Data Quality? Yes Please!

Bovard Doerschuk-Tiberi

PNSQC 2017

AKA “More Data Quality Please!”

What is Data Quality?

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There are many definitions of data quality but data is generally considered high quality if it is "fit for [its] intended uses in operations, decision making and planning."

- Wikipedia

Our Focus

Ensuring data quality in an event driven architecture

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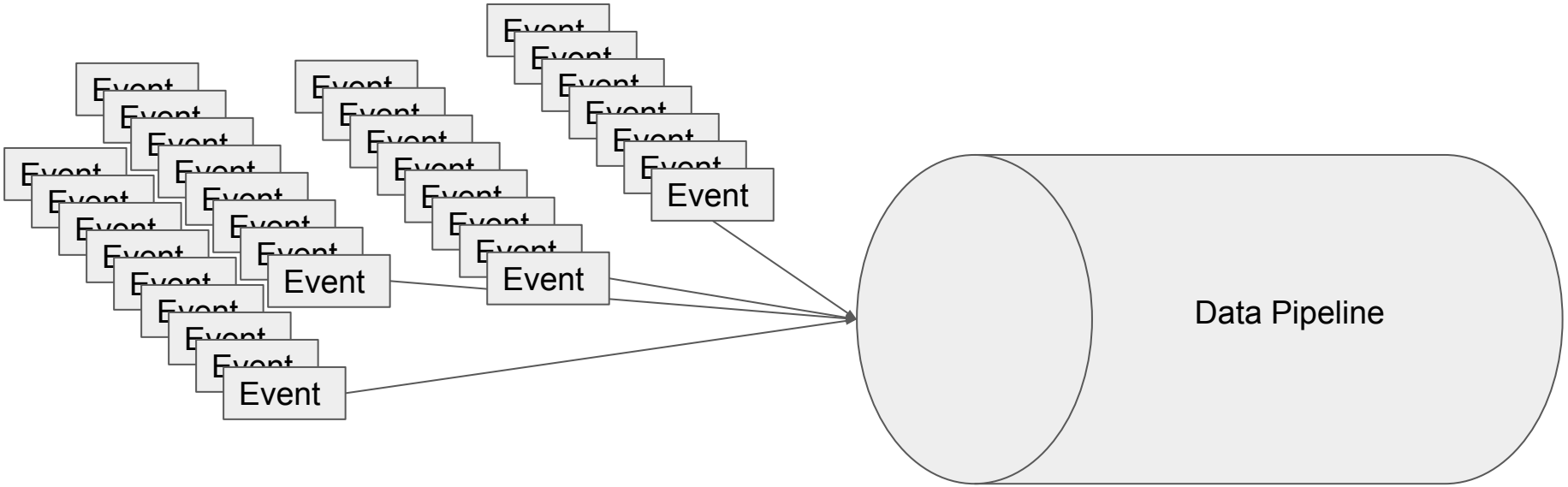
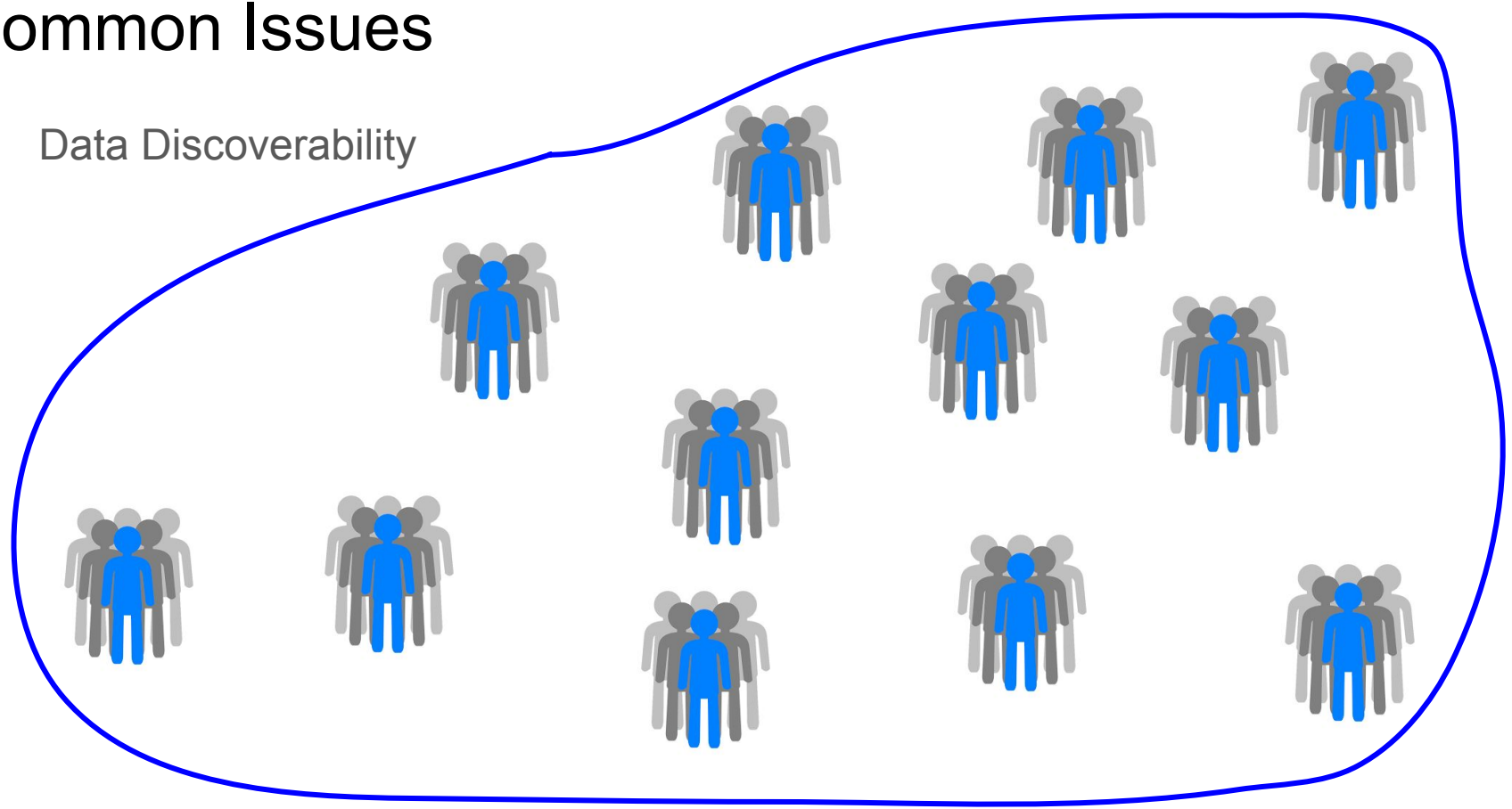


