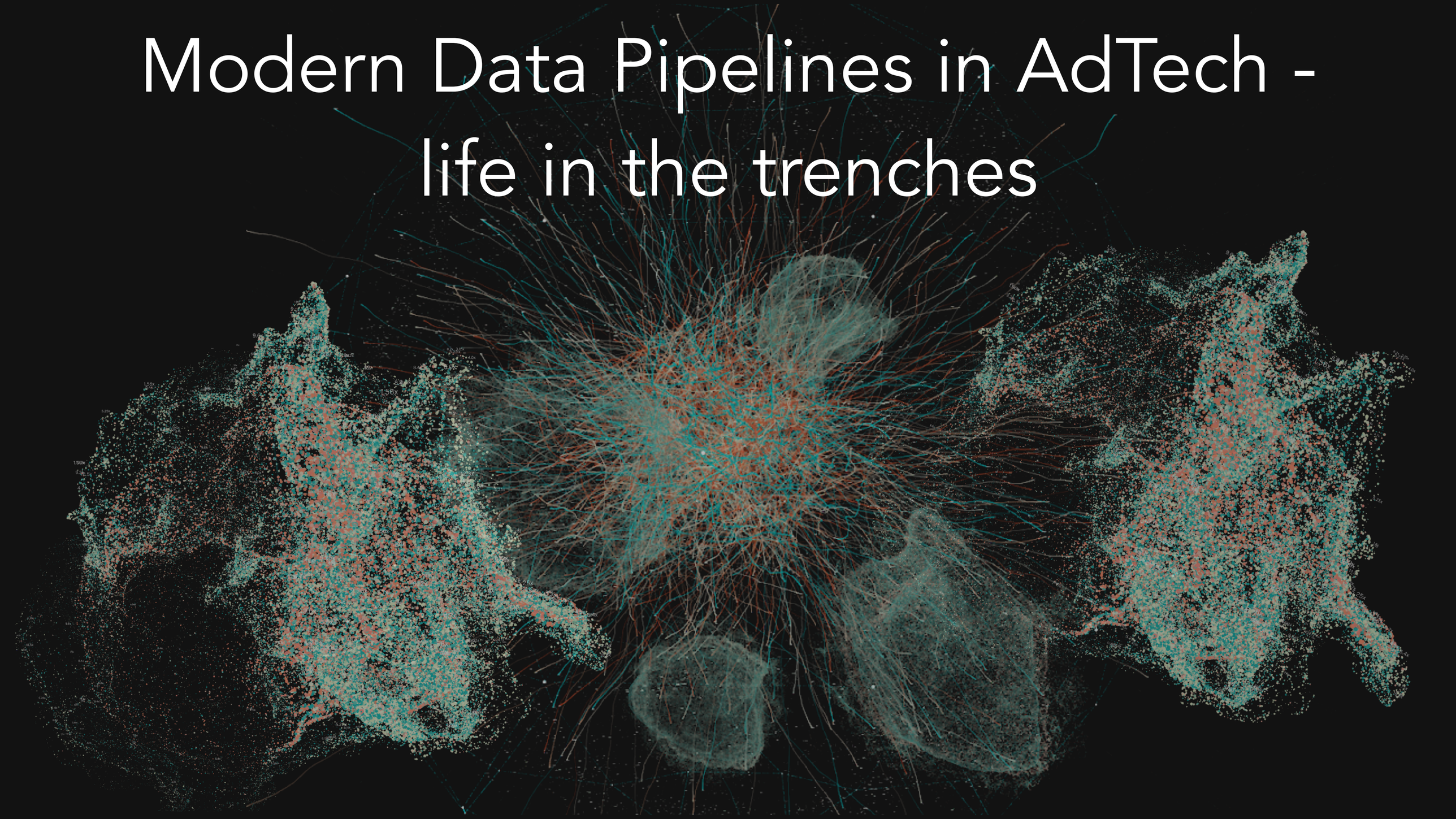
Modern Data Pipelines in AdTech - life in the trenches



Roksolana Diachuk

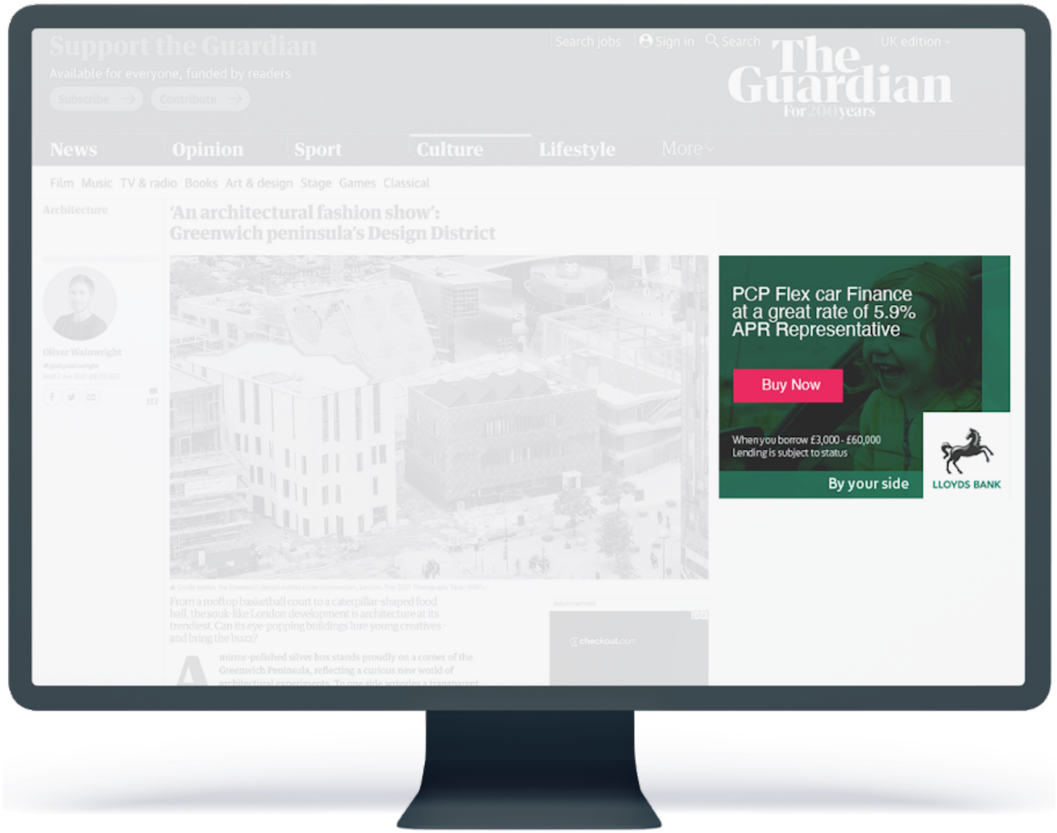
- Big Data Developer at Captify
- Diversity & Inclusion ambassador at Captify
- Women Who Code Kyiv Data Engineering Lead
- Speaker

