Name - Phanse Sakshi Krishandev
PRN No. - 121A2034
Year - TE
Branch - EXTC

SDP CLOUD COMPUTING MAJOR PROJECT REPORT

PROBLEM STATEMENT :

Send Fanout Event Notifications with Amazon Simple Queue Service (SQS) and Amazon Simple Notification Service (SNS)

INTRODUCTION:

- Amazon Simple Queue Service (SQS):

SQS is a fully managed message queuing service that enables you to decouple and scale microservices, distributed systems, and serverless applications.It provides a reliable, highly available, and scalable hosted queue for storing messages as they travel between different components of your applications.
SQS ensures that messages are delivered at least once, and in some cases, exactly once.

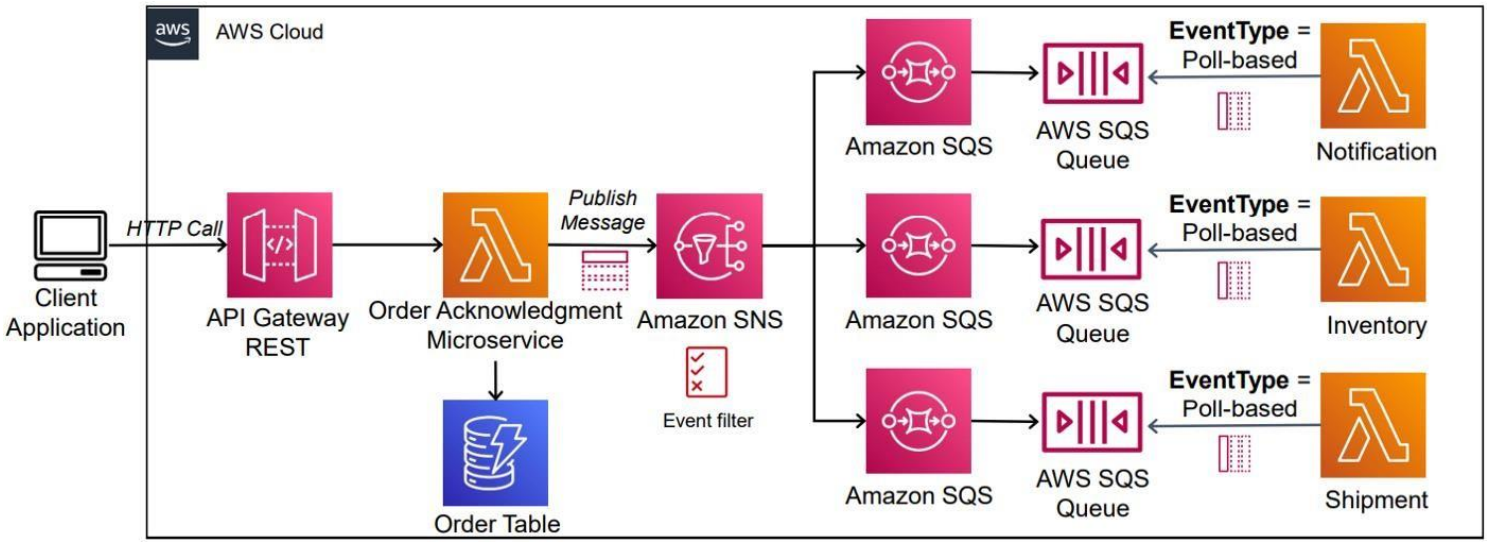
- Amazon Simple Notification Service (SNS):

SNS is a fully managed pub/sub messaging service that enables you to fan out messages to a large number of subscribers.It provides topics for high-throughput, push-based, many-to-many messaging between publishers and subscribers.
It ensures message delivery with retries, giving you the flexibility to define delivery policies, including message persistence and delivery retry settings.

- Integration of SQS and SNS for Fanout Event Notifications:

You can use SQS as a subscriber to an SNS topic, enabling fanout messaging to multiple SQS queues simultaneously.
This architecture allows you to decouple message producers from consumers and scale each independently.
When a message is published to an SNS topic, SNS delivers a copy of the message to each subscribed SQS queue.
SQS then manages the delivery of messages to consumers, providing reliable, scalable message processing.

