



WHITE PAPER

# Redis Enterprise For Financial Services



**redislabs**  
HOME OF REDIS

## Introduction

Data is the foundation of the finance industry. Revenues, growth and profitability of the enterprises in the financial industry depend on data accuracy, transaction speed, data protection and privacy, data-driven insights, and the ability to personalize and package data-based products.

Redis is used extensively across the finance industry in a variety of use cases. From fintech upstarts, boutique financial services, and hedge funds to multinational banks, leading credit card companies, consumer and corporate lending firms to conglomerates, Redis is the high performance database of choice due to its extreme throughput and low latencies, its versatility and simplicity of deployment, and broad community support. Redis Enterprise has further enhanced Redis attributes of performance, availability, and scale to meet the rigorous demands of the finance industry.

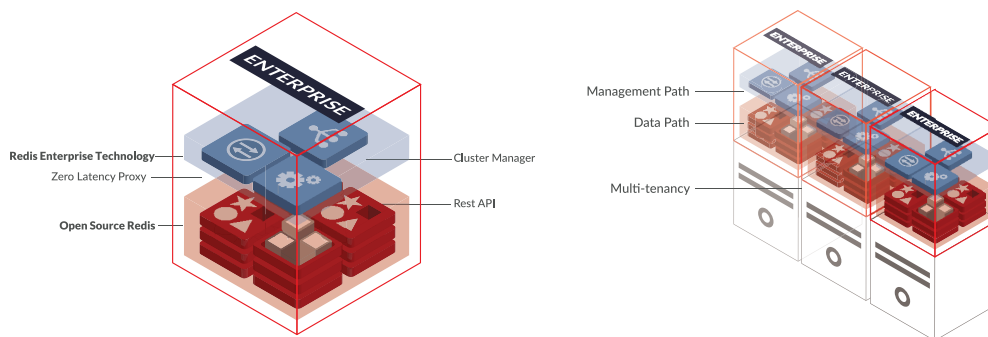
## Why Redis Enterprise is the Best Deployment Choice for Financial Services

Redis Enterprise enhances Redis deployments with seamless, no-hassle scaling and clustering, world class high availability including persistence, cross rack/zone/region in-memory replication, instant automatic failover and backups, as well as enterprise grade 24 x 7 expert support.

Benchmarked at >2 million operations per second at <1 ms latency on standard x86 servers, Redis Enterprise adds stable high performance and linear automatic scaling to Redis deployments while reducing operational overheads to bare minimums. Redis Enterprise can be deployed inside your own datacenter, in VPCs, in public clouds or hybrid environments. For greater cost effectiveness, Redis Enterprise enables Redis to run on Flash memory used as a RAM extender, allowing you to process and analyze extremely large datasets with in-memory performance at over 70% lower costs.

Redis Enterprise also helps enterprises to stay compliant and reduce risks or costs associated with deployments and on-going management of Redis databases.

For cloud deployments, Redis Enterprise Cloud (a fully managed service underpinned by Redis Enterprise) relieves customers of all operational hassles related to scaling, high availability and management.



## Financial Services Use Cases Powered by Redis Enterprise

### High-Speed Transactions:

High-speed transactions are the backbone of the financial industry, and are characterized by very high throughput and extremely low latency requirements. Redis Enterprise powers many such high speed transaction use cases, with its high performance, its versatile data structures and simplicity of implementation.

A large multinational credit card company uses Redis Enterprise to process Apple Pay payments, delivering the extremely low latencies needed to authenticate and validate of user credentials during transactions.

A Binary Options trading platform uses Redis Enterprise to deliver millions of price/currency pairs to hundreds of subscriber systems over 10 times/second with <1 ms latency.

A large financial investment firm uses Redis Enterprise to implement distributed locking and sequential processing of multi-threaded transactions at extremely low latencies.

A large multinational bank uses Redis Enterprise to drive global wire-transfer reconciliation based on constantly changing regulatory requirements.

Several financial institutions use Redis Enterprise as a high performance caching layer, for enhanced application performance with fewer servers.

The Xignite logo is displayed in white text on an orange background.

*“ I no longer have to worry about the availability of my Redis layer- it is one less problem to worry about in my IT stack. And I save more than I had expected on hardware and operations personnel time! ”*

**Qin Yu, Director of Engineering**  
Xignite

### Personalization:

Personalization of the user experience is critical for driving growth among prospects and customers of financial services. Redis is one of the most popular choices for driving personalization due to its unique HASH and SET data structures, which allows for incredible flexibility and accelerated processing of user session data. Redis' high performance ensures the most responsive and low latency user experiences.