Agenda

1. What is AdTech?
2. Data pipelines in AdTech
3. Practical examples
4. Historical data reprocessing
5. Conclusions

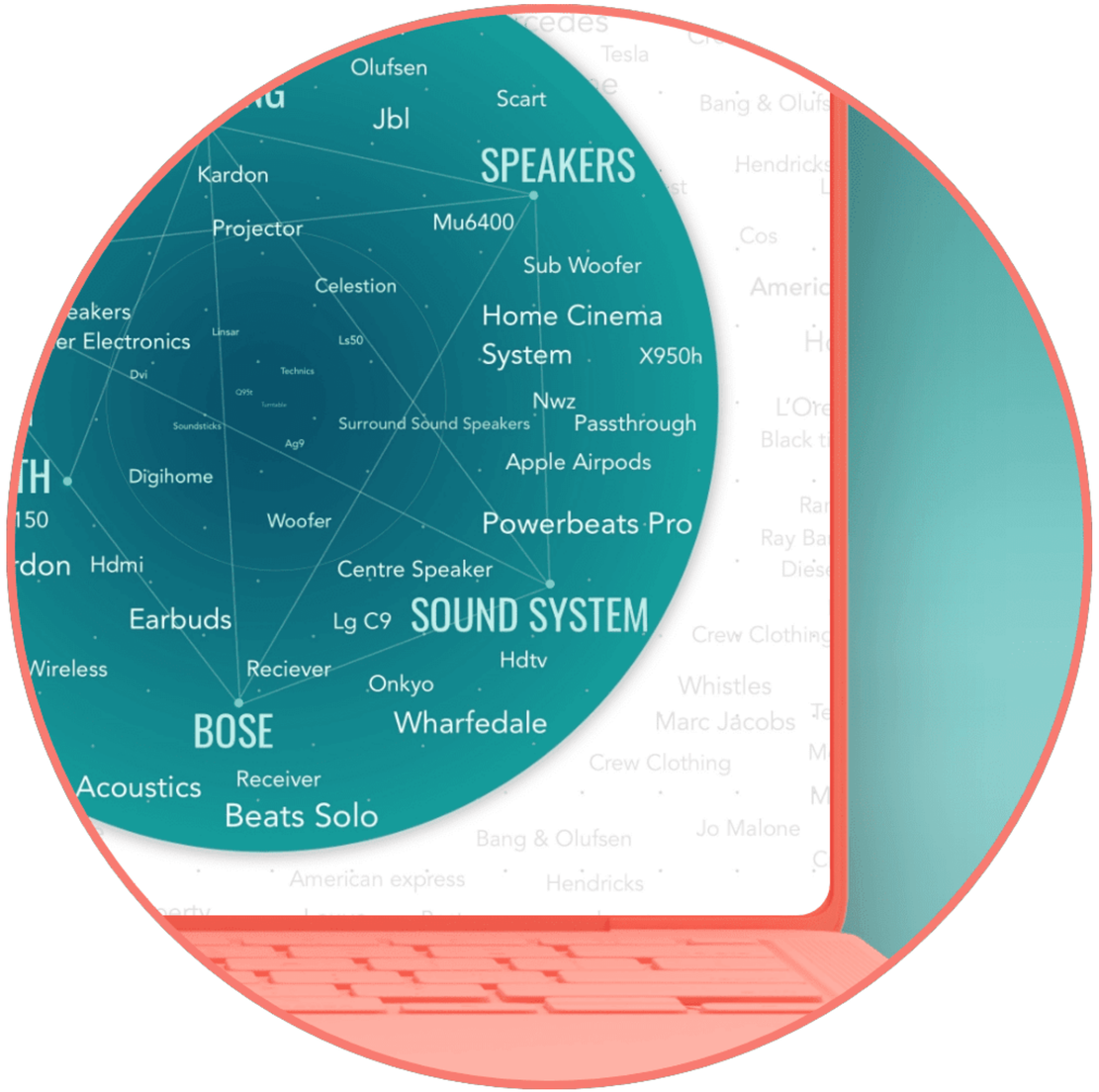
AdTech

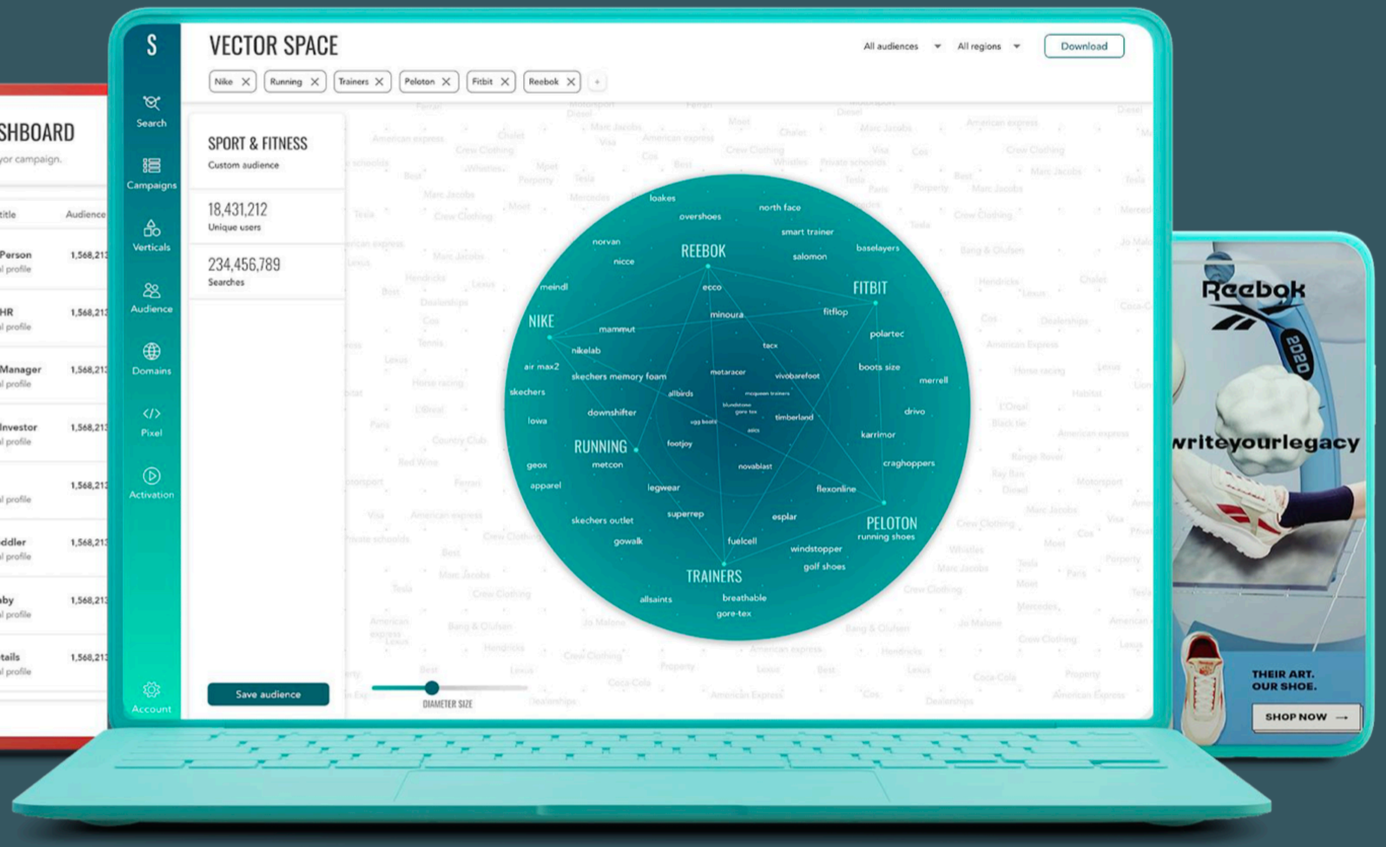
AdTech methodologies deliver the *right* content at the *right* time to the *right* consumer



What Captify does?

Captify's technologies unite to collect, connect and categorise billions of real-time search events from 2.3 billion consumers.





