ArangoDB

NodeJS in the NoSQL World

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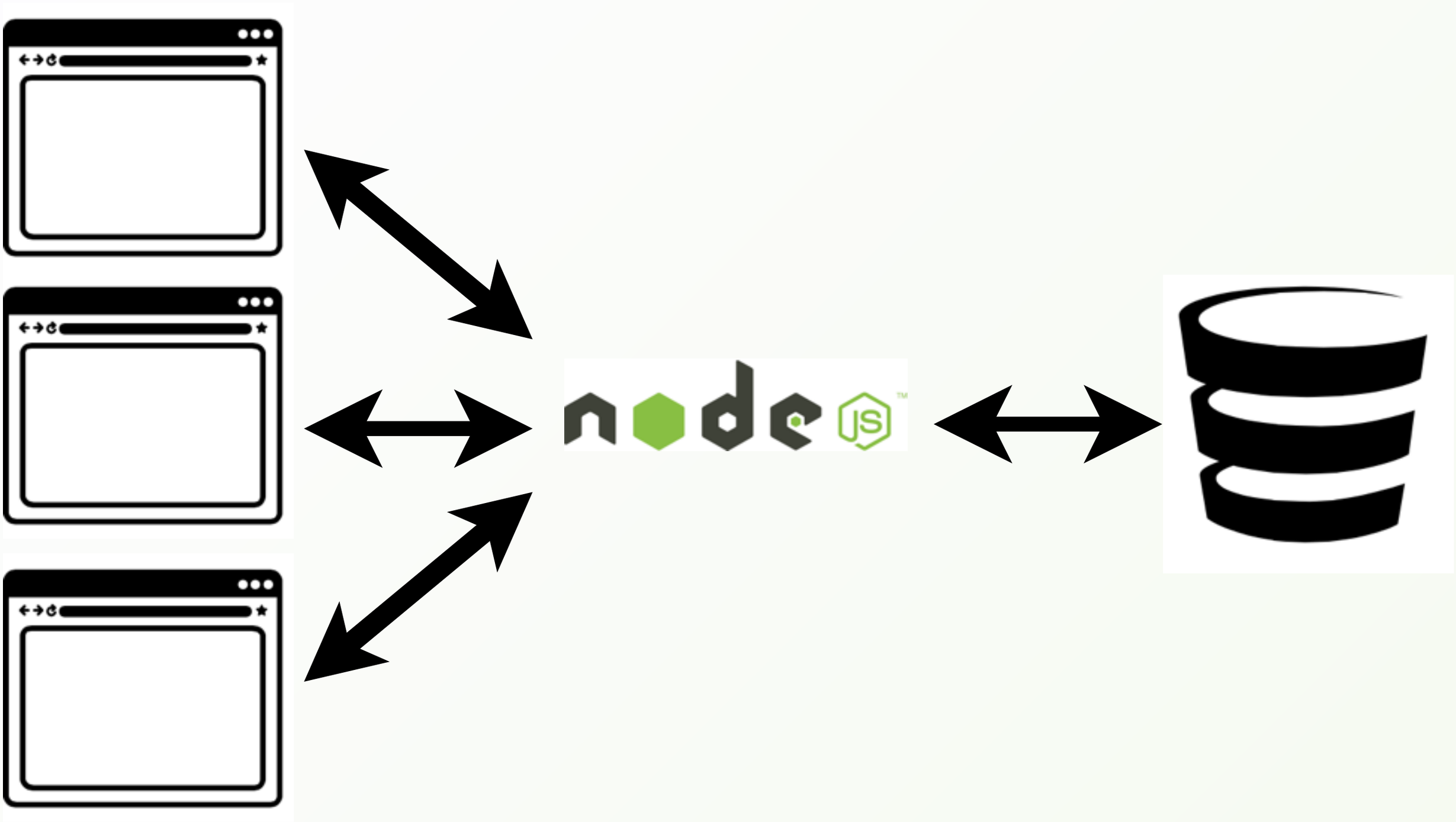
