

Building Your First App: An Introduction to MongoDB

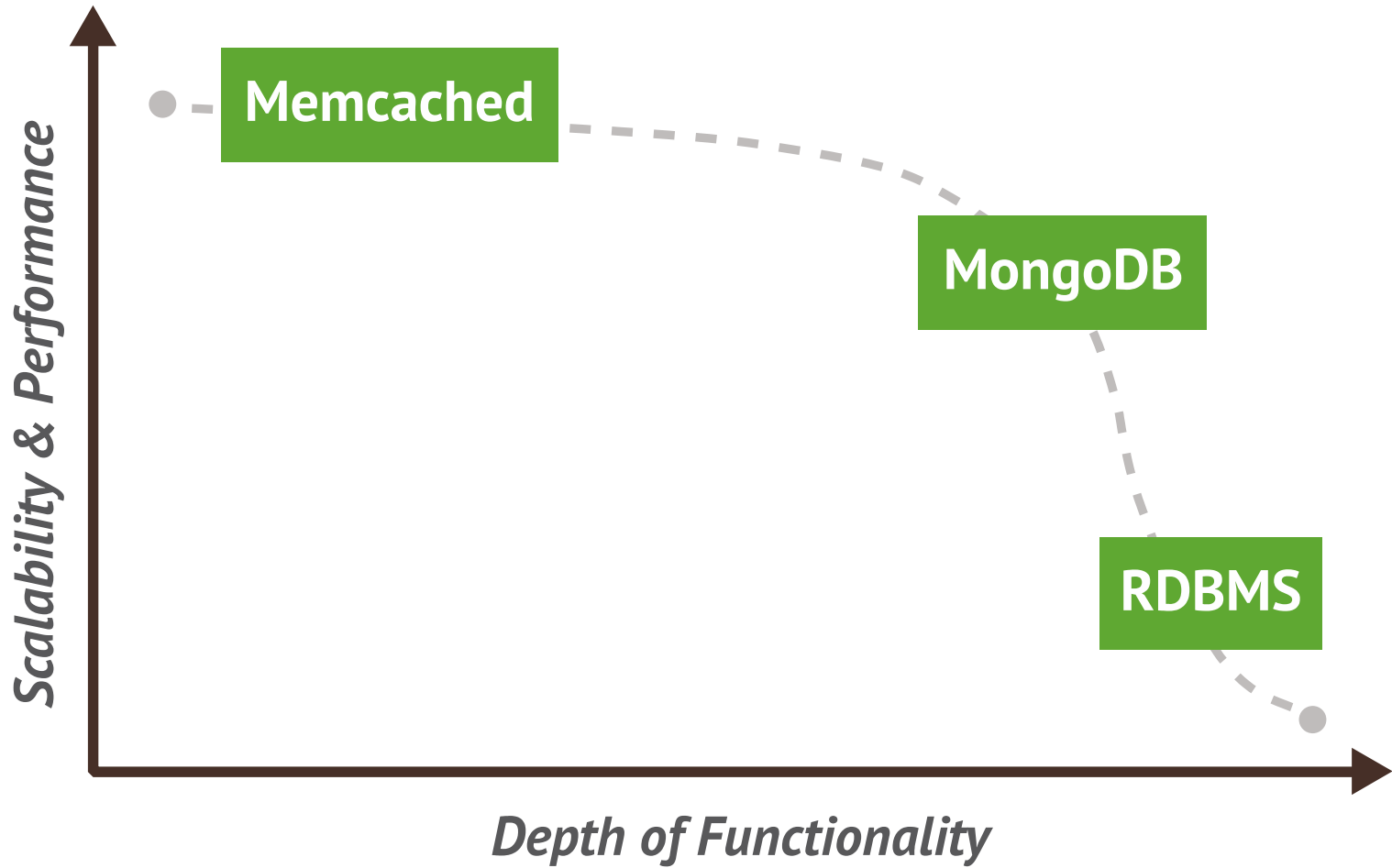
Henrik Ingo, Solution Architect

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What is MongoDB?

Document Database

- Not for .PDF & .DOC files
- A document is essentially an associative array
- Document == JSON object
- Document == PHP Array
- Document == Python Dict
- Document == Ruby Hash
- etc

