Lesson4 Redis集群架构

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Agenda

- 架构演变
- 集群架构详解
- 业界使用解读

集群演变

关于架构

架构的本质就是对系统进行有序化重构，不断减少系统的“熵”（无效性，无序性，不可控等），使系统不断进化

Redis集群架构演变

- 可用性
- 稳定性
- 可控性
- 扩展性
- 耦合性
- ……

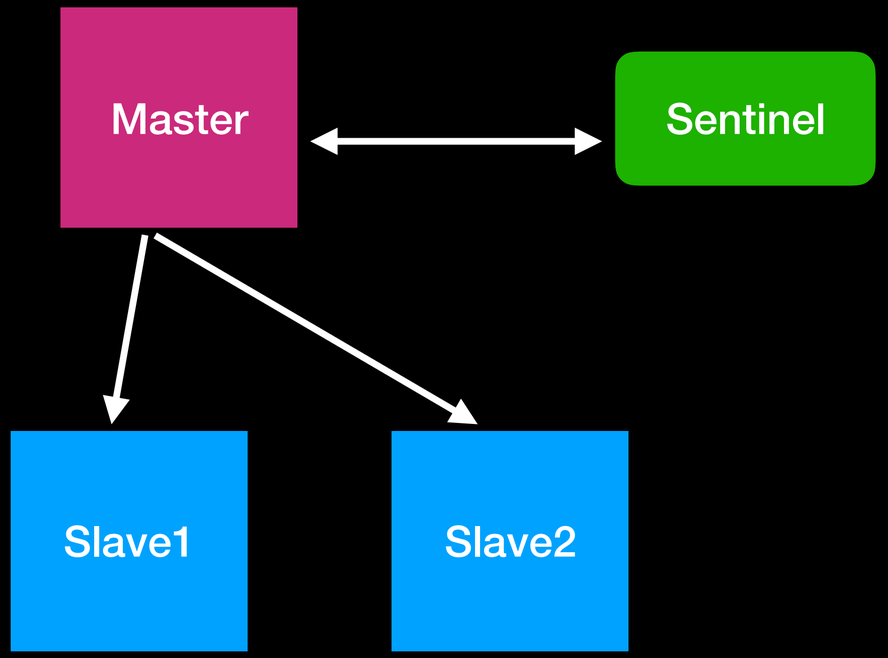
Redis集群演变

- 原生Redis
- client shard
- proxy shard
- cluster
- ......