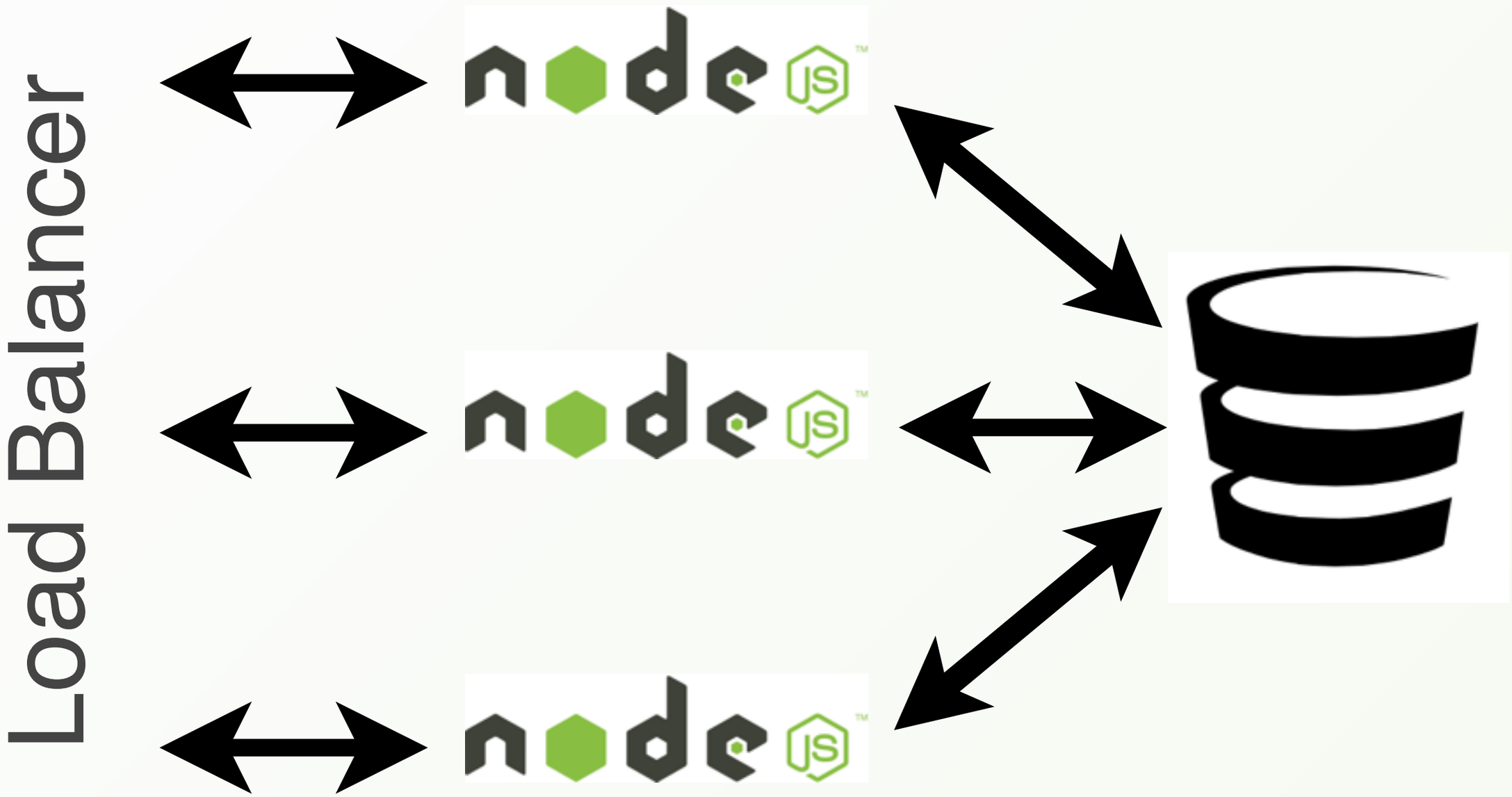
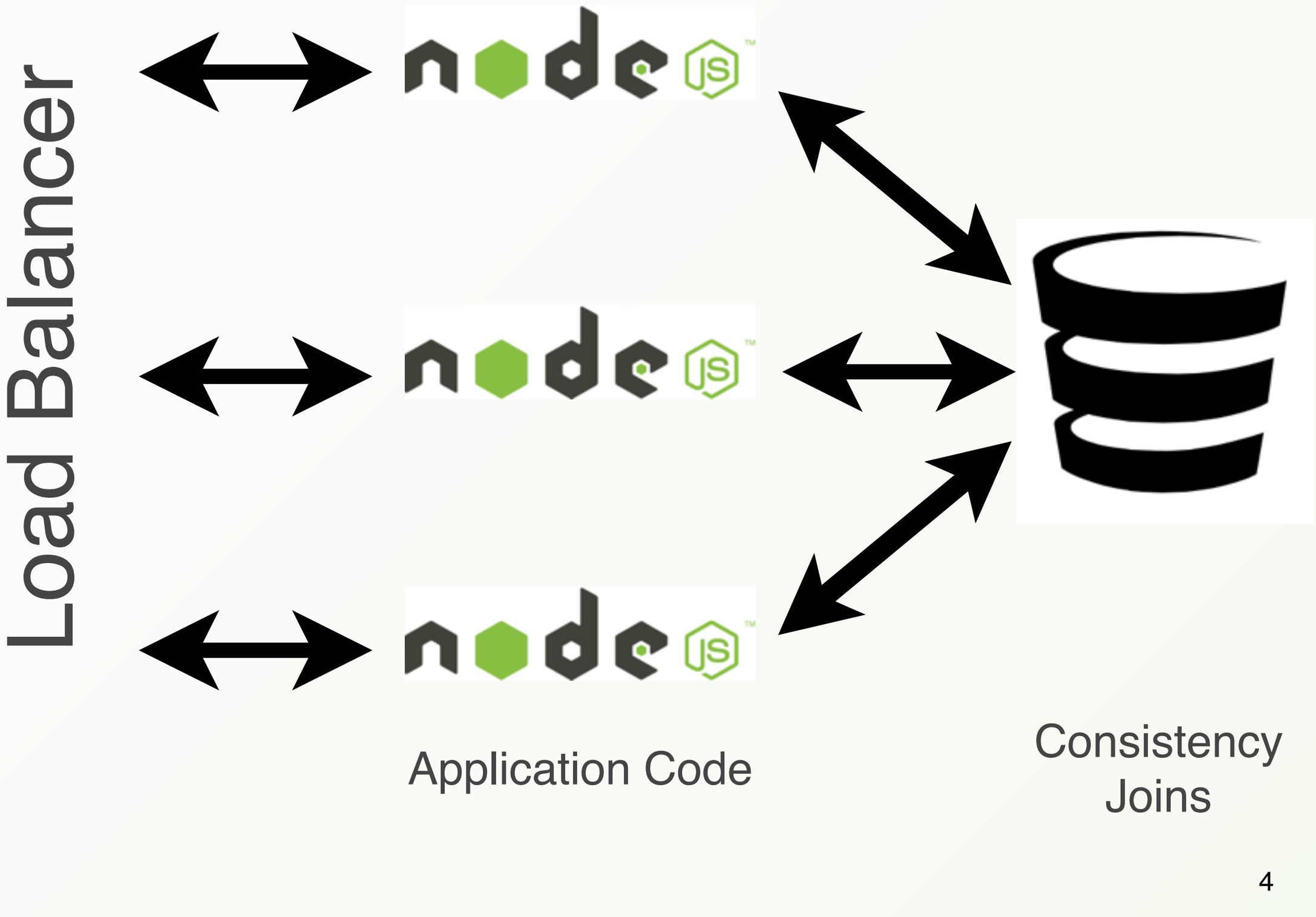
Classical Setup



