OpenBazaar Redevelopment - Requirements

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Abstract

This documents outlines requirements for the OpenBazaar redevelopment project.

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Revision History

Revision Number	Revision Date	Description of Change	A
1	November 2nd, 2015	Created Revision History	Dani
2	November 25, 2015	Section 4.1 - Kademlia and Ricardian Contract defined	Shande

Table 1: Table to capture the history of the document

References

We have used the Volere Template as a guide for creating this requirements document. http://docs.openbazaar.org/

Project Drivers

1 The Purpose of the Project

1.1 The User Business or Background of the Project Effort

The modern economic era is built around e-commerce and internet trade. This is apparent from the change in the speed of stock market trades, the explosion of tech based corporations and the expansion of internet commerce services such as Alibaba and eBay.

Currently, people who wish to buy and sell online are largely constrained to utilizing the services offered by the large corporations, thereby sacrificing a portion of the profit from trades. In undertaking the OpenBazaar project, we aim to benefit both online buyers and sellers by creating a platform in which internet trade can be decentralized

The project will be developed as an open-source, peer-to-peer network.

1.2 Goals of the Project

The main goals of the project include:

- Creating an online marketplace that is scalable, free of intermediaries and their fees, and cannot be censored.
- Eliminating the need for centralized e-commerce services and websites.
- Reducing the overhead cost of doing business and trading over the internet by using the software which will essentially make trade free again.

- Creating a permissionless, censorship-resistant trade platform that will connect the entire world.

2 The Stakeholders

2.1 Traders

At the present time, anyone who wishes to open an online store must use a centralized service. These services often charge listing fees, subscription fees or membership fees. Traders are also forced to use centralized exchange platforms such as PayPal or be charged bank fees for direct deposits. Traders stand to benefit from the project by the elimination of both of these unnecessary expenditures. The use of BitCoin will allow for a feeless monetary exchange and a free product listing on the OpenBazaar network.

2.2 Buyers

Buyers who shop online will benefit from this project in several ways. The overhead costs of doing trade will be lower on this platform than centralized services, and buyers should expect to see a reflection of this in the prices of products on OpenBazaar. Buyers will be free to exchange goods with anyone they can connect to on the network,

2.3 Other Stakeholders

Other stakeholders include:

- Major corporations that currently benefit from trades between buyers and sellers through the internet
- Collectively, law enforcement can be considered a stakeholder as they will be affected by this new form of online trade and will likely have to alter their tactics for detecting illegal online activity
- Members of the development team
- Computer/internet users in general may be considered stakeholders because, with a simpler and more effective manner of completing sales and trades readily available, more of these people may turn to internet trading

2.4 The Hands-On Users of the Product

The hands-on users of the product:

- Online Sellers/Traders
- Online Buyers
- Computer/internet users interested in buying and selling online

2.5 Priorities Assigned to Users

- Key Users: Online buyers and sellers
- Secondary Users: Developers and testers

2.6 User Participation

- Users acting as prospective buyers, sellers, or an anonymous, third-party mediator access the OpenBazaar network
- Users acting as sellers advertise their products on the OpenBazaar network
- Users acting as buyers browse or search for products that they would like to buy on the OpenBazaar network
- Users acting as notaries advertise their mediation services on the OpenBazaar network and serve as a third party to ensure a fair trade

2.7 Maintenance Users and Service Technicians

- Developers and Testers

Project Constraints

3 Mandated Constraints

3.1 Solution Constraints

- Description: The OpenBazaar client will run on Windows, Linux and Mac OS X.
- Rationale: These are three of the most common desktop software platforms available.
- Fit Criterion: The required framework and programming language must be installed (PyQT 4, Python 2).
- Description: In order to have full functionality a working internet connection is necessary.
- Rationale: The internet is the fastest way to connect buyers and sellers around the globe and exists in most modernized countries.
- Fit Criterion: It is required to make transactions, view markets, and discover peers on the network.

