



# **CLOUD COMPUTING APPLICATIONS**

Redis

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# Redis: REmote Dictionary Server

- Open Source
- Written in C
- Data model is a dictionary which maps keys to values
- Supports not only strings, but also abstract data types:
  - Lists of strings
  - Sets of strings (collections of non-repeating unsorted elements)
  - Sorted sets of strings (collections of non-repeating elements ordered by a floating-point number called score)
  - Hashes where keys and values are strings

# Redis

- Ultrafast response time
  - Everything is in memory
  - Non-blocking I/O, single threaded
  - 100,000+ read / writes per second
- Periodically checkpoints in-memory values to disk every few seconds
- In case of failure, only the very last seconds' worth of key/values are lost

# Potential Uses

- Session store
  - One (or more) sessions per user
  - Many reads, few writes
  - Throw-away data
  - Timeouts
- Logging
  - Rapid, low latency writes
  - Data you don't care that much about
  - Not that much data (must be in-memory)

# General Cases

- Data that you don't mind losing
- Records that can be accessed by a single primary key
- Schema that is either a single value or is a serialized object

# Simple Programming Model

- GET, SET, INCR, DECR, EXISTS, DEL
- HGET, HSET, KEYS, HDEL
- SADD, SMEMBERS, SREM
- PUBLISH, SUBSCRIBE

# Summary

- Redis is not a database
  - It complements your existing data storage layer
  - E.g. stackoverflow uses Redis for data caching
- Publish/Subscribe support