



Business challenge

To better take advantage of a nationwide system of delivery lockers installed to simplify online shopping, FreshTurf sought a solution that multiple delivery companies could use to access the lockers.

Transformation

FreshTurf teamed with IBM® Bluemix® Garage developers and designers to build a blockchain distributed ledger solution on an IBM Bluemix cloud platform. The team designed the solution to manage the transactions between merchants, logistics vendors, locker companies and consumers.

Business benefits

Simplifies delivery

for Singapore residents shopping online

Provides access

to lockers for any interested delivery company, reducing delivery hassles for the “last mile”

Creates opportunities

for FreshTurf to expand the use of blockchain technology to other industries

FreshTurf

Disrupting the logistics industry in Singapore using blockchain technology

Founded in 2015, FreshTurf is a technology company based in Singapore that specializes in developing software at the intersection of blockchain technology and user engagement. Currently, the business is developing an open source registry for parcels and consumer products on the blockchain.

“Because we’re working on the IBM Cloud, we are able to quickly test and deploy various use cases.”

—Kevin Lim, Cofounder and Director, FreshTurf

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Disrupting the logistics industry

Worldwide sales in e-commerce and mobile shopping are projected to grow to USD 2.7 trillion by 2020. As a result, logistics companies need to optimize their delivery processes to keep up with a growing number of deliveries and to reduce costs. Organizations can find the “last mile” of door-to-door deliveries difficult and expensive, often involving multiple attempts to deliver the same package if the addressee is not available on the first attempt. Each delivery attempt can cost between USD 3 and SGD 10 depending on the size of the package and the location of the recipient. Several years ago, the Singapore government created a network of shared lockers at apartment complexes and other residential areas to simplify package delivery for consumers.

Using these lockers, consumers could rest assured that their packages would be stored securely until they retrieved them.

FreshTurf saw an opportunity to disrupt the logistics industry and improve the package delivery experience for online shoppers in Singapore with an innovative solution based on blockchain technology. FreshTurf wanted to develop a way for any logistics company to easily access the existing shared lockers in Singapore to increase use of the lockers and to improve delivery options for consumers. “Many peer-to-peer companies begin with a simple idea of leveraging excess capacity, but it is the technology-enabled ease of use that makes them work. We’re creating a marketplace where delivery points, such as apartment complexes, can provide locker space, and any company can use them,” says Kevin Lim, Cofounder and

Director of FreshTurf. “This means greater island-wide access to lockers and better utilization of lockers for the delivery point providers. Consumers have more choices, and logistics companies can utilize these assets to simplify the ‘last mile’ of delivery.”

Creating a blockchain prototype

To fully develop and bring the offering to market, FreshTurf needed to team with a seasoned technology provider. “We chose IBM because they are a global leader in building blockchain on the cloud, with vast experience in blockchain projects around the world and across multiple industries. Bluemix is also the most convenient way to test a blockchain network on the cloud,” says Lim.

FreshTurf worked with the IBM Bluemix Garage on the project, using the Design Thinking method to generate ideas, validate them, create minimum viable products (MVPs) and develop a plan. The Garage staff helped FreshTurf explore technology, create a strategy for delivery, build wireframes and develop architectures. Using the Garage approach, FreshTurf produced a technical framework within just two days. “During the Design Thinking workshop, we had access to technical expertise, consulting and guidance through working with the IBM Bluemix Garage, which allowed us to quickly build our concept. The IBM Bluemix Garage’s methods of Design Thinking, use of cloud and agile development practices served as the foundation of our startup,” says Jarryl Hong, Cofounder, FreshTurf.

The end result of the groups' efforts is a distributed ledger prototype built on the IBM Blockchain on Bluemix platform, specifically designed to manage commercial transactions between merchants, logistics vendors, locker companies and consumers. Using IBM API Connect™ software, FreshTurf created application programming interfaces (APIs) that give logistics companies access to a marketplace of short-term locker storage to meet their needs.

Using the solution, companies can reconcile the sometimes conflicting ideas of identity management and user privacy, and competing organizations can transact effectively on a common blockchain. With the blockchain's private and permissioned shared ledger, companies can protect the

privacy of transactions exchanged between different stakeholders. The blockchain also delivers a single source of truth with a tamper-resistant system of record. "We are working toward our vision of establishing a greater distribution point network as the basis to provide logistics companies with a competitive marketplace, in line with the macroeconomic shift toward a sharing economy," says Lim.

Creating new opportunities

Working with the Garage team helped FreshTurf decrease development costs by assisting the business in quickly identifying the optimal design and functionality for the blockchain solution's user base. Additionally, FreshTurf gained agility by working on the IBM Cloud.

"Because we're working on the IBM Cloud, we are able to quickly test and deploy various use cases," says Lim.

The solution delivers on three key requirements. Confidentiality was the first requirement, so that the content of a contractual agreement between two or more parties is anonymous. Auditability was the second requirement. Auditors can check on a certain transaction, or a certain group of transactions, the activity of a particular user or the overall operation of the system itself. Accountability was the third requirement. Accountability means that companies can trace individuals or corporations who use the system inappropriately and hold them accountable for their actions.

The solution positions FreshTurf to develop blockchain solutions for other industries. Blockchain technology facilitates immutability, transparency and confidentiality of transactions. Using it, competitors can participate in a marketplace without concerns about compromising competitive information regarding their customer data and segments. "We are hoping to secure pilots with a number of industry leaders to test the feasibility and market readiness of the solution we've developed with IBM," says Lim. "The ability to collaborate and build inroads with many of these players was made possible through the collaboration with IBM."

Solution components

- IBM® API Connect™
- IBM Blockchain on Bluemix®
- IBM Bluemix Garage

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Take the next step

To learn more about IBM API Connect software, the IBM Blockchain on Bluemix solution or the IBM Bluemix Garage, please contact your IBM marketing representative or IBM Business Partner, or visit the following websites: ibm.com/software/products/api-connect, ibm.com/blockchain, ibm.com/cloud-computing/bluemix/garage

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