

EcomOneStop – A cloud service for Amazon sellers


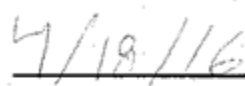
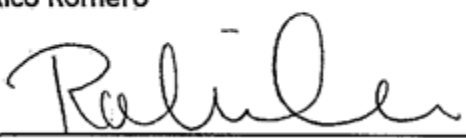
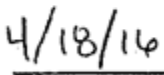
By

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A proposal submitted to The Faculty of the School of Information Technology
In Partial Fulfillment of the Requirements for
The Degree of Bachelor of Science
In Information Technology

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April 2016

Acknowledgements

Our mentors for our project are Daryll Rouse and Rebekah Michael. They were instrumental to our application. Also, we could not have done it without Robin Carew whom was our faculty advisor for our project. Finally, we would like to thank all faculty that gave their time in helping us build this application that is very dear to us.

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Abstract

Amazon Sellers (retailers on Amazon) don't have a good source for finding wholesalers, let alone find wholesalers whose products would be profitable for their Amazon business. Many Amazon businesses fail every year due to lack of quality sourcing, but this will not happen anymore!

We are Amazon sellers ourselves and we are providing a service for businesses like ours to find wholesalers and profitable products to sell on the Amazon marketplace. We deliver a cloud based solution that is offered as a service for Amazon businesses in a subscription model. Our solution will consist of the following core services: "Finding Wholesalers", this service allows Amazon sellers to find wholesalers based on KPIs relative to selling on Amazon. "Finding Profitable Products", this service tracks cost, profitability analysis, and competition analysis. EcomOneStop makes finding wholesalers and profitable products easier, more efficient, and more effective for Amazon Sellers.

Introduction

EcomOneStop is a startup company. For Amazon Sellers, EcomOneStop is the only company among all Amazon Seller services that allows Amazon Sellers to find wholesalers easily and effectively. This is due to the fact we have stored over a million Amazon products in our database (and counting) and update this information on a daily basis allowing users of our system to search and find wholesalers based on important Amazon marketplace KPIs such as Sales Rank, Buy Box Price, and categories. Furthermore, once the Amazon Seller of our system finds a wholesaler(s), the system then provides a solution to make purchase orders of only profitable products. To provide these solutions, we used the industry leading technologies such as Spring MVC, Tomcat application server, MySQL Database, DynamoDb noSql database, and more, all of which are running on a proven cloud platform, i.e. Amazon Web Services (AWS). During our development, we used an adapted version of SCRUM. Furthermore, we are incorporating best practices of project management from PMBOK.

Problem Statement

As of today, Amazon has released that there are over 2 million third party merchants (Amazon Sellers) selling on the Amazon marketplace. There are common problems among the majority of Amazon Sellers and they're as follows: 1) undesirable solutions to find wholesalers 2) trouble making the right purchase orders from the established wholesalers of the Amazon seller.

Unfortunately, in today's market, the only solution for Amazon Sellers to find wholesalers is wholesaler directories, which only contain contact information of wholesalers and the

wholesaler's products. This is a lack of information and it constrains the Amazon Seller.

Amazon Sellers need to know relative Amazon marketplace KPIs in order to make good business decisions. First, as an Amazon Seller, I'm only interested in wholesalers whom allow my company to sell their products on the Amazon marketplace. Secondly, I don't want to just know about the products the wholesaler has to offer and its cost information; on the contrary, I'm more interested in knowing the following Amazon marketplace KPI information: 1) Buy Box price (the price of which the product is sold on Amazon), 2) Amazon best seller ranking (a ranking of a product in its particular category that indicates the number of units expected to be sold, i.e. the demand of the product), 3) whether or not Amazon is a seller of the product (competition analysis), and much more useful information for Amazon Sellers as its specific to the Amazon marketplace. As one can see, in today's market, there is a void waiting to be filled with a solution that provides Amazon sellers a service that allows them to find wholesalers and profitable products based on Amazon marketplace KPI information.