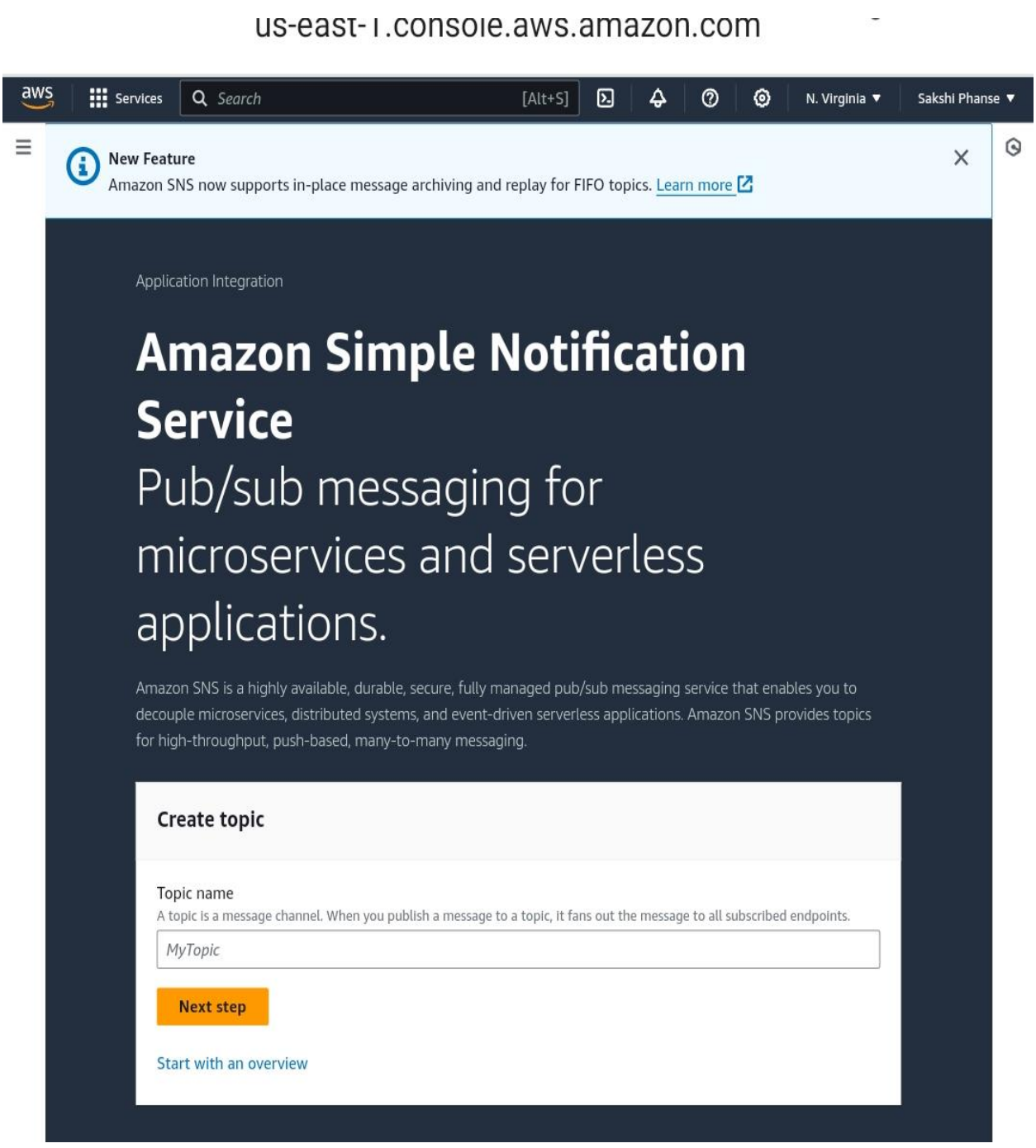
ARCHITECTURE:



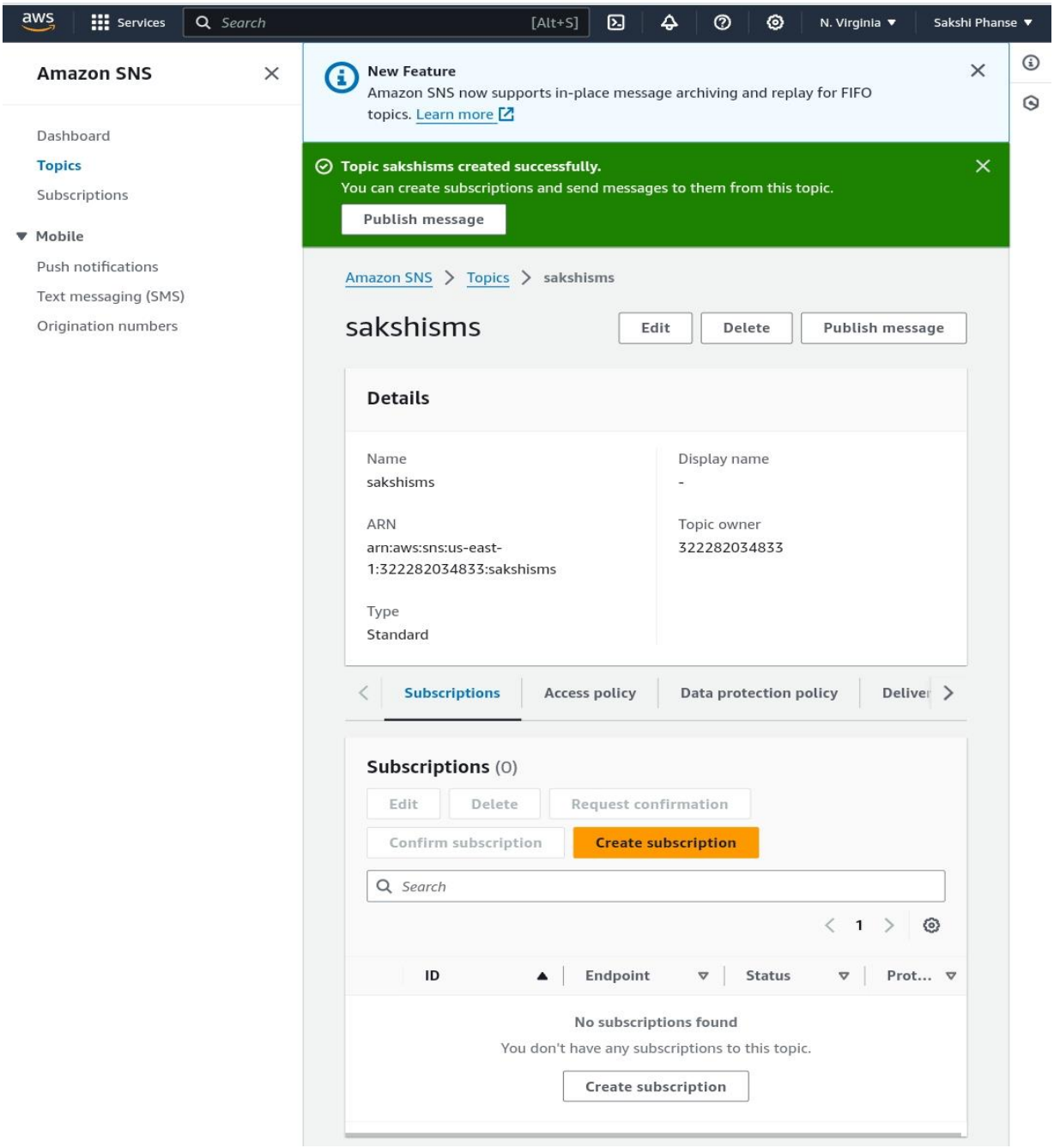
PROCEDURE:

Step 1: Create an Amazon SNS Topic.

- Login into the Amazon Management Console.
- Navigate to the Amazon SNS service.

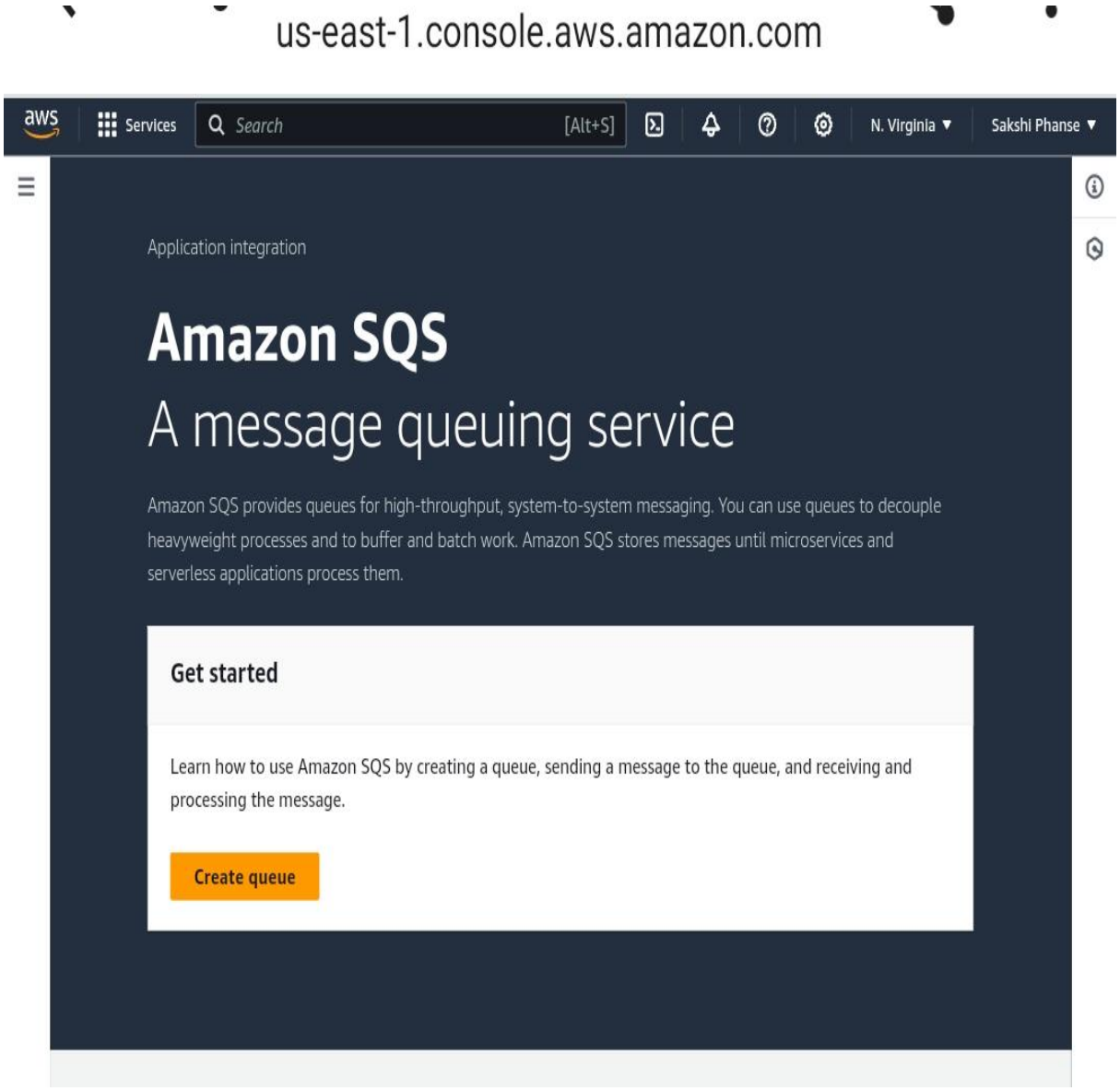