Introducing

captify | SENSE

The Search Intent Platform

Captify's new cookieless enabled end-to-end platform puts Search Intelligence at your fingertips—powering advanced audience planning and instant activation to drive superior media performance and efficiency.

dentsu AEGIS network

"Google trends on steroids"

Chris Ashworth, Head of Strategy

adexchanger

"If the ongoing pandemic has demonstrated anything, it's that pre-packaged pre-COVID consumer data no longer applies"

Alison Shiff, Senior Editor

Data pipelines in AdTech

- Reporting

Data pipelines in AdTech

- Reporting
- Insights

Data pipelines in AdTech

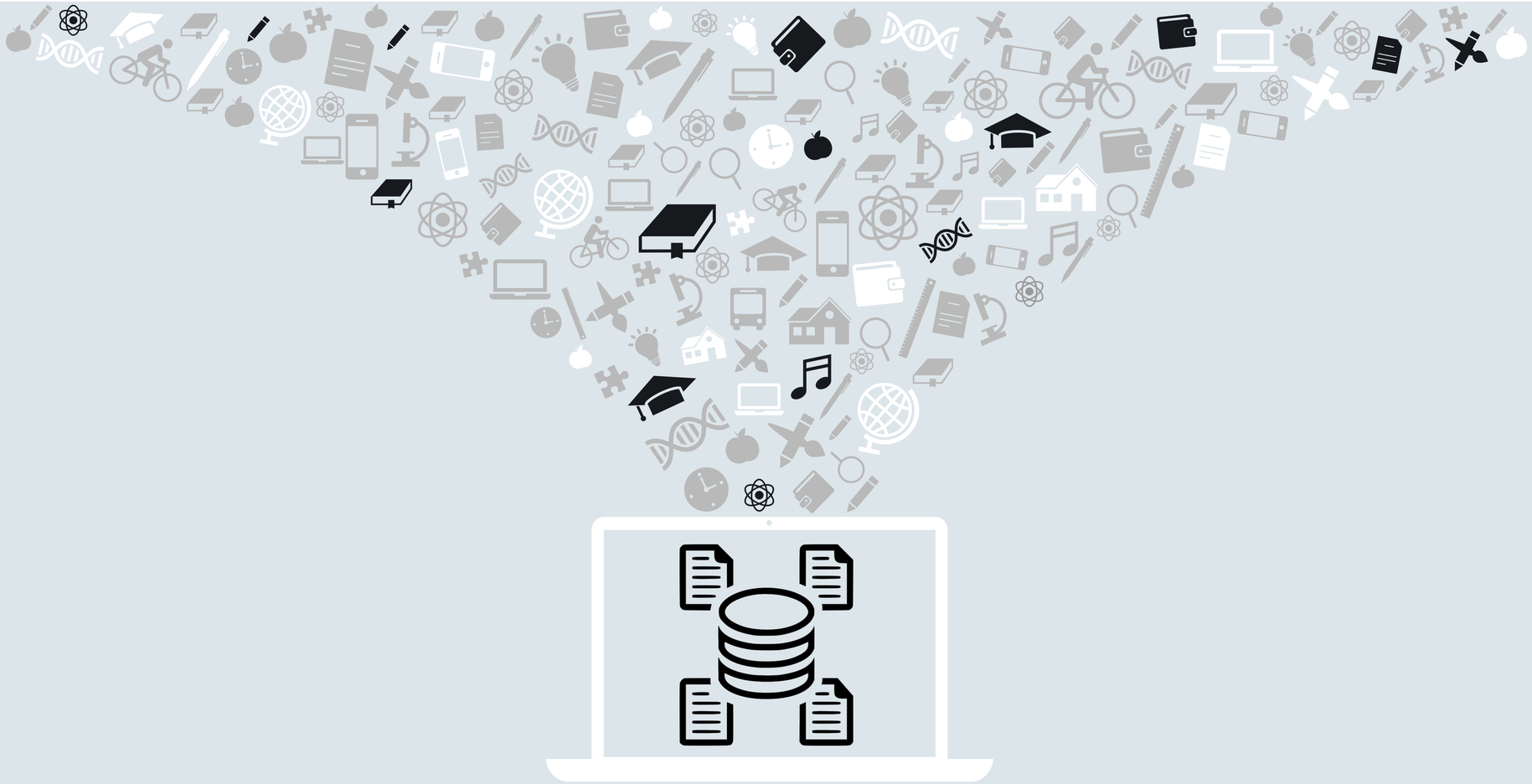
- Reporting
- Insights
- Data costs attribution

Data pipelines in AdTech

- Reporting
- Insights
- Data costs attribution
- Users audiences building

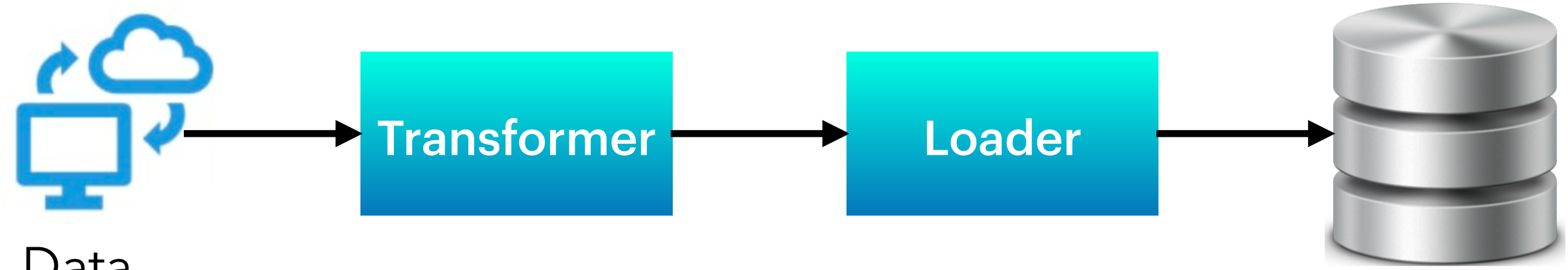
Data pipelines in AdTech

- Reporting
- Insights
- Data costs attribution
- Users audiences building
- All kinds of data processing/storage