Scaling NodeJS



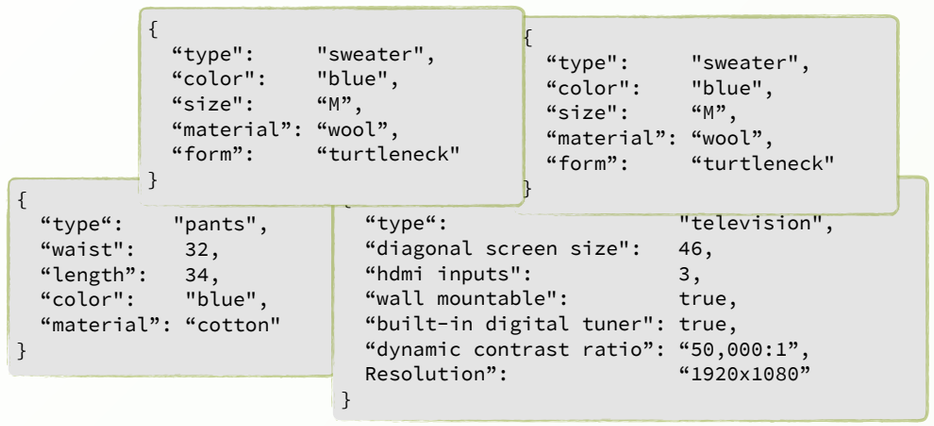
Responsibilities



Introduction to Multi Model

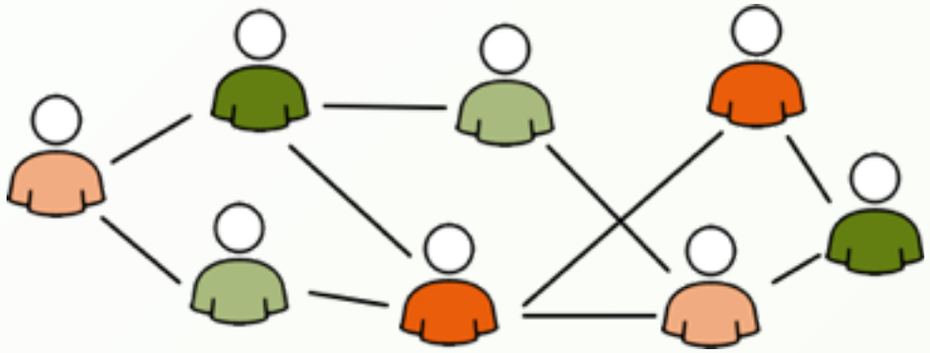
NoSQL World

Documents - JSON



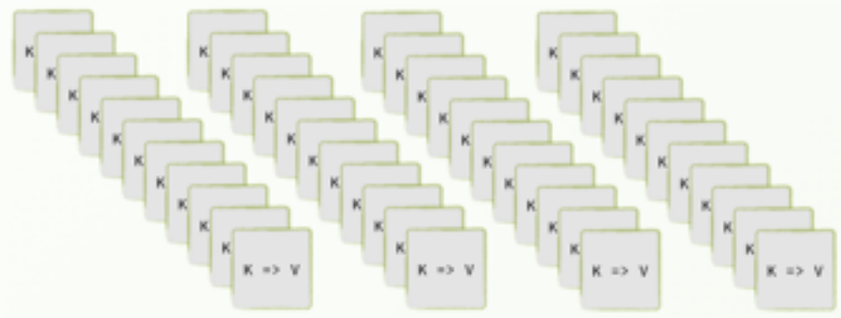
- Normally based on key-value stores (each document still has a unique key)
- Allow to save documents with logical similarity in “collections”
- Treat data records as attribute-structured documents (data is no more opaque)
- Often allow querying and indexing document attributes

Graphs



- Focussed on m-to-n relations between entities
- Stores property graphs: entities and edges can have attributes
- Easily query paths of variable length

