

IDEEL USES RIAK KV FOR PEAK-LOAD SERVICE CONTINUITY

LEADING ONLINE RETAIL SITE

Launched in June 2007, ideel is one of the fastest growing retailers in the U.S. With more than 5 million members and over 1,000 brand partners, ideel is a ‘flash’ shopping site that delivers a unique daily shopping experience with a curated selection of offerings across the apparel, accessories, home, shoes, kids, travel, and lifestyle categories—offering the thrill of discovery and the satisfaction of a deal.

COMPANY

ideel, Inc., formerly known as ideeli
Purchased by Groupon in 2014

INDUSTRY

Retail

CHALLENGE

Provide highly-available event-based shopping experience to millions of members.

SOLUTION

Use Riak for reliable, highly-available, flexible persistent cache.

THE CHALLENGE AT PEAK LOAD

Every day at 11:00 am EST, more than a dozen new fashion showcases open to members, offering thousands of units of merchandise in all shapes, colors, and sizes. Each and every day, an entirely new store, complete with pricing, pictures, descriptions, and quantity, is orchestrated and launched. Once the doors open, eager members flood into the site much like you would see when Ticketmaster releases tickets for a hot event—pushing load on the application in excess of 3000 requests/sec with over 700 “add to carts” per second.

To provide a great user experience, one of the top requirements of the application is to serve requests both instantaneously and without incident. To achieve optimal performance, ideel uses several memcached servers with techniques like cache warming and end-of-cycle database hits to perform the final merchandise checks and to complete the financial transaction.

But when a memcached server is lost or expunged, a cache hole opens, resulting in a degraded level of service. Regenerating the cache could take anywhere from 15 to 30 mins. To mitigate the performance hit, ideel uses a custom spinwait load shedding method known internally as “anti-dogpile” that gracefully frees application server processes. Rather than have the application hit the database in a degraded state, if the application spinwaits for more than 30 seconds on an individual request, this request is dropped and the load on the application server is released. But, if ideel were to lose 10% or more of their overall cache during one of their events, the user experience would be unacceptable, translating into lost revenue and negative sentiment in the market.

RIAK KV DELIVERS

Ultimately ideel wanted something that was more robust. According to Nick Tudor, Sr. Director of Architecture and Platforms at ideel, “We needed a system where we could lose a node and it just didn’t matter.” If a node were to go down it could come back up and be immediately regenerated.



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- David Mitchell, Director, Technical Operations

Using memcached, ideel naturally turned to MEMBASE to provide persistence, but what ideel discovered was something far different. If MEMBASE went down, it didn't re-shard the data. ideel came to realize that by using MEMBASE they would actually end up in a worse situation.

ideel did their homework and determined that Riak KV was ideal for their application. At its highest level of abstraction, ideel was storing a key for the page's content, and the value (object) was basically the HTML on the page. With Riak KV running side-by-side of memcached, ideel optimizes performance by using each for the appropriate job.

After using Riak KV to successfully ensure application service continuity, ideel started using Riak KV in other areas. In one case Riak KV is used for AB and multi-variant testing to help determine user preferences for new features on the site. In another project ideel is using Riak KV to serve user-specific favorited products in a grid page dynamically. This data can be served

very rapidly by storing it into Riak KV as a denormalized data store. The flat format allows ideel to avoid multiple-joins and hitting the database several times. Since this data has been on the site before, and is in essence historical artifact, it's completely static and can be retrieved and presented very quickly using Riak KV. As a future project, ideel is investigating the use of Riak KV as a delayed slave for disaster recovery.

As for ideel's level of satisfaction with Basho and Riak KV, according to David Mitchell, Director of Technical Operations, "Riak KV is one of those things that just works. We don't have to do a whole lot with it from day-to-day." As for service and support, David says, "I've done large scale IT ops for close to 20 years now. I can't say I've seen anything quite like the amazing response time we've witnessed from Basho. The technology is rock-solid. Both Riak KV and Basho have exceeded our expectations."

ABOUT IDEEL

Launched as ideeli in June 2007 and purchased by Groupon in 2014, ideel is one of the fastest growing retailers in the United States. At ideel, customers have privileged access to the most sought-after brands and products with offerings in apparel, accessories, home, shoes, kids, travel, and lifestyle.

With more than 5 million members and more than 1,000 brand partners, ideel has pioneered a new way to shop.

ABOUT BASHO

Basho, the creator of the world's most resilient databases, is dedicated to developing disruptive technology that simplifies enterprises' most critical distributed systems data management challenges. Basho has attracted one of the most talented groups of engineers and technical experts ever assembled devoted exclusively to solving some of the most complex distributed systems challenges presented by Big Data and IoT.

Basho's database, Riak® KV, the industry leading distributed NoSQL database, is used by fast growing Web businesses and by one-third of the Fortune 50 to power their critical Web, mobile and social applications. Built on the same foundation, Basho introduced Riak TS, which is the first enterprise-ready NoSQL database specifically optimized to store, query and analyze time series data. Basho also provides Riak integrations for a variety of Big Data technologies like Apache Spark, Redis, Mesos, and Apache Solr.

For more information visit Basho.com which is full of interesting use cases, customer case studies and product detail, or docs.basho.com for technical documentation.