集群架构详解

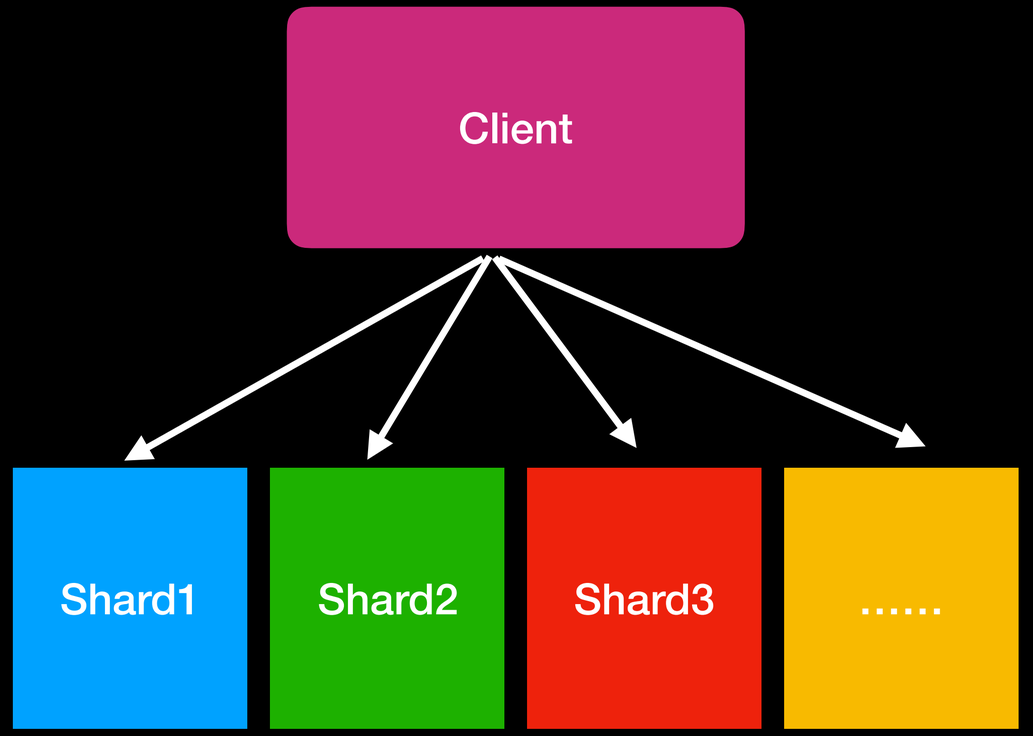
原生Redis集群

- 容量受限
- 可靠性差
- 耦合性高



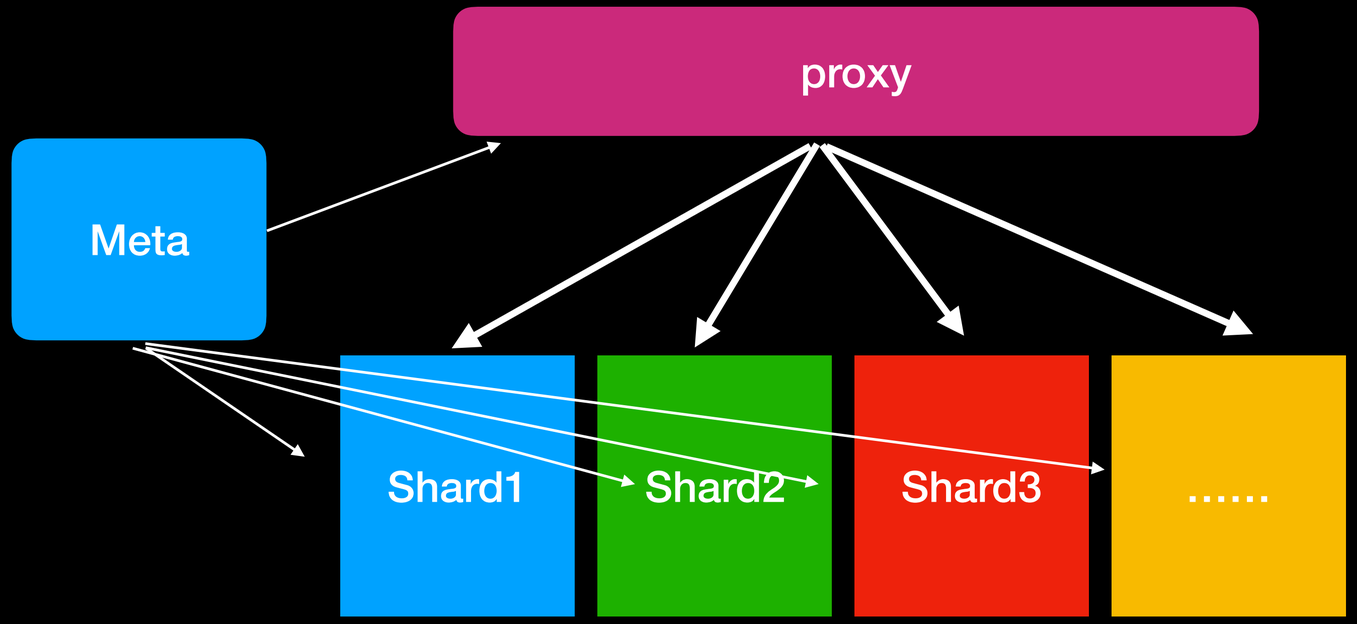
Client Shard

- 扩展性差
- 可靠性差
- 耦合性高



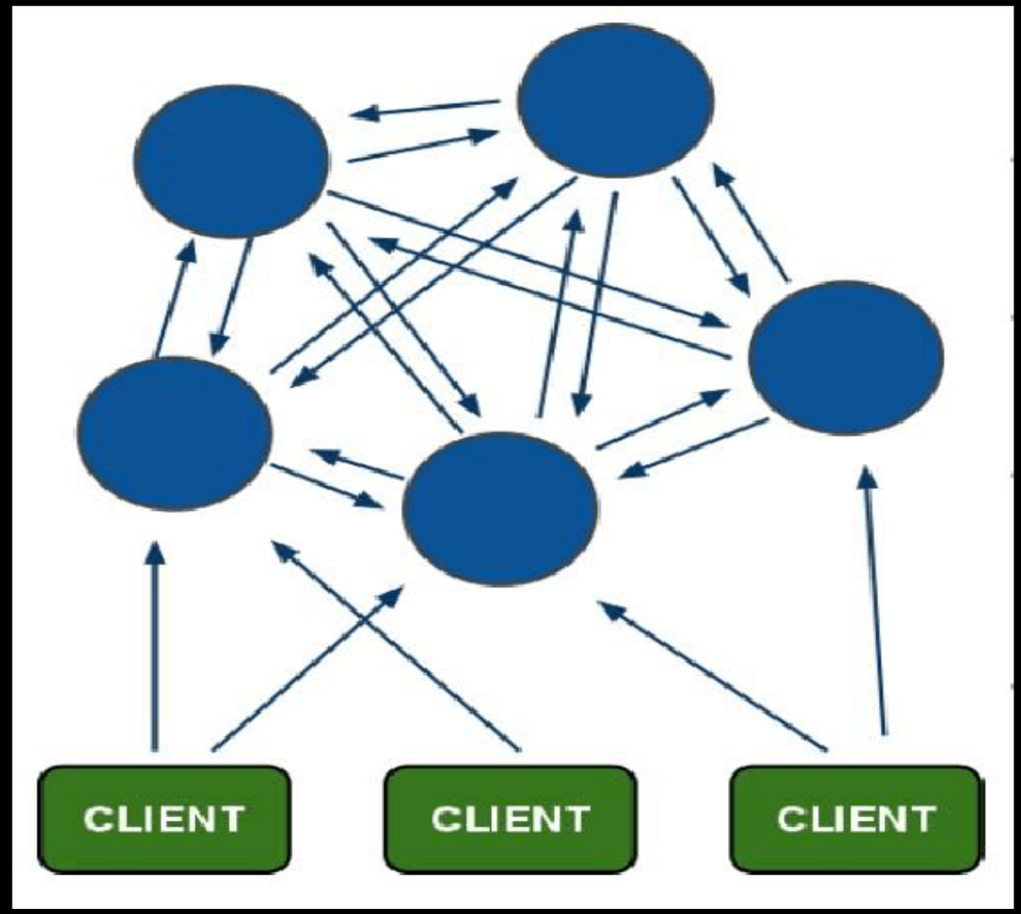
Proxy Shard

- 架构复杂
- 稳定性差
- 性能受影响



Cluster架构

- 集群内部复杂
- 牺牲部分功能
- reshard 自动化
- 网络带宽占用多



业界使用解读

GENERAL

Feature / Function	Redis Cloud	ElastiCache	Azure Redis Cache	RedisToGo	RedisGreen	Object Rocket	Heroku Redis	Compose.io
GENERAL								
Main use case	Database, Cache	Cache	Cache	Cache	Cache	Cache	Cache	Cache
Service Type	Serverless	Instance-based	Instance-based	Instance-based	Instance-based	Instance-based	Instance-based	Instance-based
Multiple databases per plan, each running as a dedicated process and in a non-blocking manner	✓	✗	✗	✗	✗	✗	✗	✗

HIGH AVAILABILITY

