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SOLUTIONS GUIDE

Redis Enterprise for Media & Entertainment

The Most Responsive, Scalable and Highly Available Database for Content-Heavy Applications

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Introduction

Consumer experience is at the heart of the media and entertainment industry. Companies looking to gain a competitive advantage in the digital world must create unique and dynamic experiences in order to drive both customer acquisition and continued retention.

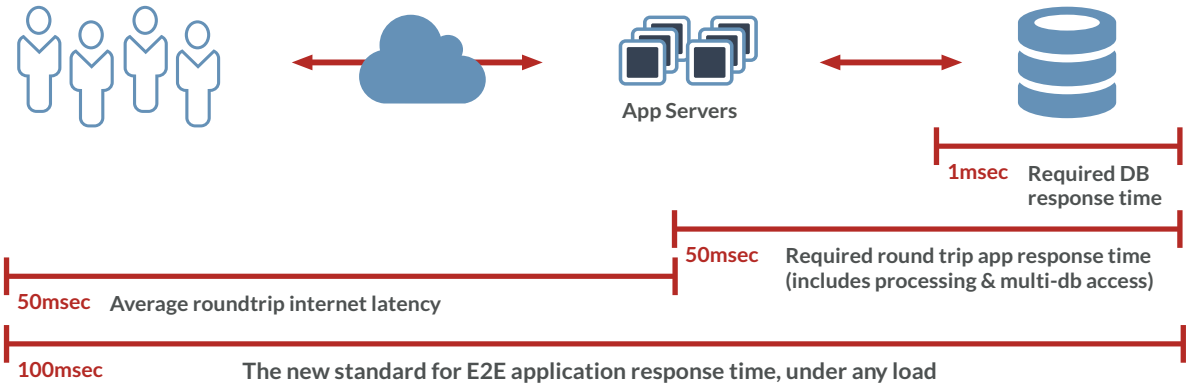
Redis is the datastore of choice for businesses in these industries, especially for supporting real-time scenarios such as highly personalized interactions, content caching, user session management, scoring, ranking, leaderboards, social engagement, messaging, notifications, real-time analytics and high-speed transactions.

Media and entertainment companies rely heavily on Redis because of its extreme efficiency and versatility in delivering real-time engaging experiences at scale and with minimal resource consumption. Redis^{e} – Redis Enterprise from Redis Labs – meets the mission-critical needs of the media and entertainment industry by increasing availability and substantially simplifying the process of scaling deployments in a range of cloud and on-premises environments.

Media and Entertainment Use Cases Powered by Redis^{e}

Targeting/Personalization

High velocity customer acquisition and persistent customer engagement both require media and entertainment applications that respond with appropriate content in milliseconds. The blazing fast throughput and low latencies of Redis, as well as its built-in analytics capabilities, deliver these kinds of rich experiences to power conversions, engagement and acquisition.



Specific data structures within Redis, such as Lists, Sorted Sets and Pub/Sub capability, enable the simple implementation of extremely fast data ingest, content serving (images, feeds and metadata), and even instantaneous analytics (counts, leaders, ranks, top items and player score ranges).

Other Redis data structures like Hash, Geo, Sets and Sorted Sets allow for incredible flexibility in the processing of user data and characteristics – like preferences and location – to ensure consumers are presented with the right custom offers, pricing and recommendations.

Microsoft uses Redis[e] as a key lynchpin of its highly trafficked MSN website, using the datastore to deliver targeted and personalized content, and to power social functionality.

"Redis[e] reduced our latencies to less than 10 ms with the least operational overhead on the team."

Richa Gupta, Software Engineer

MICROSOFT CORPORATION

A large mobile advertising network uses Redis[e]'s high speed data ingest and complex statistical analysis capabilities to deliver personalized ad content to its mobile application users. Redis[e]'s capability of delivering content with <1 ms latencies, even at a scale of millions of transactions per second, is paramount to the service.

"Redis Labs' high performance and versatility has helped us deliver applications faster and with greater reliability than ever before," stated this company in a public survey of Redis Labs' customers.

Social Functionality

Redis powers social conversations, online chat and ratings systems for many of the world's top media and entertainment websites, handling complex functionality such as messaging, queues and lists with extraordinary ease at sub-millisecond latencies, even at extremely high volumes. Simply pushing messages into a Redis List is a trivial way to implement chat, and using the datastore's scalable Publish/Subscribe capability makes the experience orders of magnitude faster than services that run on other NoSQL databases.

The social gaming website Twitch, the fourth most trafficked website in the world, uses Redis[e] to handle its chat functionality. At peak loads, there are up to 400k simultaneous users in any given chat channel, all powered by the seamless scaling, unmatched high performance and continuous availability of Redis[e].

In order to engage customers by allowing them to share purchases, ratings and opinions, as well as follow influencers, applications must be highly responsive and built to handle complex social and messaging functionality with simplicity and low overhead. With Redis data structures like Lists, Sorted Sets and Pub/Sub, once again, these capabilities become almost trivial to implement.

