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Cryptocurrency Cafe Final Project

Scro

Website: http://ec2-54-187-58-176.us-west-2.compute.amazonaws.com/

Github: https://github.com/kangelot/PointPies

Background

One of the biggest barriers to the adoption of CryptoCurrencies in the marketplace is the nature of how money is spent. Once an individual sends their Bitcoin, Altcoin, or PointCoin to a merchant, it can't be taken back, because coins are signed over to another person . This means that a supplier could theoretically take their coin and vanish into oblivion without providing a good or service if business was being conducted remotely. This presents a large problem for e-commerce, which is a sector of the economy a cryptocurrency should have the greatest advantage in. Secondly, merchants accepting cryptocurrencies, but selling goods in person, are faced with the risk that a person is either double spending one of their coins, or trying to spend coin that does not belong to them. A store owner would have to wait until the transaction was confirmed and in the blockchain before a customer could receive their product. This would slow down business greatly, and disincentivize people from using cryptocurrencies. In the marketplace, escrow services have provided a crucial service for Bitcoin. These companies accept Bitcoin from a customer, confirm the transaction, then wait until the customer receives their product before sending the cryptocurrency on to the seller. Iterations of anonymous marketplaces are a prime example of where escrow has succeeded immensely. Though escrow is

not a new idea--it has existed in some form for many types of transactions for years--it has been a bigger player with BitCoin. Our project effectively created an escrow service for PointCoin to provide greater security for both customers of the PointCoin Pizzeria and for the merchant. Additionally, we intended to ease the ordering process for the merchant and improve the user interface of the merchant's site. Any merchant that already accepts PointCoin and is willing to pay a minor transaction fee can begin using the escrow service to increased their own security.

Improving trust between buyer and seller has greater implications beyond a better experience for people already using PointCoin as a currency. It increases the likelihood that someone with misgivings about PointCoin would be willing to adopt its usage. Currently, PointCoin is a currency with very little network hashing power, and only a few merchants that accept it. An individual who is concerned about some security risks with a currency being used by so few could have some worries alleviated by an escrow service. Any merchant that was previously concerned about accepting PointCoin because of double spending concerns can feel more confident about accepting it through an escrow service. Furthermore, the mere existence of a business that places all of its value in PointCoin would encourage other entrepreneurs to enter the marketplace. Our project should make things easier for the PointCoin Pizza merchant, improve the experience for other sellers accepting PointCoin, and entice new buyers and sellers to join the PointCoin community.

Execution

Our original project plan was to implement an automatic pizza ordering system on top of an escrow service exclusively for the PointCoin Pizza company. We had planned on setting up a website that facilitated the pizza orders by first taking in form data from a customer. The

customer would include a transaction ID of a PointCoin transaction sent to the escrow wallet along with personal information and their pizza order. After the transaction received enough confirmations, an order for a that pizza would be automatically generated through utilization of the Domino's Pizza API. The service would then query the API to find out when the order was eventually delivered. After delivery of the pizza, the escrow wallet would automatically transfer funds into the wallet of the pizza merchant.

Our project implementation wound up differing slightly from our original intentions. We decided that creating a general, customizable escrow service was a more practical way of achieving our aims, while adding value to the PointCoin marketplace beyond simply helping the pizza merchant. First, we set up an EC2 node that runs both a PointCoin wallet and an Apache Web Server to host our website, Scro. We then developed the interface that was displayed during our presentation. Afterwards, we implemented a SQL database to store all form data that is entered by users. On the PointPies website, all past orders can be viewed by navigating to the "Past Orders" page. This is fully functional, so if another order is created, it will show up on that page. Next, we attempted to work with the Domino's Pizza API written as a Node.js wrapper. This was an area where we ran into a number of issues. Both groups members lack significant web development experience, and we were ultimately unable to implement Node.js as a backend for our server. Consequently, we did not use the Domino's API to have automatic pizza ordering as a feature on the PointPies website. However, we do still have code, located in transaction.js, that would query the block chain every minute to check the number of confirmations on the transaction ID that was inputted. While this has no functionality while no miners are engaging in mining PointCoin, it would work in the future. Furthermore, this block of code can be modified

to do anything a potential client would want within a conditional statement. This could mean sending an automatic e-mail to the merchant so they know to deliver the product because the money has been received, or some other automated ordering method. Scro would work with any future clients to implement the solutions they thought were best for their specific scenario. This customizability of the code is valuable for any future users of Scro.

Our next goal was to implement an automatic spending script that would be executed once pizza was delivered. Since we weren't using the Domino's API, this means that the script would need to be triggered some other way. Most likely, this would involve customer input once the product was delivered. We were able to write a go script that would automate setting up a connection with the PointCoin RPC client, then send a transaction of a specified amount to the address of a merchant. However, there was no way for us to execute Go scripts within a Javascript format. The Gopher.js go compiler we had found wound up mainly providing a way to use existing Javascript functionality in Golang, instead of a program that actually translated Golang to Javascript. All options for implementing RPC connectivity from Javascript directly were more advanced than our individual capabilities within the scope of this project. However, future work on Scro would involve putting time into learning and utilizing one of the Javascript RPC libraries to connect to the PointCoin server, then likely using the BitCoin Python libraries and adapting them for PointCoin to actually execute transactions. However, this would require rewriting our wallet application and our node to work with Python, something that may be a good investment of time for Scro in the future.

Conclusion

Though we were unable to automate the entire Pizza ordering process and the subsequent escrow transaction, we created a very customizable service that can be used for all sorts of merchants hoping to utilize the power of PointCoin. The security benefits of the system are undeniable for those not completely trusting of their business associates. Furthermore, we both learned an incredible amount about front and back end web development, and all of the issues that accompany it. Hopefully future PointCoin merchants will trust the owners of Scro to keep their funds safe.