Solution

Amazon provides a web service called Marketplace Web Services (MWS), which exposes relative Amazon marketplace information for Amazon Sellers. EcomOneStop takes advantage of these web services. At EcomOneStop's core, we will use MWS to mine products currently being sold on the Amazon marketplace. We will store and keep up-to-date information on products which are rated below 100,000 Amazon best seller ranking in its respective category. Using this mined data, EcomOneStop will provide Amazon sellers Amazon marketplace specific information to make business decisions. For example, EcomOneStop will provide a solution to find wholesalers who's already allowing Amazon Sellers to sell their products on the Amazon

marketplace. Furthermore, EcomOneStop will provide Amazon Sellers with a search functionality to find wholesalers based on rich queries of Amazon marketplace specific data. In addition, EcomOneStop will provide Amazon Sellers the ability to find profitable products by using its profitability analytics that allows the Amazon Seller to upload wholesaler cost information and compares it to accurate and Buy Box price information. Many more tools and services will be offered by EcomOneStop to ensure that Amazon Sellers are successful in their business, but is out of scope for senior design

User Profile

The purpose of this section is to do an analysis on our potential users of our system. Understanding our users helped us develop a great application.

Potential Users:

Amazon Sellers

Software and Interface Experience:

Amazon sellers are savvy with the internet and web surfing. A technical background for these users is unlikely. Our Web interface will be self-explanatory for Amazon sellers using domain concepts such as buy box price and other Amazon seller terms.

Experience with Similar Applications:

Only experience using the web would be necessary and our potential users meet this criteria.

Task Experience:

The task experience would be one of using search and different filtering options. Users will be accustomed to the filter criteria as it pertains to their business.

Also, users will be tasked to interpret basic charts and graphs as we visualize Amazon business data for them.

Lastly, interacting with excel and spreadsheets will be tasks that user will experience.

Frequency of Use:

Users are expected to use this service every day to make appropriate business decisions.

Timeline (Figure 1) - For each of our tasks, we gave a timeline for expected completion date. This helped us manage our deliverables.

Task Name	Start Date	Duration (days)
Add new products, Key word search	9/28/2015	34
Update Existing products	10/5/2015	31
Discover wholesaler	11/5/2015	69
Finding profitable products	1/13/2016	17
A user can view documentation on getting started and other services	2/1/2016	14
A user can view a dashboard and other data visualizations	2/15/2016	15
A user can view financial information of their Amazon business	3/1/2016	45
A user can find the optimal amount x products to sell in order to maximize profit (Integer programming)	4/15/2016	40
Create Purchase Order	5/5/2016	27

Figure 1, Timeline

Gantt chart (Figure 2) Gantt chart displays the concurrent activities and more.

