# Why is Big Data Processing Different?

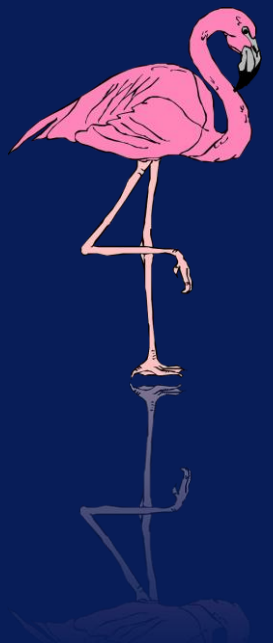
# After this video you will be able to..

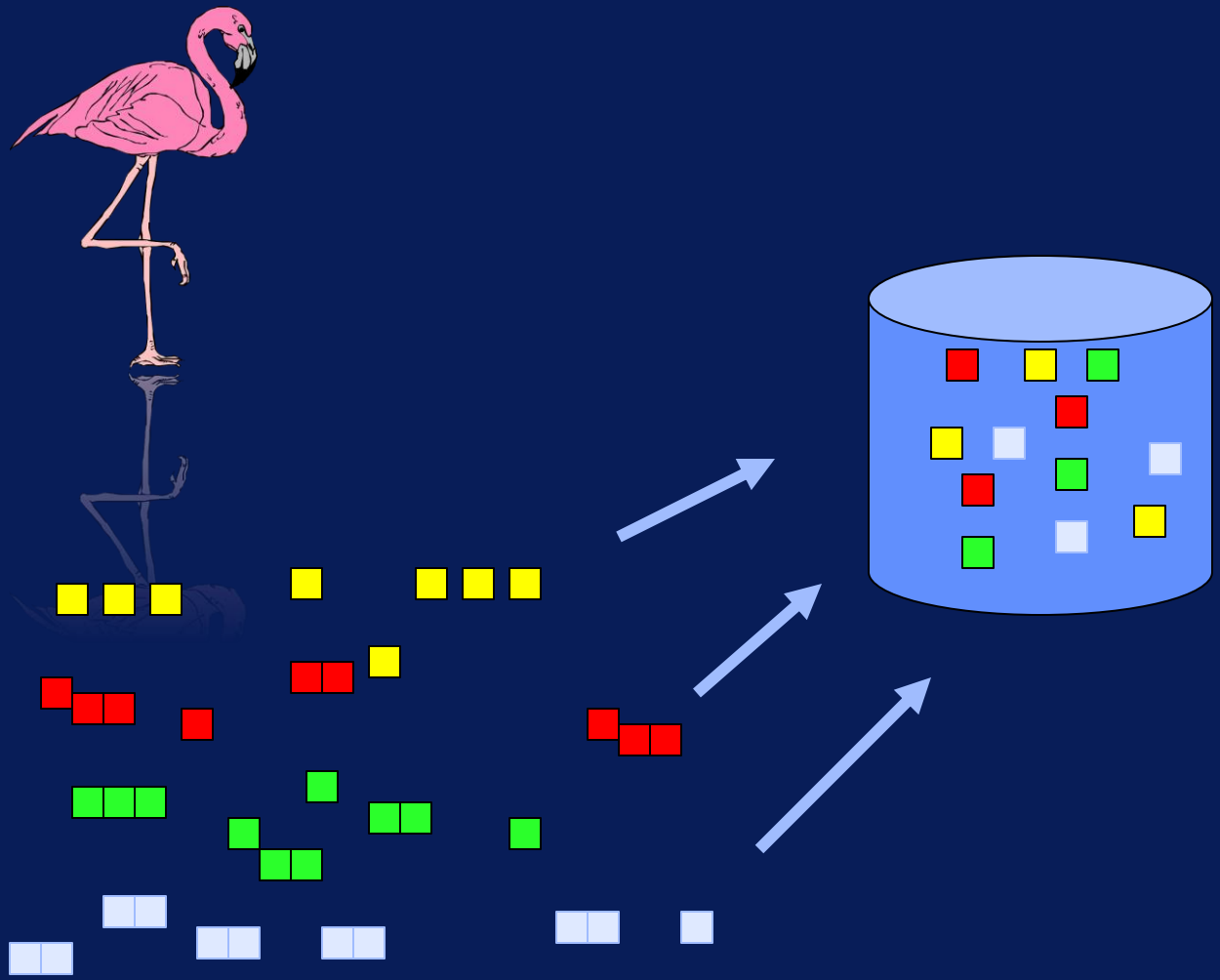
- Summarize the requirements of programming models for big data and why you should care about them