Another aspect of social functionality, particularly in gaming applications, is ranking, scoring and leaderboards that keep track of users' progress in multiple areas. Massively scalable multi-player games are even more challenging in their requirement of distributed computations and instantaneous visibility into who's leading, by how much and how many are in the lead. Redis' data structures (like Sorted Sets and Hash-es) are incredibly proficient at delivering this type of critical scoring/ranking functionality for gaming.

Scopely, the maker of games like "The Walking Dead" and "Yahtzee with Buddies," uses Redis for a variety of these needs, including leaderboards, API management and queue workload management. One of the biggest use cases for Redis, however, is Scopely's social functionality, such as keeping tracking of tournament scoring and instantaneous responses to player moves. Scopely also uses Redis in many other ways – leveraging Sets and Sorted Sets to eliminate duplicate events, and applying probabilistic data structures to estimate gaming events that indicate cheating probability or game play anomalies.

"Redis labs has all the key features we look for in an infrastructure-as-a-service product: automated scalability, automated failover and recovery, reliability and superior performance,"

Ankur Bulsara, co-founder and CTO

SCOPELY

High Speed Transactions

Game play actions, account authentications, media purchases, content downloads and other transactions in the media and entertainment industry require the impressive performance of Redis, but with controls over consistency and durability. Redis[e] provides tunable levels of consistency and durability for multi-operation command execution, and facilitates the implementation of high-speed transactions in Redis. Often, applications like bid management require built-in analytics on top bids or bid ranges, for which built-in analytic commands within Redis Sorted Sets can be implemented with great simplicity.

Quikly, a digital engagement platform, utilizes Redis[e] to manage high-speed customer transactions, such as rapid fire rewards and loyalty points based on customer engagement.

Playbuzz, an interactive storytelling platform, uses Redis[e] to power high-speed transactions as customers create and author engaging content on their responsive platform.

Real-time Analytics

Media and entertainment companies also depend on real-time session analysis, behavior-based recommendations, location-based offers, top trending items and spot promotions to encourage upsell and cross sell. Redis data structures such as Geo, Sets, Sorted Sets and Hashes make ideal building blocks for these kinds of hybrid transaction and analytics use cases. Recommendation engines, bid analyzers and top trends built on Redis are commonplace in most interactive applications and services.

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[e] Flash, large dataset analysis at in-memory speeds becomes cost-effective because Redis Labs has added another layer of optimization in which 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 an application's workload.

Spot.IM's next generation community engagement platform is architected for blazing fast responsiveness and incredible scale. It handles thousands of requests per second and processes over one billion pageviews a month. To achieve this with simplicity and high performance, Spot.IM relies on enterprise-grade, highly available, seamlessly scalable Redis[e] Flash from Redis Labs.

"I am yet to encounter limits with Redis Labs' scalability. It allows me to handle peaks in traffic that grow 2000% without any need to scale my database infrastructure,"

Ishay Green, CTO

SPOT.IM

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 serves as a serving layer for Spark SQL and an accelerator for Spark processing.

Machine Learning

Sophisticated learning algorithms are often employed by media and entertainment companies that aim to tailor experiences to customers based on their demographics, preferences or on vendor conversion goals. Serving machine learning algorithms from a homegrown infrastructure is hard to scale and expensive in terms of infrastructure. Using Redis[e] and Redis-ML, a machine learning module for model-serving, customers can save up to 97% of their infrastructure costs.

A large internet advertising company that runs thousands of campaigns at any given time, needs to serve 20,000 ads and achieve <50msec datacenter latency. Each campaign is a random forest model with an average of 7 levels deep, which would need 1 trillion ops/second with a standard homegrown application.

COST EFFECTIVE

	Custom App	Redis[e]
# of AWS instances	1,247xc8.xlarge	35xc8.xlarge
Reserved Instances Costs	$11,448,611	$322,455
Savings		97% Savings

x2,000 FASTER

As shown above, Redis[e] with Redis-ML can deliver the same ops/second with fewer servers, because Redis-ML stores models in memory in native format and can achieve tremendous throughput compared to other solutions like Apache Spark.

Rumble entertainment, maker of online games such as KingsRoad, uses Redis[e] extensively for a range of transactional and analytics scenarios.