- On Create topic Section and give topic name.
- Click on Next Step.

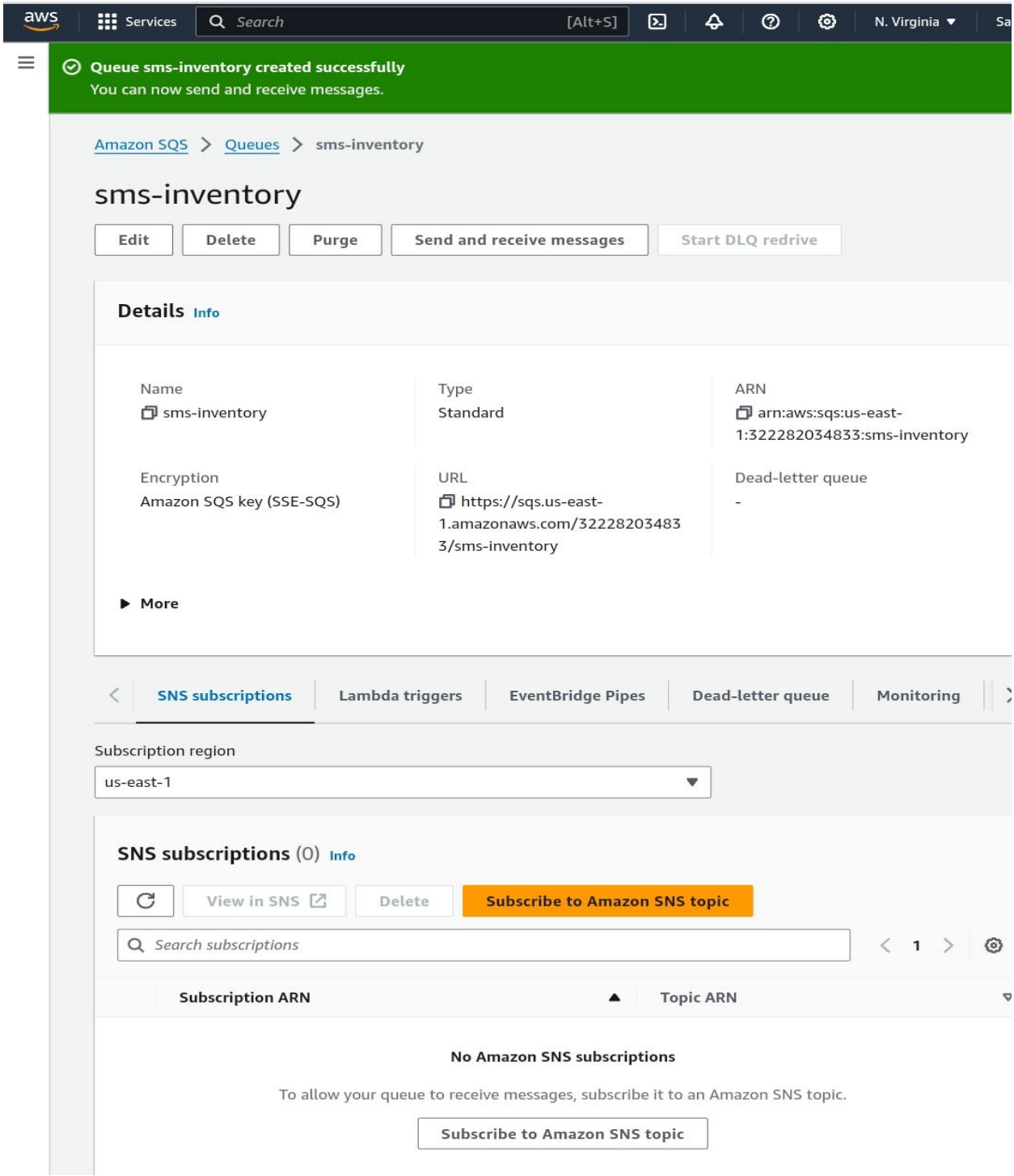


Step2: Create the Amazon SQS Queues.

- Navigate to SQS Queues.