Common Issues

- Data Discoverability

Common Issues

- Data Discoverability



Common Issues

- Data Discoverability
- Data Standardization

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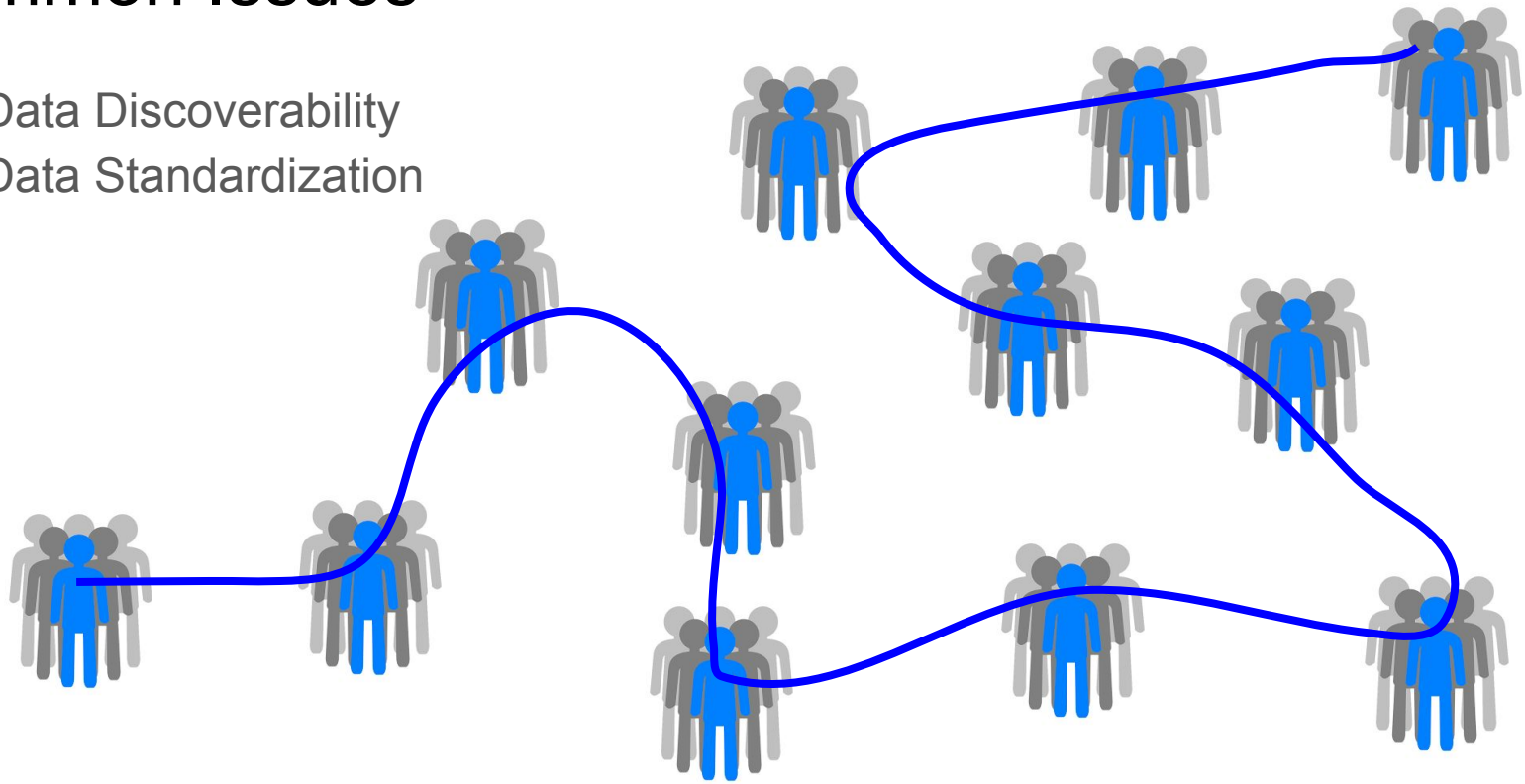

Common Issues

- Data Discoverability
- Data Standardization
- Data Completeness

Data Completeness

Complete

```
accout_id: 312353

user_id: 189678

document_id: 235789

timestamp: 1499486132

action: “save”
```

Not Complete

```
accout_id: null

user_id: “189678”

document_id: “TODO”

timestamp: -1499486132

action: [“save”]

extra_dimension: “lol!”
```

Common Issues

- Data Discoverability
- Data Standardization
- Data Completeness

Solution!

A central place…

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A central place…

with a list of all events...

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A central place…

with a list of all events…

a common set of dimensions...

Solution!

A central place…

with a list of all events…

a common set of dimensions…

and a well defined event definition...