- Description: To make trade completely decentralized, as well as entice buyers and sellers to connect over the OpenBazaar marketplace, Bitcoin must be used as a currency.
- Rationale: It is the easiest as well as one of the safest ways to make transactions over the internet. it is also becoming more and more accepted in other retail and online stores.
- Fit Criterion: Users must have a Bitcoin wallet installed on their computer.

3.2 Implementation Environment of the Current System

- The application will be developed on Ubuntu 14, using Python 2, and PyQT as the GUI framework. The framework was chosen because of its cross-platform abilities and versatility. Ubuntu was chosen because of the compatability it has with the existing off-the-shelf softwares (OpenBazaar Server), Git, and the other partner applications that make OpenBazaar function.

3.3 Partner or Collaborative Applications

- BitCoin will be a vital application serving as the medium of exchange on OpenBazaar.

3.4 Off-the-Shelf Software

- There is an existing off-the-shelf software, but it is in the beta development phase, with development focus on the front end (backend complete) and testing. The front end or client side of the application will act similarily to an online classifieds system like Ebay, Amazon, Kijiji, Craigslist; however, it will be populated with only what a user would like to see.

3.5 Anticipated Workplace Environment

- This system is intended for use anywhere that there is a working internet connection. This enables users to connect from all around the world to buy and sell products and services. Virtually, the anticipated workplace environment is the entire civilized world.

3.6 Schedule Constraints

- This project should be completed and tested by November 30, 2015
- Learning should be focused on the PyQt4 framework, and creating wireframes for the GUI.
- Final documentation must be complete by December 8, 2015.

3.7 Budget Constraints

- Not applicable.

4 Naming Conventions and Terminology

4.1 Definitions of All Terms

- Python: a widely used and versatile high level programming language
- IDE: integrated development environment
- PyCharm: the chosen IDE for the project
- GUI: Graphical User Interface
- Git: source control for the project, includes features such as revision history
- Bitcoin: digital store of value and online payment system
- Ricardian contract: used for the purpose of issuing digital currency, it is a document which states the terms under which a value is redeemable. It is readable by people, parsable by programs, and prevents unauthorized changes by making use of digitally signed and checksum hashed contracts. The contract carries keys and server information, and requires digital signatures of the issuer, a holder, and possibly a third-party notary in order for a value to be redeemed.
- Kademlia DHT: a distributed hash table for decentralized peer-to-peer computer networks that is designed to minimize the number of configuration messages nodes must send to learn to about other nodes.

5 Relevant Facts and Assumptions

5.1 Assumptions

- It is assumed that any user of the application understands the Bitcoin currency.
- It is assumed that end users understand how a peer-to-peer application is different from the traditional client-server model.

5.2 Facts

- There are existing frameworks for GUIs. PyQt in particular will be used for the implementation of the client side.
- We will be focusing on developing the client side of the application due to the time constraint of this project.

6 The Scope of the Work

6.1 The Current Situation

Content A software application to connect users from all around the world to conduct trade freely is required. Users can add any peers to the network, as well as view their stores, and search for items to purchase. They will also have the ability to have their own store to sell items.