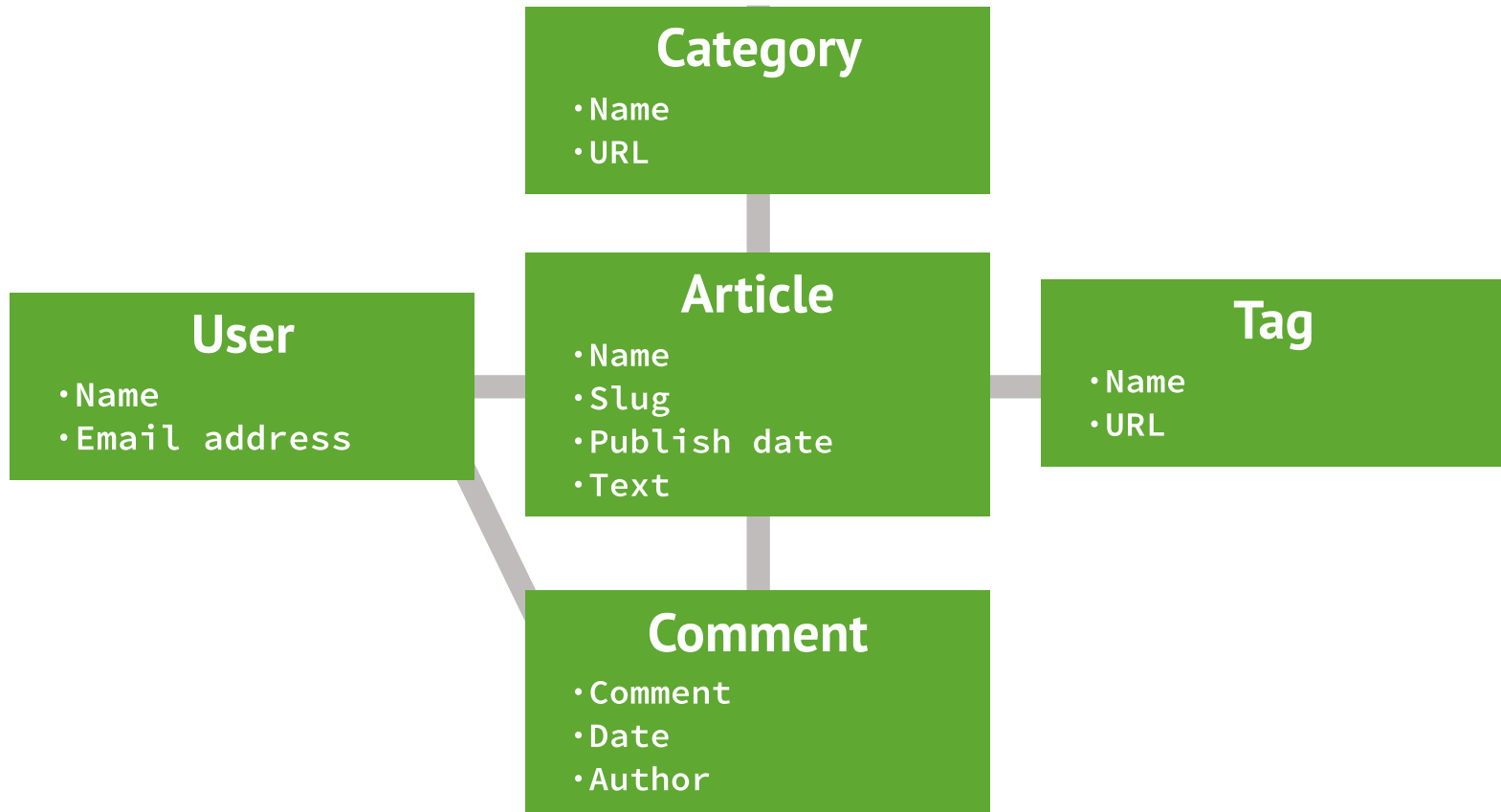


Database Landscape

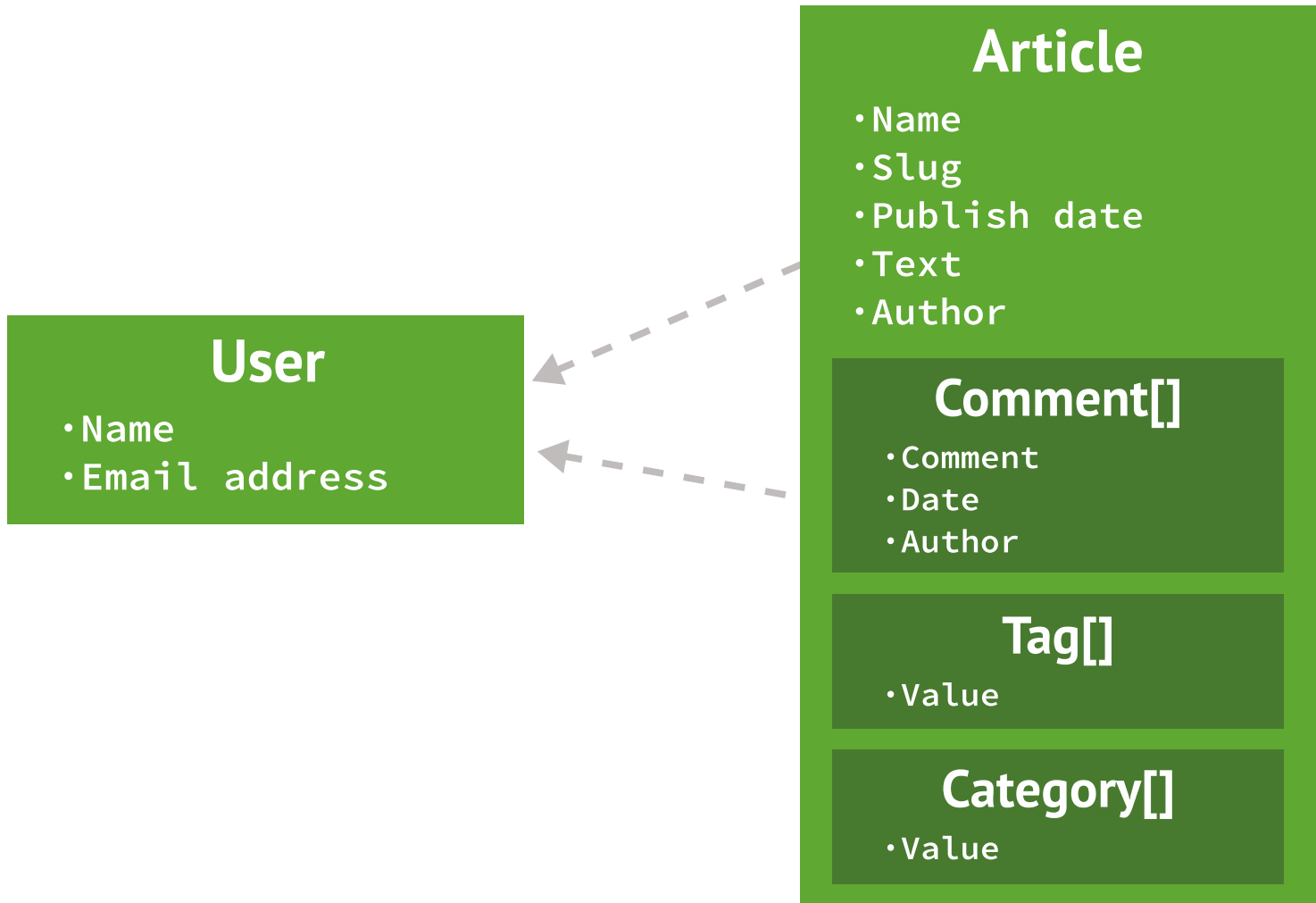
Schema Design

RDBMS	MongoDB
Table, View	Collection
Row	Document
Index	Index
Join	Embedded Document
Foreign Key	Reference
Partition	Shard