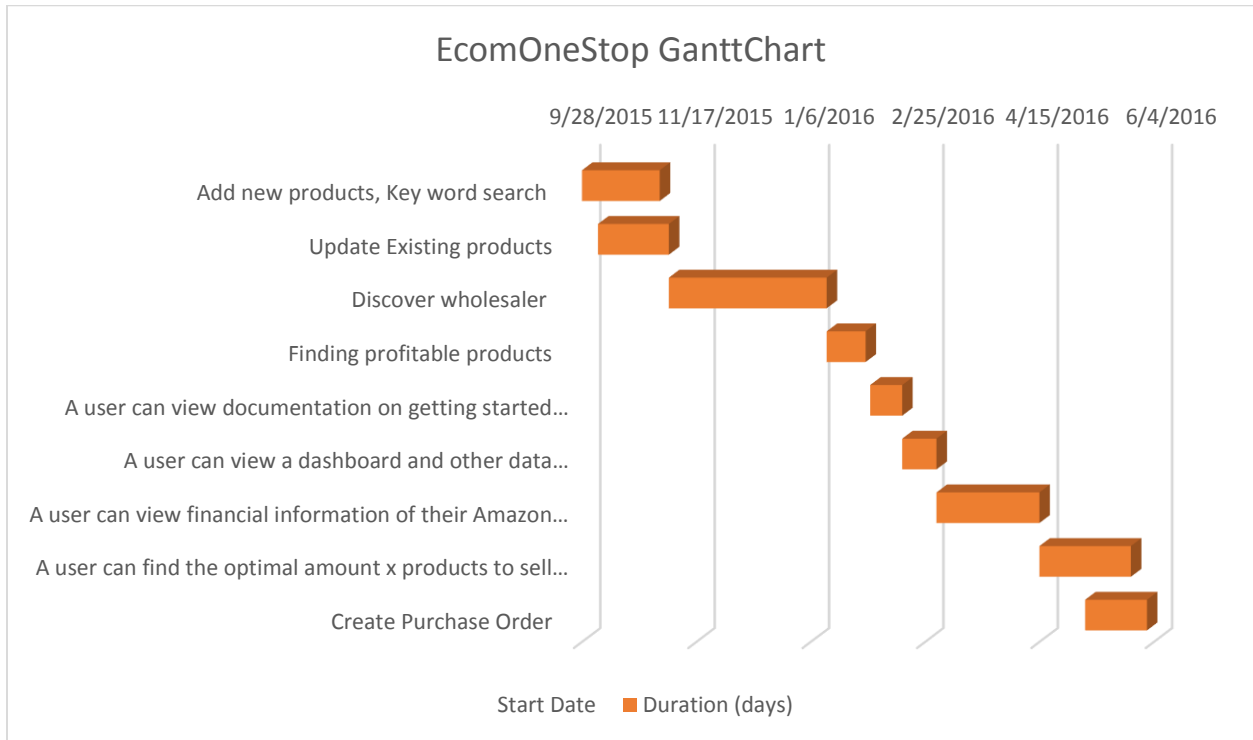


Figure 2, Gantt chart

Use Case Diagram / User Stories

Use Case Diagram (Figure 3) – Adding new Products to our system use case diagram

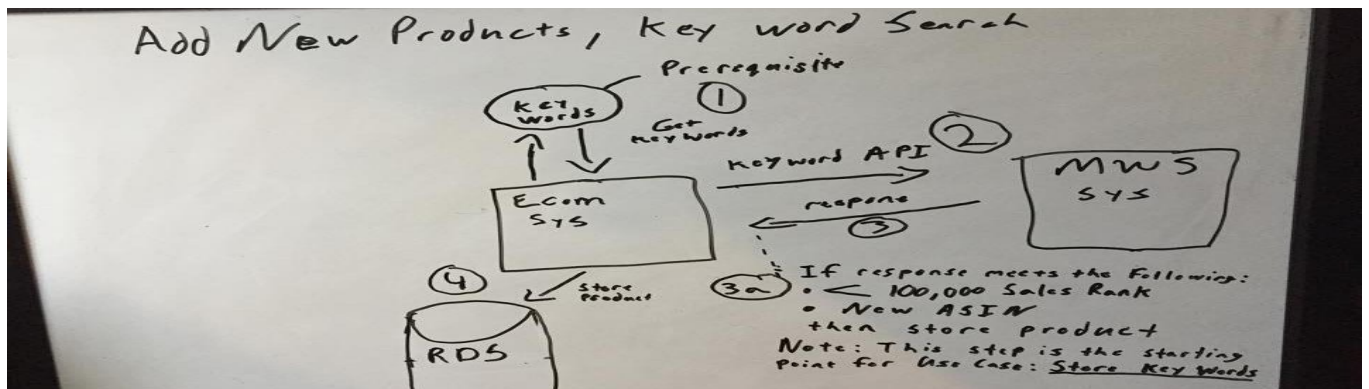


Figure 3, Use Case Diagram

User stories (Figure 4) – user stories was used in our requirement analysis

User Story	EPIC?	User Acceptance Criteria	Status
A user can search for a wholesaler by category, sales rank, and buy box price	N	Verify User is notified of incorrect entries Verify User cannot search for more wholesalers than that's left in their monthly wholesalerdiscovery count	Done
A user can view several details of the whoesaler search result. I.e. they will view brand, # of products from brand that met search criteria, link to new tab that google searches the brand, and a status selection (Retail account sent, not sent, rejected, or accepted), and link to new tab that opens a data visualized view of brand and products under the brand	N	Verify that all brands returned from search are unique for the user even for existing brands the user previously found Verify that the number of wholesalerdiscover count decreases by the amount returned in the search Verify that the wholesaler search result is added to user existing wholesaler list	Work in progress
A user can limit his wholesaler search results to return x number of potential wholesalers. Max search of 100 at a time	N	Verify that the limit works and a user cannot search over 100 wholesalers at a time	Done
A user can at all times view the number of wholesalers left they can discover for the month, i.e. the wholesalerdiscovery count	N	Verify that the number is displayed and is accurate 99% of time verify that user that has not verified their sellerid only receives 20 wholesaerdiscoveries; whereas, a user whom verified sellerid starts with 500 wholesalerdiscoveries	Done
A user can confirm a retail account from wholesalers discovered was obtained. This should prompt the user to confirm, If confirmed, all products under the wholesaler (i.e. brand) should be added to profitable product tracking list for the user.	N	Veriy that the prompt works as expected. Verify the user can reject the confirmation and no products are added. Verify all products under the wholesaler were actually added after confirmation	Work in progress
A user can view how to talk to wholesaler page	N	Verify that an authenticated user can view Q/A format given under talking to wholesaler page. Verify that the user can connect to our Facebook page to post more questions.	Not started

