



HYPERLEDGER
FOUNDATION

Case Study

**The Hyperledger FireFly
Story: Kaleido Taps
into the Hyperledger
Community to Develop
Next-Gen Solutions**

Hyperledger FireFly

- A complete technology stack for enterprises to build and scale secure Web3 applications
- Manages digital assets, data flows, and blockchain transactions from a single console
- Eliminates expensive development costs and accelerates development by reducing the need for proprietary technology and custom code.
- The first open source Supernode
- Code initially contributed by Kaleido

Goals

- Accelerate enterprise blockchain and digital asset adoption
- Solve web3 development issues common to all enterprises

Approach

1. Choose to make the solution open source
2. Build a contributor community for Hyperledger FireFly
3. Leverage member benefits to increase adoption and visibility

Results

- Enterprises get to production 50-100x faster
- Enterprises save 90% or more on development costs

Lessons learned from the first generation of Enterprise Blockchain projects

In 2017, enterprise blockchain was hot. The Australian Stock Exchange was modernizing how stock trades settled with a blockchain-based replacement for their legacy CHES system. Supply chains were being streamlined by Maersk and IBM's TradeLens project. And the Blockchain Insurance Industry Initiative (or B3i), was creating a world-wide industry platform that promised to transform how insurance companies managed risks.

Despite their initial promise, five years later these projects had been shut down, leading to the natural question: what went wrong with the first generation approach to building enterprise blockchain projects?

While many factors contributed on the business side, a large part of the core problem was that these 1st generation blockchain pioneers approached these projects as large custom development build outs engaging dozens or hundreds of developers. This meant core components had to be built from scratch, and it could take years of manual effort to result in production grade, tested, certified and scalable solutions. They simply lacked the tools they needed to cost effectively get to market with their solutions.

One hard earned lesson: while blockchain gets all the attention, the blockchain itself accounts for only about 5-10% of any given blockchain-based solution. The other 90-95% is made up of everything that sits between the blockchain and the user interface itself: wallets, digital asset management, asset tokenization, messaging, user management, off-chain data flows, integration points with existing systems, and various other layers of essential plumbing.

While these components are complex, they aren't unique. They don't need bespoke code any more than buildings need hand-crafted wastewater pipes. Yet that's what 1st generation enterprise blockchain projects had to do: create everything from scratch. This led to projects that stretched on for years and spent tens of millions of dollars on development, only to fall short of providing business value and a return on investment.

This created a clear path forward. If enterprises didn't have to reinvent basic solutions, they could shift their development costs to the business logic for their use cases. That could mean millions more dollars focused on what matters most to companies.

Surely that would be better. But even if a SaaS company could create a plug-and-play scalable, highly compliant and performant solution, could it generate enough adoption to really push enterprise blockchain adoption forward?

Choosing to drive a next-gen approach with open source

[Kaleido](#), an enterprise-grade web3 platform, thought so. Founded in 2017, it started with the mission of making blockchain and digital assets simple for organizations to adopt. Kaleido's Blockchain Business Cloud was designed to reduce both the time and cost required to get a blockchain app into production.

"We'd see teams that had been working for years to get a blockchain app off the ground and it still wasn't running," explains Sophia Lopez, Founder and President of Kaleido. "We'd get them up and operating in a fraction of that time."

That was great for Kaleido's clients. But other organizations were still struggling.

"Enterprise blockchain might never be viable if we couldn't solve this problem for everyone," says Lopez. "So, we decided to make Kaleido's solution open source."

To some, taking technology they'd spent capital and time developing and making it free and accessible would sound like an unsound business idea. But not to Kaleido.

"Going open source, open governance enabled us to tap into the power of the community in a way that no other approach could touch," says Steve Cerveny, Founder and CEO of Kaleido. "When we did the analysis, there were just too many benefits to going open source versus keeping the technology closed."



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The first benefit is moving the whole industry forward. If enterprise blockchain is easier and more affordable to adopt, more organizations will be able to achieve the benefits that are the very promise of blockchain and web3. . That helps everyone.

"We may get a smaller chunk of pie, but the pie gets so much bigger," says Cerveny.

The second benefit is a more comprehensive and holistic software approach. Many of the problems with web3 development are complex and are being solved in different ways across varying private implementations. An open source community interested in fixing these issues can collaborate to come up with pluggable solutions and global standards as a group.



And finally, contributor activity improves the quality of the product. The code base becomes more hardened and less buggy with broad usage and deployment across industries. This results in a more robust and secure platform.

Once it decided to make its tech stack open source, Kaleido needed to decide where to donate the code.

Building a contributor community for Hyperledger FireFly

Nearly 90% of open source code run by enterprises sits in the Linux Foundation, so it made sense to start there. Hyperledger Foundation is part of the Linux Foundation. It's also focused on Web3 and enterprise blockchain. But that wasn't all.

“Hyperleger has an engaged, global community,” says Lopez, “We knew it was a natural fit to join this group of like-minded people pursuing the same goals. We had a long history with the Hyperledger community, back to when we had been very active driving Hyperledger Fabric’s trajectory and continuing with Hyperledger Besu.”



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This made Hyperledger Foundation the clear choice for a home. Kaleido prepared a proposal that was reviewed by the Hyperledger Technical Oversight Committee. It was accepted as a Hyperledger Lab in June, just in time for 2021’s Virtual Hyperledger Global Forum.

After entering the Lab, the community of contributors and supporters grew. And in September 2021, Hyperledger FireFly became an official Hyperledger Project.

After that, the Kaleido team and the rest of the community set to work getting it ready for production use. Kaleido developers serve as maintainers for Hyperledger FireFly. This means they review all contributed code and decide whether or not it becomes part of the project.