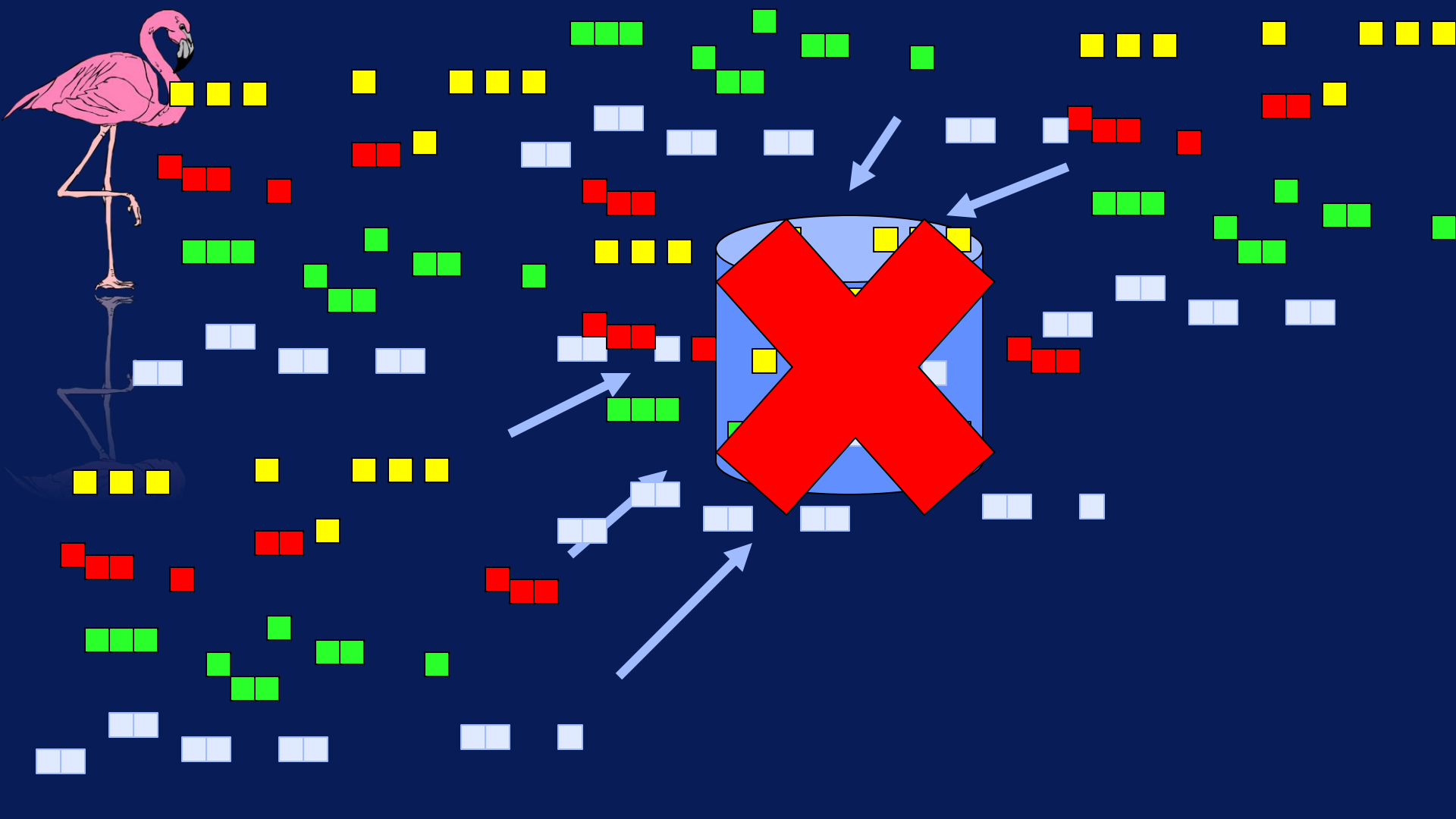
- Explain how the challenges of big data related to its variety, volume and velocity affects its processing

