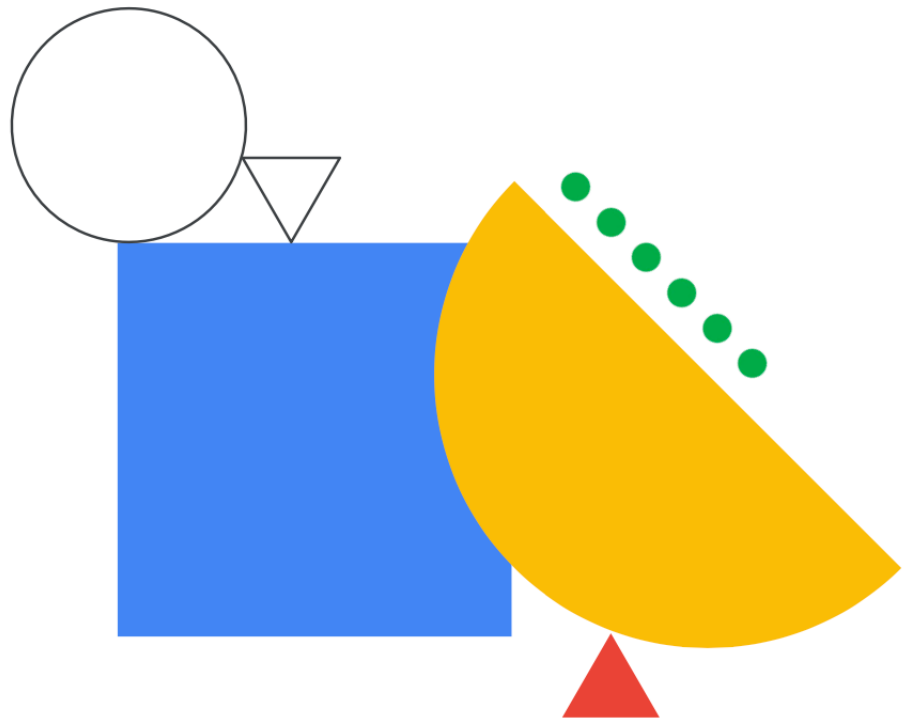
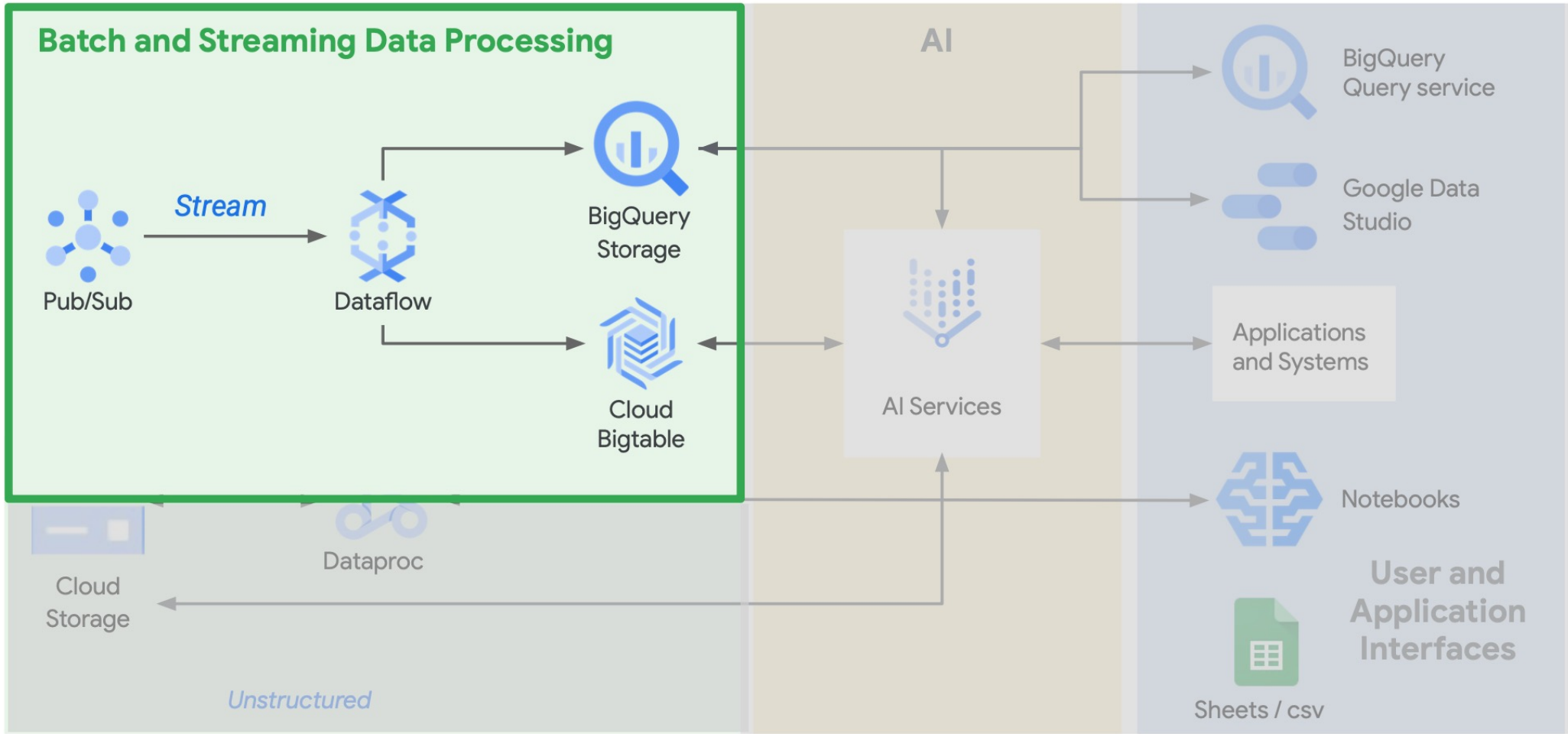
Google Cloud

