CASE STUDY - FINTECH

Challenge

As a growing start-up, it became critical for Fractal Labs to shift to an infrastructure that could support the company's scale and do so affordably. Similarly, to pursue its mission of eliminating digital transaction barriers and ensuring smaller businesses can complete online payments with considerably less friction, Fractal Labs knew it would require a particularly robust back-end architecture to underpin its financial services platform.

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As with any fintech solution, absolute service reliability would be critical to customer trust and adoption. Similarly, high availability and redundancy were vital to guaranteeing customer experience integrity and the success of Fractal Labs' growing applications and services.

It began by breaking down its monolithic stack into many small, more efficient API-based micro-services. That transformation decision enabled the company to improve scalability, uptime, and deployment time while eliminating single points of failure. At the same time, the pace of growth reinforced its need to transition toward more powerful data-layer technologies that could deliver better scalability going forward.

Solution

Fractal Labs explored several database technologies, debating NoSQL vs SQL and open source vs. proprietary. When the vetting was complete, the company landed on open source Apache Cassandra as the non-relational database best equipped to Fractal Labs' data requirements as a payment services provider. The company was particularly impressed with Cassandra's high-availability and incredible scalability right out-of-the-box, as well as its ability to perform at scale with extremely fast reads and writes.

Fractal Labs also found that Cassandra's table-based architecture offered an invitingly easy learning curve, enabling its engineers and developers already familiar with SQL to quickly upskill to utilise Cassandra's CQL.

However, Fractal Labs also realised the complexity of Cassandra and the resource challenges that would come from managing their Cassandra environment internally. For these reasons, Fractal Labs also needed a managed services provider that could steer its open source database migration and management, and to help keep Cassandra continually tuned for high performance, low latency, and guaranteed availability.

Once again weighing options, Fractal Labs brought in Instaclustr as the provider to execute the fintech company's Cassandra vision and allow its internal team to hone in on product development. The strategy enabled Fractal Labs' technical teams to do what they do best: ensuring the quality and growth of the financial services application, while entrusting its backend technologies to those with broader Cassandra expertise.

Result

With the managed service strategy in place for its Cassandra deployment, Fractal Labs has been able to more acutely focus on building its applications and services – expediting time-to-market for critical product and feature releases. At the same time, Fractal Labs has been able to avoid dealing with the complexities of Cassandra, and to eschew the high costs of building the specialised data management team that would be required to realistically wield Cassandra internally.

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"Our database decision was not one we took lightly – we knew how important it would be to get it right and make ongoing scaling that much easier," said Darren Holdaway, Head of Platform, Fractal Labs. "While we didn't set out necessarily expecting to land on an open source database, we're glad we did. By going with a fully open source version of the database, versus a proprietary version of Cassandra, we are free from any kind of vendor lock-in.

The strong open source community around the database gives us confidence for the long haul, and adding a managed service on top of it has really helped ensure that we are taking full advantage of the technology."

With managed Apache Cassandra in place providing scalability as well as the requisite availability and uptime, Fractal Labs has now implemented Cassandra best practices and optimised usage in each deployment. Most importantly, the fintech start-up has done so while keeping costs minimal, enabling the company to continue breaking down financial industry barriers without breaking the bank for its own data architecture.

Looking forward, Fractal Labs is considering additional open source data-layer technologies, including Apache Kafka for data stream processing, to fill out the company's data stack.

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