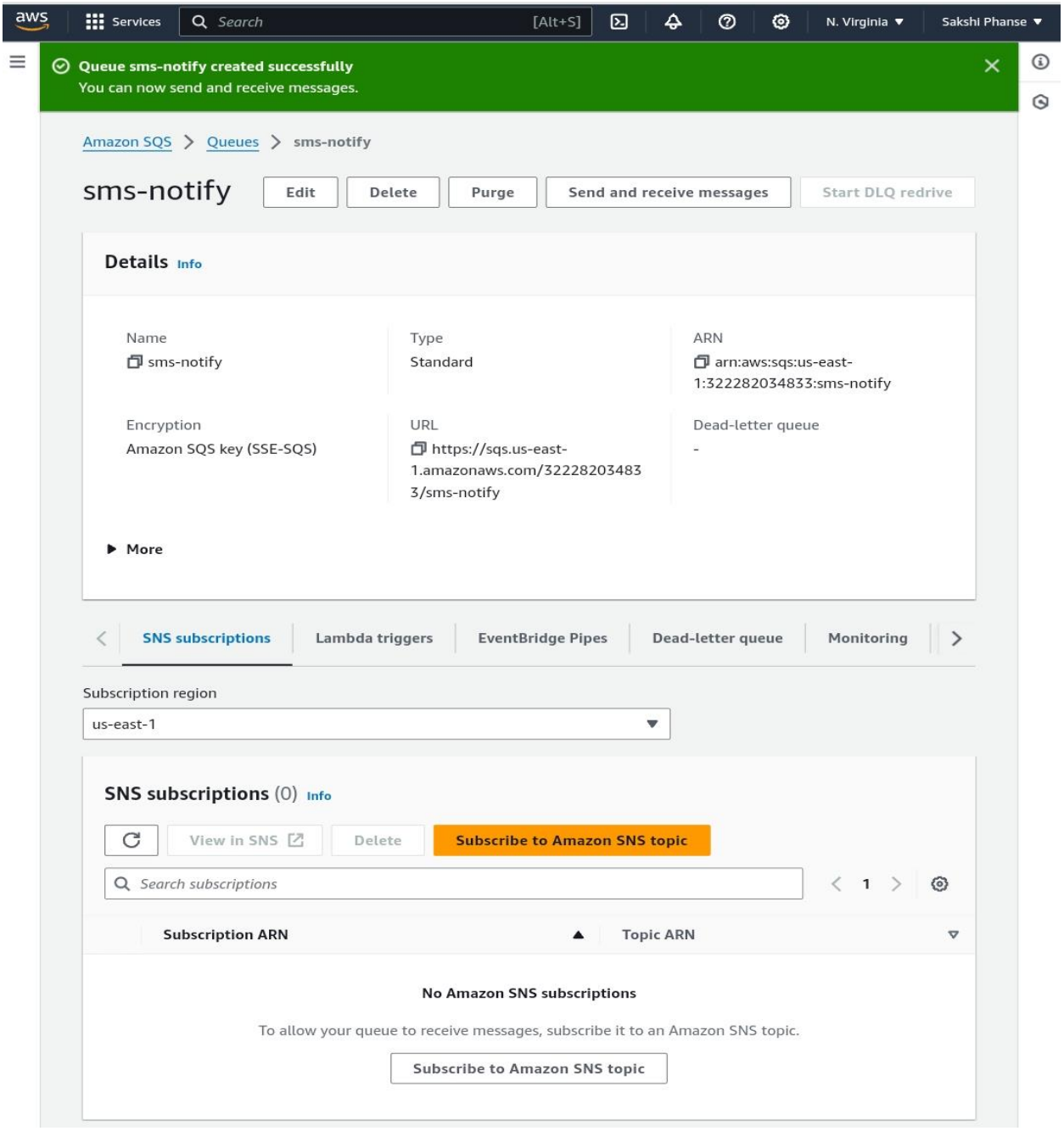


- Click on Create queue.
- Give the queue name.
- Go at the bottom of the page and click on create queue.