Strongly `Typed` Data

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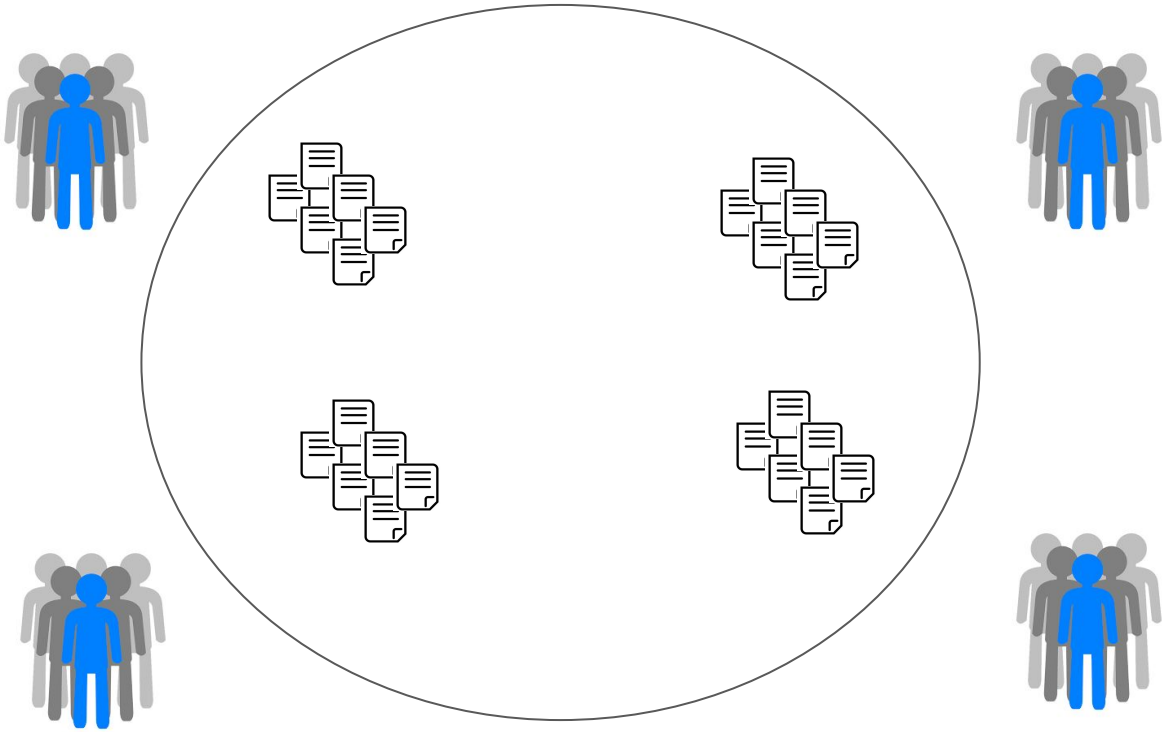
(all aboard the strongly typed hype train!)

A central location for event schema



Event Schema

A list of dimension definitions

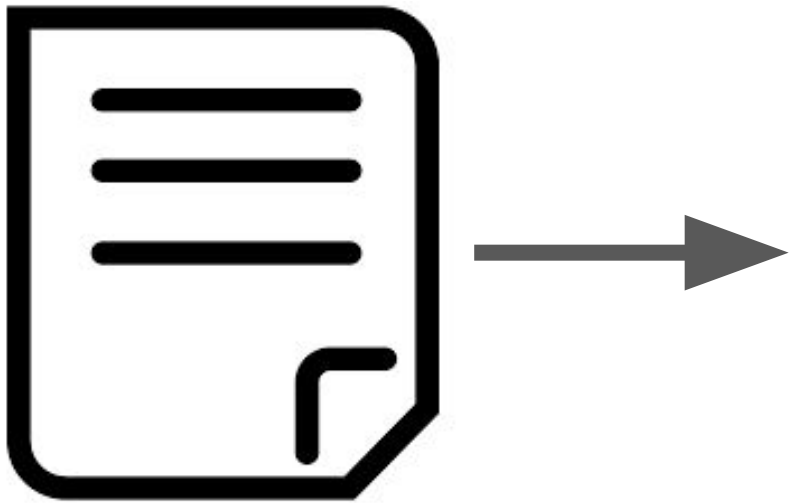
```
dimension: user_id

    type: string

    required: true

    description: id of the user
```

Event Schema

Event: Document Save

- **accout_id**: required, int
- **user_id**: required, int
- **document_id**: required, int
- **timestamp**: required, int