<p>A user can view his existing wholesalers and their details such as wholesaler (aka brand), link to google search, status selection, and a link to a data visualization page</p> <p style="text-align: right;">N</p>	<p>Verify that a user can sort his existing wholesalers by status (i.e. retail account request sent, not sent, approved, or rejected)</p> <p>Verify that the user can paginate to the next set of existing wholesalers they may have, 25 existing wholesalers per page</p> <p>Verify that the user can find a particular wholesaler (aka brand) by searching for its name</p>	<p>Work in progress</p>
<p>A user can register EcomOneStop as a third party developer for MWS access to his seller account and save sellerid, MWS authorization token, and marketplace ID to EcomOneStop system</p> <p style="text-align: right;">N</p>	<p>Verify that the sellerid is unique</p> <p>verify that the sellerid is valid</p> <p>verify valid sellerid is added to user account and non-valid sellerid's are not</p>	<p>Work in progress</p>
<p>A user can view data visualization of wholesaler and products under wholesaler.</p> <p style="text-align: right;">N</p>	<p>Verify that given a wholesaler brand found by the user, that he can view the number of products within that brand and the range of sales ranks of these products</p>	<p>Not started</p>
<p>A user can view documentation on getting started and other services</p> <p style="text-align: right;">Y</p>		<p>Not started</p>
<p>A user can view a dashboard</p> <p style="text-align: right;">Y</p>		<p>Not started</p>
<p>A user can find profitable products to sell on Amazon</p> <p style="text-align: right;">Y</p>		<p>Not started</p>
<p>A user can view financial information of their Amazon business</p> <p style="text-align: right;">Y</p>		<p>Not started</p>
<p>A user can find the optimal amount x products to sell in order to maximize profit (linear programming)</p> <p style="text-align: right;">Y</p>		<p>Not started</p>

Figure 4, User Stories

Technologies

Spring MVC framework – A java enterprise framework that is open source and has a great user community. Provides a framework that speeds development of Java enterprise applications

Tomcat Application Server – An open source application server that acts as a servlet container and very modular allowing additional components to be installed.

MySQL – Will use Amazon RDS service for a managed Mysql system.

