

Tagboard is able to forget about the backend data and focus on innovation with ObjectRocket

#tagboard

Tagboard enables over 10,000 sports teams, broadcasters, and brands to quickly and easily curate rich content from social and display it on air, in stadium, online, or at any event. Basically, any screen, anywhere, any time.

In order to take real-time content from Twitter, Instagram, Facebook, YouTube, and Snapchat and turn it into impactful displays for a variety of screens, Tagboard must ingest and process a massive amount of data. To accomplish this, they use three managed database services that allow users to search any hashtag and then filter, moderate, and interact with social content: Elasticsearch, MongoDB, and Redis.

Their current data structure uses MongoDB as the primary data store, which they supplement with 50 microservices using Elasticsearch to search and analyze, along with Redis as their cache. However, like most startups, their data structure and needs evolved over time.

The challenge: Needing to scale rapidly without adding headcount

Today, Tagboard generates more than a billion impressions each month. Social content across all platforms can be discovered and shared online (and on any screen) at lightning speeds thanks to their unrivaled technology. But it wasn't always so effortless.

“Everyone's got this idea that managed services are risky. ObjectRocket is the epitome of how and why that idea is wrong.”

Nick Hamilton

Principal Engineer, Tagboard

AT A GLANCE

Customer's Business:

Tagboard is the world's premier social search and display platform. Used globally by thousands of brands, sporting teams, and media companies, Tagboard is the easiest way to discover social media and quickly share it to connect audiences across websites, mobile apps, large-format displays, and live broadcasts.

Challenge:

Tagboard's small team wanted to focus on building the front end of their app and microservices. With minimal initial funding and a MySQL database that wasn't scaling to keep up with their growth, they needed to find a faster database solution supported by experts that fit their startup culture.

Database Solutions:

- ObjectRocket for MongoDB®
- ObjectRocket for Elasticsearch®

Outcome:

Tagboard is now able to ingest 1.5 million posts/hour while maintaining search and query performance. With ObjectRocket's experts watching over their backend data, Tagboard can build new features in days rather than months.

Tagboard launched in 2011 with a steadfast mission to bring communities together through social media, quickly and easily. Back then, MySQL wasn't scaling the way Tagboard needed it to. Tagboard was a small startup team and in the genesis of adding customers so they didn't have the resources to do it themselves. Their only option was to find a partner who could help them with their data challenges.

"During the first year of Tagboard, our core challenge was creating something that didn't exist yet. We were creating a new industry - Social Display," recalled Jordan Larrigan, CTO of Tagboard. "We had to focus on creating something new, something amazing that would wow potential customers enough to want to use us. We were a small team of people who didn't have the time or resources to focus on building an entire data warehouse solution for ourselves."

Larrigan contacted ObjectRocket to spin up an instance of MongoDB in 2012. No one could predict the scale at which Tagboard would grow.

"The ObjectRocket team helped us choose the right MongoDB environment and data structure for basic scale," said Larrigan. "A year went by and then all of a sudden we started hitting performance issues. We were pulling in hundreds of millions of social posts. The ObjectRocket team reached out to us before we realized an issue was occurring and helped us scale up without any impact to our customers."

Principal Engineer and Architect, Nick Hamilton, recounted how complex the process became. "As time went on, ObjectRocket assisted with relatively complicated queries for search in MongoDB, but it was clear that we needed another solution," said Hamilton.

The ObjectRocket team started looking at Cassandra and Elasticsearch to help with Tagboard's workload. ObjectRocket had just started offering Elasticsearch instances on their platform in Beta. Tagboard spun up an instance of Elasticsearch and started writing to both MongoDB and Elasticsearch. Within six months, they shut off some of their Mongo instances and switched to Elastic for their production environment.

"What made this great for our small company was that ObjectRocket didn't charge us for having both of these instances online during the migration," said Hamilton.