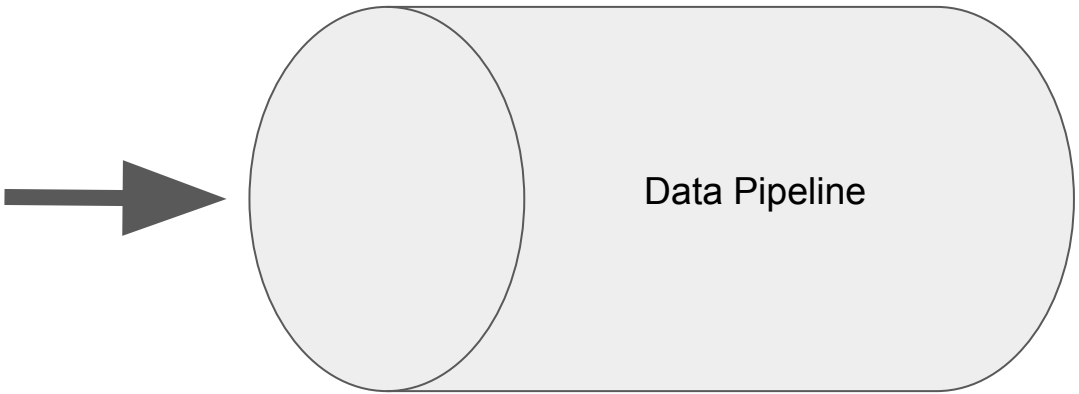
Event Schema Compilation



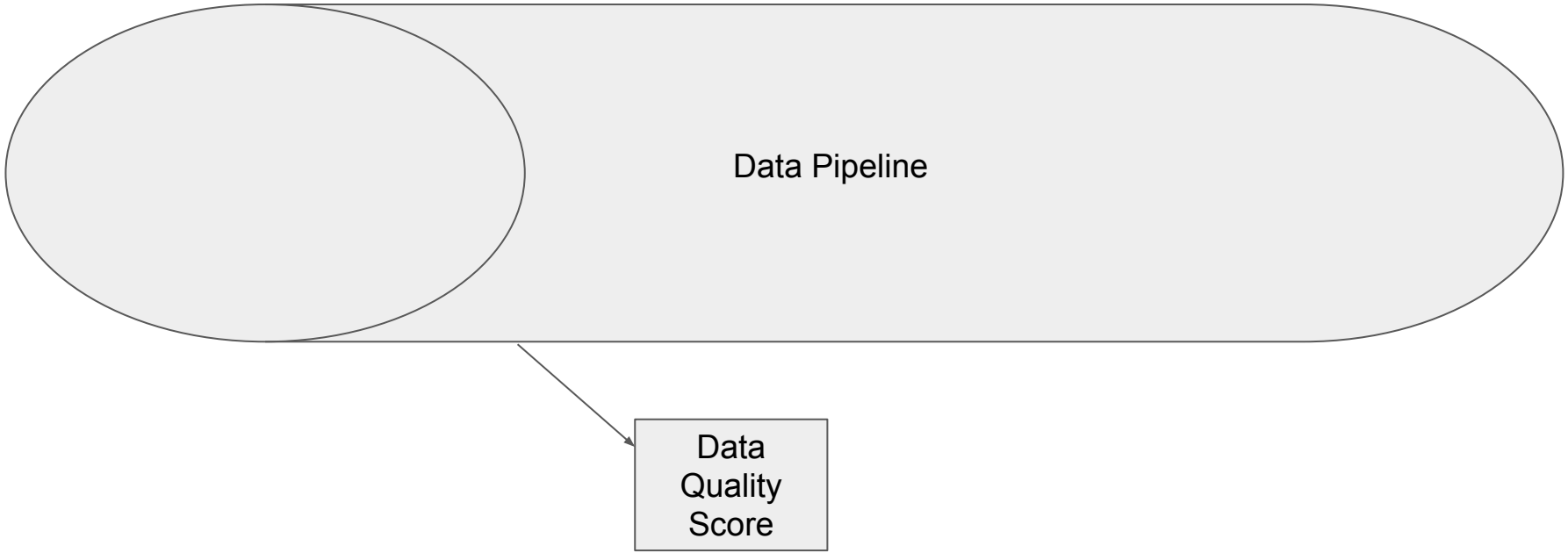
```
public DocumentSaveEvent(
    int account_id,
    int user_id,
    int timestamp,
    int doc_id
)
```