Terminology



Typical (relational) ERD



MongoDB ERD

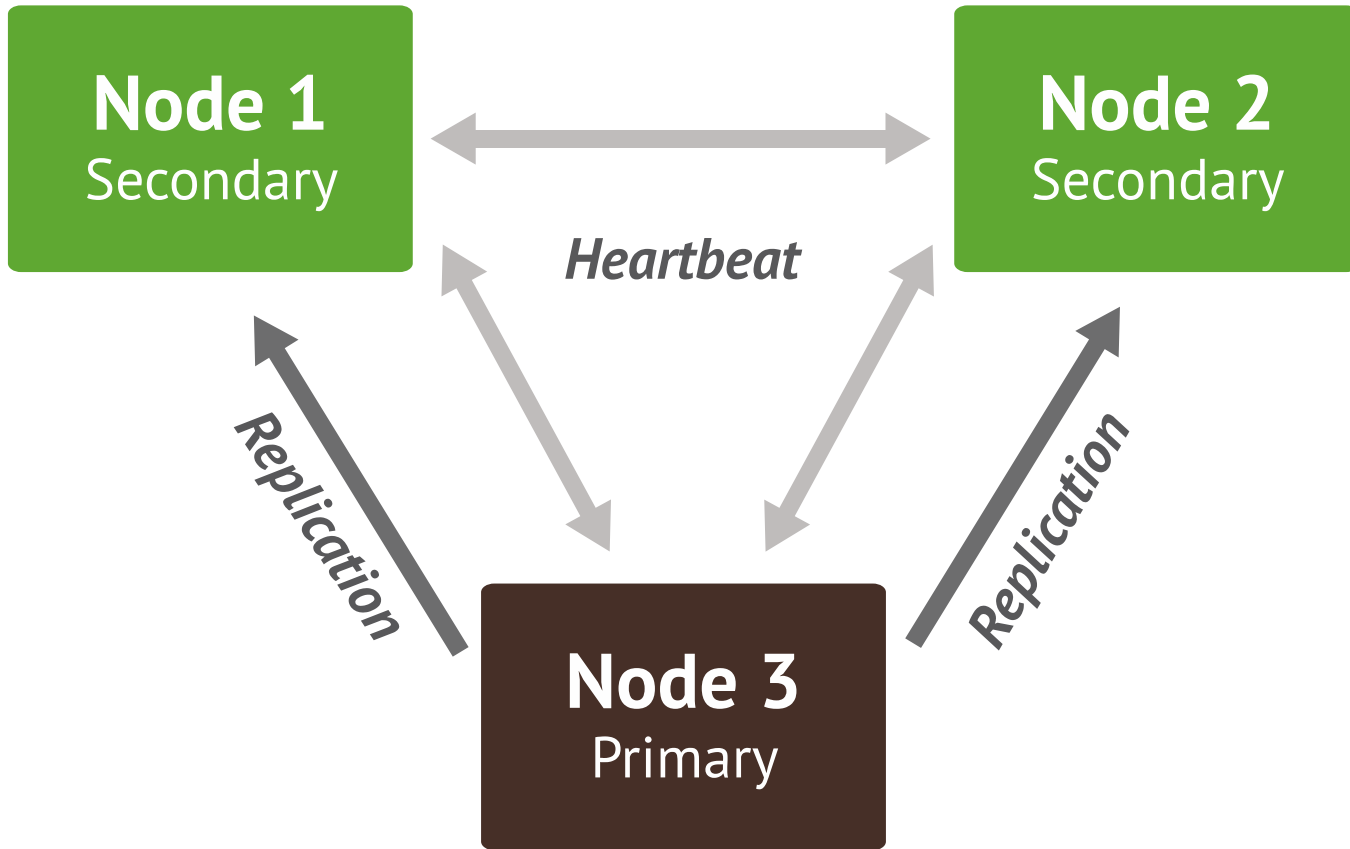
Replica Set Lifestyle

Node 1

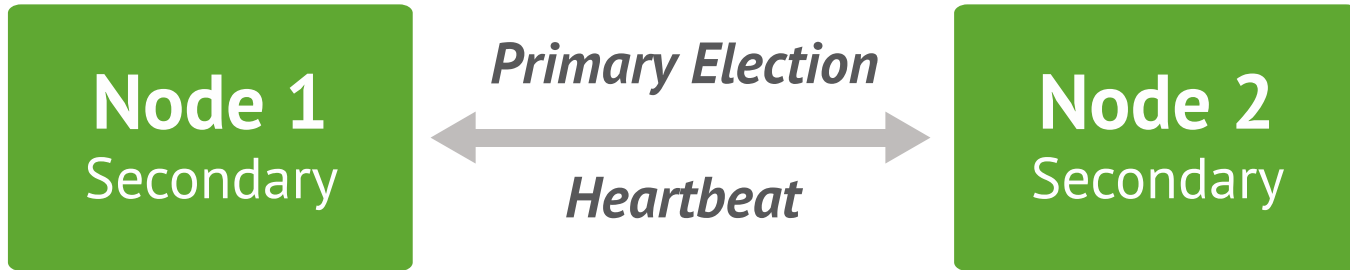
Node 2

Node 3

Replica Set – Creation



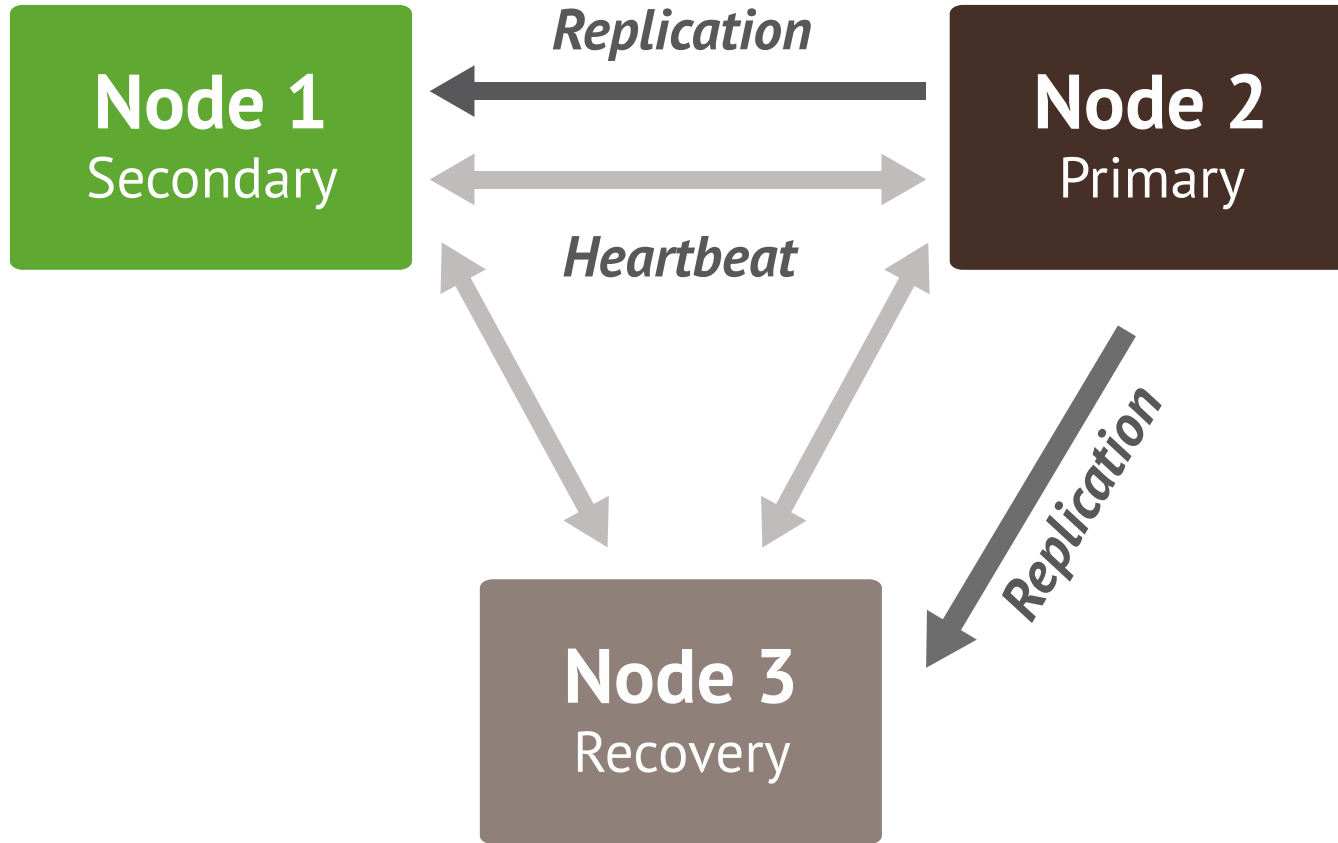
