



CONTROL
PLANE

CASE STUDY

Uptime Worth \$4 Million a Minute

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“For **every minute** that our sales tax API, if it were to go down, our customers are **not able to collect roughly \$4,000,000 in sales tax** that they should be collecting.”

PUJUN BHATNAGAR, CO-FOUNDER AND CEO, KINTSUGI



Kintsugi

KEY DETAILS



100ms Tax Calculations Inside Customer Checkouts



Workloads That Scale on Latency, Not Guesswork



3,000 API Calls a Second From Some Customers

COMPANY

Kintsugi

LOCATION

San Francisco, CA, USA

INDUSTRY

Sales Tax Compliance
Automation

COMPANY SNAPSHOT

Kintsugi automates indirect tax compliance for companies selling on the internet: registering as a seller in the right jurisdictions, collecting the correct amount of tax when an invoice is created, and filing and remitting at the end of the month. Two and a half years after starting with two founders and no customers, Kintsugi serves 7,300 customers in 110 countries.

PROBLEM

Outgrowing Lambda

Kintsugi's tax engine sits inside other companies' checkouts. A shopper enters an address, the merchant's platform calls Kintsugi, and the answer has to arrive before that shopper finishes paying. "Typically, a customer's expectation is that we are returning the sales tax estimate on the invoice within 100 milliseconds," says Pujun Bhatnagar, Co-founder and CEO.

"If the customer finishes checking out before we respond, they just don't collect sales tax," says Marcus Bertrand, Engineering Lead at Kintsugi. The merchant still owes that tax at the end of the month, out of margin.

Early on, Kintsugi ran that engine on AWS Lambda. "Lambda has quite a lot of limitations," Bertrand says. "There's a maximum amount of memory. Memory and CPU are very bound together."

The worse part was not knowing. "We would hit these limits and just kind of silently fail, and then discover that a little bit later," Bertrand says.

MARCUS BERTRAND
ENGINEERING LEAD, KINTSUGI



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If we didn't pre-provision a whole bunch of Lambda workers ready to go, when it overflowed, it would just start timing out. **This drove up costs.**”

THE SOLUTION

Multi-Cloud Infrastructure When Every Minute Counts

Kintsugi ruled out going deeper into a single provider before they started shopping. "Almost immediately, we decided we weren't going to go full native with any particular cloud provider," Bertrand says. "We wanted a multi-cloud platform so that we had options for growth." Control Plane runs Kubernetes underneath and keeps it out of the way. Kintsugi defines workloads in Terraform, scales them, and reaches back into the AWS services they already run without moving them. The fact that Control Plane is a hybrid platform that virtualizes resources in your existing cloud accounts made migration easy.

Scaling on Latency, Not Guesswork

Kintsugi's demand has a shape, and it comes from tax law and retail. Traffic follows United States waking hours and tapers off around 6pm Pacific. Big shopping holidays push it up, and filings are due by the 20th in most jurisdictions every month. The API workloads scale on latency: when calls stack up and requests start queuing, they scale out.



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THE SOLUTION

A Migration with a Sixty-Second Undo

Kintsugi migrated in small, reversible pieces. They stood up one workload without knowing how much memory to give it, connected Cloud Wormhole, and confirmed it could talk to their AWS database. Then they turned off a single Lambda and let the Control Plane workload pull from that SQS queue instead. “We have a proof of concept, and it works, and it’s within, you know, hours. Not days, weeks, or months,” Bertrand says.

From there it was mostly repetition. Kintsugi is a monolith with four microservices that ships roughly the same container to a lot of different endpoints and queue handlers, so the workload definitions copied across. They right-sized in dev, ran load tests, then pointed DNS at the new workloads for half an hour late one night, turned it off, and read the logs to confirm nothing was dropped. Then they did it again.

The database stayed in AWS the whole time, which is what made the tests cheap. Eventually, “one day, we just turned it on, and it stayed on.”

Deploys got faster on the way through. “The deploys are dramatically faster than Lambda,” Bertrand says. “We’re not waiting on CloudFormation.”

“It’s all well and good to buy a platform that can do absolutely everything for you, but you have to get onto it from wherever you’re starting from.”

Marcus Bertrand,
Engineering Lead, Kintsugi

“All of that allowed us to have pretty much a sixty-second flip. If something didn’t work, we could go back very quickly.”

Marcus Bertrand,
Engineering Lead, Kintsugi

PUJUN BHATNAGAR
CO-FOUNDER AND CEO, KINTSUGI



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Some customers are calling us **3,000 times a second**. So it’s important to have an **infrastructure that actually adapts to that need**, than us adapting our business model to our infrastructure.”

Seeing What Lambda Hid

Kintsugi had tried CloudWatch and then a separate Grafana Cloud instance, shuttling data over, and neither stuck. Control Plane includes Grafana, and Kintsugi had an AI tool generate the extra API dashboards they wanted on top of the built-in ones. “The included Grafana is a lifesaver,” Bertrand says. Services that had been scaling wrong for months were visible in the first dashboards.

Cloud Where Your Customers Are

Kintsugi’s workloads carry an identity rather than credentials. Universal Cloud Identity handles the AWS side, so a workload on Control Plane can use SQS and the database in Kintsugi’s own AWS account with nothing embedded in the container. As Kintsugi has moved up market, more of its customers arrive with rules about geography. “Whether that’s healthcare data, or they’re trying to get compliant with ISO 27001, there are needs where they want us to not store data in certain parts of the world,” Bhatnagar says.

Summary

Since moving to Control Plane, Kintsugi’s customer base has grown by at least 10x, but infrastructure has never been a sticking point. “One of the best compliments I’ve heard recently is, oh, we don’t worry about the infrastructure. We’re worried about delivering product,” Bertrand says. “It’s anticlimactic, but it’s also perfect.” Bhatnagar puts the alternative plainly: “If we were to do this manually, it would be incredibly hard. It would honestly require a team of engineers who are dedicated just to work on that problem alone, if a solution like Control Plane did not exist.”

“We’ve had partners approach us and ask us to be in specific clouds and regions. And we’re like, yeah, we can totally do that. It is basically a checkbox away.”

Marcus Bertrand,
Engineering Lead, Kintsugi

About Control Plane

Control Plane is a cloud virtualization platform combining any cloud infra - cloud, neocloud, bare metal - into one AI-native cloud shaped to demand and ready for what’s next.

www.controlplane.com



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