Sending Events

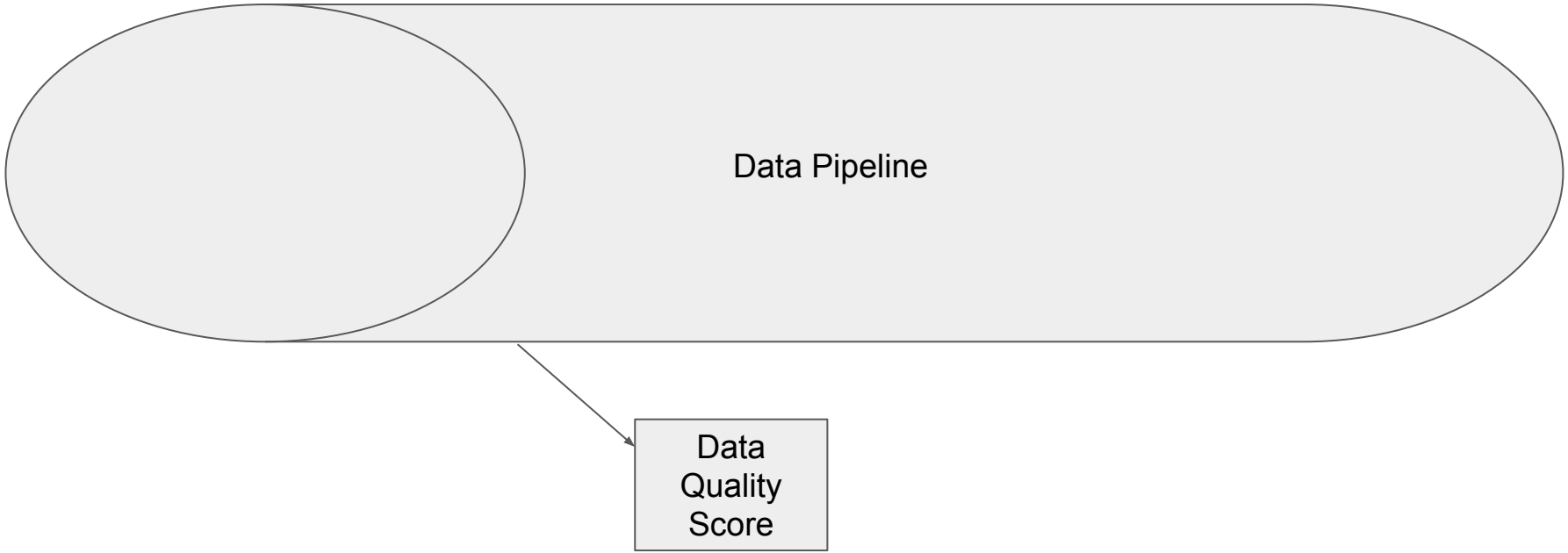
```
client.send(DocumentSaveEvent(
    account_id=689345,
    user_id=250983,
    timestamp=date.now(),
    doc_id=233584
))
```



Sample and check



Sample and check



Data Quality Score

```
DocumentSaveEvent(

    account_id=689345,

    user_id=250983,

    timestamp=date.now(),

    doc_id=233584

)
```

