

MICHIGAN STATE

U N I V E R S I T Y

Project Plan

SPARTI

The Capstone Experience

Team Amazon

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*From Students...
...to Professionals*

Functional Specifications

- More than 50% of items sold on Amazon are listed by 3rd party sellers
 - They typically develop custom applications to do this
- **SPARTI**: Selling Partner Application Ready to Integrate
- Our application makes the process of building a third-party seller application super simple
 - Creates all necessary resources (ie. databases), handles authentication seamlessly, and provides monitoring tools



Design Specifications

- Provide turn-key integration with AWS in a single solution
- Establish connections to Seller Partner APIs
- Utilize AWS services with minimal developer configuration and setup
- Enable application telemetry with no manual setup
- Securely handle sensitive credentials and data



Screen Mockup: Welcome Page



Welcome to SPARTI

Welcome to SPARTI!



You have successfully started an instance of **SPARTI**: Selling Partner Application Ready to Integrate.

This application is meant to be used as a basis for custom 3rd party selling applications. Below you can find information being retrieved from the Selling Partner API that the application is currently connected to. If no information is showing, then the application configuration most likely needs to be modified.

Marketplace Information

Seller Domain: www.amazon.com

ID: ATVPDKIKX0DER

Default Currency: USD

Country Code: US

Default Language: en_US

Is Participating: Yes

Has Suspended Listings: No



Screen Mockup: Manage Orders

Your Orders

Pending ▼

Order Date	Order Details
Sep 8, 2019 18:27:08 PM PST	<i>Order Number</i> Product Name QTY : 1 ASIN : XXXXXXXXXX SKU : 88888 Contact Buyer: Rose Wang Fulfillment method: Seller
Sep 8, 2019 18:27:08 PM PST	<i>Order Number</i> Product Name QTY : 1 ASIN : XXXXXXXXXX SKU : 88888 Contact Buyer: Rose Wang Fulfillment method: Seller

Premium unshipped ▼

Order Date	Order Details
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Sep 8, 2019 18:27:08 PM PST	<i>Order Number</i> Product Name QTY : 1 ASIN : XXXXXXXXXX SKU : 88888 Contact Buyer: Rose Wang Fulfillment method: Seller

Sales Summary ▼

	Product Sales	Units
1 day	\$8000	100
7 days	\$5,600	700
15 days	\$120,000	1500
30 days	\$240,000	3000

Unshipped ▼

Order Date	Order Details
Sep 8, 2019 18:27:08 PM PST	<i>Order Number</i> Product Name QTY : 1 ASIN : XXXXXXXXXX SKU : 88888 Contact Buyer: Rose Wang Fulfillment method: Seller
Sep 8, 2019 18:27:08 PM PST	<i>Order Number</i> Product Name QTY : 1 ASIN : XXXXXXXXXX SKU : 88888 Contact Buyer: Rose Wang Fulfillment method: Seller

Return requests ▼










Order Date	Order Details
Sep 8, 2019 18:27:08 PM PST	<i>Order Number</i> Product Name QTY : 1 ASIN : XXXXXXXXXX SKU : 88888 Contact Buyer: Rose Wang Fulfillment method: Seller
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Seller Name

Seller ID



Screen Mockup: View Seller Inventory

Your Inventory		Seller Name Seller ID					
Status	Image	Product Name ASIN	SKU Condition	Available	Fee Preview	Price + Shipping	Lowest Price + Shipping
Status		Product Name ASIN	SKU Condition	20	\$5.00	\$20.00 + \$3.99	Lowest
Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest
Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest
Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest
Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest
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Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest
Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest
Active		Just Chocolate JC99999999	88888 New	20	\$5.00	\$20.00 + \$3.99	Lowest