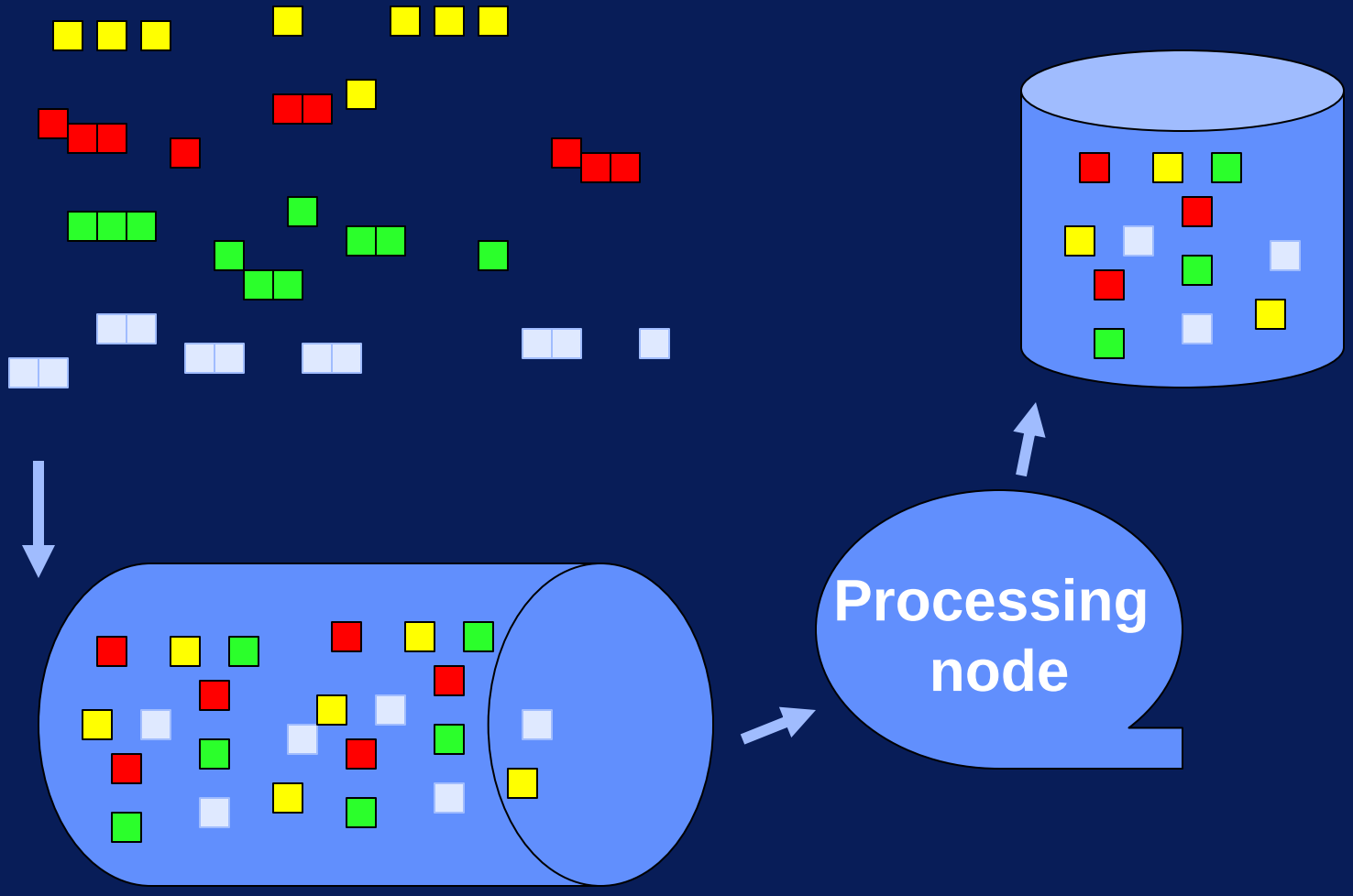
# Requirements for Big Data Systems

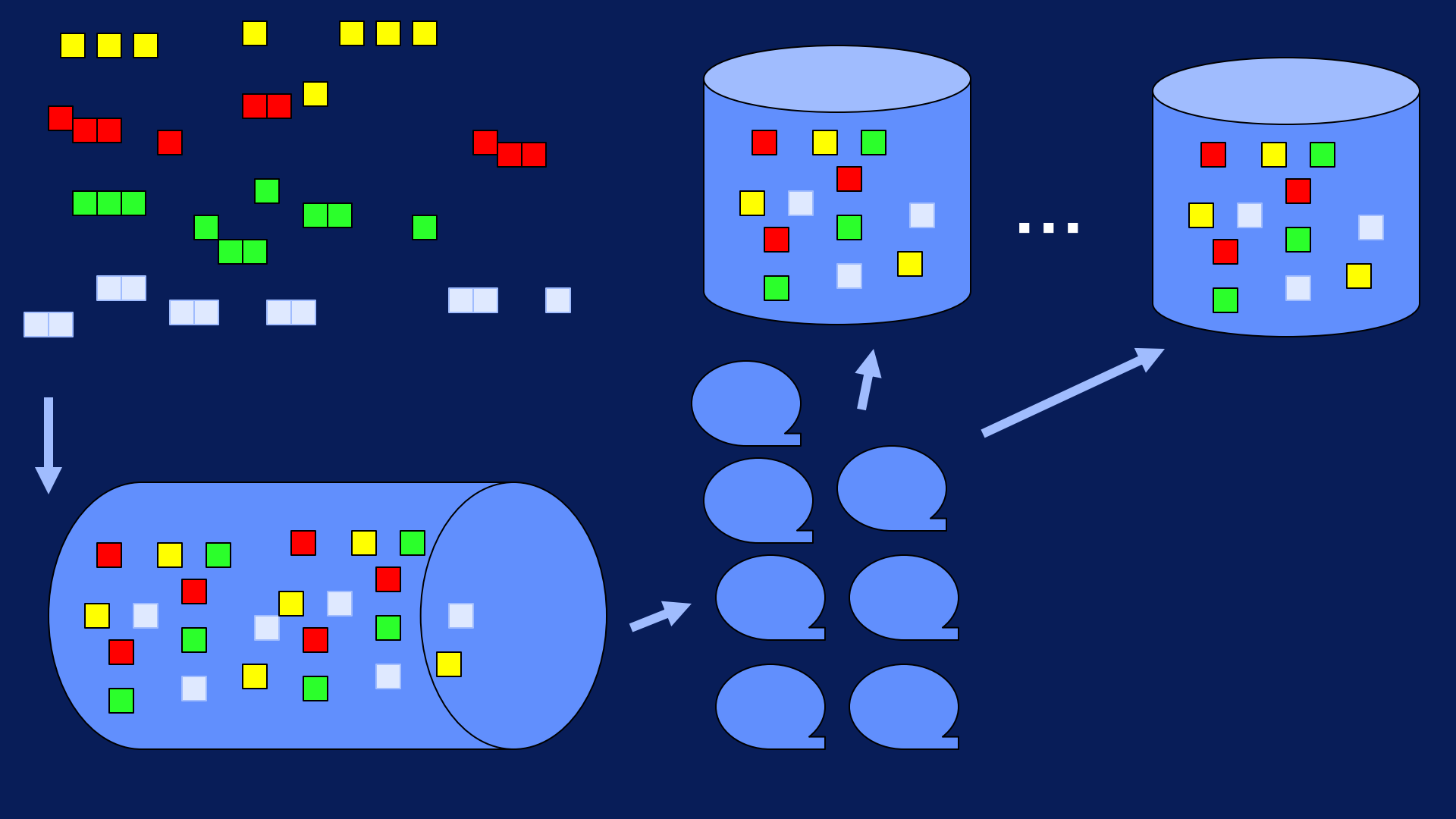
# A Big Data System for an Online Game

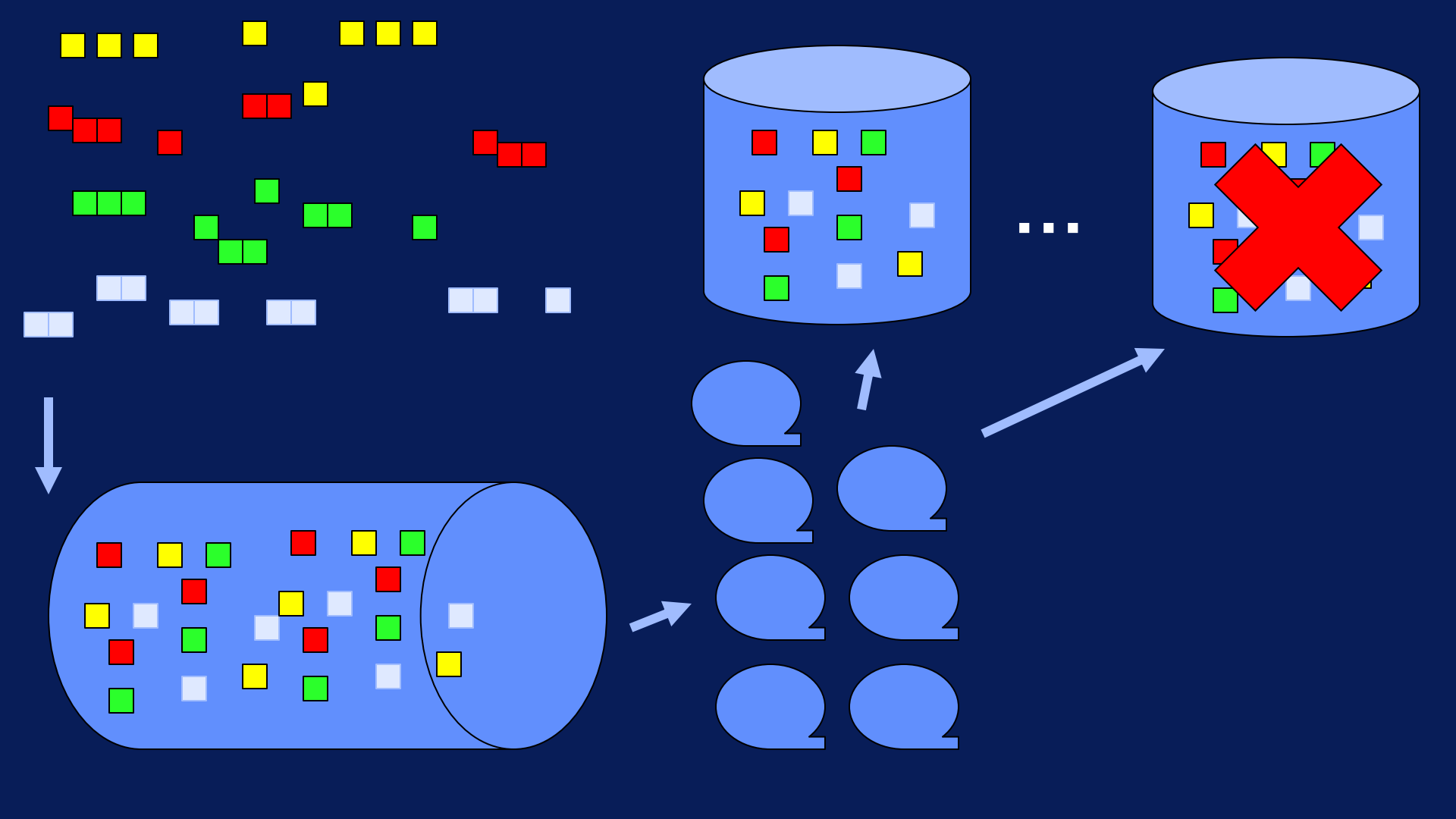


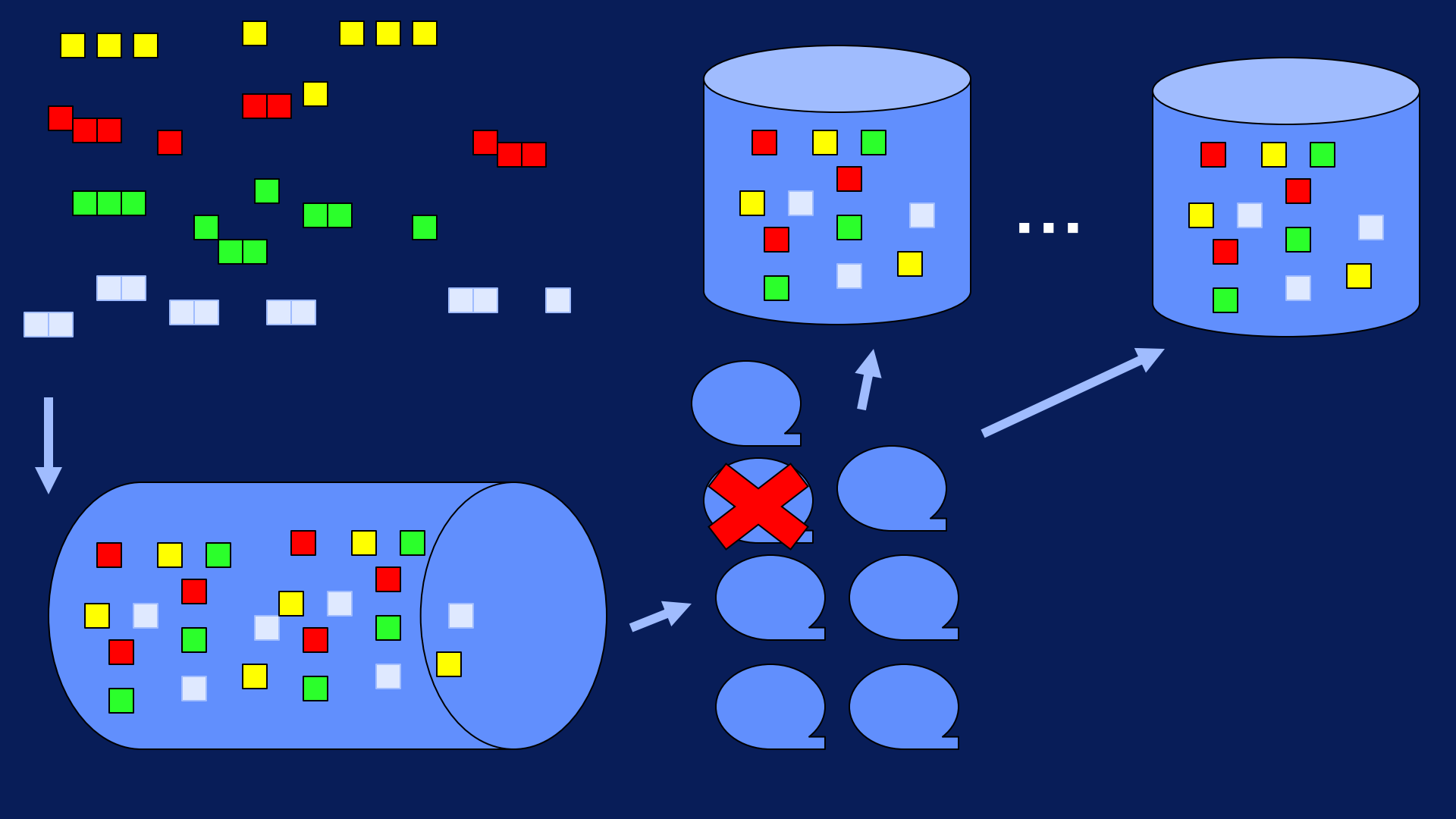