Replica Set – Initialize



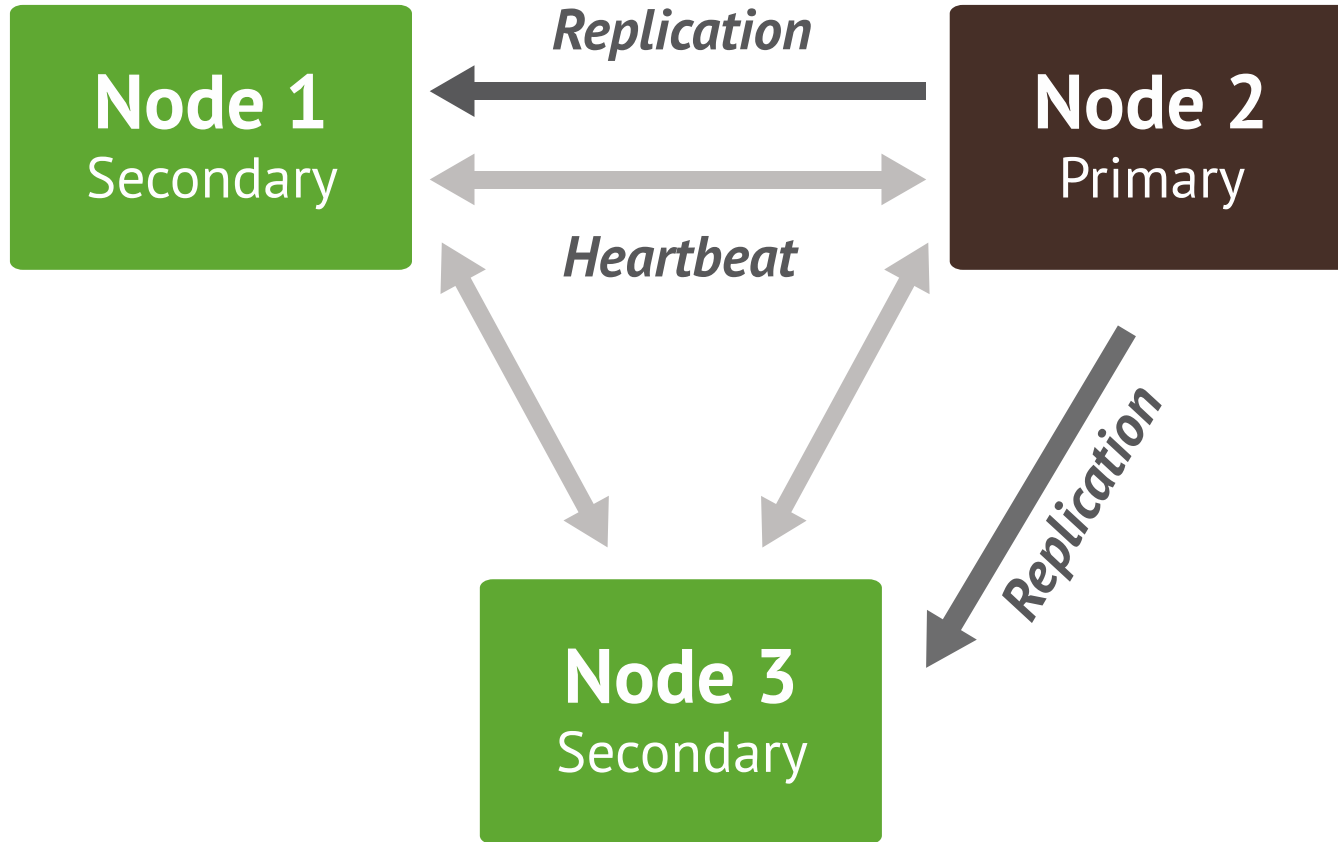
Replica Set – Failure



Replica Set – Failover



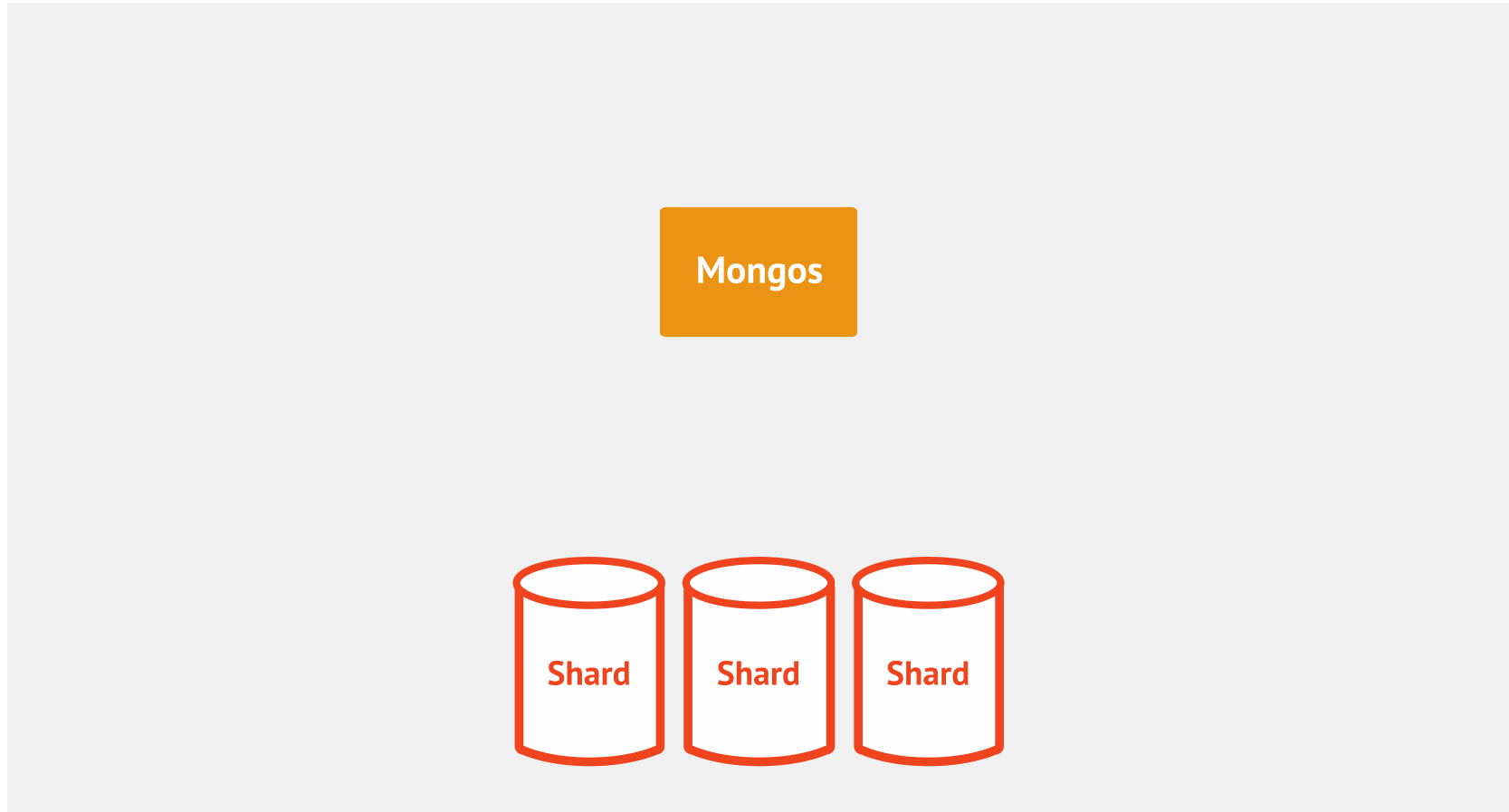
Replica Set – Recovery



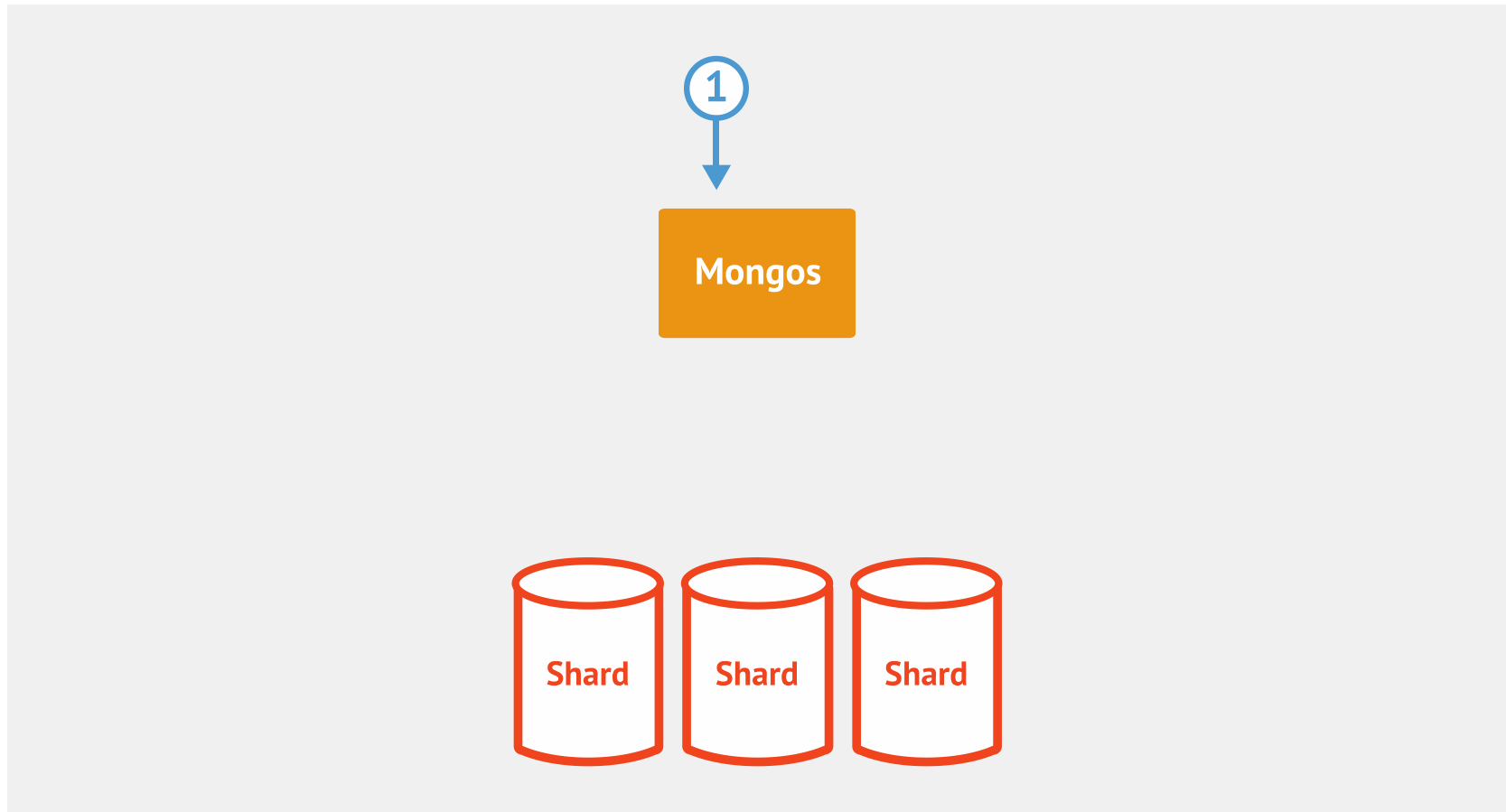