6.2 The Context of the Work

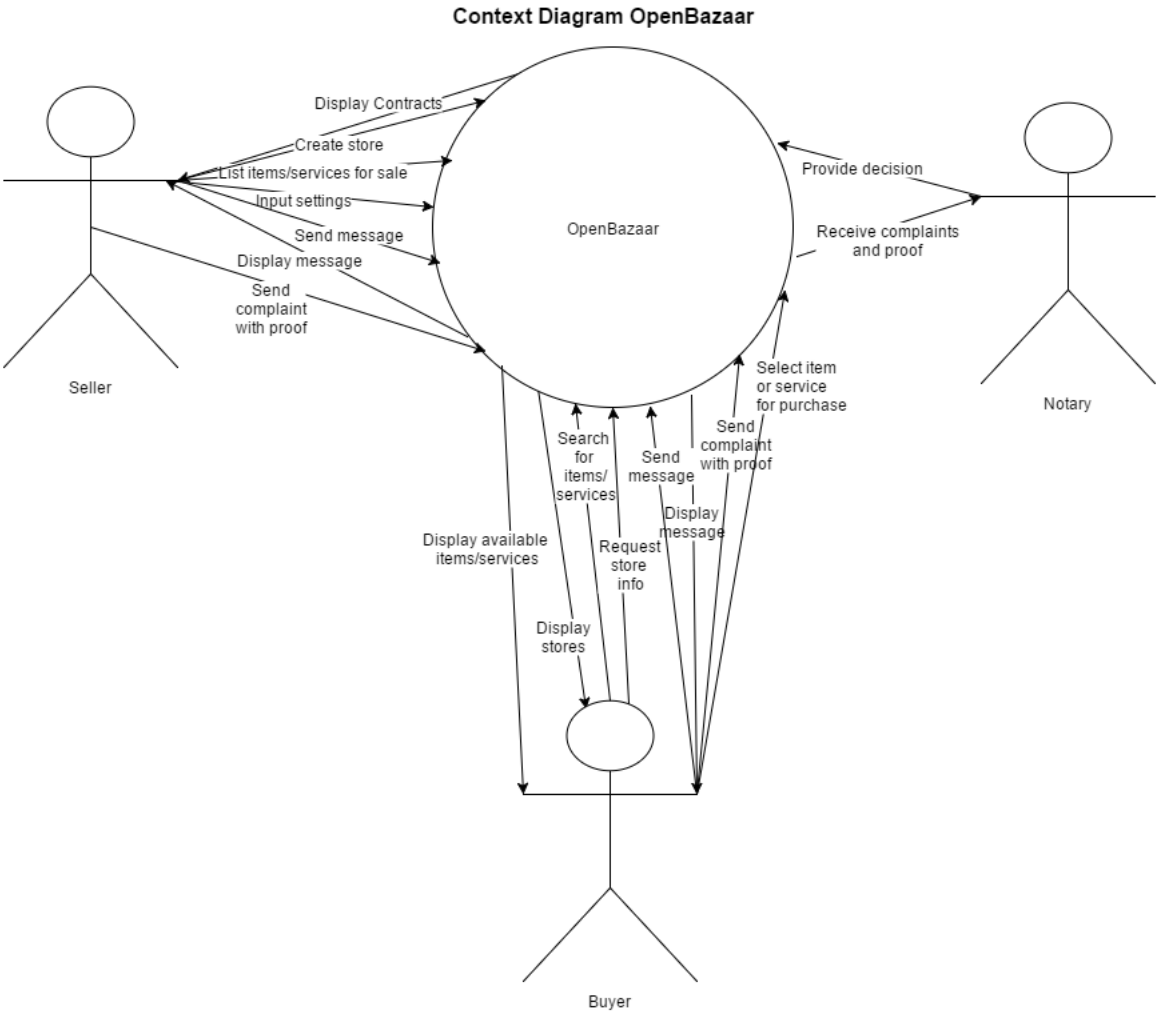

Figure 1: Context Diagram OpenBazaar

6.3 Work Partitioning

Event Name	**Input and Output**	**Summary**
1.User inputs store information	Store Information (IN)	Seller saves store information
2.User inputs new contract information	Contract (IN), Contract (OUT)	Seller lists new item for sale and it is listed in their store
3.User inputs settings	Settings (IN)	User specifies personal or store settings
4.User sends complaint with proof	Complaint (IN), Complaint (OUT)	Buyer or seller generates complaint and notary receives it
5.User sends messsage	Message (OUT), Message (IN)	User sends message and another user receives message
6.User searches for listings	Search Criteria (IN), Available Listings (OUT)	User searches for avaiable listings and application displays them
7.User searches for store	Store ID (IN), Store (OUT)	User searches for store and application displays store
8.User requests to purchase listing	Purchase Request (IN), Updated Contract (OUT)	User requests to purchase item or service and application advances contract to next step
9.User provides decision about complaint	Decision (IN), Decision (OUT)	Notary makes ruling in favor of eithe party and application proceeds to complete the transaction according to the contract

Table 2: Table to capture the inputs and outputs of an event

7 Business Data Model and Data Dictionary

Name	Content	Type

Table 3: Table to capture all the applications data, and type

8 The Scope of the Product

8.1 Product Boundary

Examples

Form

8.2 Product Use Case Table

8.3 Individual Product Use Cases

Form

Functional Requirements

R1 The application shall have the capability of connecting two users without the use of a centralized server or database.