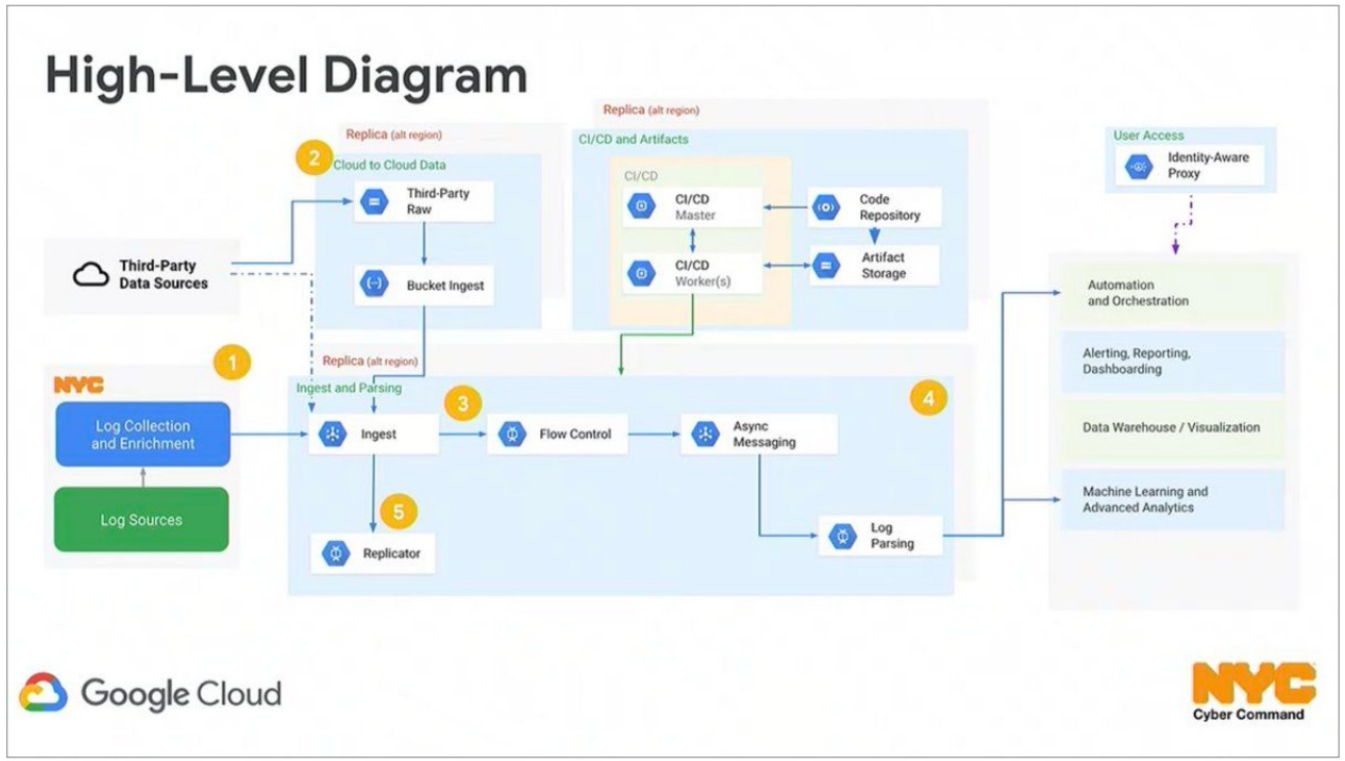
Introduction to Processing Streaming Data