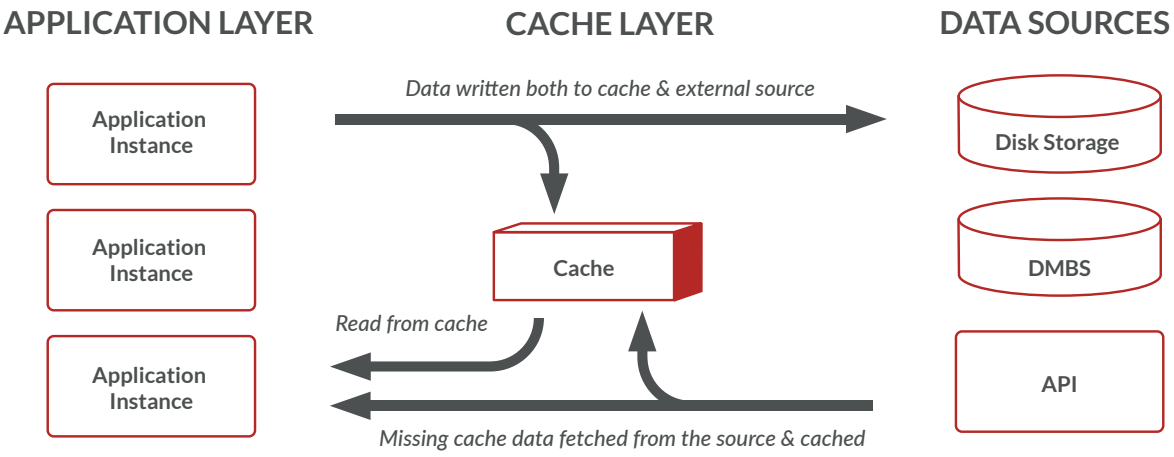
"Redis enables rapid development of incredibly high-performance services, and Redis Labs completely eliminates any worry about deployment, management, upgrade, backup, and scaling, for far less than it would cost us to run the service ourselves"

Sam Neth, Director of Platform

RUMBLE ENTERTAINMENT

Content Caching & Serving

Caching is often the smartest way for media and entertainment providers to serve content like graphics, imagery, pictures, thumbnails, music, labels, metadata, tags and more at lightning speeds. This enables extreme responsiveness, as users navigate their mobile applications, websites, game experiences, etc., with minimal resources and minimal overhead on expensive disk-based RDBMS databases. Redis is ideal for caching, not just because it is very fast, but because it includes features like data structure variety, customizable expiration, eviction, intelligent caching, request pipelining, as well as data persistence and high availability. A highly available cache is critical to ensuring that user experience does not suffer during cache outages.



Bleacher Report, the popular sports news website uses Redis[e] extensively for scaling its API service.

"As the second largest sports site in the world, we get more than 80 million visitors each month," says Tung Nguyen, senior director of engineering at Bleacher Report. "In order to handle this ever-increasing load and deliver the best possible user experience, we rely on Redis Labs' NoSQL database services to super-charge our app by delivering amazing response times of less than a couple milliseconds."

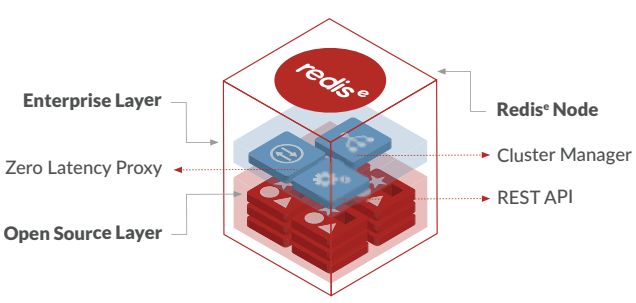
Redis^{e} – The Best Deployment Choice for Media and Entertainment

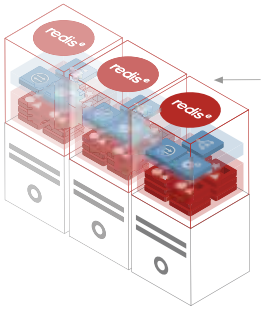
In the world of the 24-hour news cycle and increasingly online consumers, downtime directly impacts revenue and customer experience – making true high availability a critical factor in choosing your database. Scaling to handle peaks in traffic must be non-disruptive and effortless. Redis^{e} enhances Redis deployments with seamless, zero-downtime scaling and clustering, as well as world-class high availability, including persistence, cross rack/zone/region in-memory replication, instant automatic failover, backups and disaster recovery.

Performance is another crucial factor for your applications. Particularly in peak traffic, media and entertainment applications need to be highly responsive, and industry economics require that this performance is delivered in the most cost effective manner. Benchmarked at >1.5 million operations per second at <1 ms latency on a single modest AWS EC2 instance, Redis^{e} adds stable high performance and linear automatic scaling to Redis deployments, while reducing operational overheads and resource costs to bare minimums.

Cutting-edge media and entertainment businesses also need very rapid time-to-market for new ideas and products, and the technology that underpins this must be hassle-free and flexible to deploy. Redis^{e} can be deployed on the cloud, PaaS or VPCs of your choice as a fully managed service, via the **Redis^{e} Cloud** service, or in your own datacenters or hybrid environments as downloadable software (**Redis^{e} Pack**). Redis^{e} can also run Redis on cost-effective Flash memory used as an extension of RAM, so you can process and analyze extremely large datasets with high throughput and extremely low latencies at up to 70% lower costs.

Redis^{e} technology relieves customers of all operational hassle related to scaling, high availability and ongoing management of Redis, while including complete compatibility with the open source Redis software.





Redis^{e} Cluster

- Shared nothing cluster architecture
- Fully compatible with open source commands & data structure

Next Steps

Learn more about Redis Labs' deep deployment expertise by visiting www.redislabs.com or emailing expert@redislabs.com.

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