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Data Quality Score

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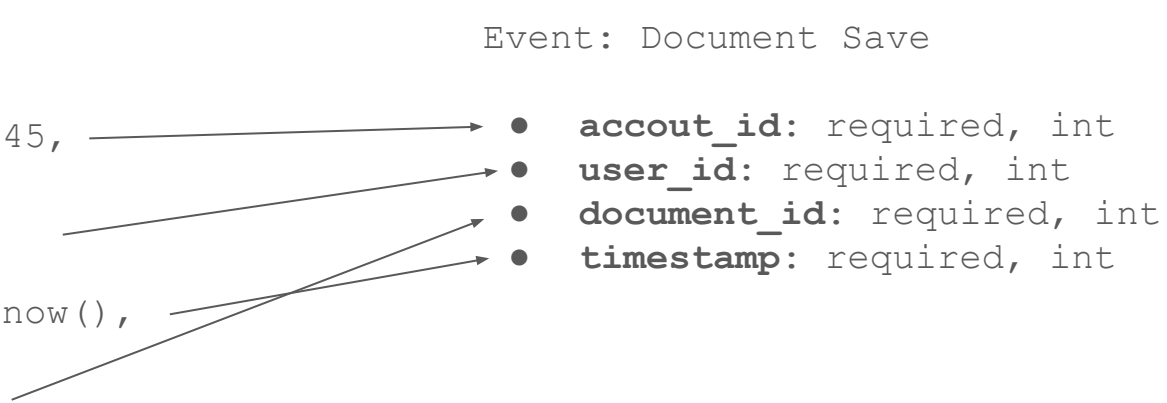
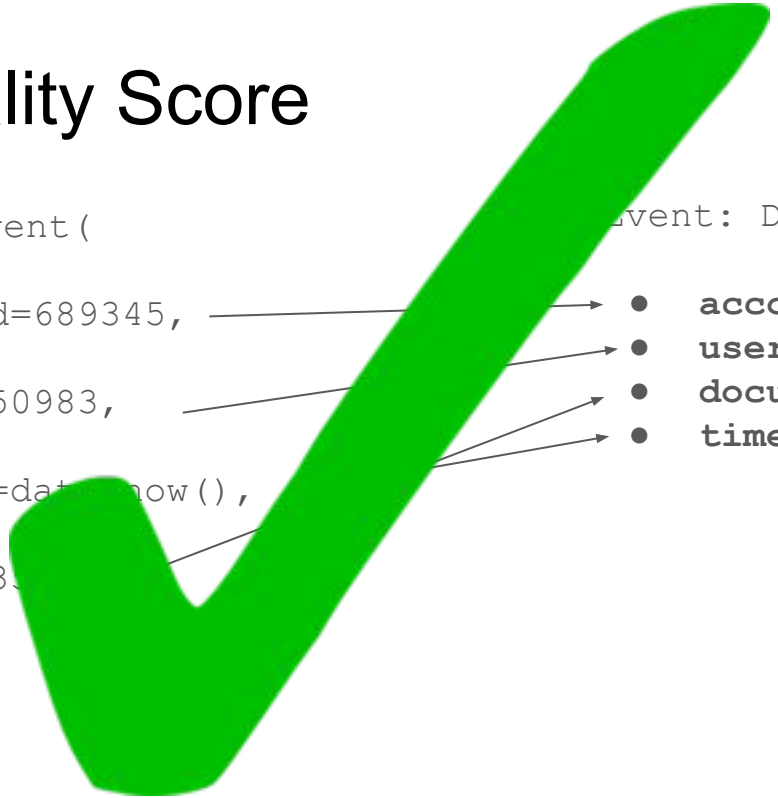