Replica Set – Recovered

Sharding

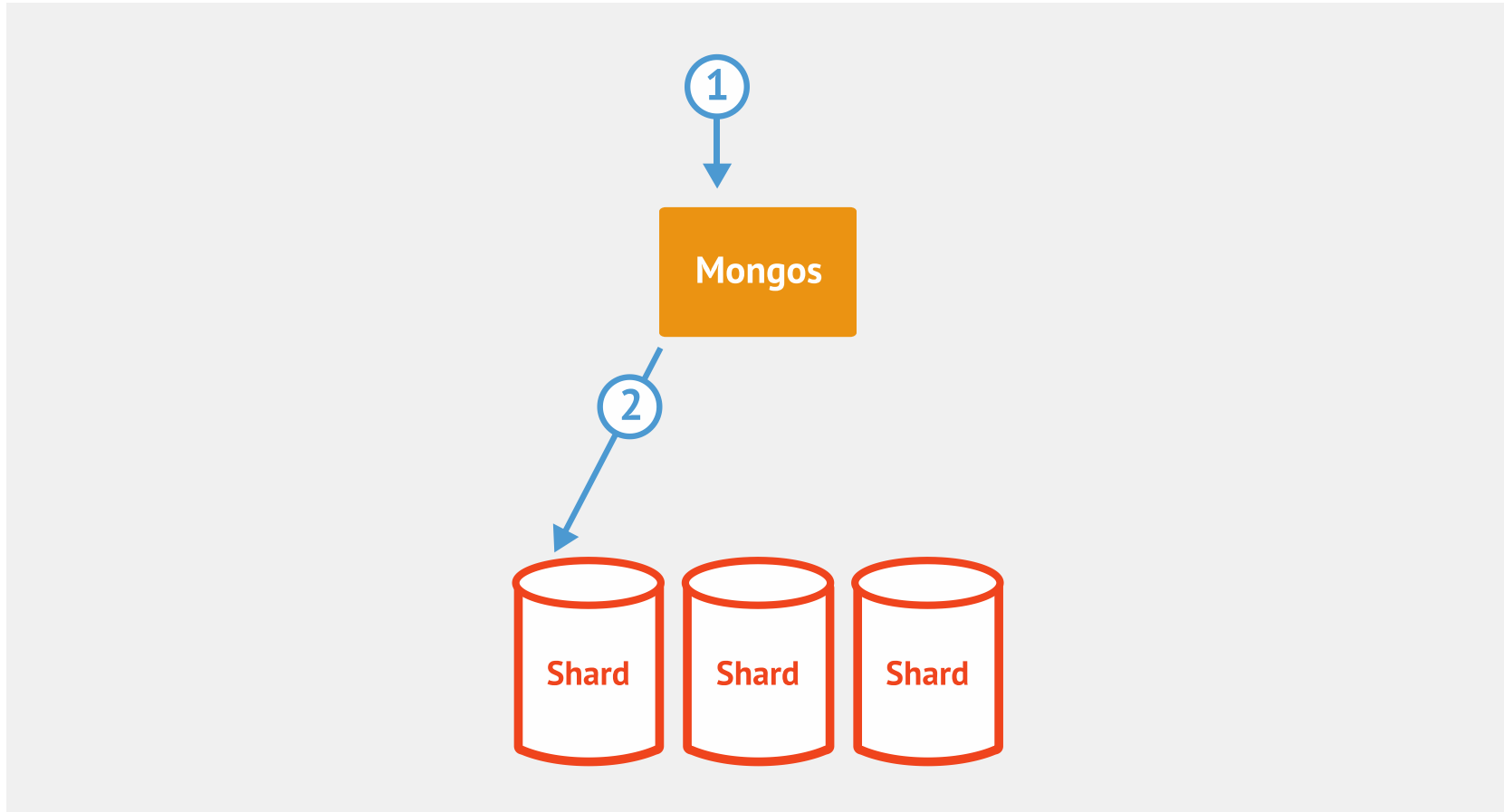
Cluster Request Routing: Targeted Query



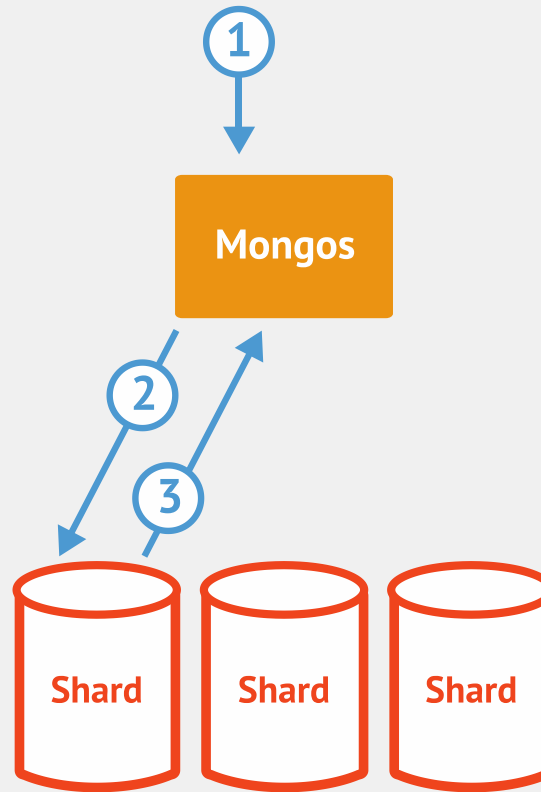
Routeable request received



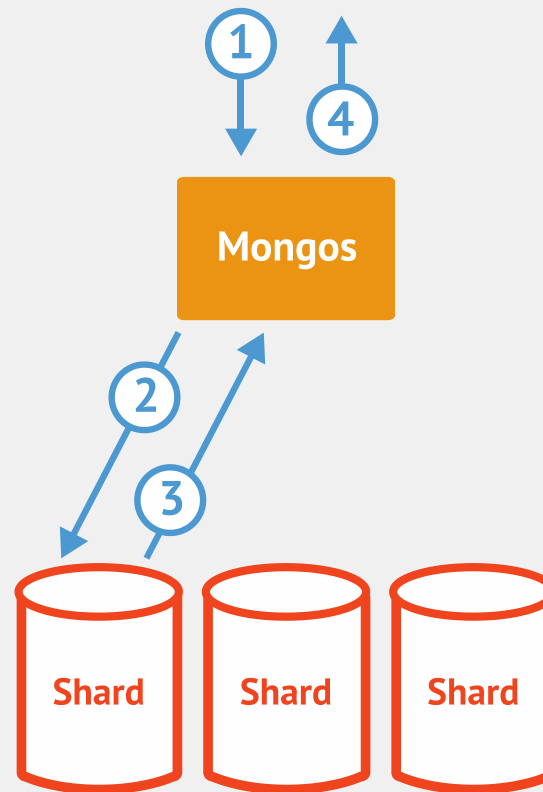
Request routed to appropriate shard