Streaming data processing



Many enterprises want to enable their analysts to be able to make decisions in real-time; NYC3 did it

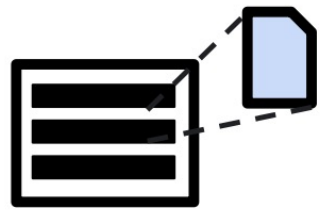


> Real time is king, and that's the only data valuable to us
>
> **Noam Dorogoyer**
> New York City Cyber Command

Article in GCN: https://gcn.com/articles/2019/08/01/nyc-cloud-cyber-pipeline.aspx

Talk at NEXT 2019: https://www.youtube.com/watch?v=x4yQY8yhVJY

Streaming is data processing for unbounded data sets



Bounded Data (Batch)

- Finite data set
- Usually complete
- Time of elements is usually disregarded
- Typically at rest
- Held in durable storage

Unbounded Data (Stream)

- Infinite data set
- Never complete
- Time of elements is usually significant
- Typically in motion
- Held in temporary storage

Stream analytics has many applications

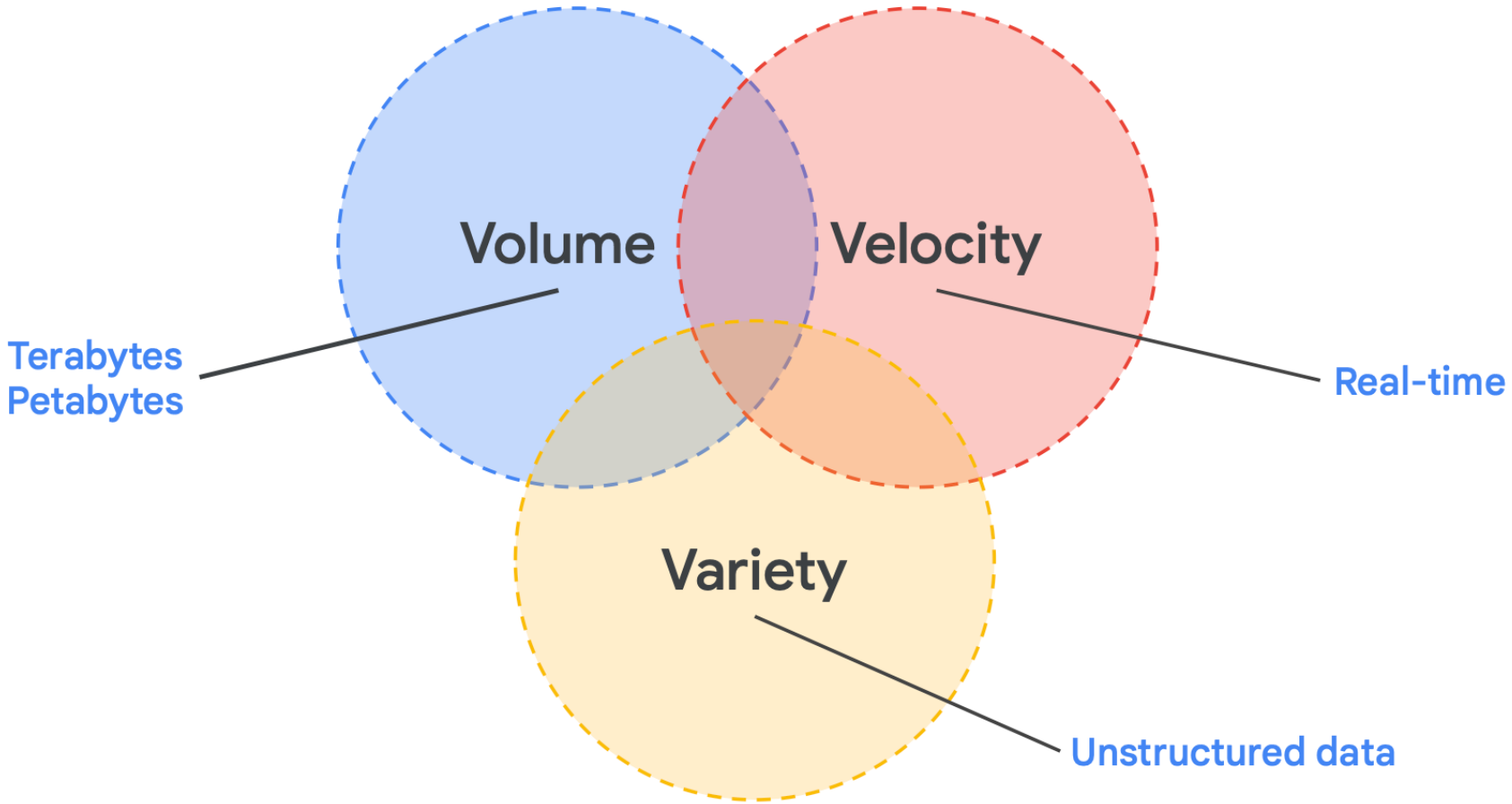
Data integration (10 sec - 10 min)