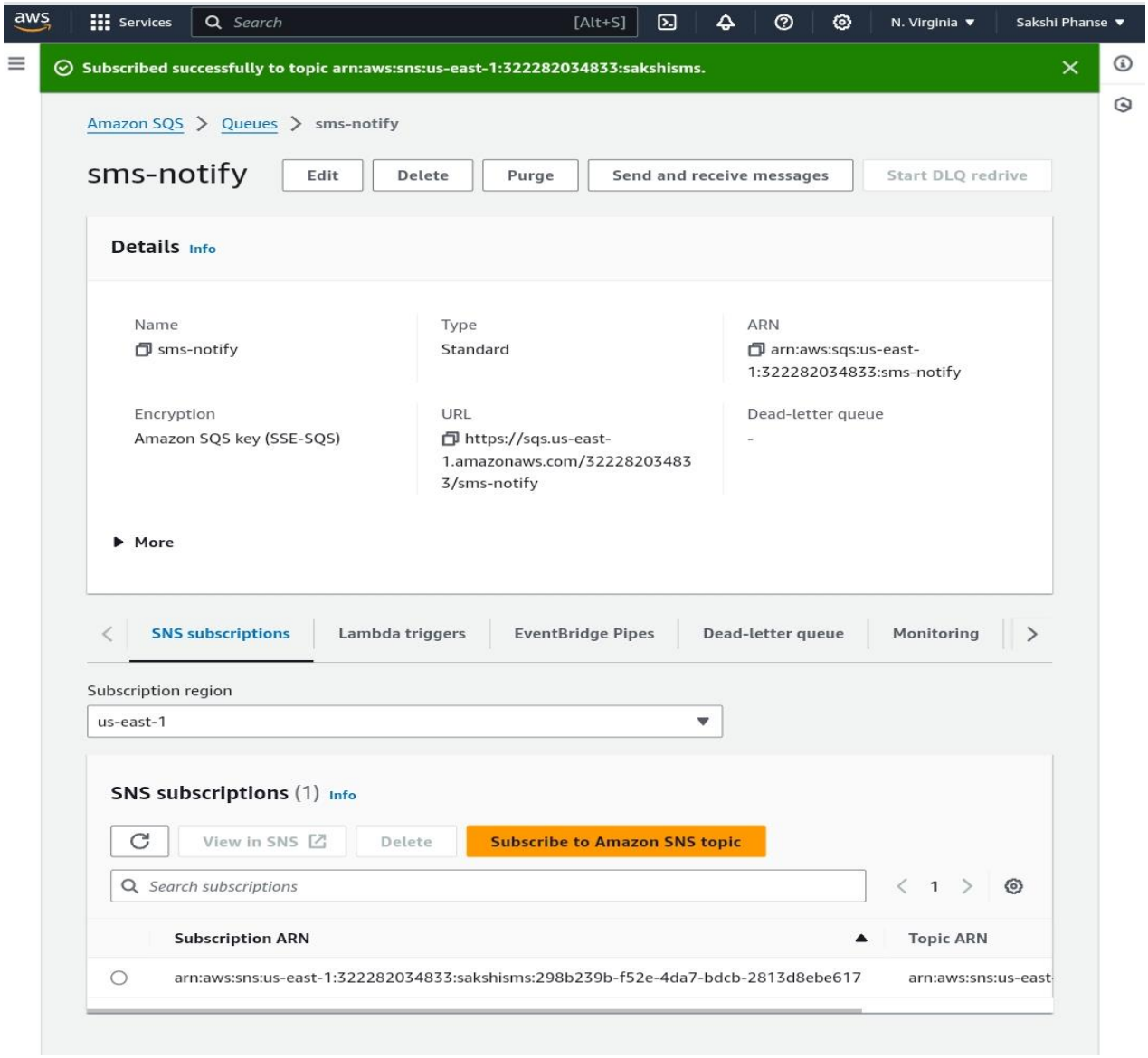
- Create One more Queue.

