# Streaming App Changes to Event Store

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# About Me

- Platform Engineer
  - Specialties:
    - DBs, Stream, SOA, infra etc
- Love
  - Distributed systems
  - Open source contributions
    - Apache Pulsar, MySQL
  - Communities & conferences!
    - Talks
      - https://www.slideshare.net/shiv4289/
      - https://www.youtube.com/watch?v=Bx4csRi1b8Y&list=PLA7KYGkuAD071myyg4X5ShsDHsOalpHOq

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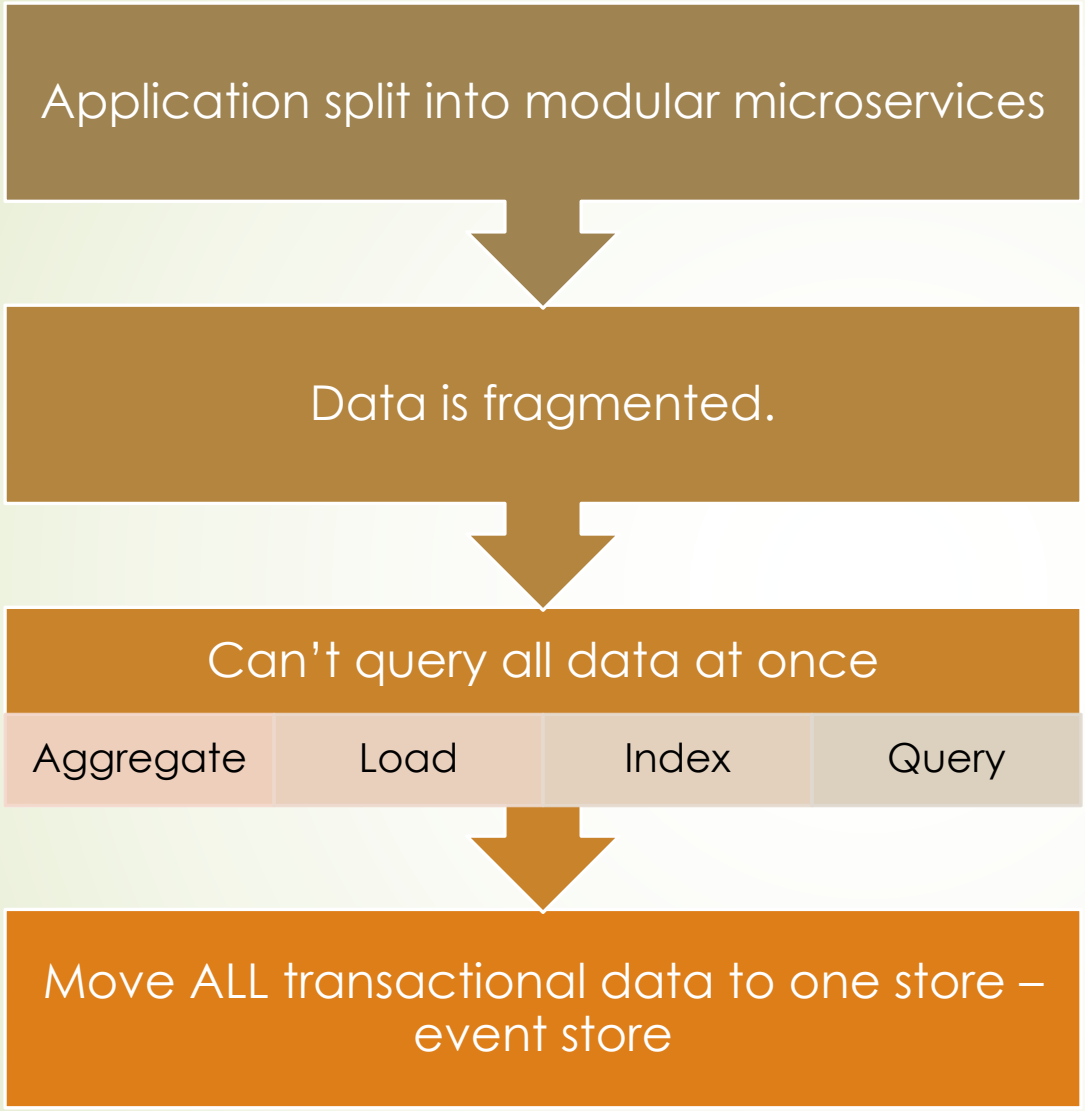
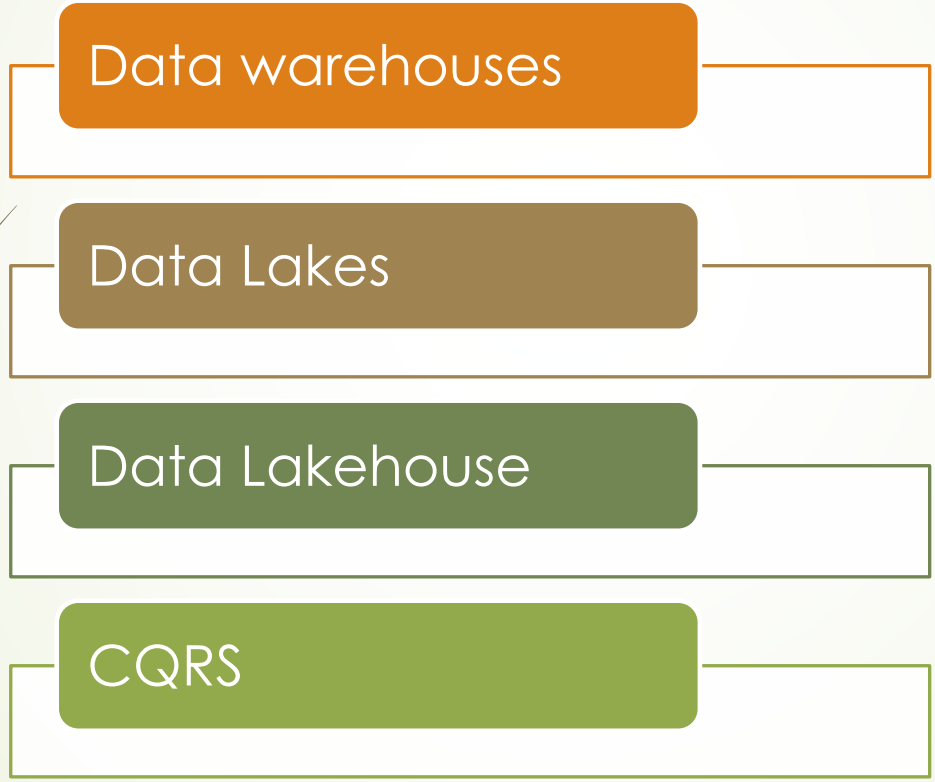
# The days of Monolith