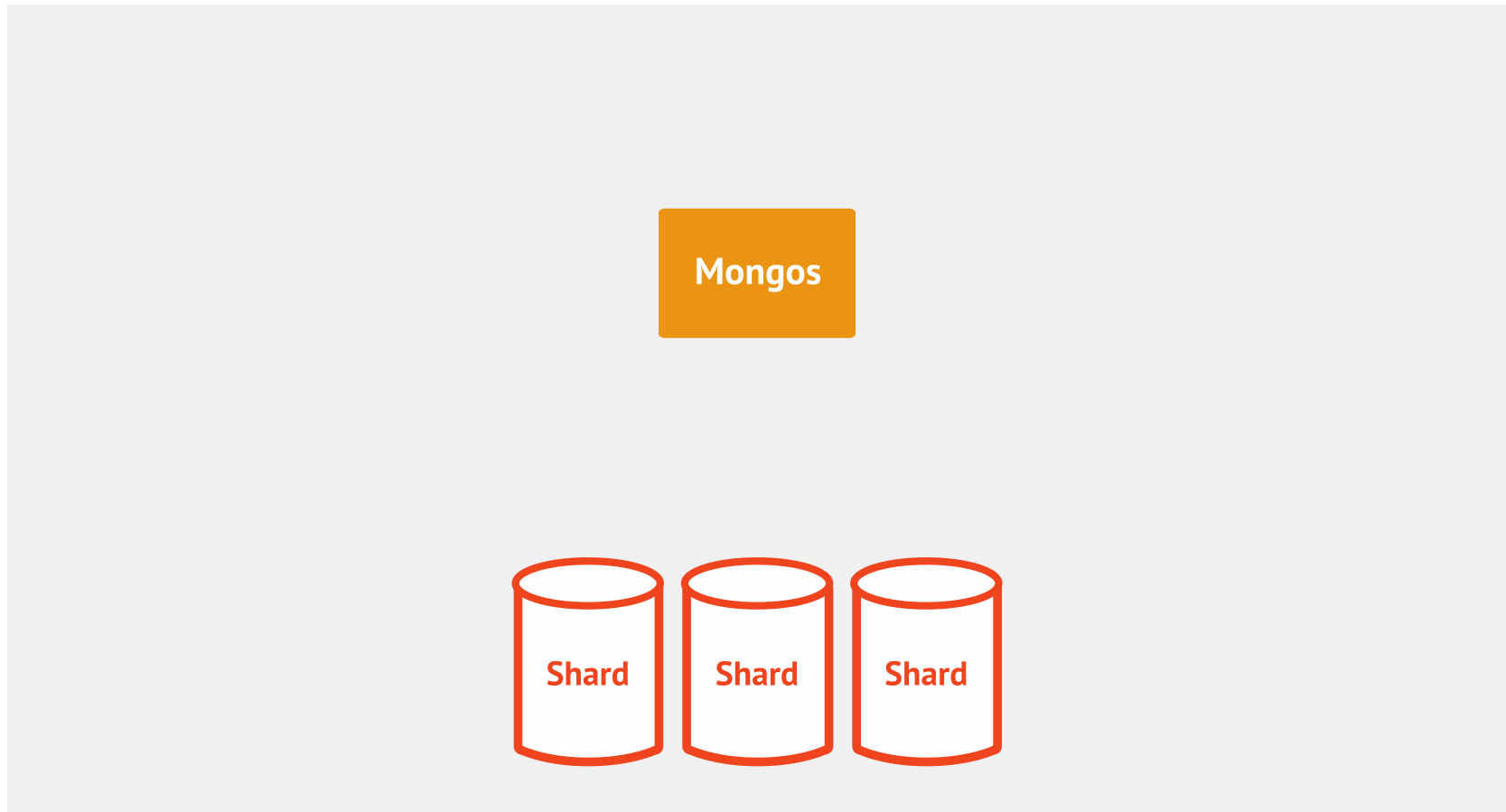
Shard returns results



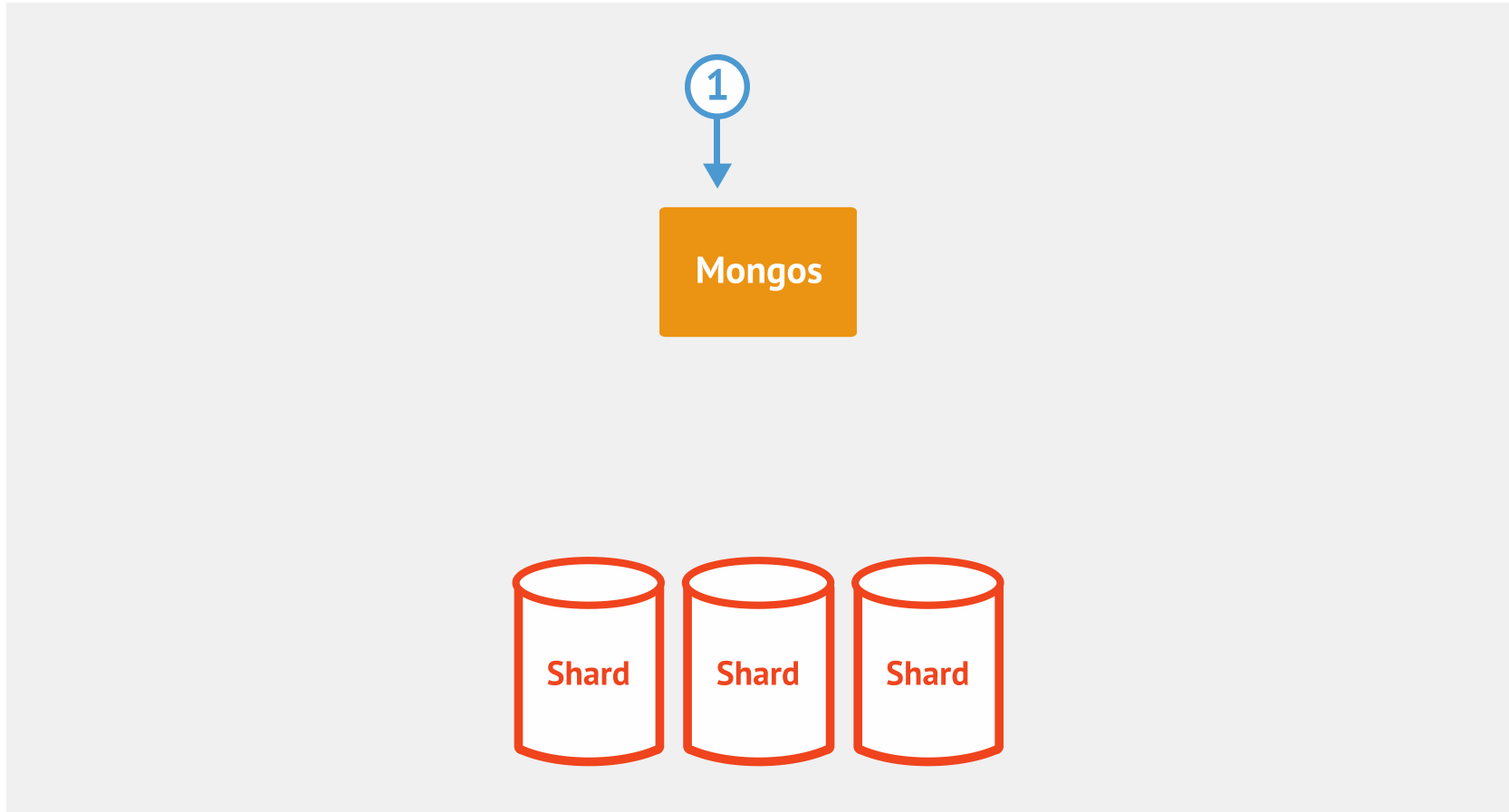
Mongos returns results to client



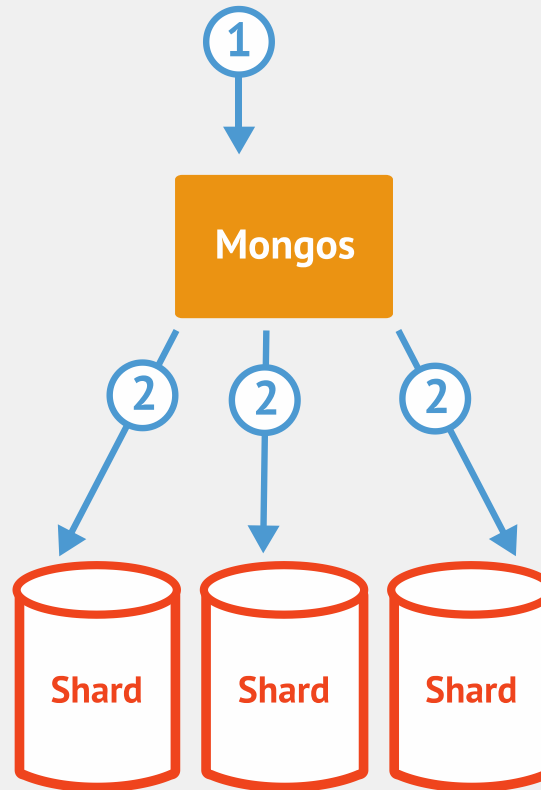
Cluster Request Routing: Non-Targeted Query