For example, one organization realized the code they’d been developing for themselves would fill a gap in Hyperledger FireFly and improve functionality. The maintainers agreed and the organization donated the code to the project.



That type of contributor participation and interest had Hyperledger FireFly 1.0 ready for release in April 2022, with version 1.1 coming shortly after in September 2022. During this time, Hyperledger FireFly grew from 75,000 lines of code in the initial contribution to more than 700,000 lines of code today, with the addition of key functionality including:

- Web3 Gateway Mode for connecting to popular public chains including Ethereum, Polygon, Avalanche, Optimism, BNB Chain, Arbitrum, Moonbeam, Fantom and more.
- Public Blockchain Support with new tools and functionality to simplify public use cases for the enterprise.
- Multi-tenant support making it possible to run multiple namespaces in either Gateway or Consortium mode at the same time.
- Pluggable API security to meet enterprise requirements for security and compliance.

It was the first open source Supernode. With this complete tech stack, enterprises could build, deploy, and scale Web3 applications much faster, solving the problems uncovered by the first generation of enterprise blockchain projects and opening the door on a next-gen approach.

Projects led by The Synaptic Healthcare Alliance, Swift, The Institutes RiskStream Collaborative, and Blockchain for Energy exemplify this next-gen approach. Each of these has leveraged Hyperledger FireFly to focus their resources on building their use cases rather than plumbing, allowing them to get to production in weeks or months instead of years.

Now it was time to get the word out.

Leveraging member benefits to increase adoption and visibility

To encourage Hyperledger FireFly adoption and raise its own visibility, Kaleido engages often with the Hyperledger and broader blockchain communities through its Hyperledger Foundation Member benefits.

One of the biggest benefits is participating in the Hyperledger Global Forum, a premier event for enterprise blockchain.

“We sponsored it in 2022, so we had a booth and a number of speaking sessions,” says Cerveny. “That put us in a position to build relationships with others in the enterprise blockchain community.”

When it’s not presenting at Global Forum events, Kaleido makes use of Hyperledger Foundation’s media platform and webinars.



“We’ve hosted several webinars, meetups and workshops,” says Lopez. “And we’ve seen great turnout. The participants are very engaged and join from all over the world. We couldn’t duplicate that reach on our own.”

Hyperledger’s Executive Director, Daniela Barbosa, confirmed. “In the last year, Kaleido hosted eight meetups and workshops in three languages (English, Spanish and Chinese) that have had over 2,000 people register,” she says. “This is more than any other member company.”



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Kaleido also sits in on monthly marketing meetings. From these, the company learns what Hyperledger is seeing in enterprise blockchain, what kind of press they’re getting, what kind of press opportunities are out there.

“For example, we learned about submissions for certain blockchain lists and who to contact,” says Lopez. “Even though Kaleido isn’t eligible, we have some clients who are. Now we can share that information with them so they can submit. It’s something clients really appreciate.”

Through its community involvement, Kaleido was able to reach thousands of enterprise blockchain builders, increase awareness in this key community, and land new opportunities and customers for its business.

“Kaleido has fully embraced its membership in Hyperledger Foundation and taken a leadership role in the community,” says Barbosa. “Hyperledger FireFly is gaining adoption quickly, reflecting both the innovation and development work of the active community building the code and the collective efforts to grow the market for the technology.”

What’s next/Future steps

With the 1.1 release live, the Hyperledger FireFly community is working on hardening and improving its key functionality while developing the 2023 roadmap. Current areas of

active engineering and investigation include identity management, integrations with other Hyperledger projects, enhanced token functionality, and improvements around security and authorization.



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As for Kaleido, it will keep contributing to Hyperledger FireFly. And it will continue engaging with the Hyperledger community. This year, based on the strong technical and business leadership, Kaleido leaders have been elected to positions on the Technical Oversight Committee and the Governing Board.

“Hyperledger FireFly wouldn’t have gotten where it is without the community participating in and getting behind it,” says Cerveny. “The Hyperledger community has been integral to the growth and adoption of FireFly.”

About Kaleido

Kaleido is an enterprise-grade web3 platform making blockchain and digital assets radically simple for organizations to adopt. Kaleido makes it easy to build multi-region, multi-cloud blockchain networks on protocols including Ethereum, Polygon Edge, Hyperledger Fabric, Quorum, Hyperledger Besu and Corda. All protocol options offer support for Hyperledger FireFly Supernodes, the complete stack for Web3 development.

Kaleido also provides security, compliance, and scalability for the most stringent enterprise requirements, serving industries including Finance, Healthcare, Insurance, Supply Chains, Media, Entertainment, ESG, the Public Sector, and beyond. Kaleido's platform is ISO27K and SOC 2 Type 2 certified with built-in high availability and disaster recovery, achieving 99.99% uptime over the past 4 years.

To learn more, visit <https://www.kaleido.io/>



About Hyperledger

Hyperledger Foundation was founded in 2015 to bring transparency and efficiency to the enterprise market by fostering a thriving ecosystem around open source blockchain software technologies.

As a project of the Linux Foundation, Hyperledger Foundation coordinates a community of member and non-member organizations, individual contributors and software developers building enterprise-grade platforms, libraries, tools and solutions for multi-party systems using blockchain, distributed ledger, and related technologies. Organizations join Hyperledger Foundation to demonstrate technical leadership, collaborate and network with others, and raise awareness around their efforts in the enterprise blockchain community. Members include industry-leading organizations in finance, banking, healthcare, supply chains, manufacturing, technology and beyond. All Hyperledger code is built publicly and available under the Apache license. To learn more, visit <https://www.hyperledger.org/>