- One application
- Data in one place
- Easy to query and fetch information




Microservices are hard!

# Event Store – use cases



# Change Data Capture (CDC)

## What

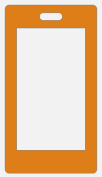
Identify

Capture

Deliver

# Change Data Capture (CDC)

How



Send Events from App Code

Tail database

# CDC: from App Code

- Capture
  - Bad
    - Write code for each event
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    - Can leverage Flexibility in code
    - App has more data than database.
      - Eg : Data aggregated from other apps

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  - Good
    - Can leverage Flexibility in code
    - App has more data than database.
      - Eg : Data aggregated from other apps
- Delivery:
  - Mostly asynchronously
  - Synchronous if critical transaction, extra latency is ok.

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    - Different structure in transactional logs of each DB
    - Deal with log format changes in upgrades.
    - Deal with DDL changes
    - Maybe DB reverted transaction while recovering..

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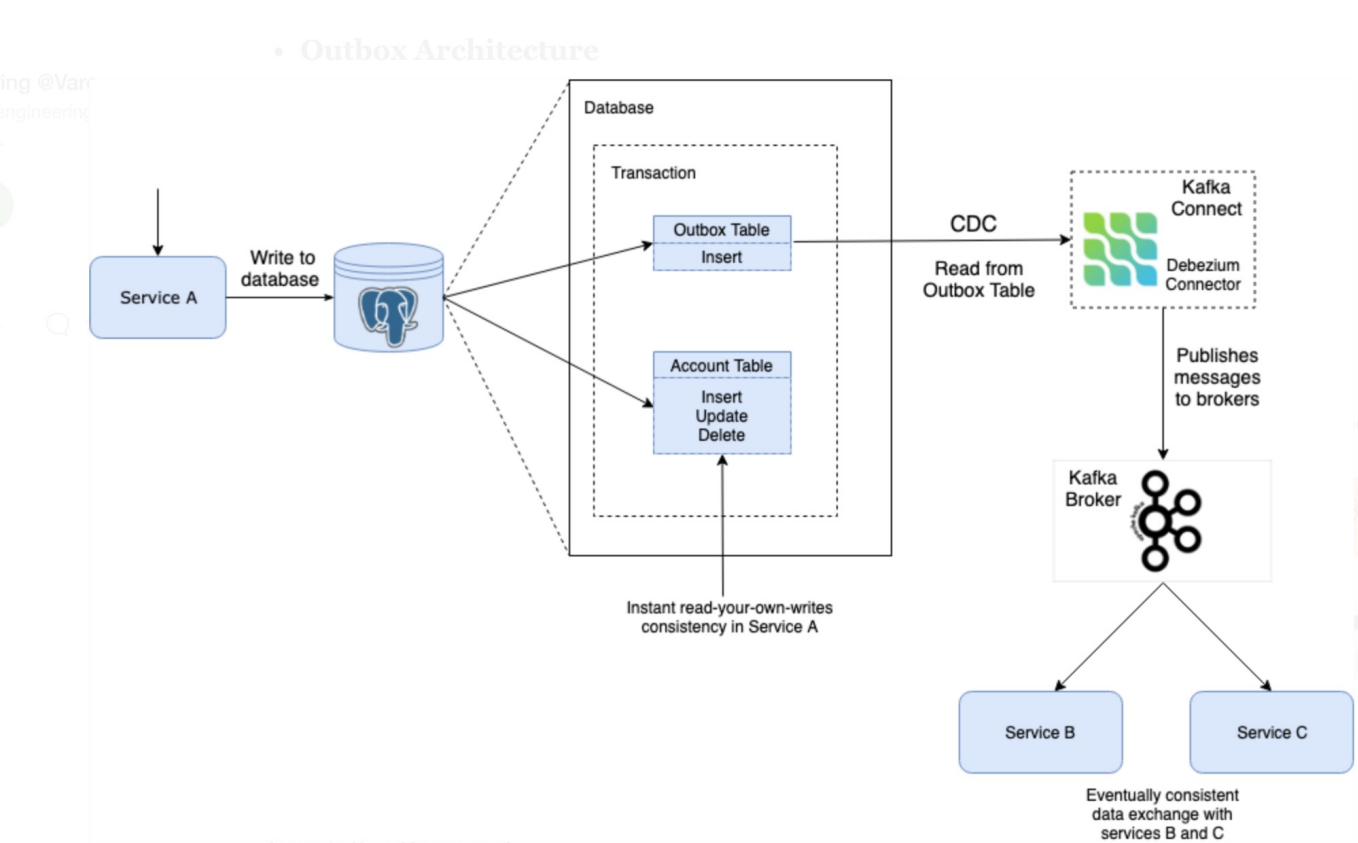
  - Bad
    - Different structure in transactional logs of each DB
    - Deal with log format changes in upgrades.
    - Deal with DDL changes
    - Maybe DB reverted transaction while recovering..
  - Good
    - Easy control from platform team.
    - No extra code. No extra latency.
    - App and CDC decoupled via queue and offset.
    - Standard tools available : Debezium, maxwell

# CDC: Outbox Pattern




https://medium.com/engineering-varo/event-driven-architecture-and-the-outbox-pattern-569e6fba7216

# Hybrid Databases (HTAP)

- HTAP: Hybrid Transactional/Analytical Processing
- Evolving Landscape
- One database to serve
  - OLTP **and**
  - OLAP
- Examples:
  - SingleStore DB
  - TiDB
  - MySQL Heatwave

# References

- Change Data Capture
  - https://en.wikipedia.org/wiki/Change_data_capture
- Debezium
  - https://github.com/debezium
- Maxwell
  - http://maxwells-daemon.io/
  - https://github.com/zendesk/maxwell
  - https://medium.com/@purbon/patterns-to-track-changes-in-data-8d239734dc32
- Outbox pattern
  - https://medium.com/engineering-varo/event-driven-architecture-and-the-outbox-pattern-569e6fba7216

# QUESTIONS?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# THANK YOU!