Data Quality Score

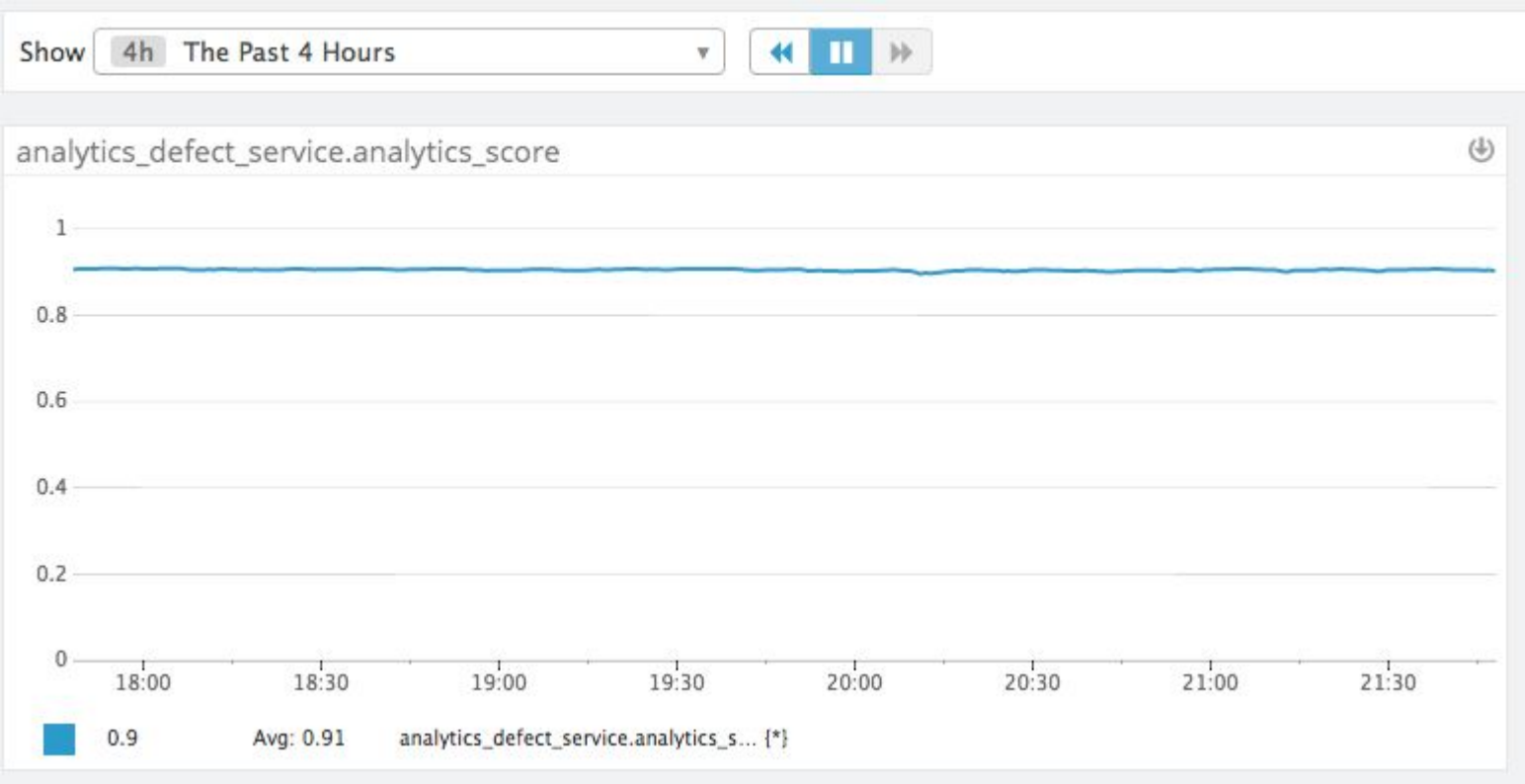
```
DocumentSaveEvent(

    account_id=689345,

    user_id=250983,

    timestamp=dat    now(),

    doc_id=233

)
```