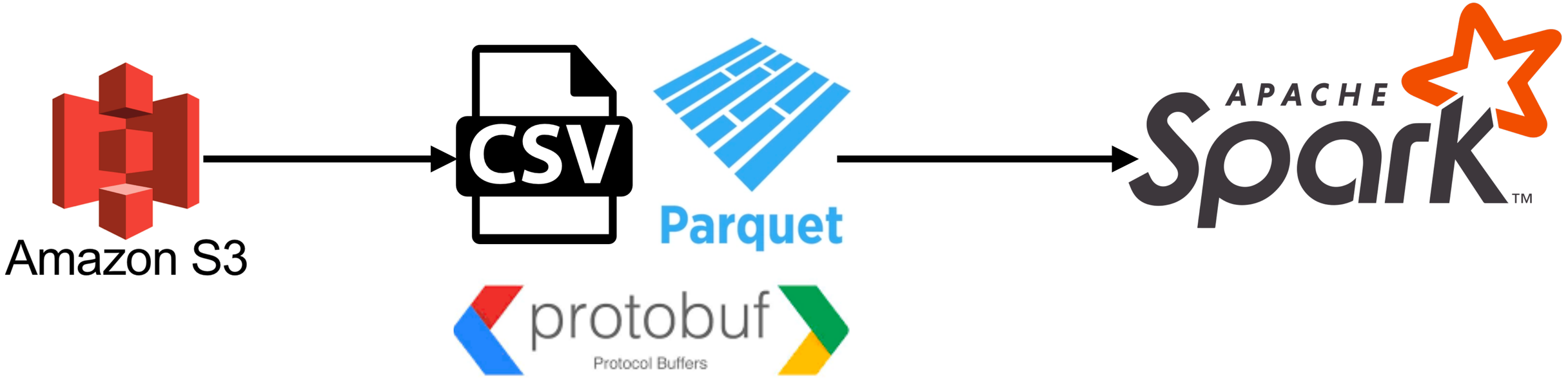
Reporting

Reporting

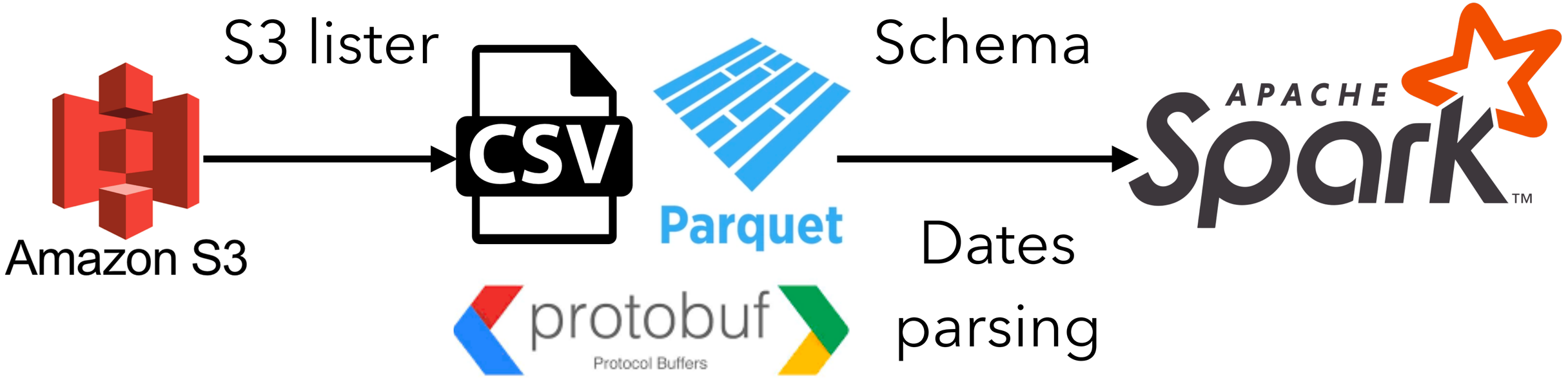


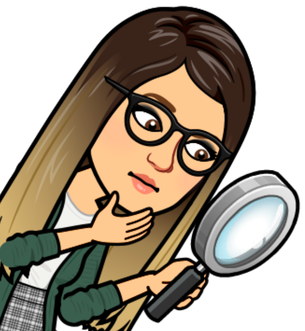
Data provider

Data ingestion



Data ingestion

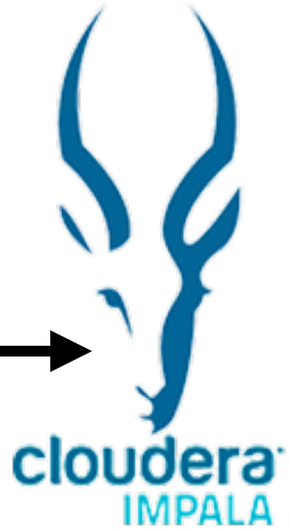




Data loading

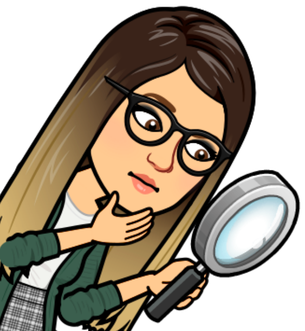
Data loading

Schema definition



First upload vs scheduled ones

Metadata handling



Challenges

- Diverse data types

Challenges

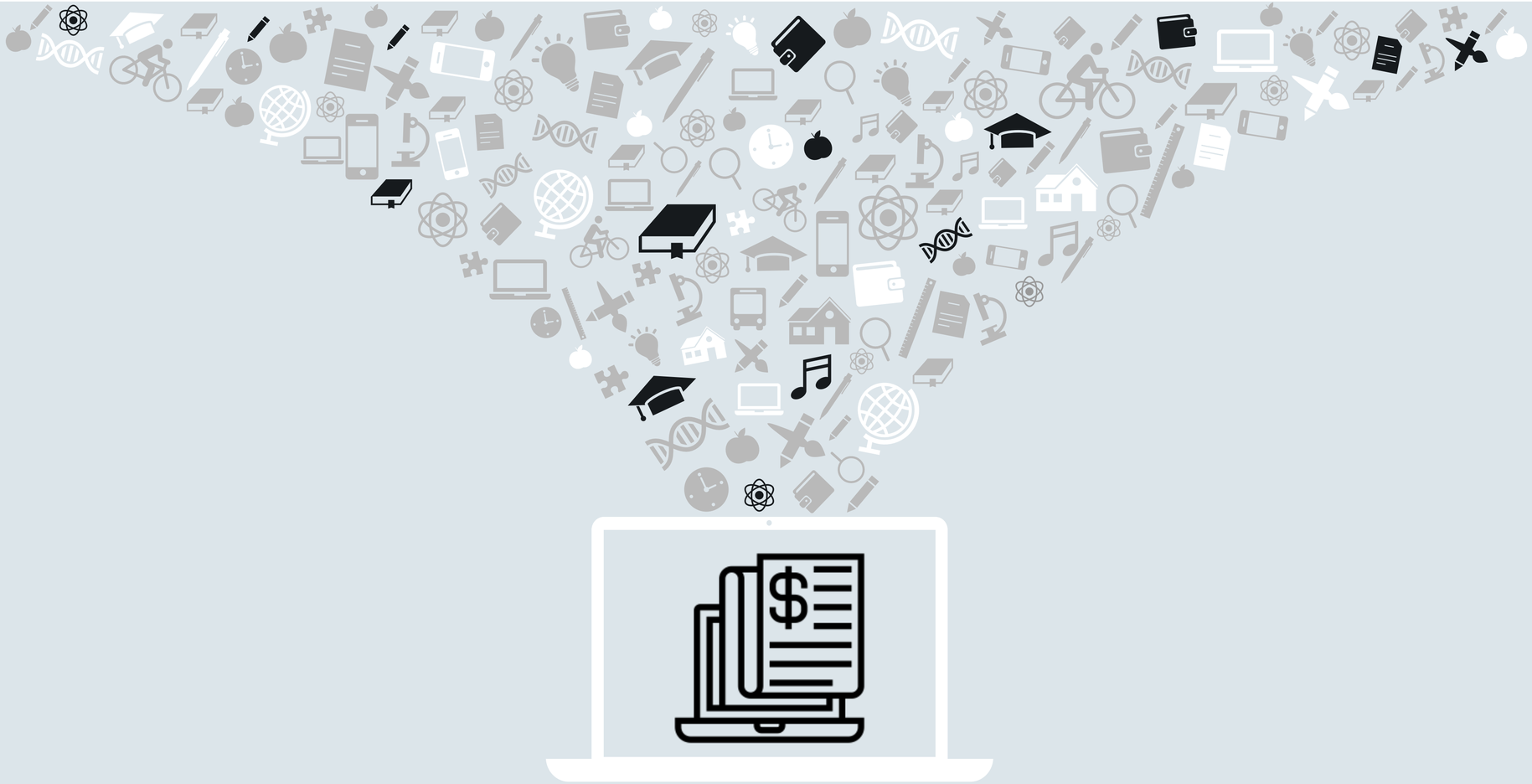
- Diverse data types
- Time dependency

Challenges

- Diverse data types
- Time dependency
- External data storage

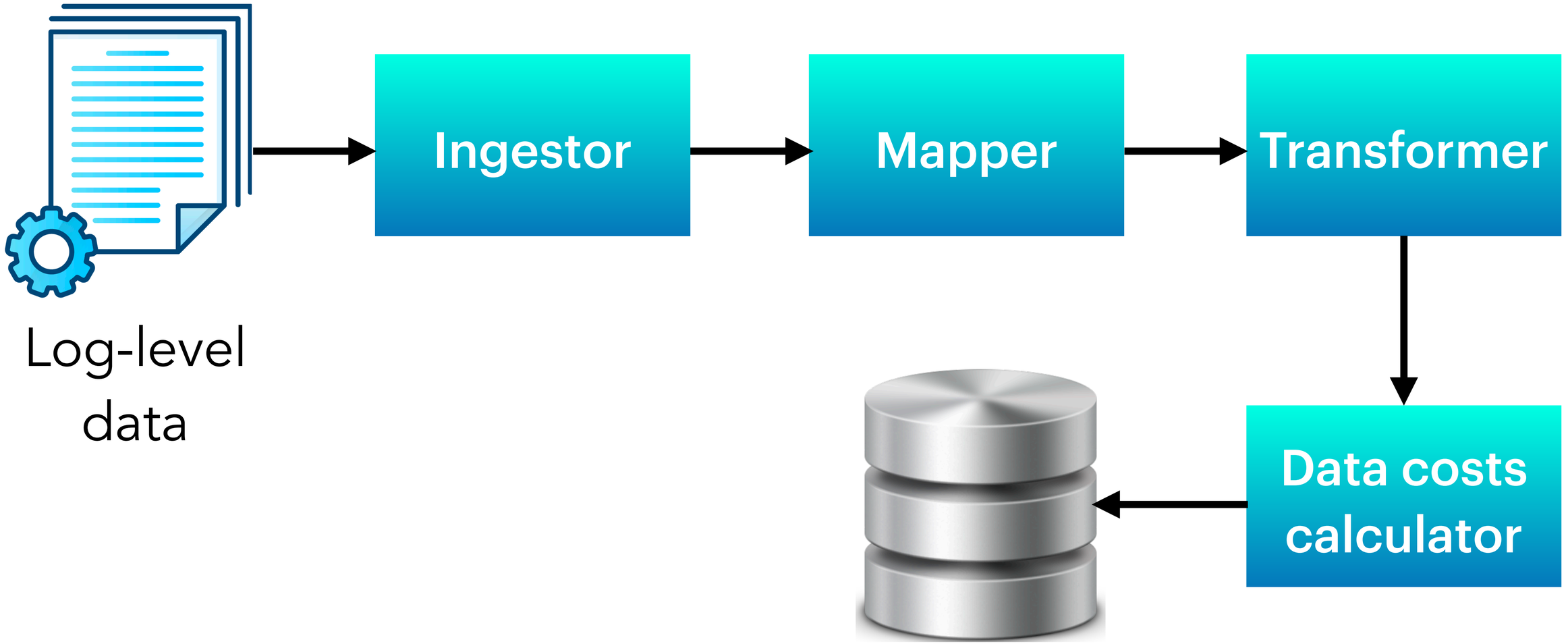
Challenges

- Diverse data types
- Time dependency
- External data storage
- Constant connection with end users