- Data warehouses become real-time
- Take load off source databases with change data capture (CDC)
- Microservices require databases and caches

Online decisions (100 ms - 10 sec)

- Real-time recommendations
- Fraud detection
- Gaming events
- Finance back office apps

How to handle data volume, velocity, and variety?



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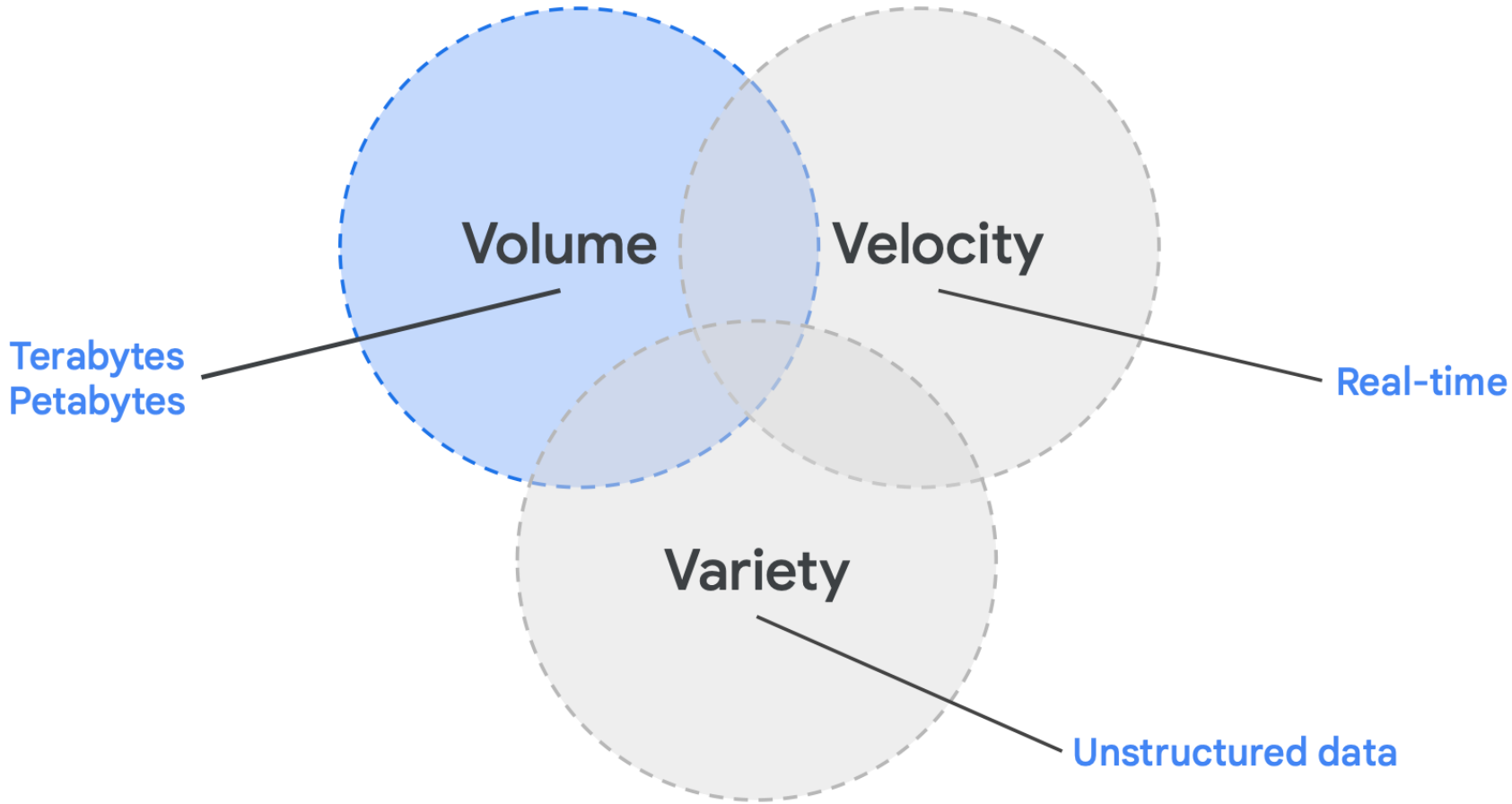