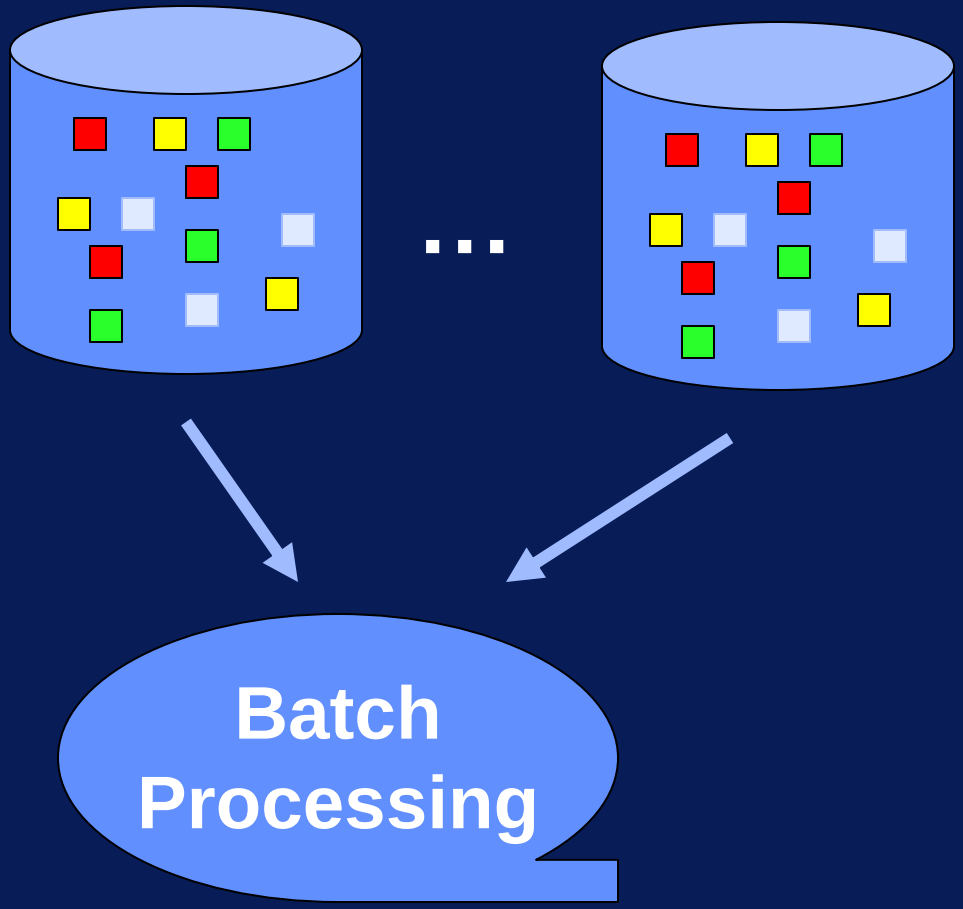



Processing node

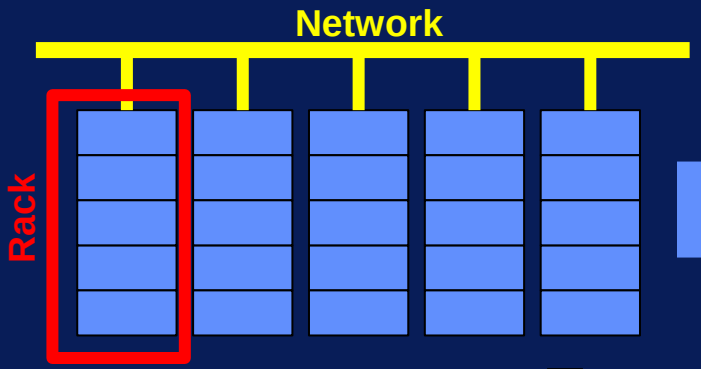




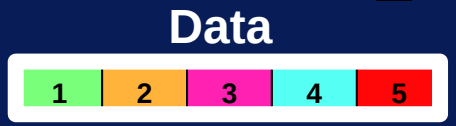


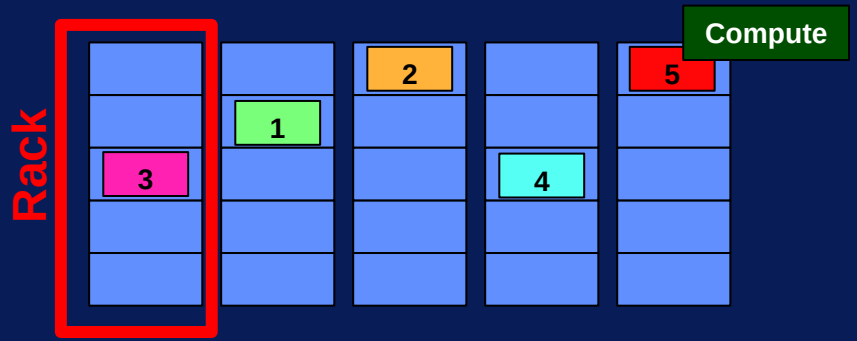

...
Batch
Processing

Scalability
Complexity



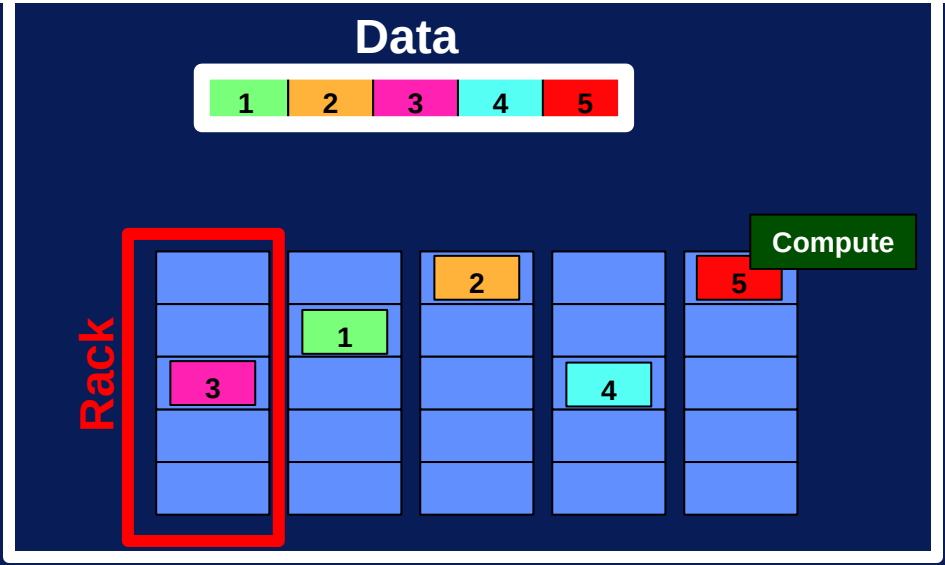

