

Highlights

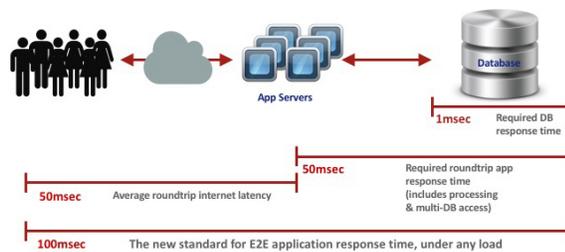
- **Highest Performing NoSQL solution:** Millions of operations/second at sub-millisecond latencies
- **Substantially Lower Costs:** Fewer hardware resources than other databases and optimal performance: cost trade-offs with configurable ratios of RAM: Flash
- **High Availability:** Built-in data persistence, rack-aware cross datacenter/region/cloud replication, backup, auto-failover and disaster recovery
- **Enterprise Management and Support:** Simple, intuitive UI, API and CLI based management, continuous monitoring of key Redis metrics, automated operation and 24x7 expert support

Redis Labs and IBM POWER8 Slash Your Operational Costs

Big Data Needs to be Real-time

Applications today are required to process terabytes and petabytes of structured or unstructured data and return responses at the speed of business. As crucial business decisions become automated, insights from your Big Data have to be extracted in minutes or hours, while traditional batch tools need days and weeks.

There are performance and cost challenges associated with this. You need the high throughput and low latencies of in-memory databases to handle thousands and millions of data-points per second. You also need this performance with the cost-effectiveness of Flash memory, so you can retain a competitive edge.

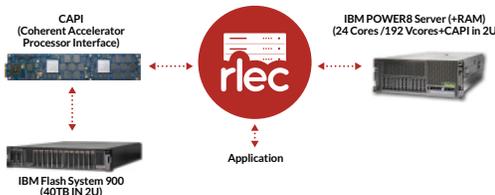


Open source Redis, the world's most popular in-memory NoSQL database, has been the choice of developers worldwide for delivering millions of operations per second at sub-millisecond latencies with the fewest servers. Redis Labs Enterprise Cluster (RLEC) is the most scalable way to deploy Redis for consistent stable high performance, high availability, linear scalability and reliability.

RLEC also adds the capability to run your applications cost effectively on a configurable combination of RAM and Flash memory, allowing you to tailor your performance: cost trade-off based on the importance of your workload

The combination of IBM POWER8 and Redis Labs Enterprise Cluster is the most cost effective solution for millions of operations/sec and sub-millisecond latencies at over 50% lower costs.

Redis Labs, IBM POWER8 and CAPI Flash Solution



| More Speed | More Cores | More Hyperthreads | More Memory |
|----------------|---------------------------------|---|---|
| Up to 4.15 GHz | Up to 12 hardware cores per CPU | Up to 8 virtual cores per hardware core | Virtually unlimited, super-fast, flexible RAM with DRAM +CAPI+Flash |

IBM POWER8 with CAPI Flash: Built for Big Data

IBM's POWER8 processors offer flexible and fast execution of Big Data processing. POWER8 processors, with up to 8 virtual cores per processor provide the extreme horsepower for parallel execution of analytics. IBM's innovative CAPI (Coherent Accelerator Processor Interface) technology in POWER8 servers introduces a new tier of memory and data bandwidth for NoSQL databases by attaching up to 67TB of flash memory with up to 133% higher throughput compared to standard flash and without the latency issues of traditional storage. POWER8 with CAPI provides a high-bandwidth, low-latency path between partner devices—the POWER8 core and the system's open memory architecture—so customers no longer have to choose between "big" or "fast" for their solutions.