Key Value



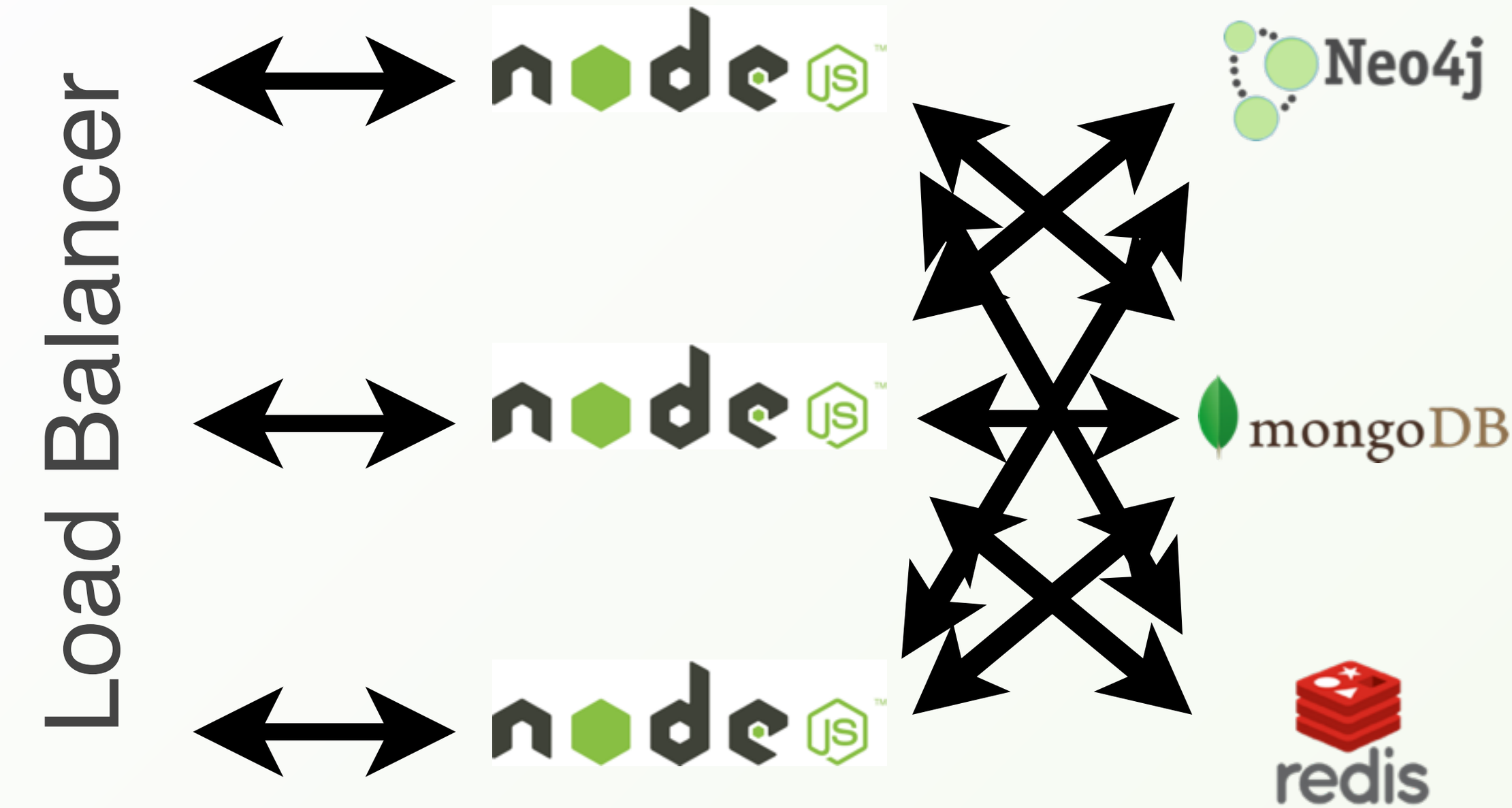
- Map value data to unique string keys (identifiers)
- Treat data as opaque (data has no schema)
- Can implement scaling and partitioning easily