The right database for the job: How Tagboard uses database-as-a-service

Elasticsearch

Tagboard ingests millions of social posts daily. When users search for content, they are using Elasticsearch. Tagboard switched some tasks, including the application's main social feed and analytics, to Elasticsearch because it was better suited for them than MongoDB for search. The team also sees a great deal of potential that the Elastic Stack can provide for machine learning with more custom aggregations. They are also working with ObjectRocket to use Kibana for analytics data.

MongoDB

Although Elasticsearch is where most of their data resides, their most critical instance lives in MongoDB. Tagboard uses MongoDB for aesthetic data that doesn't really change often. Plus, once Tagboard users find content with Elasticsearch, it gets copied over to a MongoDB instance. The actual content that you see on the displays, from the giant screens at the football game, to a booth at a conference, is coming from a Mongo database.

Redis

Tagboard uses Redis to manage application state, pub/sub, caching and service isolation. They believe that each function of their product and infrastructure should focus on what it does best and Redis is a key component for making that happen. The database can focus on storing data, the web servers can focus on processing data, and the cache can focus on serving data.



Why ObjectRocket?

ObjectRocket continually helps Tagboard increase innovation and performance. By moving some processes to MongoDB, and later to Elasticsearch, and managing instances for them, the Tagboard team's sole focus is on developing new features that allow them to succeed in new markets.

Any time Tagboard wants to test something new or try a new configuration on an instance, ObjectRocket comes through for them. They never have to worry about getting charged for something that might not work or the backend tasks of setting the test up or even upgrading instances to the latest version. "Just being able to say, we're just going to spin up this new instance. We'll worry about billing later if it actually works. And if it doesn't, well, at least we tried, right? You can't get that anywhere else," Hamilton explains. "Upgrades are big for that, too."

"As major versions of MongoDB and Elasticsearch sometimes come with breaking changes, ObjectRocket lets us put a new database up with the new version at no cost. We use both for a while and we're not paying for two. We're paying for one and we just shut the old one off when we're confident everything looks good for our customers. If we did that anywhere else, we would have doubled our expenses."

When asked just how much money ObjectRocket may have saved them, Larrigan answered "It's hard to answer but I don't feel like we would have been able to survive in this space." Not having to worry about paying salaries for DBAs and other Ops people, not to mention the infrastructure costs saves Tagboard hundreds of thousands of dollars.

Tagboard's 2018 Footprint



3 Elasticsearch
Instances
7 TB Total

3 MongoDB
Instances
90 GB Total



20 Redis Instances
80 GB Total
on RedisLabs AWS



“You just have to find a group that you trust, that knows what they're doing, and are really good at it. Then you don't have to worry about it.

ObjectRocket is a part of our team. We could be one company. They're just the remote office that happens to handle our database stuff.

Jordan Larrigan
CTO, Tagboard



Importance of Culture

For Tagboard, the most appealing aspect of ObjectRocket is the team. They love that a team is available for them any time on Slack and they are treated like true colleagues. "There are other companies out there that can manage databases. But having people that blend in with our culture, who continually save us on broken queries or updates is totally worth it," said Larrigan. "It's a huge benefit to have amazing 24/7 on-call backend people to support us. It's like working with our own internal database team."

For example, Tagboard hadn't updated a MongoDB driver after an upgrade. "You reminded us," said Larrigan. "We rely on ObjectRocket to tell us when we miss things like this. With other companies, we'd have to keep up with that. It's just a waste of brain space, that would be better spent focusing on our customers."

Tagboard's NoOps: Small Development Team Strategy

Database and infrastructure issues add a couple of months to any project. This is one of the reasons Tagboard has a NoOps philosophy. They want to have a straight customer focus. To do that, Tagboard removes as much non-customer related work from their employees' brains as possible.