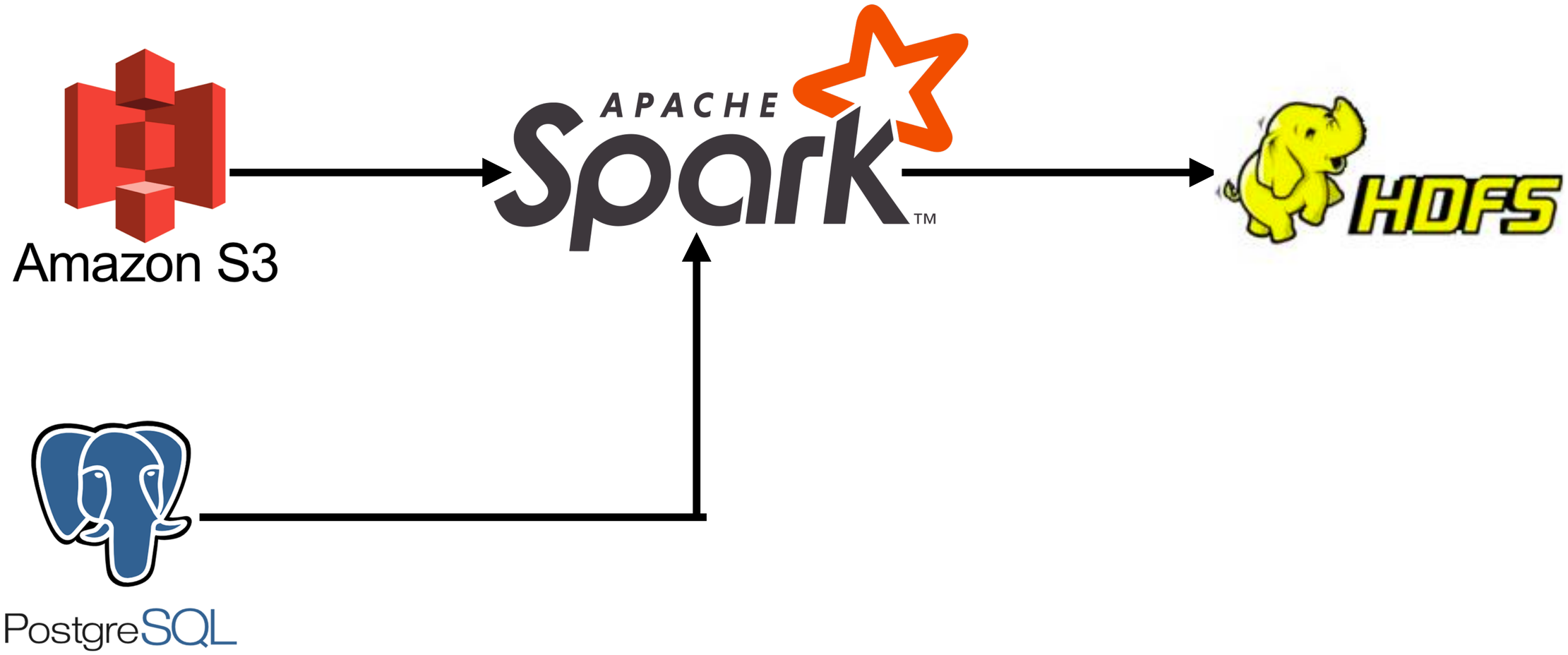


Data costs attribution

Data costs attribution

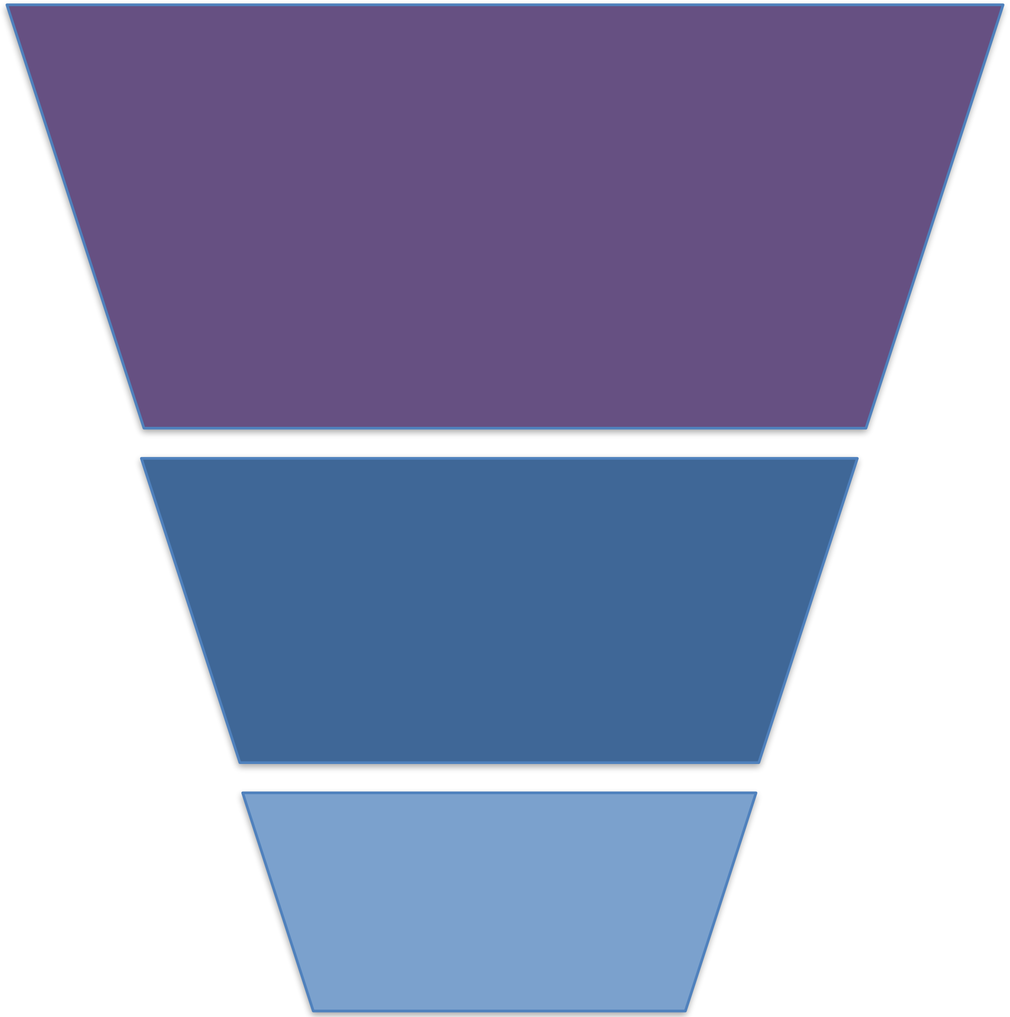


Data costs attribution



Attribution data source

Attribution data source

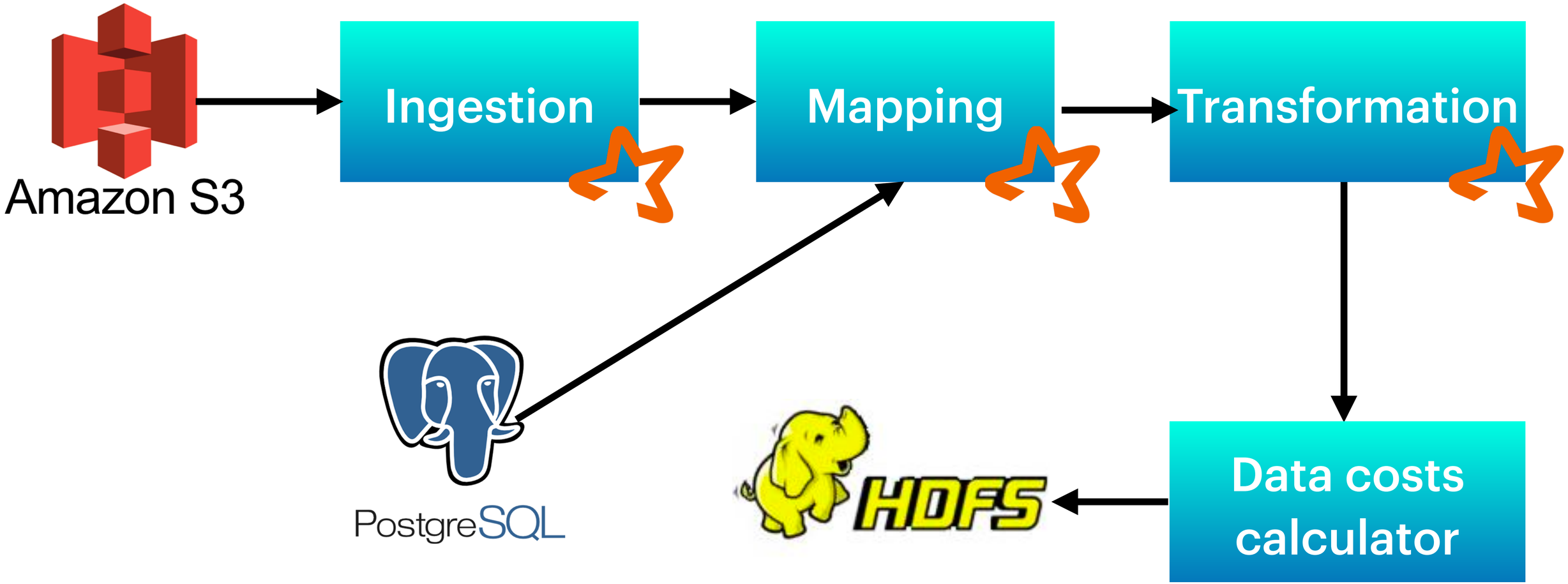


Impressions

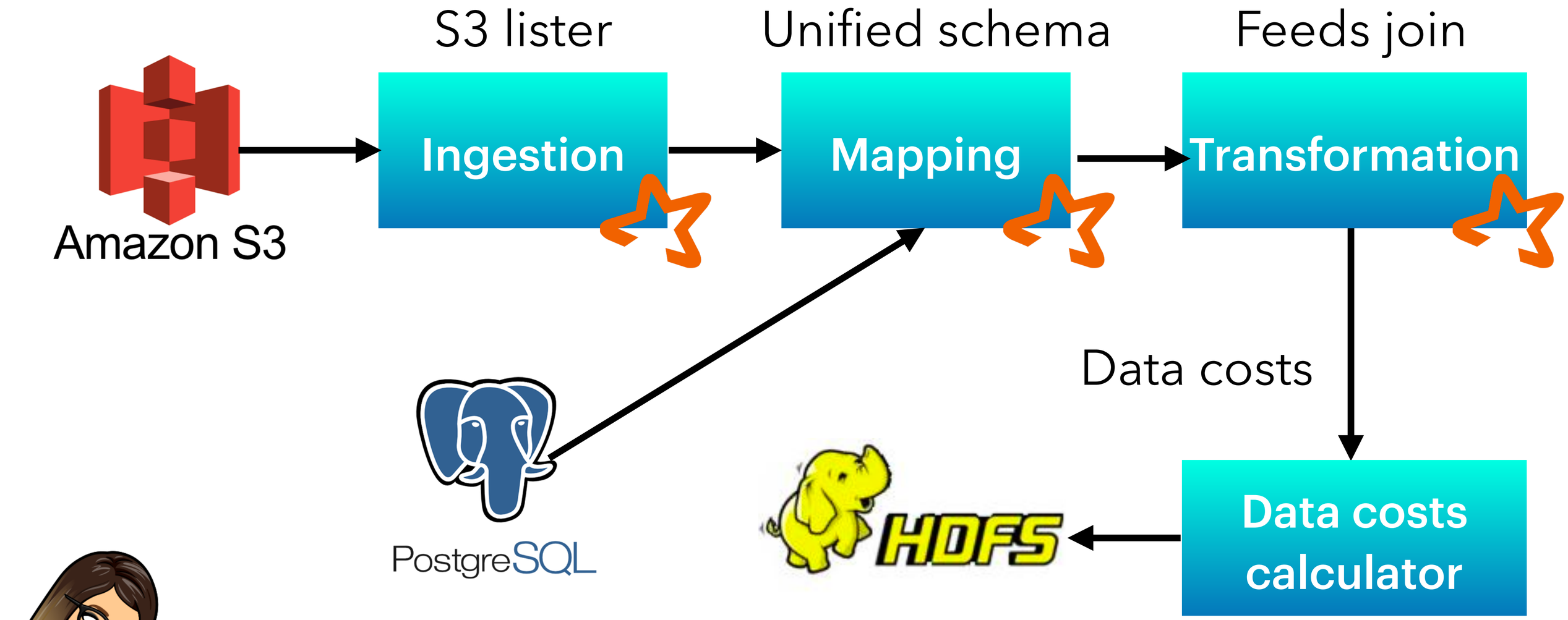
Clicks