Polyglot Modeling

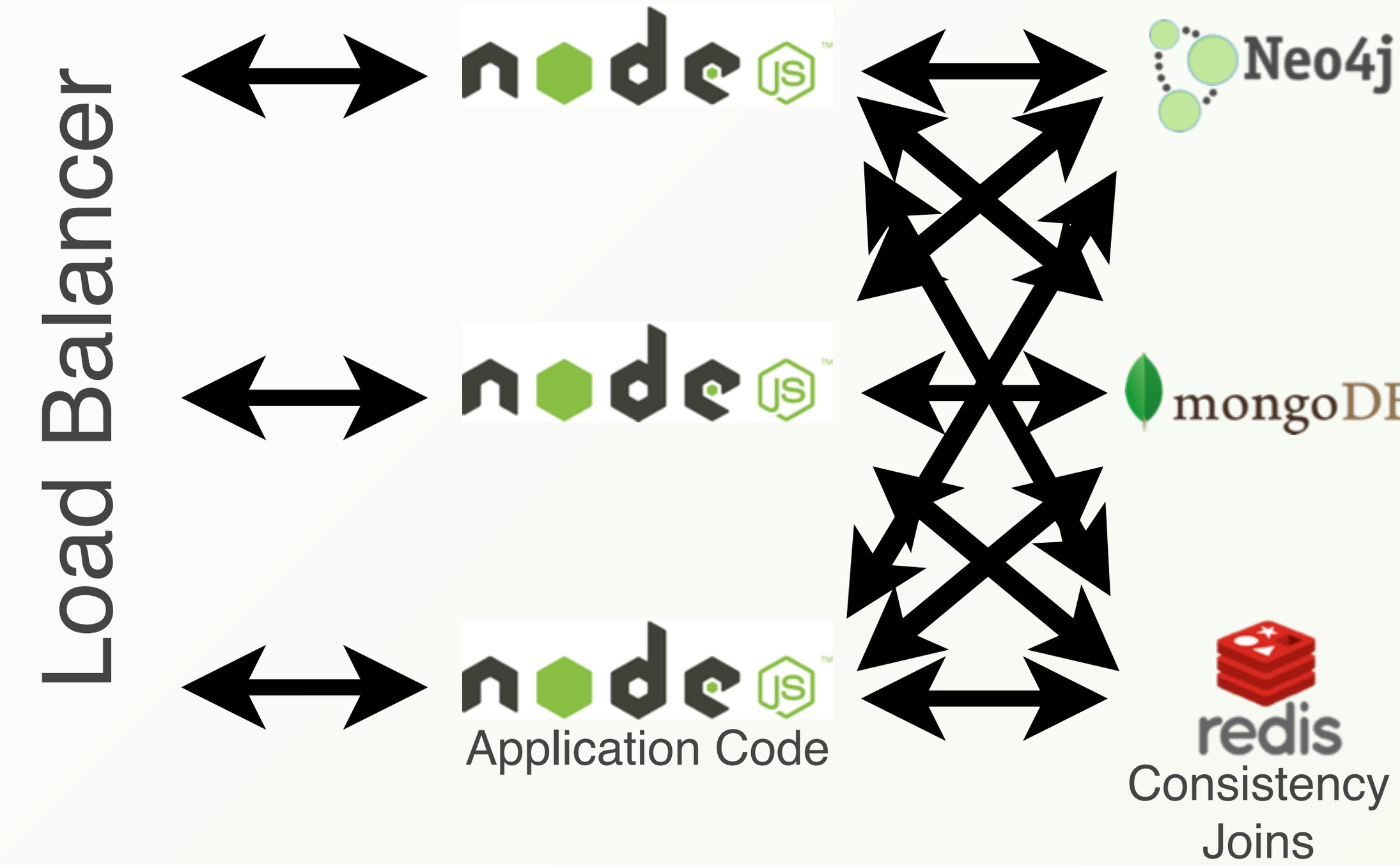
Use the right tool for the job

- If you have structured data
  - ➡ Use a document store
- If you have relations between entities and want to efficiently query them by arbitrary steps in between
  - ➡ Use a graph database
- If you manage the data structure yourself and do not need complex queries
  - ➡ Use a key-value store
- If you have structured data in graph format, or data model might change
  - ➡ Use a multi-model database