Feature / Function	Redis Cloud	ElastiCache	Azure Redis Cache	RedisToGo	RedisGreen	Object Rocket	Heroku Redis	Compose.io
HIGH AVAILABILITY								
In-zone replication	✓	✓	✓	✗	✓	✓	✓	✓
Multi-zone replication	✓	✓	✗	✗	✗	✗	✗	✗
Auto fail-over	Seconds	Minutes	Minutes	✗	✗	Minutes	✗	✗
Data persistence	AOF every 1 sec, Snapshot	✗	Durability is not guaranteed	✗	?	?	✓	✓
Backup	Periodic, Ad-hoc	Periodic, Ad-hoc	✓	Periodic	Periodic	Periodic	✗	Periodic, Ad-hoc

SCALABILITY

Feature / Function	Redis Cloud	ElastiCache	Azure Redis Cache	RedisToGo	RedisGreen	Object Rocket	Heroku Redis	Compose.io
SCALABILITY								
Clustering support	✓	✓	Fixed size cluster	✗	✗	✗	✗	✗
Sharding	By Hash-Tag or RegEx	By Hash-Tag	By Hash-Tag	✗	✗	✗	✗	✗
Infinite & auto-scalability	✓	✗	✗	✗	✗	✗	✗	✗
Elasticity - dynamically grow & shrink	✓	✗	✗	✗	✗	✗	✗	✗


Q/A