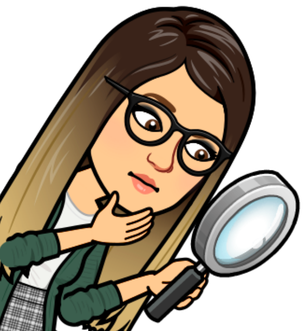
Conversions

Data costs attribution



Data costs attribution





Challenges

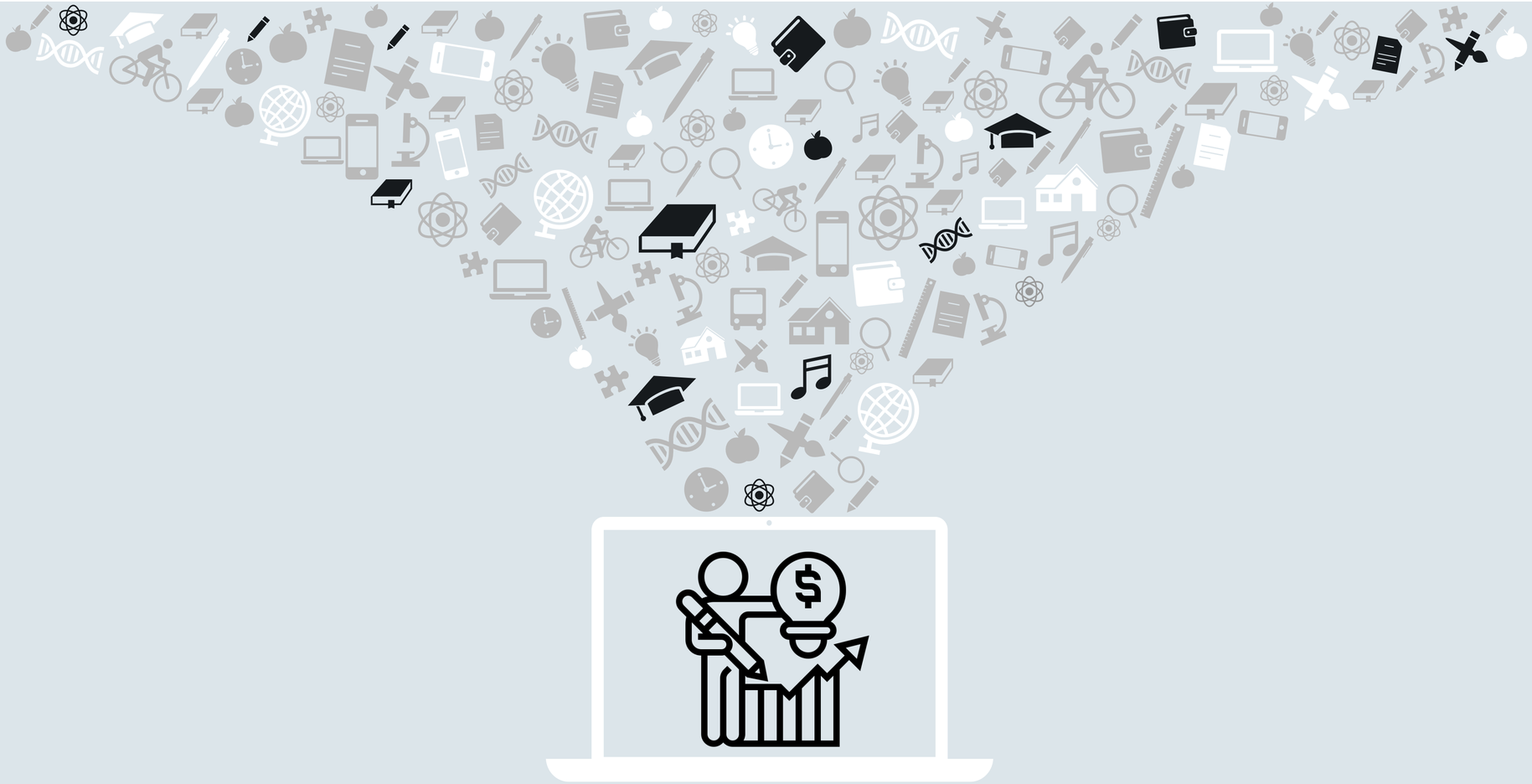
- Processing and storing really large data volumes (!)

Challenges

- Processing and storing really large data volumes (!)
- Failures handling

Challenges