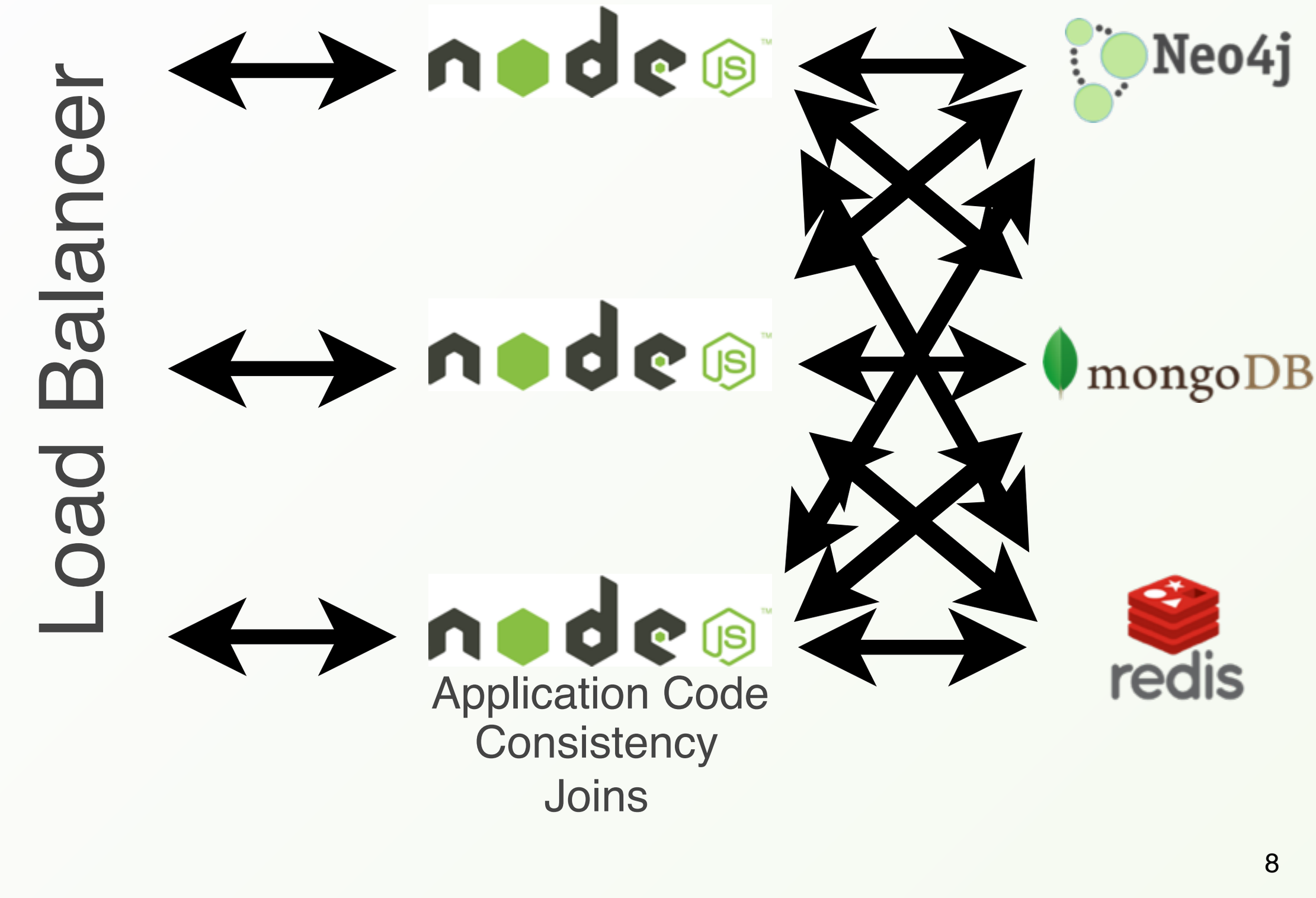
Using different databases



Responsibilities

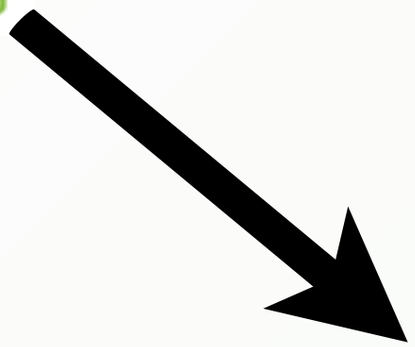


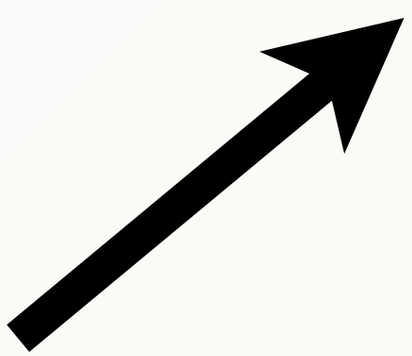
Responsibilities

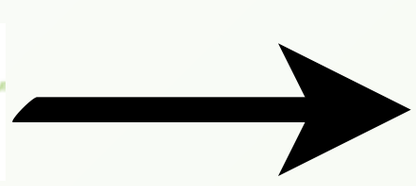


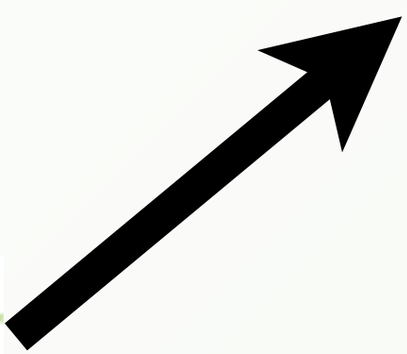
Application Code
Consistency
Joins

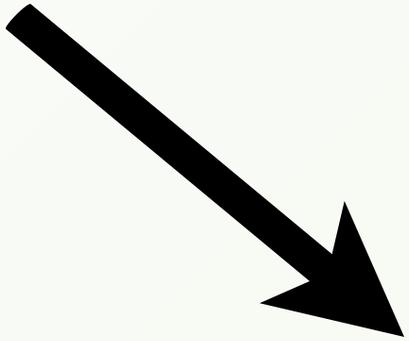
Solution 1: Writes only to one master



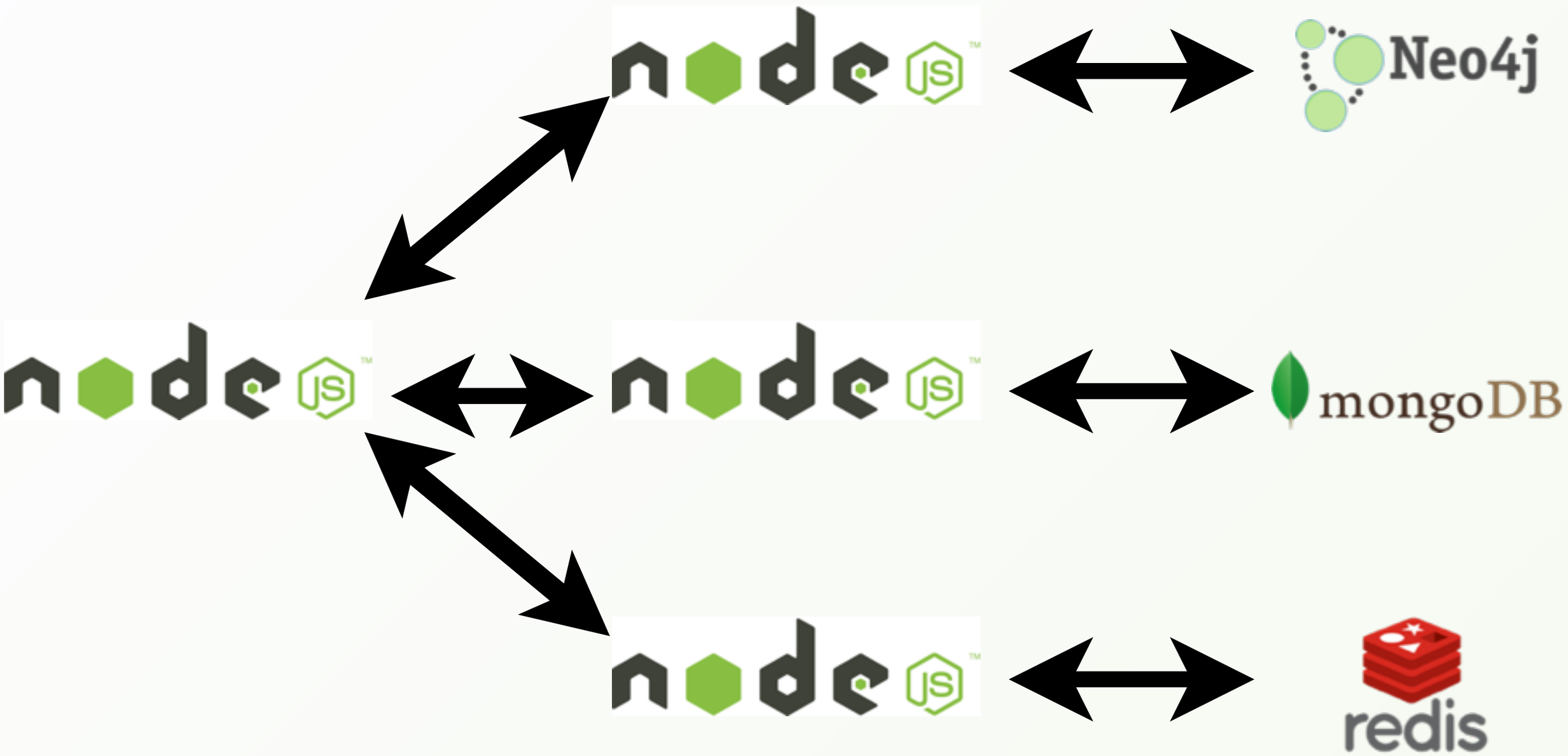








Solution 2: Microservices