Advantages of using Redis Labs Enterprise Cluster and IBM POWER8

Higher number of virtual cores means a higher number of Redis instances (shards) can be run on IBM POWER8 Linux boxes compared to equivalent Dell boxes. With a maximum throughput of 4 Million operations/second on a standard IBM POWER8 box, compared to 2.4 Million operations/second for the equivalent Dell server, the IBM solution delivers a cost savings of 50 % for 67% higher throughput when running RLEC in RAM.

| RLEC on RAM | IBM POWER8 | Dell Power Edge |
|--|------------|-----------------|
| Price w/o Flash | \$17,515 | \$23,033 |
| # of Shards (dedicated) | 80 | 12 |
| \$/shard (dedicated) | \$218.94 | \$1,919.42 |
| # of Shards (multi-tenant) | 320 | 48 |
| \$/shard (multi-tenant) | \$54.73 | \$479.85 |
| Max Throughput (ops/sec) at Sub-msec latency | 4,000,000 | 2,400,000 |
| \$/transaction/sec | \$0.004 | \$0.01 |
| IBM Throughput % Gain | 67% | |
| IBM Cost Savings | 54% | |

| RLEC on Flash | IBM POWER8 | Dell Power Edge |
|--|-------------|-----------------|
| Price with Flash | \$23,515 | \$26,033 |
| Max Throughput (ops/sec) at Sub-msec Latency | 200,000 | 66,000 |
| \$/transaction/sec | \$0.12 | \$0.39 |
| IBM Throughput % Gain | 200% | |
| IBM Cost Savings | 70% | |

Customer Scenario

| | Redis on Flash | Redis on RAM |
|-------------|----------------------|--------------------------|
| RAM Size | 0.5TB | 5TB |
| Flash Size | 4.5TB | N/A |
| Servers | On P8: 2x s822 LC | On AWS: 21xr3.8xlarge |
| 1 Year Cost | \$15,677 | \$489,333 |
| P8 Savings | 97% | |

Redis Labs Enterprise Cluster is downloadable software for deploying enterprise grade, highly available and scalable Redis clusters. RLEC on Flash adds the capability to run Redis on Flash while optimizing for performance

- RLEC Flash runs on Flash used as a RAM extender
- RLEC allows configuration of the RAM: Flash ratio for optimal performance: cost trade-offs

Advantages of using Redis Labs Enterprise Cluster and IBM POWER8 with CAPI Flash

Redis Labs Enterprise Cluster on IBM POWER8 using a combination of RAM and IBM Flash, which is optimized for higher throughput than commodity Flash, delivers 200% higher throughput at up to 70% lower operational costs.

Customer Scenario: Cutting Analytics Costs by 97% by Using RLEC with IBM POWER8 and CAPI Flash

A large university used Redis for genome data analysis for pattern detection. With 31TBs of raw data to be analyzed with Redis, they ran into cost limitations with standard servers. With encoding of data and by using Redis data structures, the raw dataset size was condensed down to 5TB. With a combination of RAM:Flash on the IBM POWER8/CAPI Flash solution, the customer was able to achieve 97% cost savings compared to standard AWS servers.

Solutions Powered By RLEC

High Speed Transactions: Redis' support for transactions and RLEC's high performance at scale make RLEC an ideal choice for high speed transactions in verticals such as financial services, e-commerce, telecom, healthcare and more.

In Database Analytics: Use the power of Redis' in-memory architecture to support both operational and analytic use cases without affecting performance. Redis' optimized data structures with built-in analytics enable high velocity analytics such as user recommendations based on behavior, top purchases or trends, ranges and range queries, top scorers and more.

Time series data: Redis' built-in data structures such as sorted sets and hashes accelerate processing of time series data by 1000 times compared to disk-based databases and 100 times compared to simple in-memory K/V stores.

Geo-spatial Searching: Use the built-in efficient geo-commands in Redis and linear scalability of RLEC to power high speed location-based analytics used by transportation, retail, e-commerce, social and mobile applications.

In-app social functionality: Redis' powerful set operations, atomic counters and advanced data structures combined with the high scale of RLEC make it a great fit for social functionality in applications such as top followers, timeline and social graphs.

Big Data Analytics Acceleration: Use RLEC in conjunction with Big Data frameworks like Hadoop and Spark to dramatically accelerate analytic processing by several times. Use insights from Big Data to power real time decisions.

Job & Queue Management: Increase the responsiveness and reliability of your applications by using RLEC as a key facilitator of job & queue management.

High Speed Caching: RLEC enables the most responsive user experience by providing a very high performance distributed, highly available cache for your application.

Get RLEC Today!

Talk to a Redis Expert, contact expert@redislabs.com. Try RLEC for free at www.redislabs.com