DynamoDB – Will use Amazon NoSQL database to provide a data store where relational model doesn't fit the data.

SQS – Will use Amazon Simple Queue Service to provide a queue solution. This queue will separate our instances from each other providing higher availability.

Proposed Budget (Table 1)

Our proposed budget is \$12,000 a year.

AWS Service	Cost
EC2 instance	\$4445.70 per year
Other AWS services such as dynamodb, RDS, SQS, and more	\$7554.30 per year
Total	\$12,000.00 per year

Table 1, Proposed Budget

Testing Plan

Overview

EcomOneStop testing will cover functional and nonfunctional requirements of our system. We will use our user acceptance criteria that was identified during our requirement analysis. In our project, we are using an adapted version of Scrum to plan and organize our project. Thus, we have user acceptance criteria for each of our user stories, which defines what "Done" means for that specific user story. In our testing plan, we use terms such as Epic – a large user story that consist of smaller user stories. Also, user story – a short, incomplete, conversation starter of a high level requirement for the system. Lastly, user

acceptance – as mentioned, this is our definition of done. User acceptance is an iterative process and we flush out all the details of the requirement in this section.

Scope

There is many types of testing, e.g. unit testing, integration testing, usability testing, stress testing, etc. However, the scope of our testing will focus on user acceptance testing. Our user acceptance testing is limited to the number of identified user stories. This testing plan will grow as the project continues.

Objective

Our objective is to prove that we have satisfied all of our user’s requirements and have a functional system.

EcomOneStop Test Plan (Figure 5)

EPIC: A user can find wholesalers for their Amazon business

User Story	User Acceptance Criteria	Testing Steps
A user can search for a wholesaler by category, sales rank, and buy box price	Verify User is notified of incorrect entries Verify User cannot search for more wholesalers than that’s left in their monthly wholesalerdiscovery count	1. Logon to the system. 2. Click on Finding Wholesalers tab 3. Don’t enter form information and submit. Result - Red box indicating errors of form submission 4. Repeat steps 1 and 2. 5. Enter a category, sales rank, buy box price, and number of wholesalers to be found that is greater than what is left in the users wholesaler discovery count. Result - Only the number of actual wholesaler discovery count left will be found. E.g. I have 5 wholesaler discovery count left in my account, I search for 8, I should only get

		<p>5 wholesalers back as that is my limit</p>
<p>A user can view several details of the wholesaler search result. I.e. they will view brand, # of products from brand that met search criteria, link to new tab that google searches the brand, and a status selection (Retail account sent, not sent, rejected, or accepted), and link to new tab that opens a data visualized view of brand and products under the brand</p>	<p>Verify that all brands returned from search are unique for the user even for existing brands the user previously found Verify that the number of wholesalerdiscover count decreases by the amount returned in the search Verify that the wholesaler search result is added to user existing wholesaler list</p>	<ol style="list-style-type: none"> 1. Logon to the system. 2. Click on Finding Wholesaler tab 3. Enter a category, sales rank, buy box price, and number of wholesalers to be found less than wholesaler discovery count. <p>Result - Only unique brands of wholesalers are brought back as the search result. This includes not receiving an existing brand from the search that was previously found by the user. This can be verified by taking a snapshot of the users existing wholesalers and then compare it to the results return on the new submission. The wholesaler discovery count should have been deducted by the number of results brought back. Also, these results must now be added to the users existing wholesaler list</p>
<p>A user can limit his wholesaler search results to return x number of potential wholesalers. Max search of 50 at a time</p>	<p>Verify that the limit works and a user cannot search over 50 wholesalers at a time</p>	<ol style="list-style-type: none"> 1. Logon to the system. 2 Click on Finding Wholesalers tab 3. Enter