R2 The application shall simulate trade between two people.

R3 Users shall have the ability to list an item for sale on the application.

R4 Users shall have the ability to find and search through items for sale on the application.

R5 Users shall have the ability to access a seller's store.

R6 Users shall have the ability to formally define trade contract terms through a Ricardian contract.

R7 Users shall have the ability to list any good or service they are in a position to offer for trade.

R8 Buyers and sellers shall have the ability to find and choose notaries to oversee the fairness and completeness of transactions.

R9 Users shall have the ability to exchange messages with other users.

R10 Buyers shall have the ability to rate sellers with whom they have engaged in trade with.

R11 Users shall have the ability to access a seller's reputation.

R12 Buyers and sellers shall have the ability to create arbitration cases when they are not satisfied with the progress of a trade.

R13 Notaries shall have the ability to mediate a trade based on the terms of the contract by deciding on the outcomes of arbitration cases.

Non-functional Requirements

9 Look and Feel Requirements

9.1 Appearance Requirements

The look and feel of the application should be on par with existing internet commerce services, such as Alibaba and eBay.

9.2 Style Requirements

- The layout of the application should be organized logically.

10 Usability and Humanity Requirements

- The platform should be deployable by a person with little to no technical computer knowledge.
- The platform should be accessible by any person who could access a marketplace in the real world. For instance, anyone should be able to access the platform by their mid-teens.

10.1 Personalization and Internationalization Requirements

- Sellers should be able to customise the theme of their store to fit their products, personal preference or any other design choice they make.
- All text displayed on the interface should be translatable into multiple different languages for deployment to different geographical regions.
- The interface should be resizable to allow all users a comfortable buying and selling experience.

10.2 Learning Requirements

- The interface should have little to no learning curve for full use of the platform.
- Sellers should be able to easily create a store and list products.
- Buyers should be able to find specific products easily.
- Notaries should be easy to find by both buyers and sellers.

10.3 Accessibility Requirements

- Text on the interface should be readable by all persons, including the colorblind and persons with imperfect vision.
- The interface should be traversable with the tab button, to allow persons with hand tremors or other disabilities to access the marketplace.

11 Performance Requirements

11.1 Speed and Latency Requirements

11.2 Precision or Accuracy Requirements

11.3 Reliability and Availability Requirements

11.4 Robustness or Fault-Tolerance Requirements

11.5 Capacity Requirements

11.6 Scalability or Extensibility Requirements

The application will be implemented as an easily scalable network of nodes that run the trade protocol. In the early days of the application the network will have few known nodes, but as more nodes are added the network will be able to expand.

11.7 Longevity Requirements

12 Operational and Environmental Requirements

12.1 Expected Physical Environment

12.2 Requirements for Interfacing with Adjacent Systems

An Application Programming Interface (API) will be provided publicly for easy integration of stores and listings into existing websites, such as classifieds and personals. This API will be implemented in a common web environment

(Javascript, PHP etc) and return HTML5 frames for up-to-date display of data. For example, if the listing is displayed on a personal via the API, when the listing is taken off the network the personal ad should reflect this.

12.3 Productization Requirements

12.4 Release Requirements

There are few

13 Maintainability and Support Requirements

13.1 Maintenance Requirements

An update system will need to be implemented to ensure that security bugs, vulnerabilities and attack vectors are patched quickly on all network nodes.

13.2 Supportability Requirements

13.3 Adaptability Requirements

14 Security Requirements

14.1 Access Requirements

14.2 Integrity Requirements

14.3 Privacy Requirements

Users should be permitted to add as much or as little personal information to the application as they would like. All information added by the user should have a privacy setting which ensures the data is not released to any node that does not have permission to view it.

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