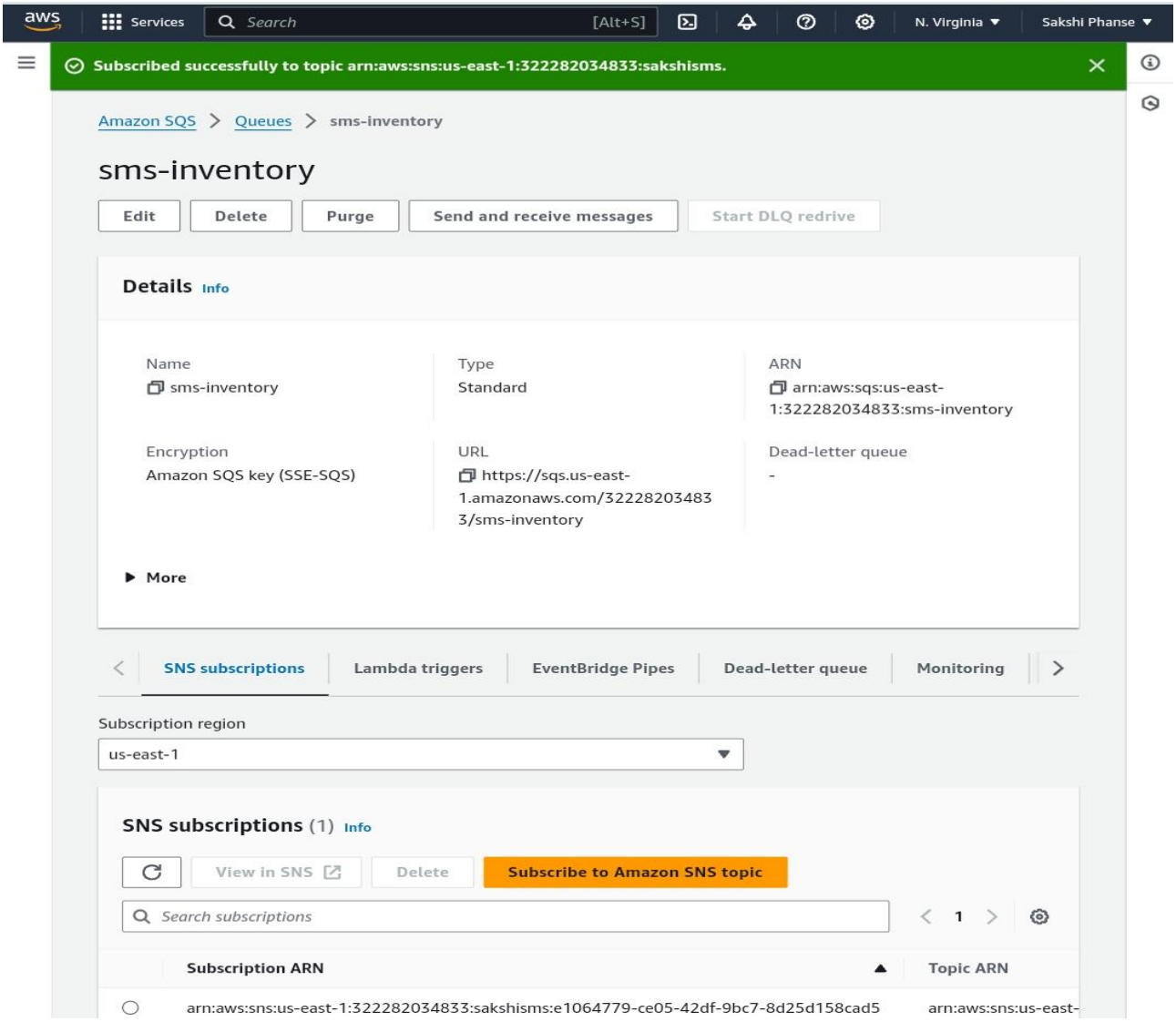
us-east-1.console.aws.amazon.com



Step3: Subscribe SQS Queues to SNS Topic.

- Select both the queues.
- Click on the A**ction B**utton.
- In dropdown menu select S**ubscribe to SNS Topic**.
- Select your **SNS Topic**.
- Click on save.





Step4: Publish a Message to the Topic.

- Navigate to SNS page.
- Go to Topic section.
- Select your Topic.
- Click on Publish Message.