Screen Mockup: Seller Performance

Performance in 30 days

2608

Orders

\$188,888.88

Sales

2 hours 15 minutes

Average Response Time

1.08%

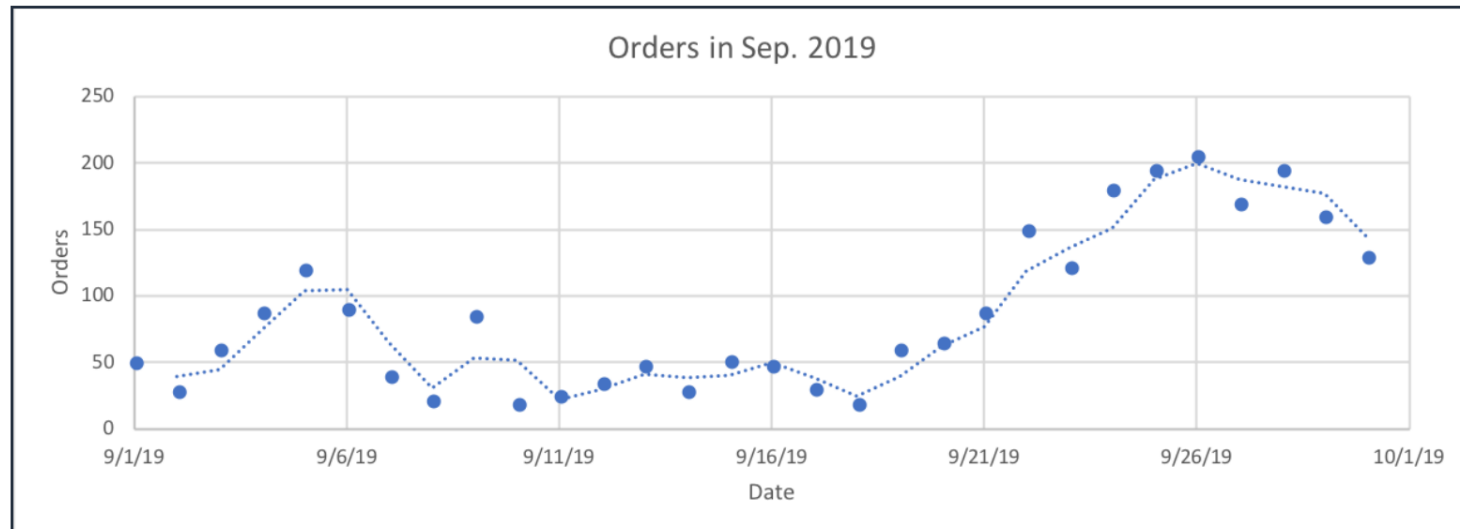
Cancellation Rate

3.98%

Order Defect Rate

0.75%

Return Dissatisfaction Rate

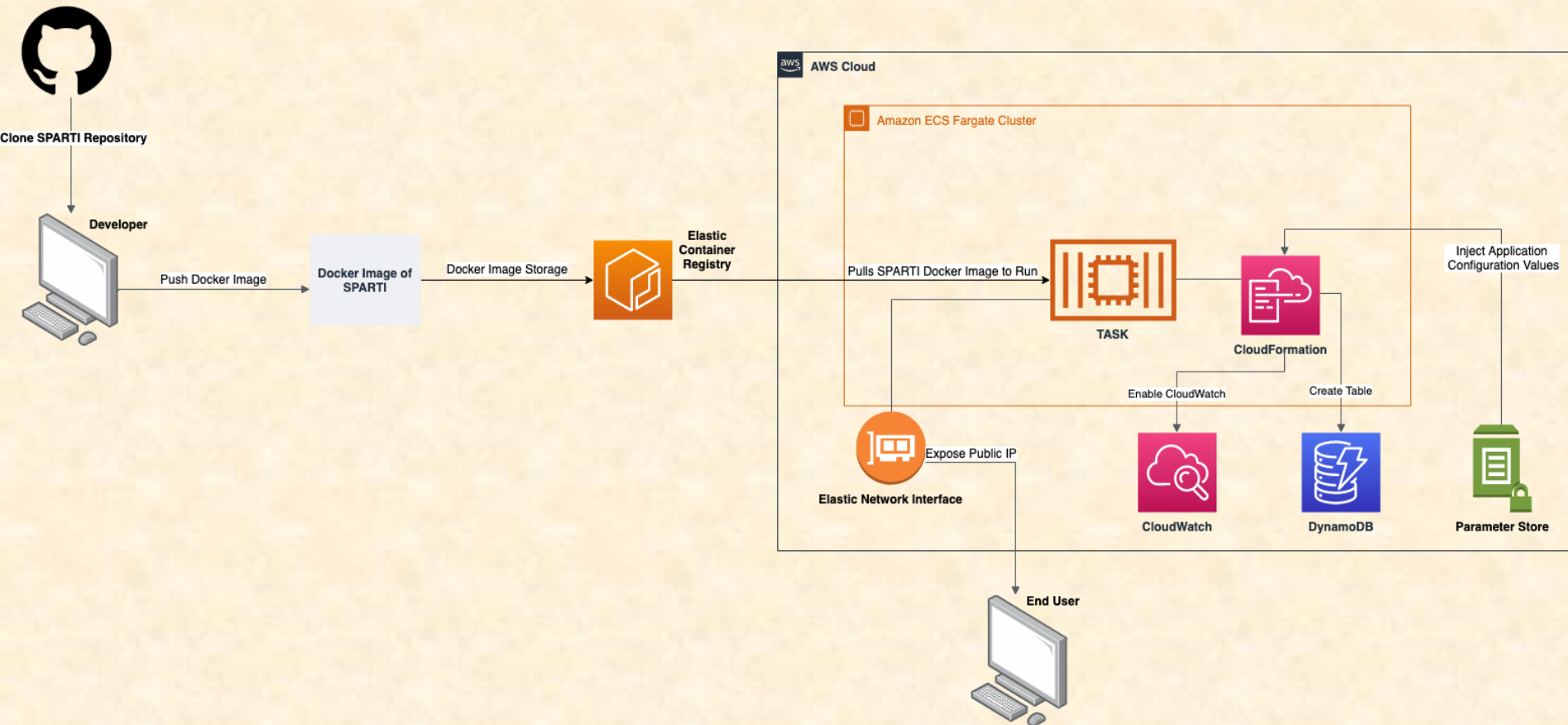


Technical Specifications

- Main application is written using C# ASP.NET Core
 - Visual web front end and backend in the same app
- SPARTI uses a variety of Amazon Web Services
 - ECR, Fargate, CloudFormation, CloudWatch, DynamoDB, Parameter Store
- Connects to the Amazon Selling Partner API (SPAPI)
 - This is how we will get 3rd Party Seller Partner data
- Entire package lives in a Docker Image
 - When deployed, this will configure all of the additional required resources (ie. DynamoDB for tokens)



System Architecture



System Components

- Software Platforms / Technologies
 - ASP.NET Core
 - Docker
 - GitHub
 - Amazon Web Services
 - CloudFormation
 - DynamoDB
 - Parameter Store
 - CloudWatch
 - Fargate
 - Elastic Container Registry (ECR)
 - Elastic Container Service (ECS)



Risks

- Turn Key Integration with AWS
 - Project must have as few configuration steps as possible
 - Docker images and CloudFormation templates will be used to create all necessary components
- Securely Handling AWS Credentials and Secrets
 - Crucial that credentials used for retrieving data are stored securely
 - Utilize Parameter Store to keep credentials out of source code
- Signing Requests with AWS Signature Version 4
 - Signatures are created using user-specific parameters
 - Create a unit-testable class for generating signatures
- Automatic Integration of Amazon CloudWatch for Telemetry
 - CloudWatch integration process is typically done manually in the AWS console
 - Create a script using the AWS CLI to enable CloudWatch on cluster



Questions?

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