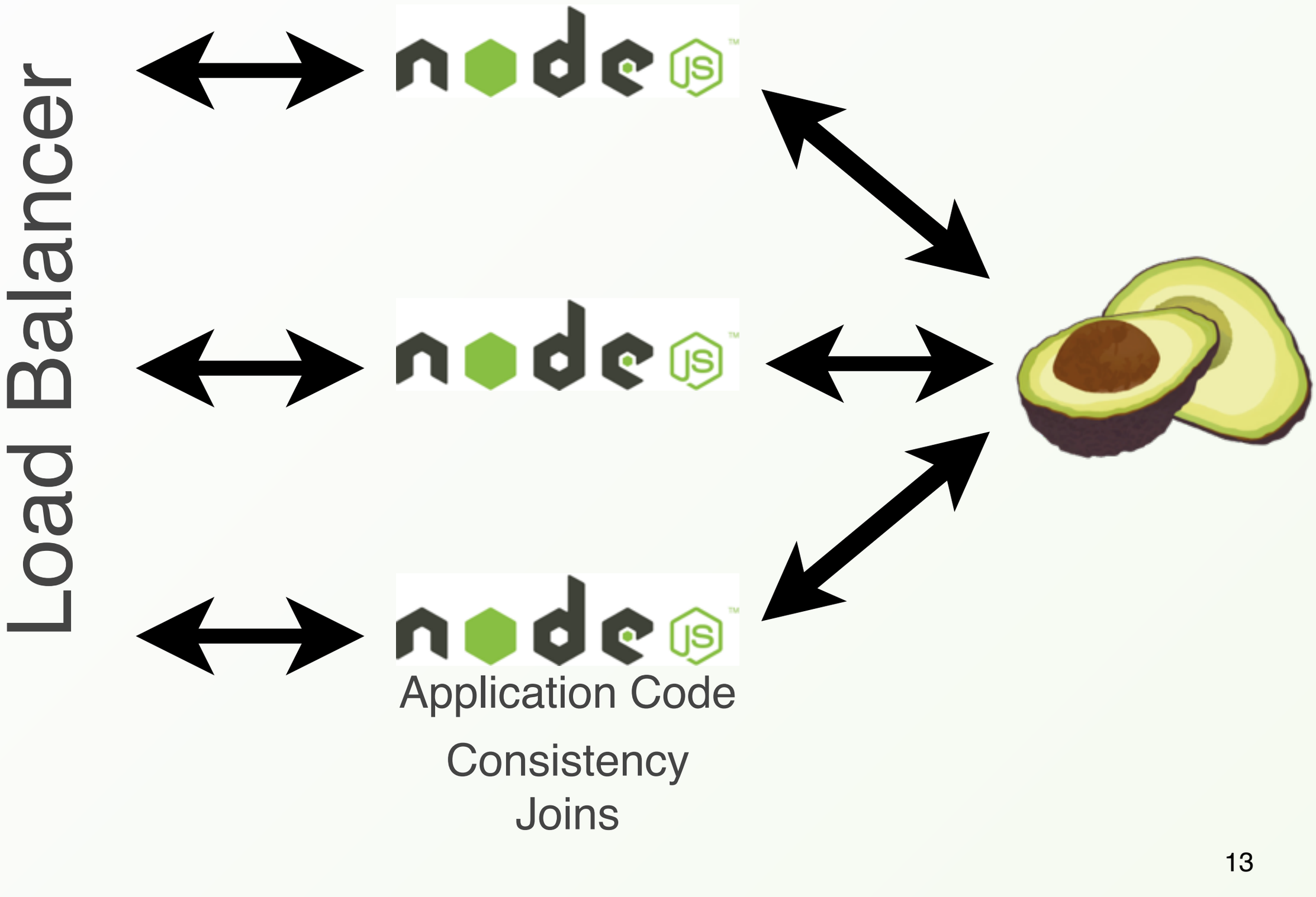
Live Demo

Microservices

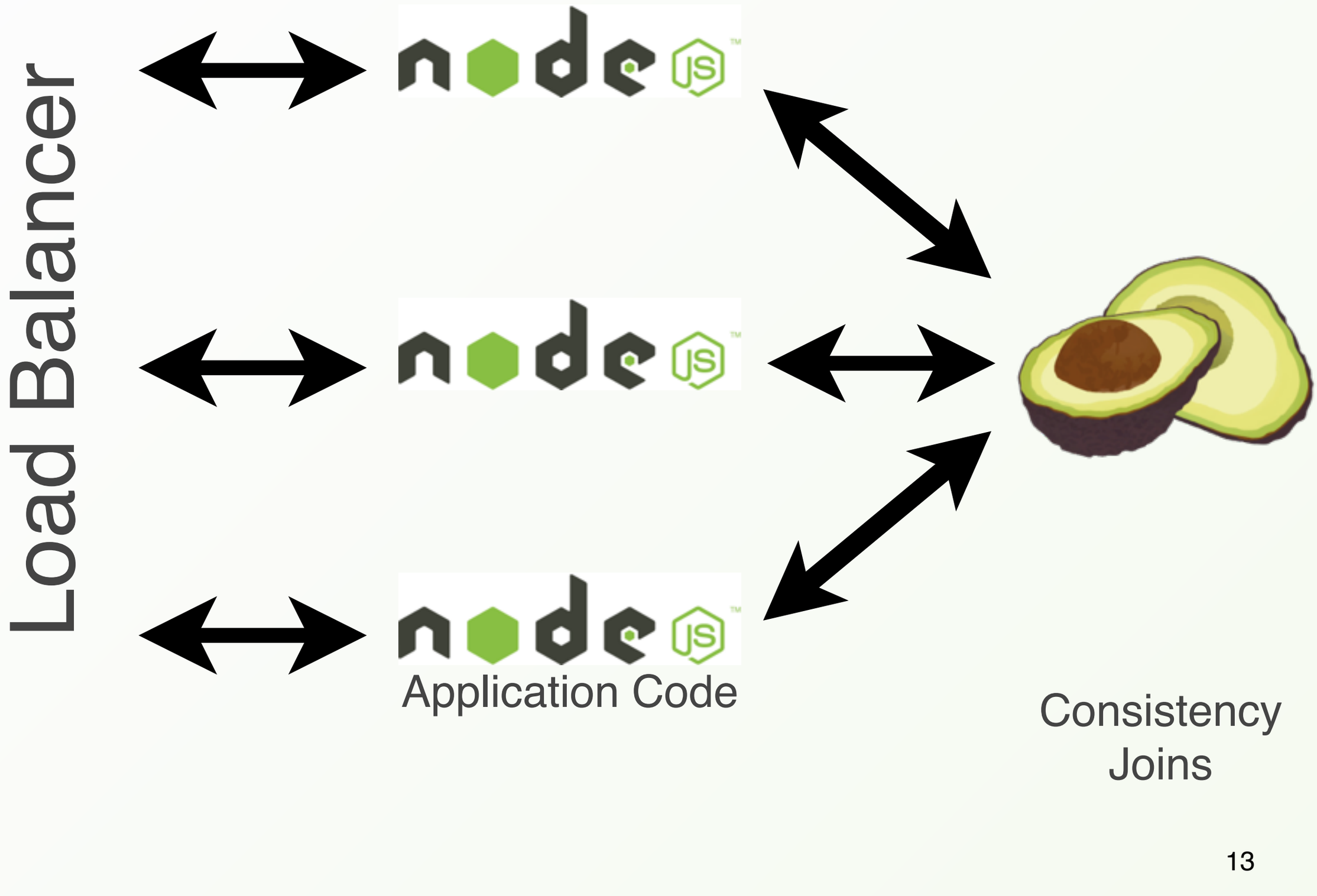
Multi Model Database

- Can natively store several kinds of data models:
  - Key-value pairs
  - Documents
  - Graphs
- Delivers query mechanisms for all data models
- ACID transactions
- Cross collection joins

Using a Multi-Model Database

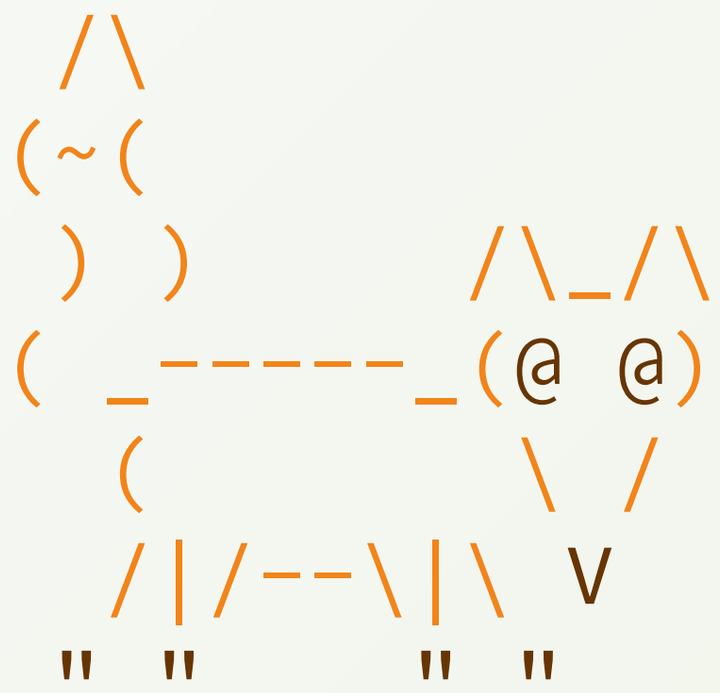


Using a Multi-Model Database



Foxx

- Customized REST API on top of ArangoDB
- Microservice framework
  - Integrate with other microservices
  - Reuse your Node.js code and NPM modules
- Built-in authentication using OAuth2.0 or HTTP-Basic Auth
- Operations are encapsulated in the database
  - low network traffic, direct data access
  - increases data privacy



Live Demo

Foxx

Thank you

- Further questions?
  - Follow me on twitter/github: @mchacki
  - Write me a mail: mchacki@arangodb.com
  - Join or google group: https://groups.google.com/forum/#!forum/arangodb