# Data-parallel scalability



# Programming Model = abstractions

Runtime Libraries + Programming Languages



# Requirements for Big Data Systems

# 1. Support Big Data Operations

**Split volumes of data**

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**Access data fast**

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**Split volumes of data**

**Access data fast**

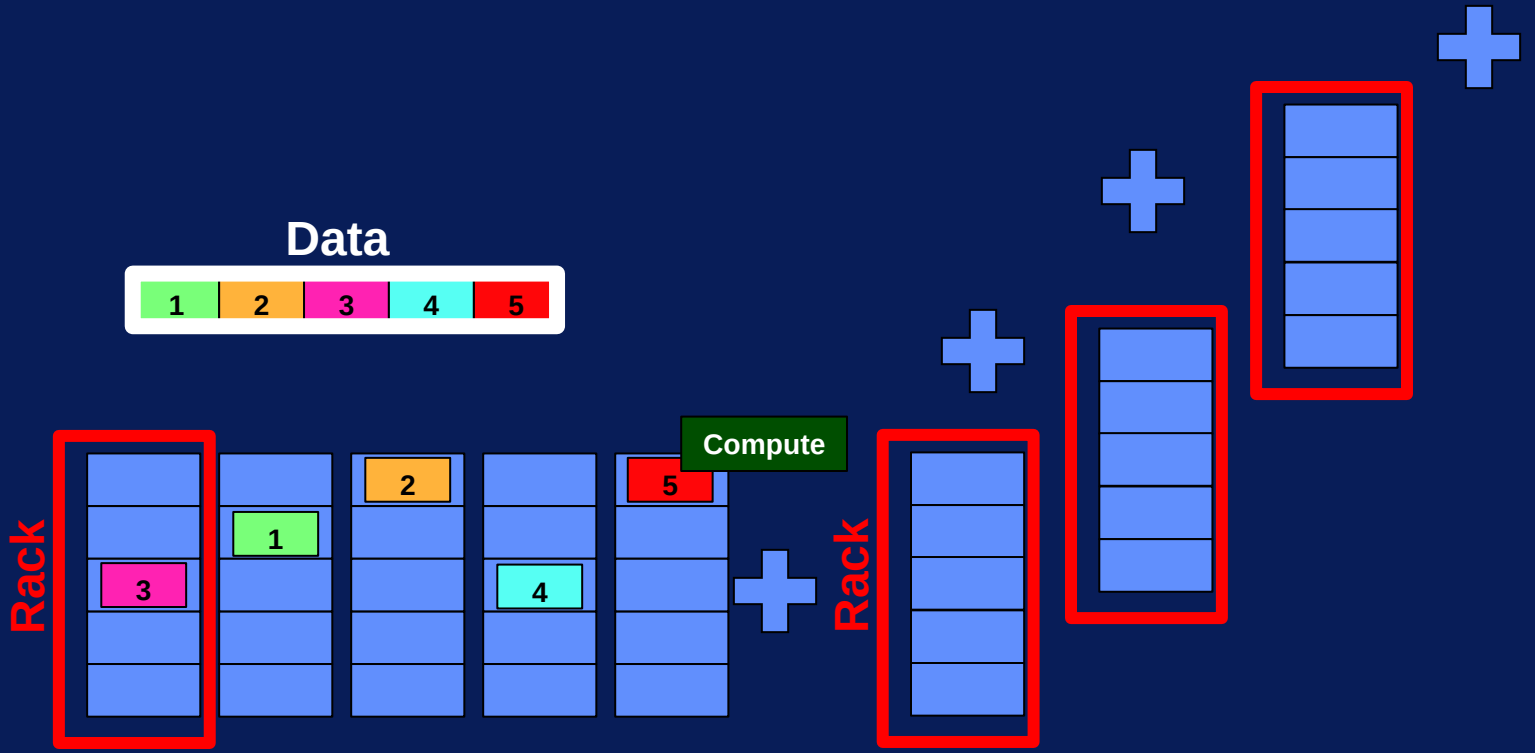
**Distribute computations to nodes**

# 2. Handle Fault