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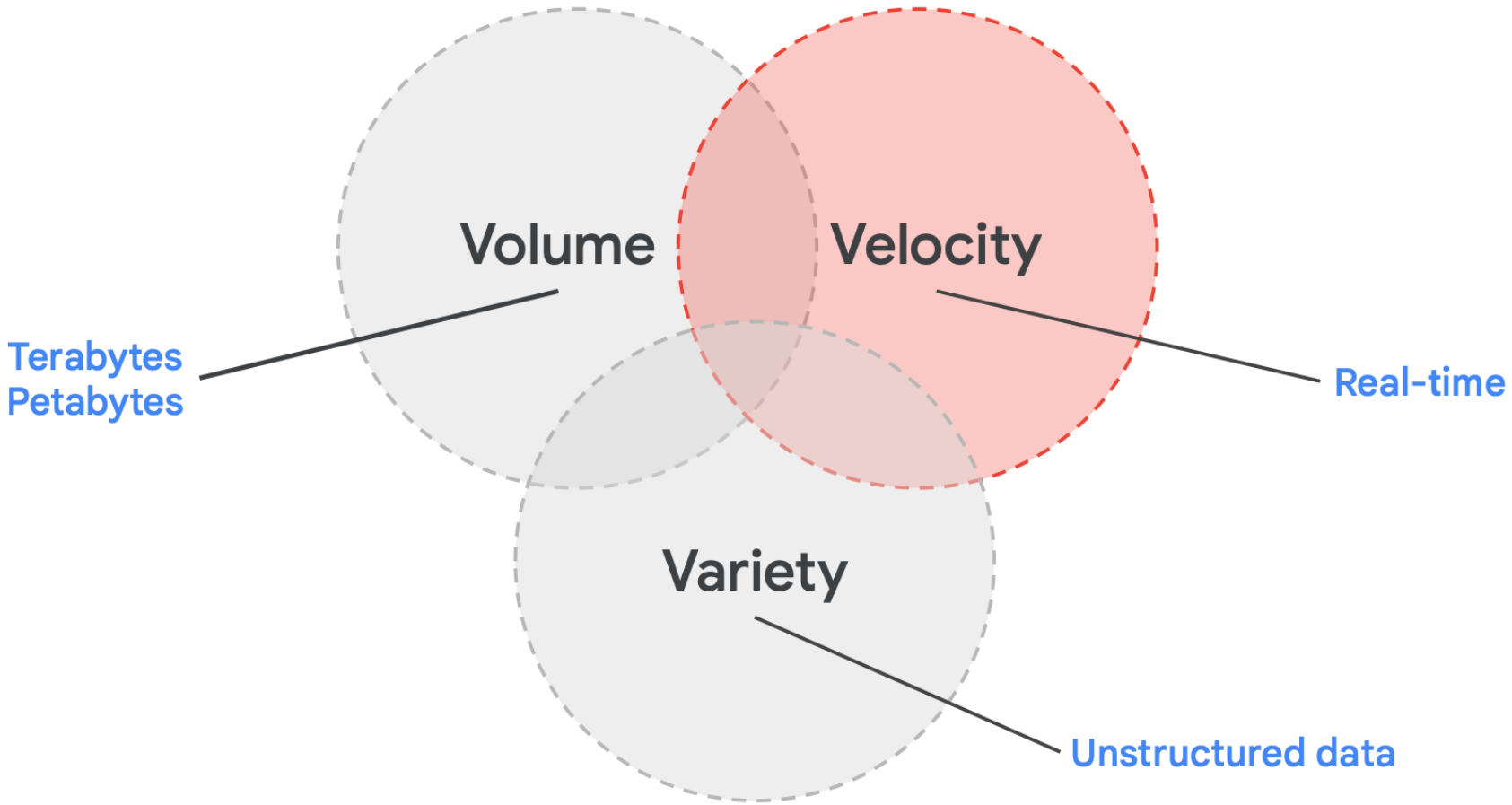