Managed Services

One of the hardest things to do as a startup is staying focused on your customer and building your product. Teams often get caught up in infrastructure tasks. These tasks consistently slow down development time and increase labor costs. Tagboard decided that they would find partners to handle these infrastructure tasks. Today, their most impactful partners are ObjectRocket and Heroku.

Quality Over Quantity

It's hard to sell this NoOps philosophy to traditional business development teams. The mentality tends to be that if you're not building fast enough, then you simply throw more resources at it. But that's not how it works. All that does is add more overhead. Now what you have are more meetings and more people to communicate with. Not to mention more people to hire to manage all of those meetings and track them.



Jordan Larrigan, CTO Tagboard (Left) and **Nick Hamilton** (Right) Principal Engineer, Tagboard.

"ObjectRocket makes it possible to really focus on the product and our customers."

***-Jordan Larrigan
CTO, Tagboard***

In essence, it's easier to have a small team that understands how everyone works, what the goals are, and what needs to be done to accomplish those goals. This approach can ultimately eliminate micromanaging while building trust.

Adding headcount is time consuming and utilizes resources. Tagboard wants the right people on the proverbial bus; it's the reason they have kept their team small but mighty. Their NoOps strategy is also what allows them to be nimble, innovative, and move fast.

End-to-End Javascript

The frontend is in Javascript, the backend is in Node; everything is Javascript. Tagboard wants to make it as easy as possible for all types of engineers to understand the full stack. "We never have to worry when any engineer takes a vacation, it's relatively easy for the rest of the team to dig in and figure out how to solve any issue that might come up," says Larrigan. "This makes it so we can hire engineers that can work on all facets of the product rather than building large teams for each product we have or backend-only and frontend-only engineers."

Looking Ahead

With the Tagboard Producer app now in full swing, Tagboard continues to delight its media customers with specialized broadcast applications. Tagboard Producer boasts integrated augmented reality features and data visualizations.

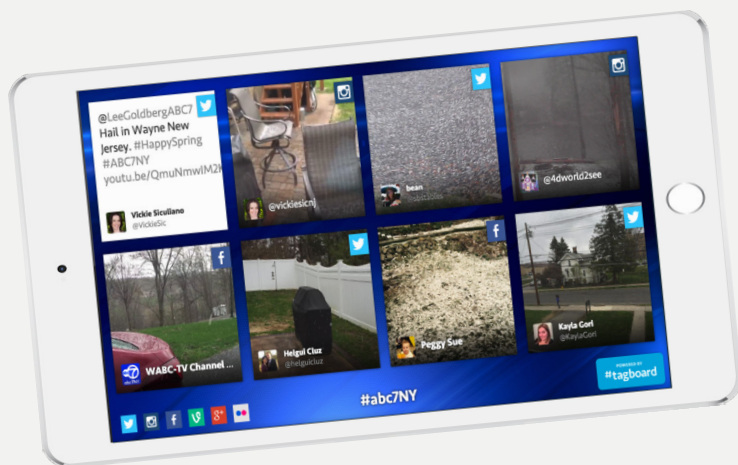
Tagboard and Twitter recently joined forces to make it easy for users to discover and share content with the launch of Tagboard Discover. The Tagboard team continues to rely on ObjectRocket to manage database services in a flexible, customized, and cost-effective way that will allow the small team to continue innovating and finding solutions for their customers.

Whether you're a small start-up or a large established company, you can benefit from outsourcing your database management to ObjectRocket. Whether it's MongoDB instances, Redis, Elasticsearch, or any combination of the three, ObjectRocket offers personal service and exceptional support to free your engineers to develop new products and features without having to worry about the database piece.

If you're interested in learning more about how we can help you customize and manage your databases, contact us and we'll set up a time to talk about your specific needs.

Where Can You See Tagboard's Work?

- Augmented reality for Macy's Day parade broadcast coverage
- USA Today's college football list
- Professional sports venues around the world
- Election coverage



Looking for MongoDB, Redis, or Elasticsearch management for your company?

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