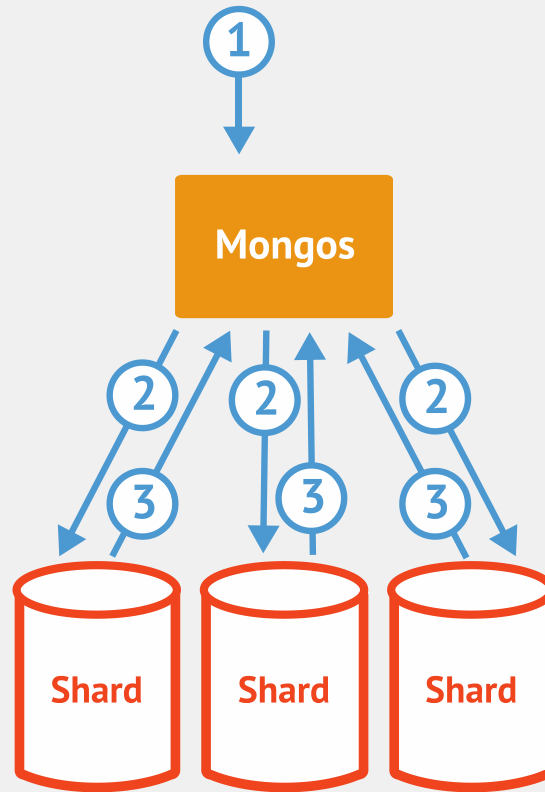
Non-Targeted Request Received



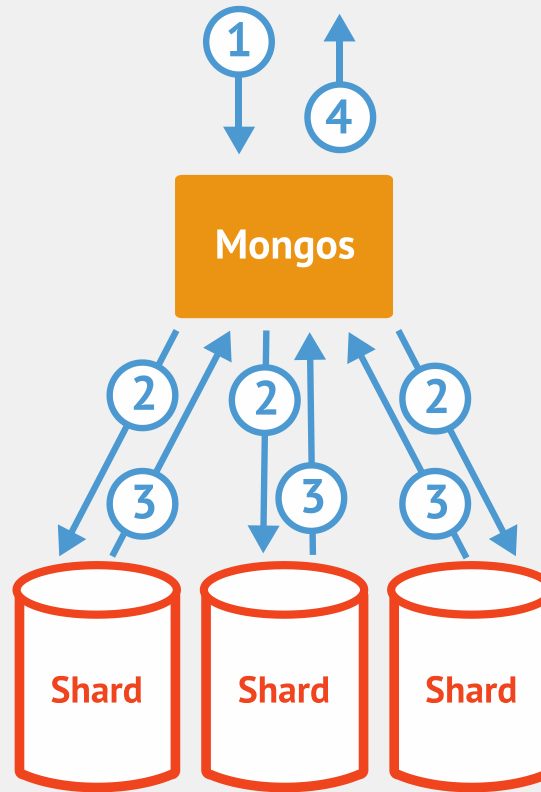
Request sent to all shards



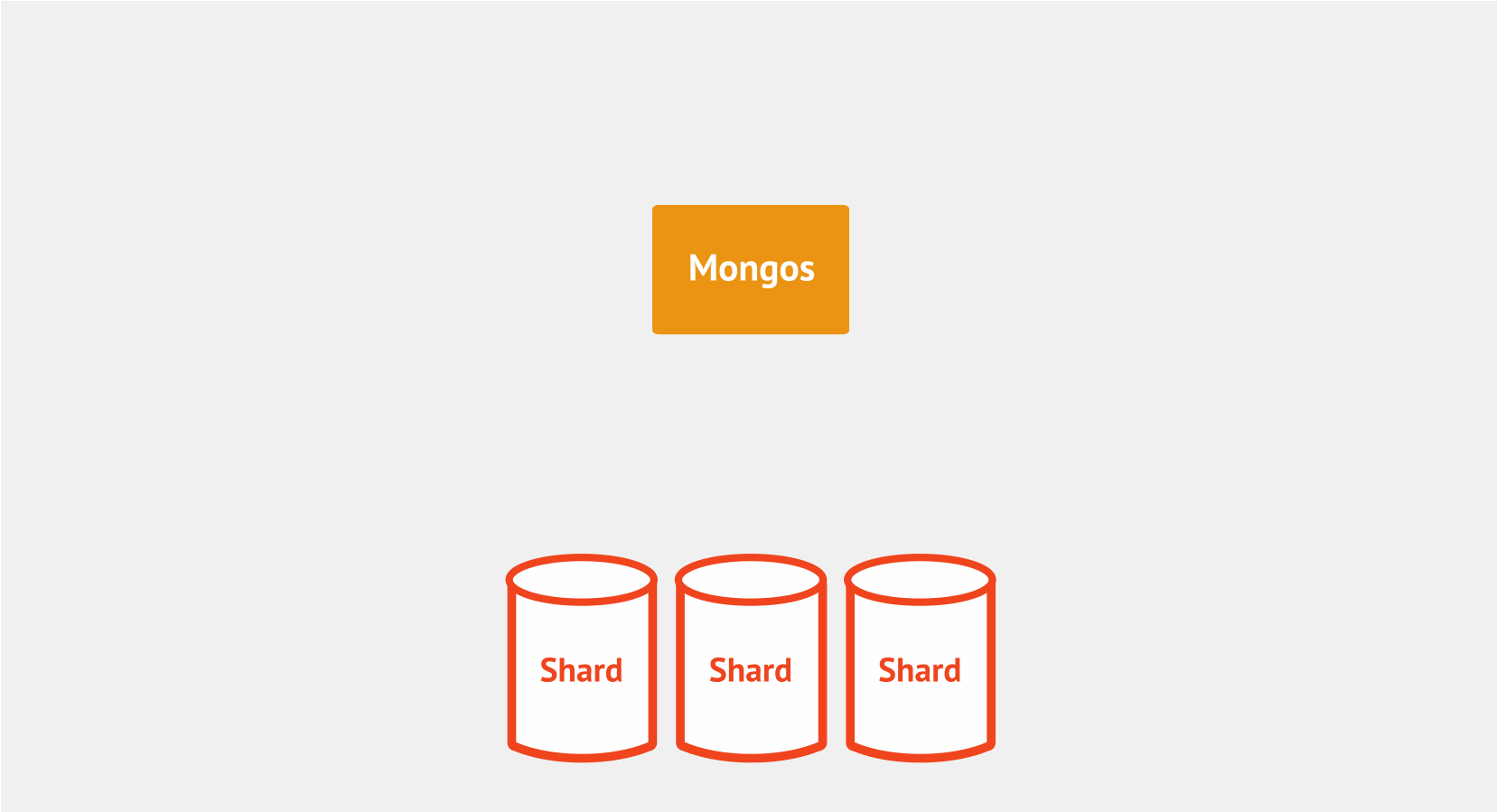
Shards return results to mongos



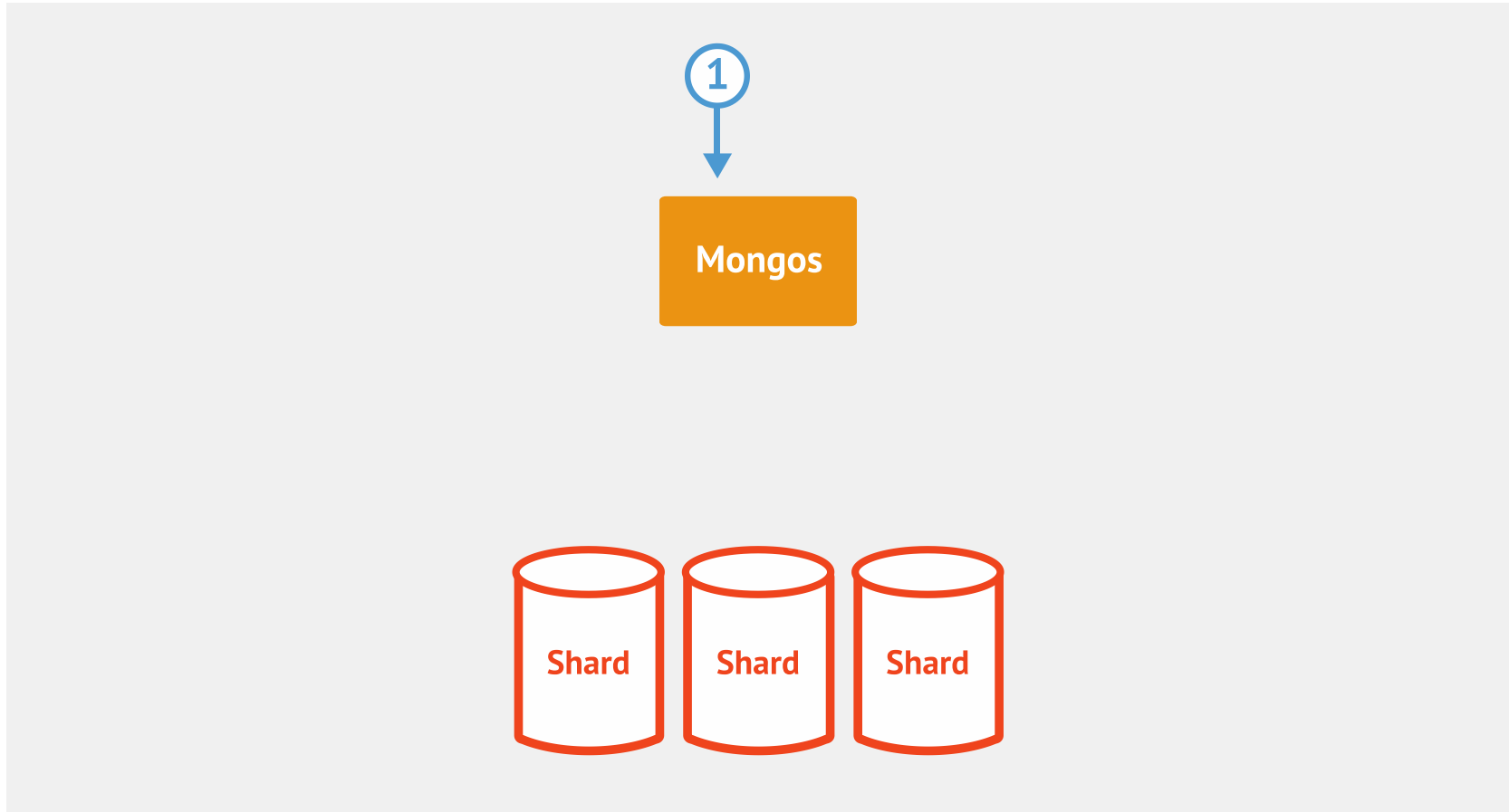
Mongos returns results to client



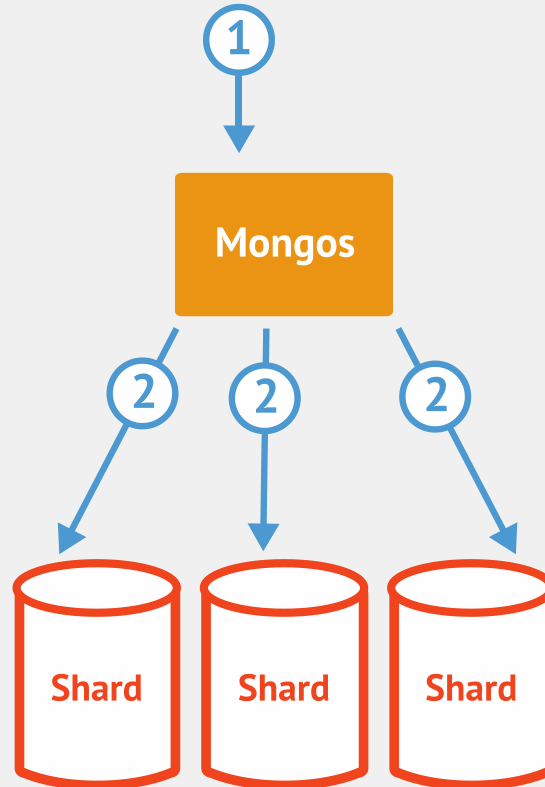
Cluster Request Routing: Non-Targeted Query with Sort