<p>A user can at all times view the number of wholesalers left they can discover for the month, i.e. the wholesalerdiscovery count</p>	<p>Verify that the number is displayed and is accurate 99% of time Verify that user that has not verified their sellerid only receives 20 wholesaerdiscoveries; whereas, a user whom verified sellerid starts with 500 wholesalerdiscoveries</p>	<p>Prerequisite - A user has over 50 discovery wholesalers left in his account for the month. 1. Logon to the system. 2 Click on Finding Wholesalers tab 3. Enter a category, sales rank, buy box price, and number of wholesalers to be found that is greater than 50. Result - This should give a red box indicating an error as the user cannot search for more than 50 wholesalers at a time</p>
<p>A user can confirm a retail account from wholesalers discovered was obtained. This should prompt the user to confirm, If confirmed, all products under the wholesaler (i.e. brand) should be added to profitable product tracking list for the user.</p>	<p>Verify that the prompt works as expected. Verify the user can reject the confirmation and no products are added. Verify all products under the wholesaler were actually added after confirmation</p>	<p>1. Logon to the system. 2 Click on Finding Wholesalers tab 3. Go to existing wholesaler tab. 4. User changes the status of "sent" to "accepted" indicating that the wholesaler has accepted the user's request of obtain a retail account with the wholesalers company. 5. Save changes. The user should be directed to a confirmation page where we will accept the confirmation. 6. All products (note these are products econonestop has already tracked under this wholesaler's brand) from the confirmation page will be added to the users profitable product tracking list. Result - The user should now be able to go to finding profitable product page and find the newly added products. This is the page where the user will enter the</p>

		wholesalers cost information, etc...
A user can view how to talk to wholesaler page	<p>Verify that an authenticated user can view Q/A format given under talking to wholesaler page.</p> <p>Verify that the user can connect to our Facebook page to post more questions.</p>	<ol style="list-style-type: none">1. Logon to the system.2. Click on Finding Wholesaler tab3. Click on How to talk to wholesalers tab.4. The user can view the Q/A section and click on the Facebook link to post more questions <p>Result - Q/A questions previously defined are displayed and the user can connect to Facebook page to inquire on new questions to be answered and the community can help alongside with the EcomOneStop team to answer these. These new questions can be republished in the Q/A section.</p>

<p>A user can view his existing wholesalers and their details such as wholesaler (aka brand), link to google search, status selection, and a link to a data visualization page</p>	<p>Verify that a user can sort his existing wholesalers by status (i.e. retail account request sent, not sent, approved, or rejected) Verify that the user can paginate to the next set of existing wholesalers they may have, 50 existing wholesalers per page Verify that the user can find a particular wholesaler (aka brand) by searching for its name</p>	<ol style="list-style-type: none"> 1. Logon to the system. 2. Click on Finding Wholesaler tab 3. Click on the Existing Wholesaler tab. 4. Paginate thru the existing wholesalers page by clicking next, click on the different page numbers. 5. Sort the results based on status, e.g. sort for only statuses of "not sent". User would then be able to update this status as they work to obtain new retail accounts with wholesalers from the existing wholesalers discovered in econonestop. 6. Search for a specific brand in order for quick access. <p>Result - The sorting, pagination, and searching functionality of existing wholesalers of a user is verified.</p>
<p>A user can register EcomOneStop as a third party developer for MWS access to his seller account and save sellrID, MWS authorization token, and marketplace ID to EcomOneStop system</p>	<p>Verify that the sellerid is unique Verify that the sellerid is valid Verify valid sellerid is added to user account and non-valid sellerid's are not</p>	<ol style="list-style-type: none"> 1. Logon to the system. 2. Click on Dashboard tab 3. Click on verify my sellerid 4. Enter incorrect sellerid information <p>Result - This should give a red box indicating an error that the sellerid is invalid.</p> <ol style="list-style-type: none"> 5. Repeat steps 1-3. 6. Enter in correct sellerid. <p>Result - This should result in the user being notified of successfully being verified. Also, the user should now have 500 wholesaler discovery count.</p>