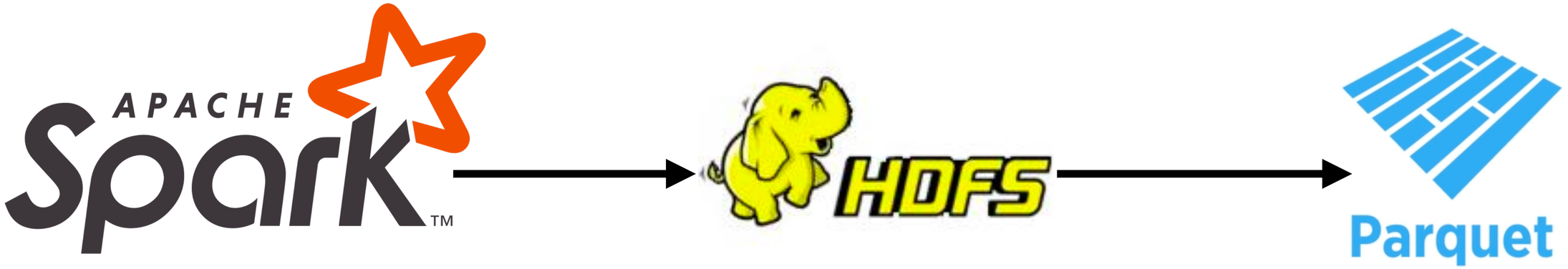
- Processing and storing really large data volumes (!)
- Failures handling
- Historical data reprocessing



Historical data reprocessing

Business use case

Attribution pipeline



Reprocessing mechanism

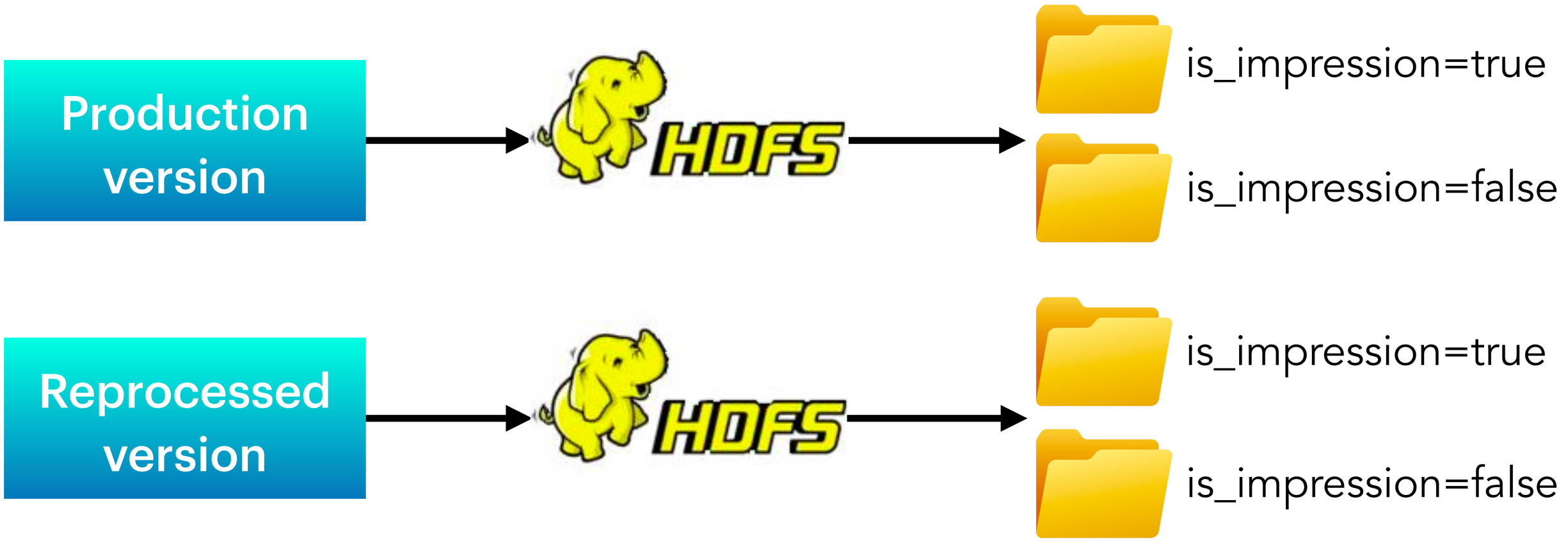
standardfeed.transformer.Config.feedPeriod: “P30D”

