

# judo

CASE STUDY

Founded in 2012 by two seasoned payments entrepreneurs, **Judopay** works to create the best all-round payment experience online, on mobile and in-app. Offering frictionless and fully customizable checkout journeys, backed by world-class anti-fraud security, analytics and support, Judopay helps retailers drive loyalty and win new customers.



## Judopay Builds Efficient, Dependable, Agile Payments Solutions on a Reactive Architecture

### The Need

The companies that kick-started the digital payments revolution began building their technology stacks more than a decade ago—before the current cloud-native, mobile-first paradigm. New market entrants therefore have a competitive opportunity to create solutions that are truly in tune with today's fast-changing payments landscape.

Like all start-ups, Judopay needed to get to market fast and prove the viability of its value proposition. The company built a fast, reliable and scalable payments platform in the cloud, and quickly began to win retail customers attracted to its mobile-centric and in-app solutions. But as Judopay continued to grow, it became clear that the existing platform would not support its future ambitions.

Rob Howes, CTO at Judopay, explains: "Built into Judopay's DNA is the idea of scaling with our customers to be wherever in the world they want to operate, and to support whatever forms of payment they want to accept. When I joined the company, I wanted to ensure that the technology stack would continue to align with that philosophy. This meant improving our ability to pivot, react and scale in response to changing customer needs."

### The Challenge

The existing monolithic technology stack had performed and scaled well, but no longer offered sufficient flexibility and efficiency to support Judopay's goals. As a growing business with huge potential in the UK—its home market—and internationally, the key challenge for Judopay was to avoid becoming a victim of its own success.

"No matter how far or fast the business expands, our customers need a dependable service with consistently low latency," says Rob Howes. "And internally, we need the ability to scale in flexible increments without a proportional increase in costs. Shifting to a microservices-based architecture based on **reactive principles** meant that we could scale individual elements in a more agile and efficient way."

## The Solution

Judopay adds value to its customers' businesses by creating fast, reliable and innovative payments solutions—not by building and maintaining its own proprietary developer frameworks. The company therefore looked for a coherent, vendor-supported stack that would align well with its own vision of a reactive, microservices-based architecture.

"We looked at a few options, and ultimately we were drawn to Lightbend, which offers a set of solutions geared to enabling the modern, reliable, highly scalable paradigm we had in mind," says Rob Howes.

For its technology-refresh project—named Shodan, in reference to the first level of the black-belt ranking in Japanese martial arts—Judopay switched from .NET and C# to Java Virtual Machine (JVM) and Scala. To build its new reactive applications, Judopay uses **Akka Platform** from Lightbend, a reactive framework for building applications that are natively efficient, scalable, and self-healing.

As part of its Lightbend subscription, Judopay received dedicated consulting from an Embedded Lightbend Engineer (ELE), including a detailed Blueprinting Workshop to help Rob Howes' team get up to speed with reactive principles and concepts. Judopay is now developing all new services and capabilities on the Akka Platform-powered Shodan stack on **Google Kubernetes Engine**, while steadily migrating existing functions from the legacy stack.

## The Results

Adopting Akka Platform has contributed to huge improvements in developer productivity and product quality at Judopay: like-for-like functionality is now written in 50% less code, including twice as much test code.

"Our delivery capability has shot through the roof," says Rob Howes. "We're rolling out equivalent functionality faster and with better-tested code. And increased granularity means we can make changes more quickly, more precisely and with less risk. Agility is key to innovating ahead of competitors, and that's the biggest win with the Lightbend solution."

The new stack is much more efficient—Judopay can handle the same transactional loads as before with a fraction of the computing resources. Performance is not only better, but also predictable, which is important for a business in which volumes can vary dramatically.

"A payments system must offer 100% certainty, and the self-healing capabilities of Akka give us exactly what we need," says Rob Howes. "As a Lightbend subscriber there's huge comfort in getting detailed, nuanced answers to my questions. The responsiveness, effort and level of detail from Lightbend support is really outstanding and plays a big part in empowering us to create systems that behave deterministically."

He concludes: "I can't sing the praises of Akka Platform highly enough. It allows technologists to focus on the business value they're trying to achieve while the underlying framework handles the heavy lifting of important but non-functional aspects, empowering us to create the best all-round payment experience."

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