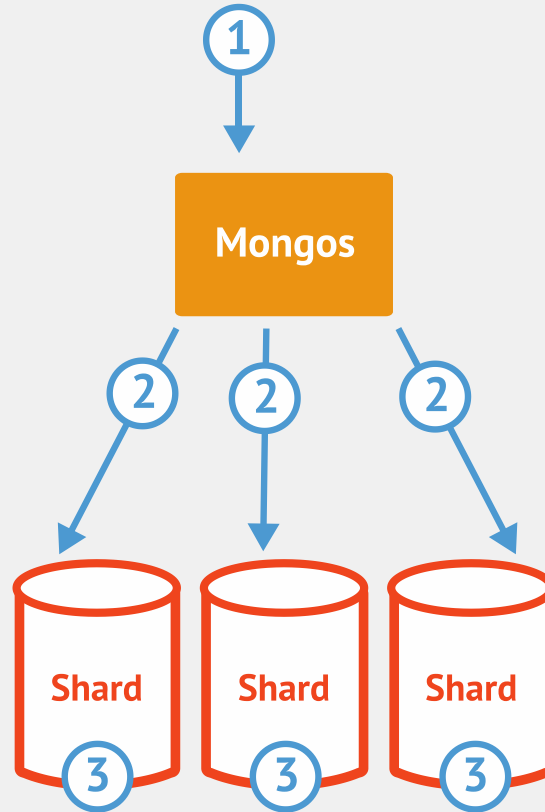
Non-Targeted request with sort received



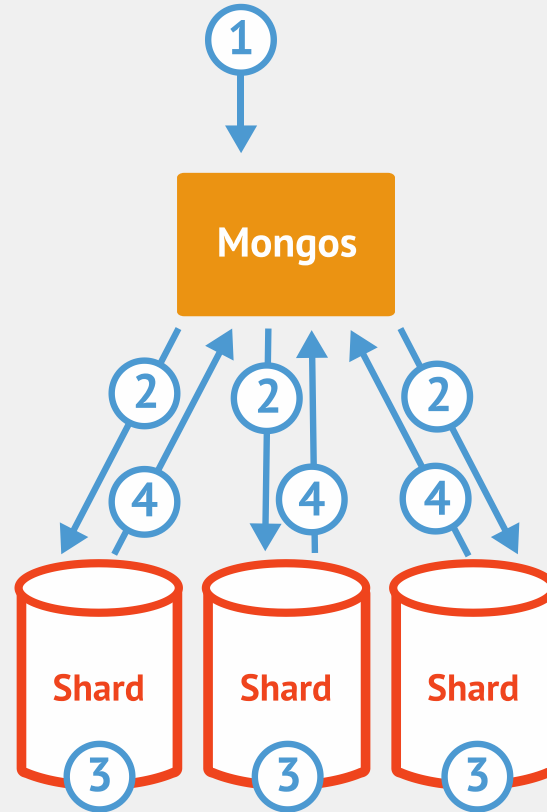
Request sent to all shards



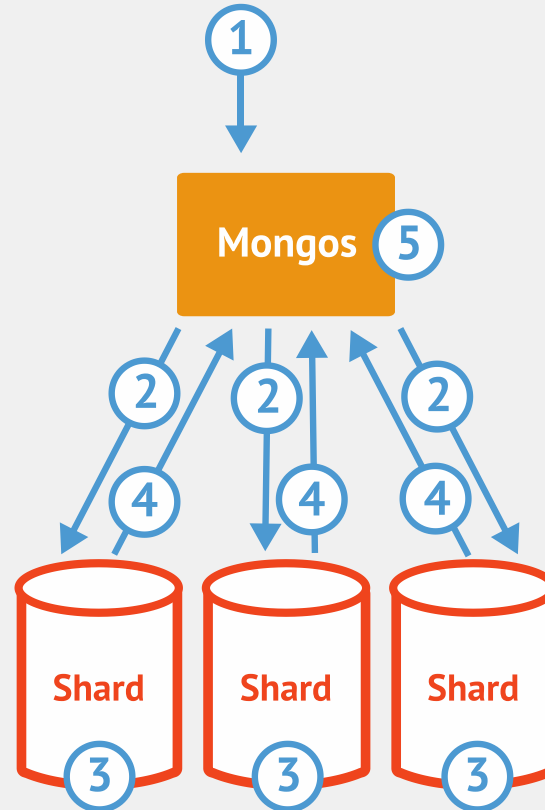
Query and sort performed locally



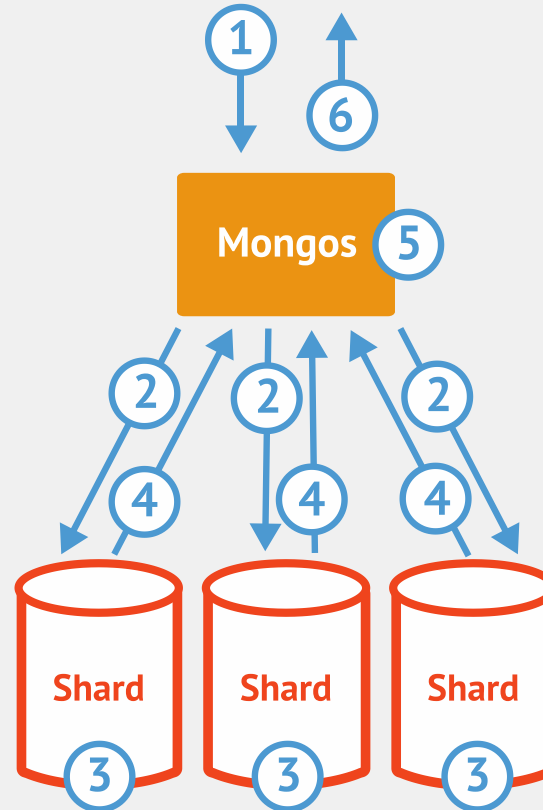
Shards return results to mongos



Mongos merges sorted results



Mongos returns results to client




Excercises

Courses

M101J: MongoDB for Java Developers



M101JS: MongoDB for Node.js Developers



M101P: MongoDB for Developers

Learn what you need to know to develop applications against MongoDB using Python.

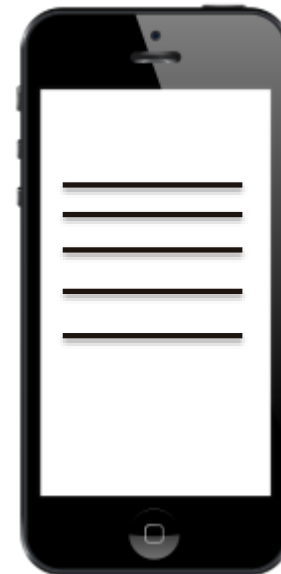
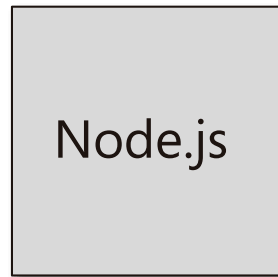
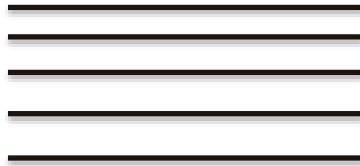
Starts Nov 25, 2013

M102: MongoDB for DBAs



Open Data app

[tilastokeskus.fi/
org/lainsaadanto/avoin_data_en.html](http://tilastokeskus.fi/org/lainsaadanto/avoin_data_en.html)



Game

- Design a simple game with multiple players
- Characters can have different features. You want to add more features in the future. 3rd parties can develop their own features.
- Characters can own items (clothes, weapons, vehicles...). Again, each item has different features.
- Weapons map to a simple rock-paper-scissors logic for picking winner.