standardfeed.transformer.Config.startDateTime: 2022-03-01T00:00

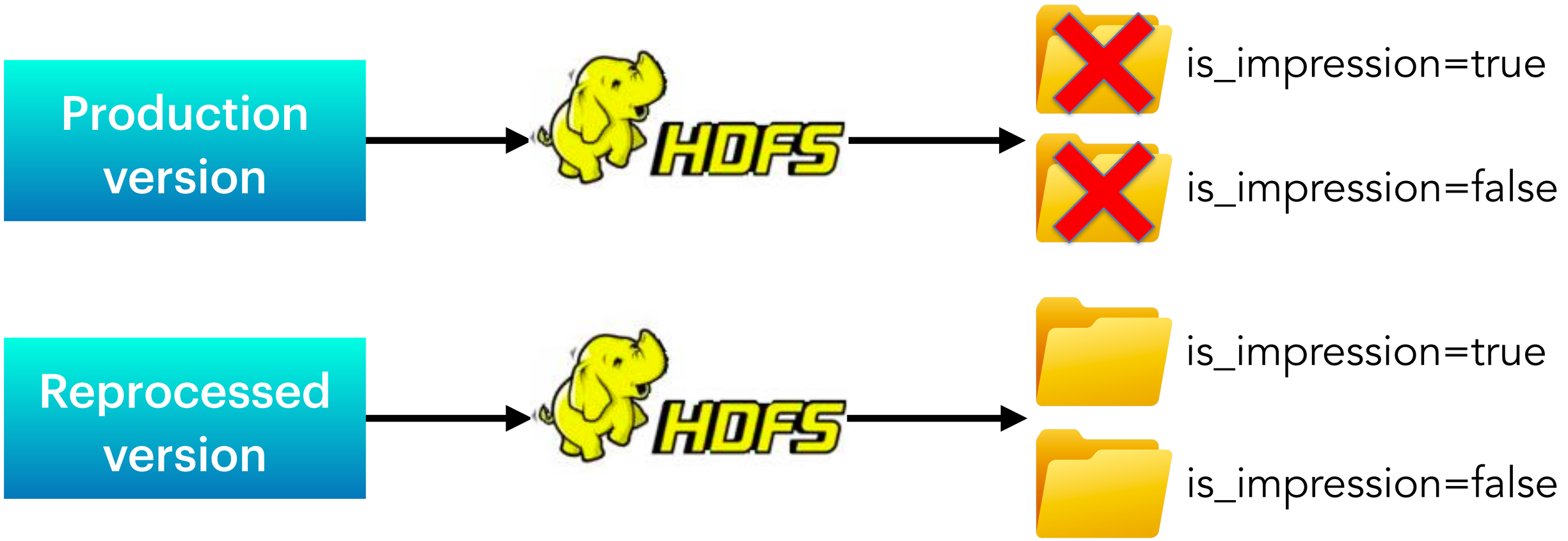
val **minTime** = *currentDay*.minus(config.*feedPeriod*)

listFiles.filter(file => file.*eventDateTime* isAfter **minTime**)

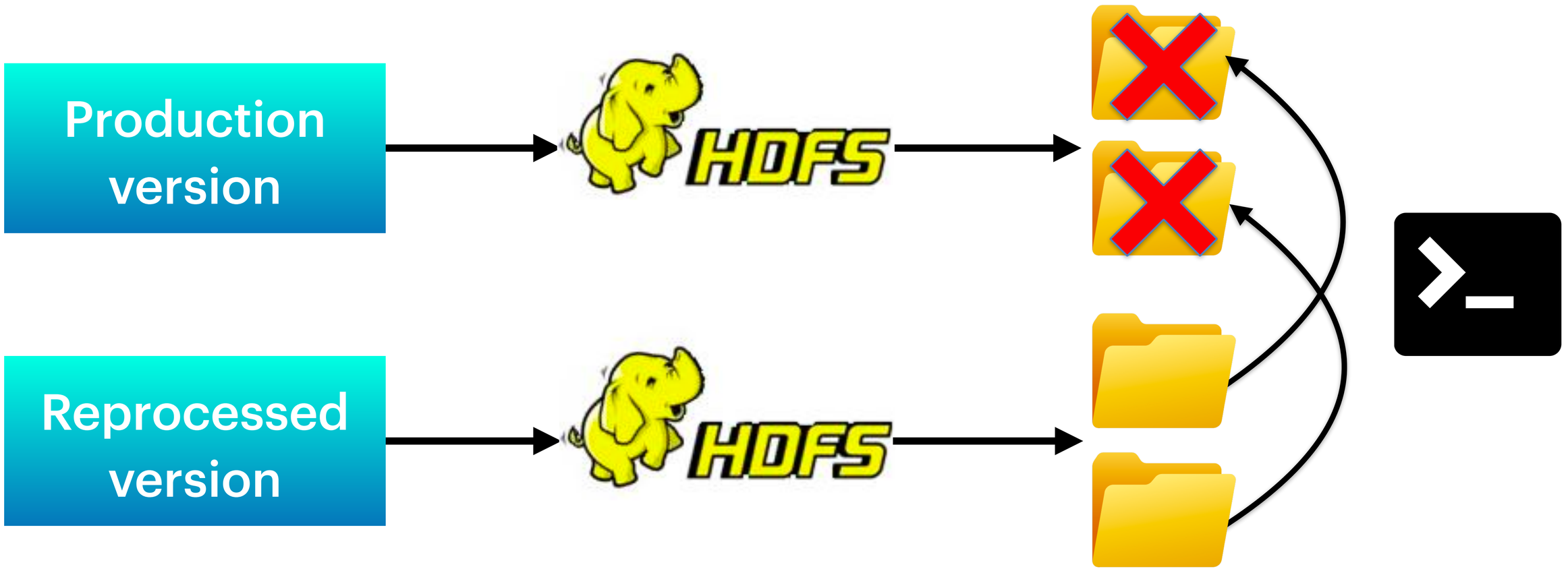
Reprocessing



Reprocessing

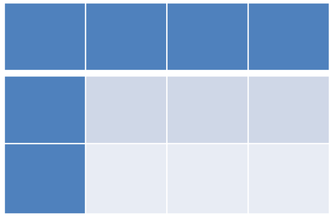


Reprocessing



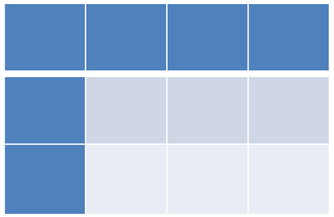
Reporting

Production version



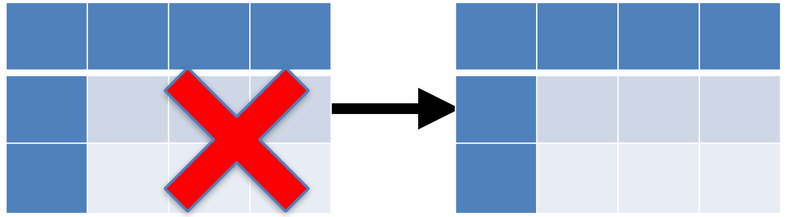
attribution_prod

Reprocessed version



attribution_reprocessed

Reporting



Dropped partitions

Reprocessed table

Future with Delta lake

Schema enforcement

Keeping track of changes

Time travel

Future with Delta lake

Parquet files => *Delta* files

Spark tables => *Delta* tables

...

Leveraging data versions through *Delta* tables history

Vacuum unsuitable data

Challenges

- Computing resources

Challenges

- Computing resources
- Speed of processing

Challenges

- Computing resources
- Speed of processing
- Complexity

Challenges

- Computing resources
- Speed of processing
- Complexity
- High cost of the errors

Conclusions

Conclusions

1. AdTech is an exciting domain for big data

Conclusions

1. AdTech is an exciting domain for big data

2. There is more than one approach to leveraging data

Conclusions

1. AdTech is an exciting domain for big data

2. There is more than one approach to leveraging data

3. There is always a room for improvement

My contact info

dead_flowers22

roksolana-d

roksolanadiachuk

roksolanad

Stand With Ukraine