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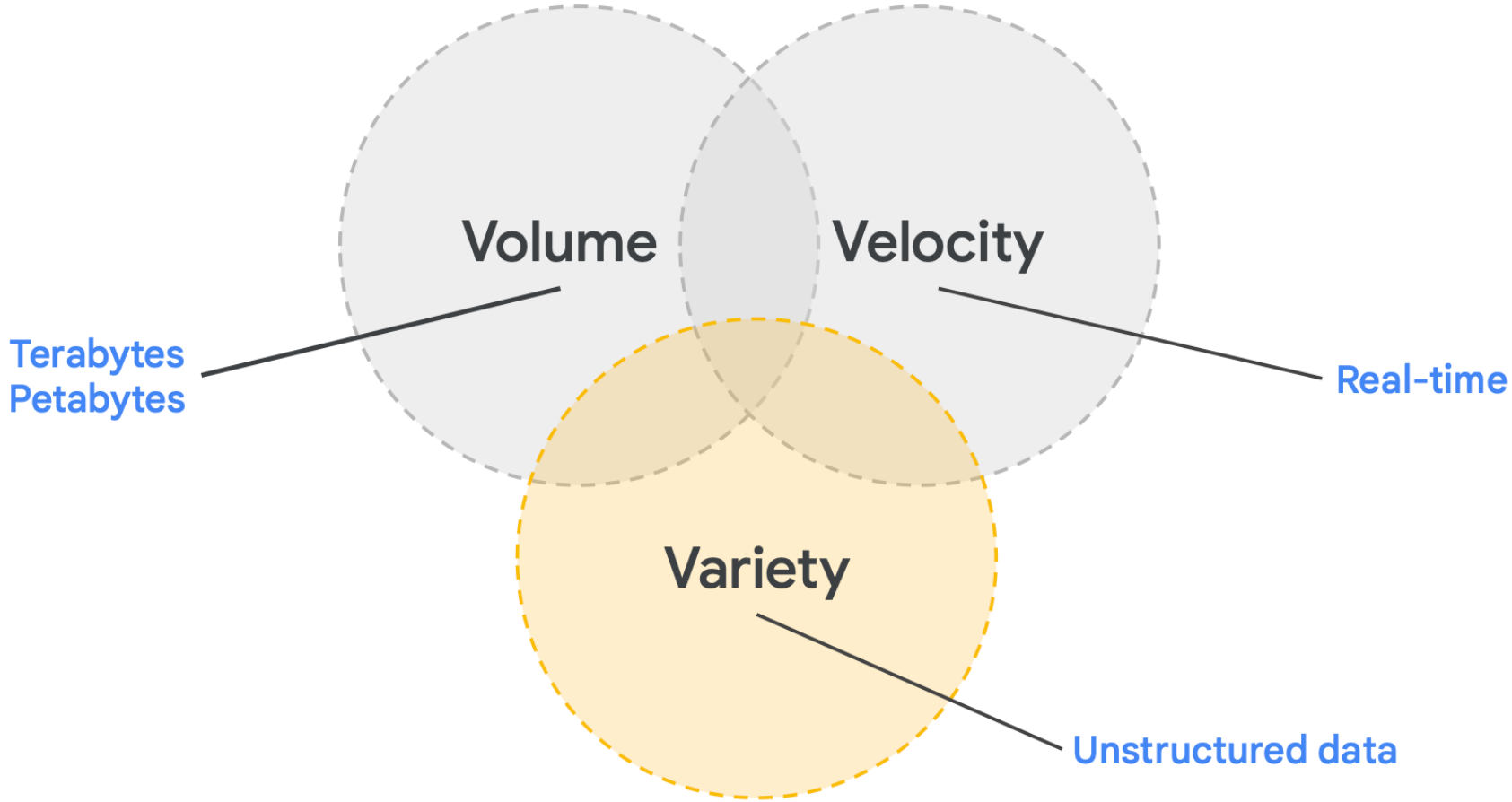
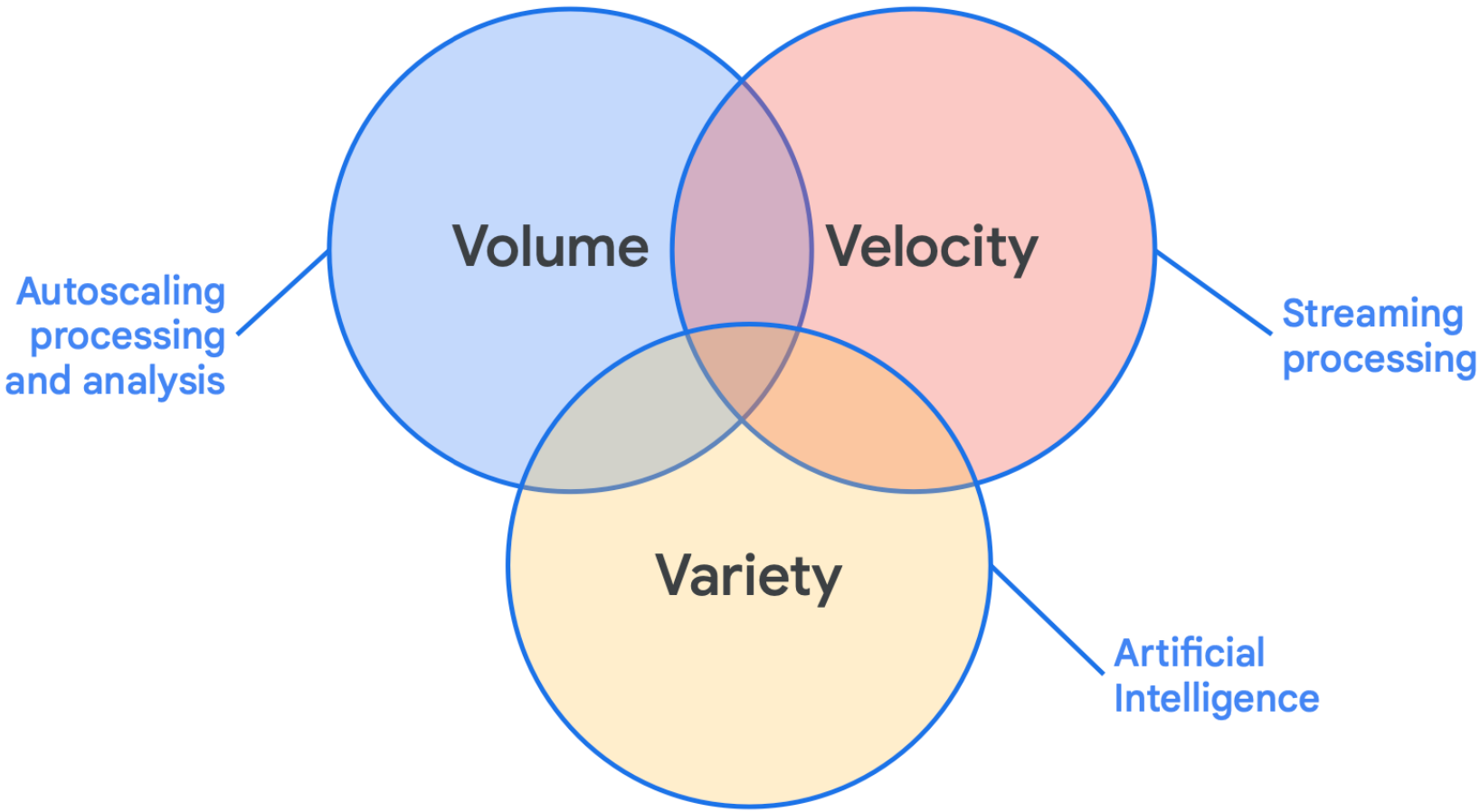


Autoscaling, Machine Learning, and Streaming



Google Cloud products help you address key challenges in stream data processing and analytics

Pub/Sub

1

Changing and variable volumes of data

Dataflow

2

Process data without undue delays

BigQuery

3

Need ad-hoc analysis and immediate insights

Stream analytics includes some common steps