Tolerance

**Replicate data partitions**

**Recover files when needed**

# 3. Enable Adding More Racks



# 4. Optimized and extensible for many data types

Document

Table

Graph

Key-value

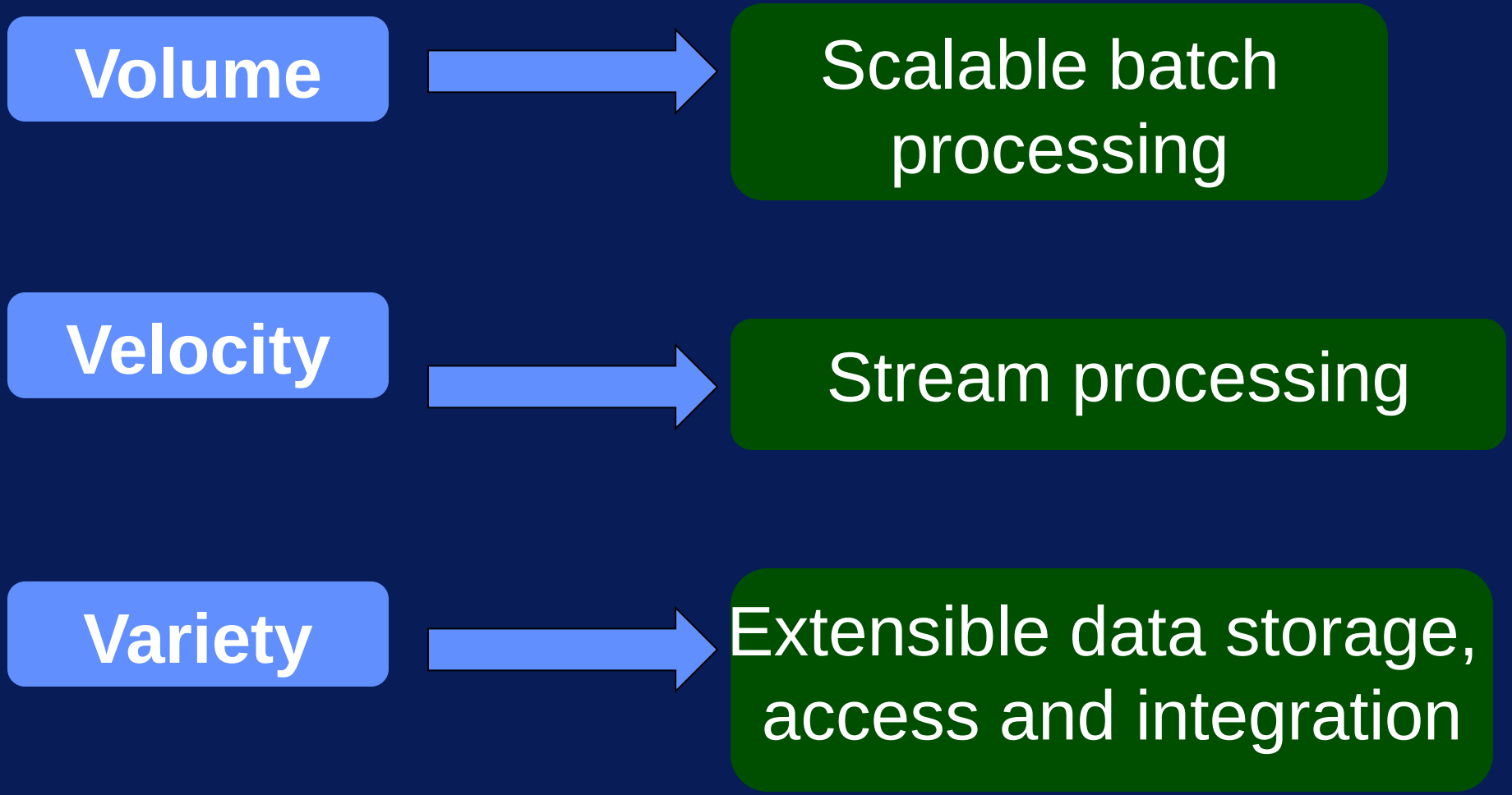
Multimedia

Stream

# 5. Enable both streaming and batch processing

**Low latency** processing of streaming data

**Accurate** processing of all available data


Volume
Scalable batch processing
Velocity
Stream processing
Variety
Extensible data storage, access and integration