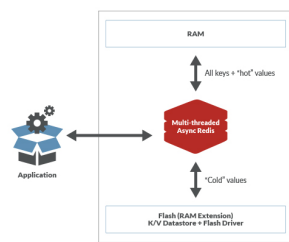
A leading consumer and business finance company uses Redis Enterprise to power their API infrastructure as well as for user session caching, thereby providing a smooth and seamless experience for consumers and business professionals using their application. With instantaneous cross region and data center replication, Redis Enterprise helps this company promote collaboration and a worldwide continuous experience.

## Risk management:

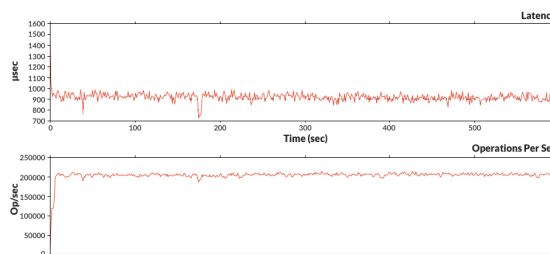
Reducing risks through fraud detection requires instant perception and analysis across a variety of data points. Data crunching at high speeds is critical for prevention of pilferage. Redis' proficiency at swift data processing enables it to accelerate analysis across a wider variety of data sets and data types, without requiring the deep data model and application changes that are characteristic of RDBMS based applications. With Redis on Flash, large dataset analysis at in-memory speeds becomes cost-effective because Redis Labs has added another layer of optimization where Flash can be used as an extension of RAM at a configurable ratio. This ensures the highest throughput and lowest latencies at a cost that can be fine-tuned based on the workload.

Redis Enterprise Software used as a database, message broker and cache, is deployed in risk management scenarios in various roles to detect and isolate potentially fraudulent transactions into separate lists and queues, as a database to store interim results while algorithmically analyzing transaction characteristics and making model definitions available and updated at extremely low latencies.

A large consumer credit card company uses Redis in multiple roles to run real time processing and analytics of consumer transactions, to isolate and detect fraud scenarios.



Redis on Flash uses a combination of RAM and Flash memory



Redis on Flash benchmarked to >2M ops/second at <1 ms latency with 20% RAM and 80% Flash on a single standard server



**The Motley Fool**

“Auto-failover and seamless clustering were the main reasons we chose Redis Enterprise Software—and the expertise provided by the Redis Labs team is a huge bonus.”

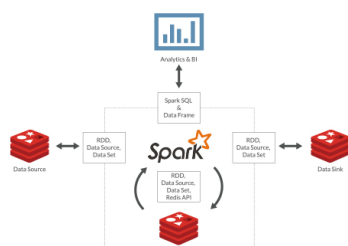
**Brandon Ragan, Lead Systems Engineer**  
Motley Fool

## Analytics:

Financial services heavily depend on analytics for business insights. While traditionally data warehouses have provided static reports, there is an increasing move towards dynamic, customizable reporting. With Redis as a cache in front of traditional disk based databases, and with data structures providing the much-needed pre-sorting in-memory, Redis solves analytics problems like dynamic querying over millions of records at sub-millisecond latencies.

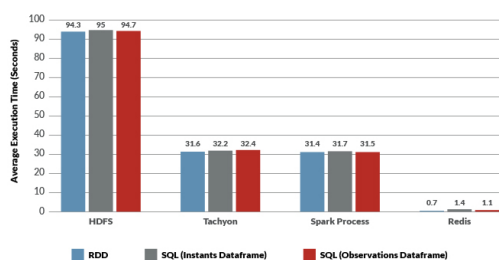
In iterative processing scenarios such as those with Apache Spark, Redis data structures accelerate processing and allow for faster responses to analytical queries. The Spark-Redis connector package allows Spark to directly access Redis data structures for the most efficient in-memory data processing. Redis also provides a serving layer for Spark SQL and an accelerator for Spark processing.

A large multi-national bank uses Redis Enterprise Software to accelerate Big Data analytics, in front of other disk based NoSQL databases, reducing analytic processing times upto 45 times.



Redis is a data source, data sink, accelerator and serving layer

## Spark Benchmark



Faster Spark processing with Redis by upto 100 times compared to HDFS and 45 times compared to Tachyon or Spark process memory

## Next Steps:

Learn more about Redis Labs' deep deployment expertise by visiting [www.redislabs.com](http://www.redislabs.com) or emailing Redis Labs.