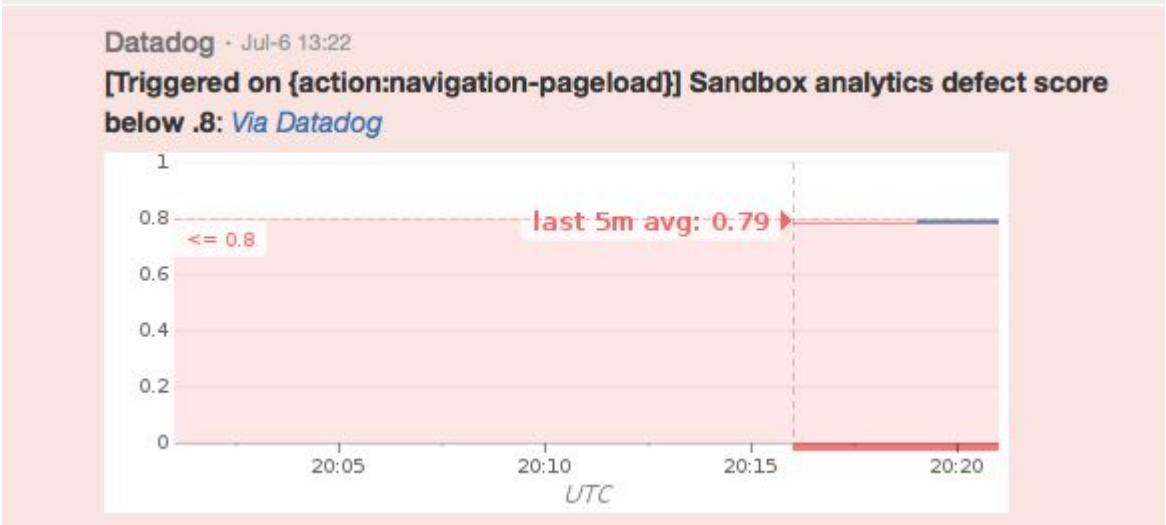
Event: Document Save

- **accout_id**: required, int
- **user_id**: required, int
- **document_id**: required, int
- **timestamp**: required, int

Track this score



Alert on this score



Schema Registry

- An accessible, central, searchable, versioned center of all analytics
- Schema’s compile to class definitions
- Clients send these
- Check them for quality

Demo Time!

Time for a demo!