<p>A user can view data visualization of wholesaler and products under wholesaler.</p>	<p>Verify that given a wholesaler brand found by the user, that he can view the number of products within that brand and the range of sales ranks of these products</p>	<ol style="list-style-type: none">1. Logon to the system.2. Click on the Finding Wholesaler tab.3. Go to existing wholesalers.4. Click on the "Data Viz" link. <p>Result - A graph should display that indicates the number of products within this wholesalers brand currently being tracked by econonestop. Furthermore, it should indicate the number of products within x ranges of sales rank</p>
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Figure 5, EcomOneStop Test Plan

Conclusion

EcomOneStop will provide Amazon Sellers a Cloud service for finding wholesalers, profitable products, and much more. Amazon sellers will be more successful in their business because of EcomOneStop's solutions. Our mission is to provide Amazon Sellers, entrepreneur in spirit, a value that goes beyond the bottom line, a self-sustaining business where you're truly your own boss.

Appendix

Technical Architecture Diagram (Figure 6) – EcomOneStop’s IT architecture.

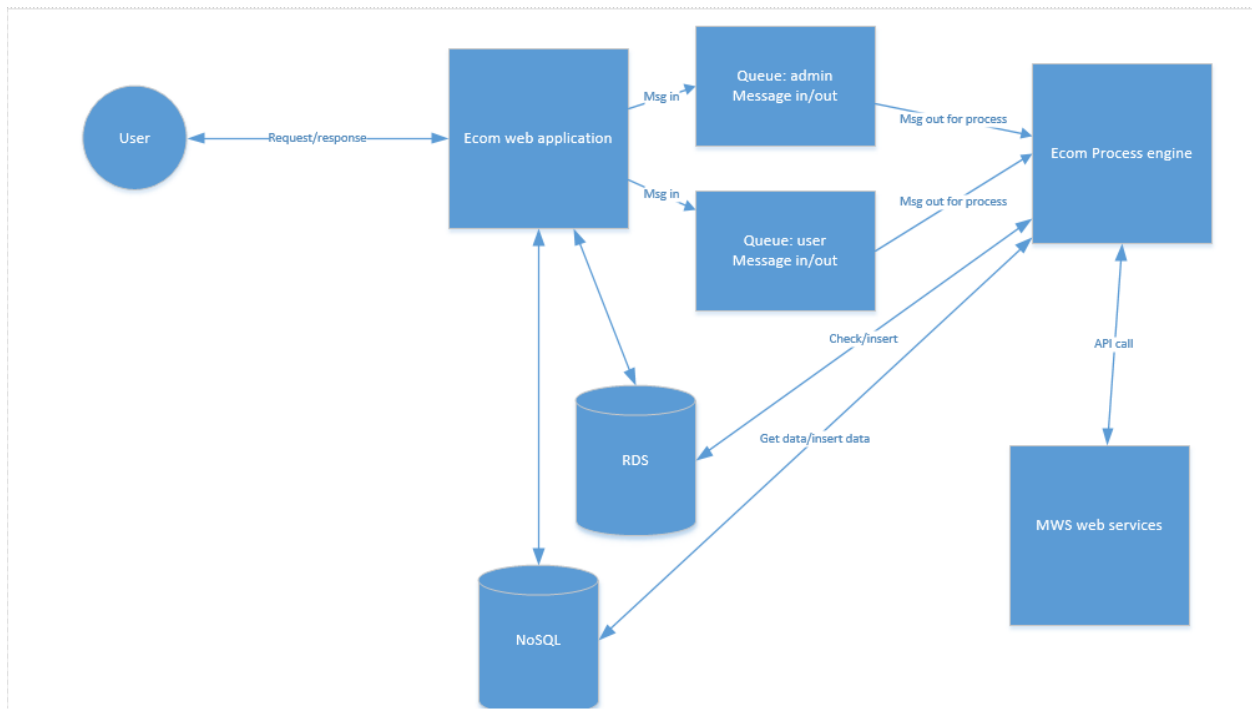


Figure 6, Technical Architecture Diagram