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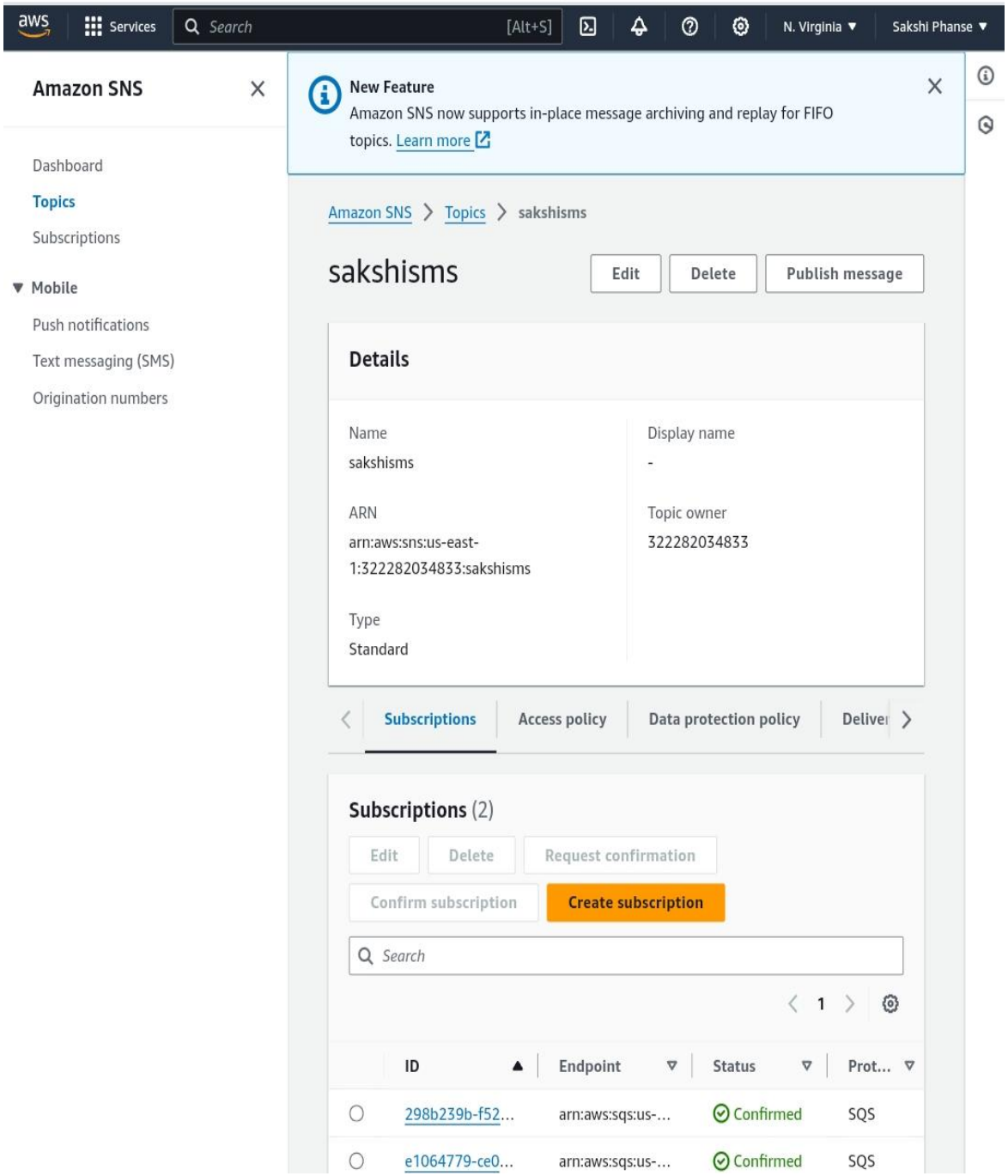
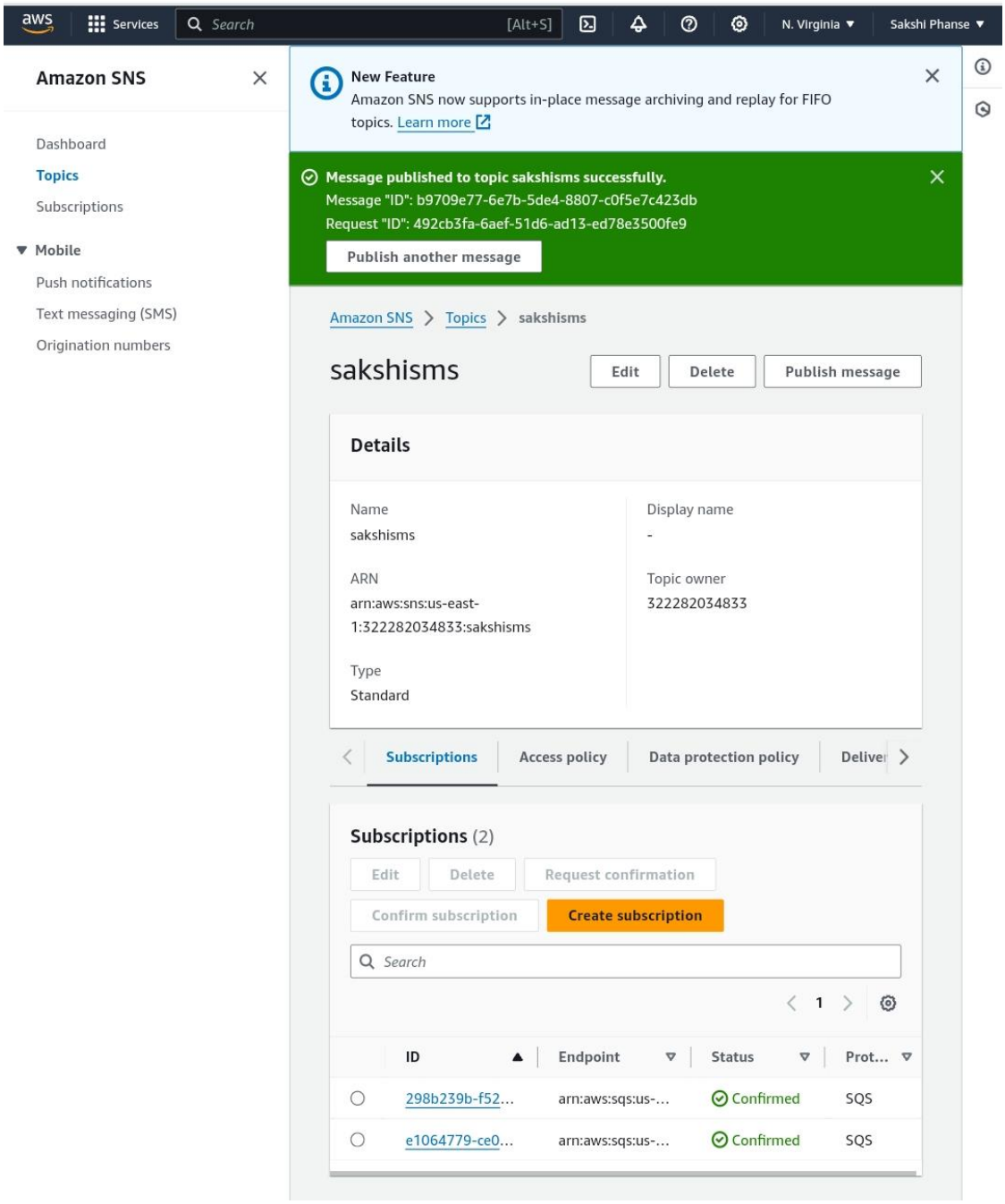


- In the Subject box, Message Group ID, Message Duplication ID type Order123-4567890-1234567.
- In message Body write your message.

- Example.

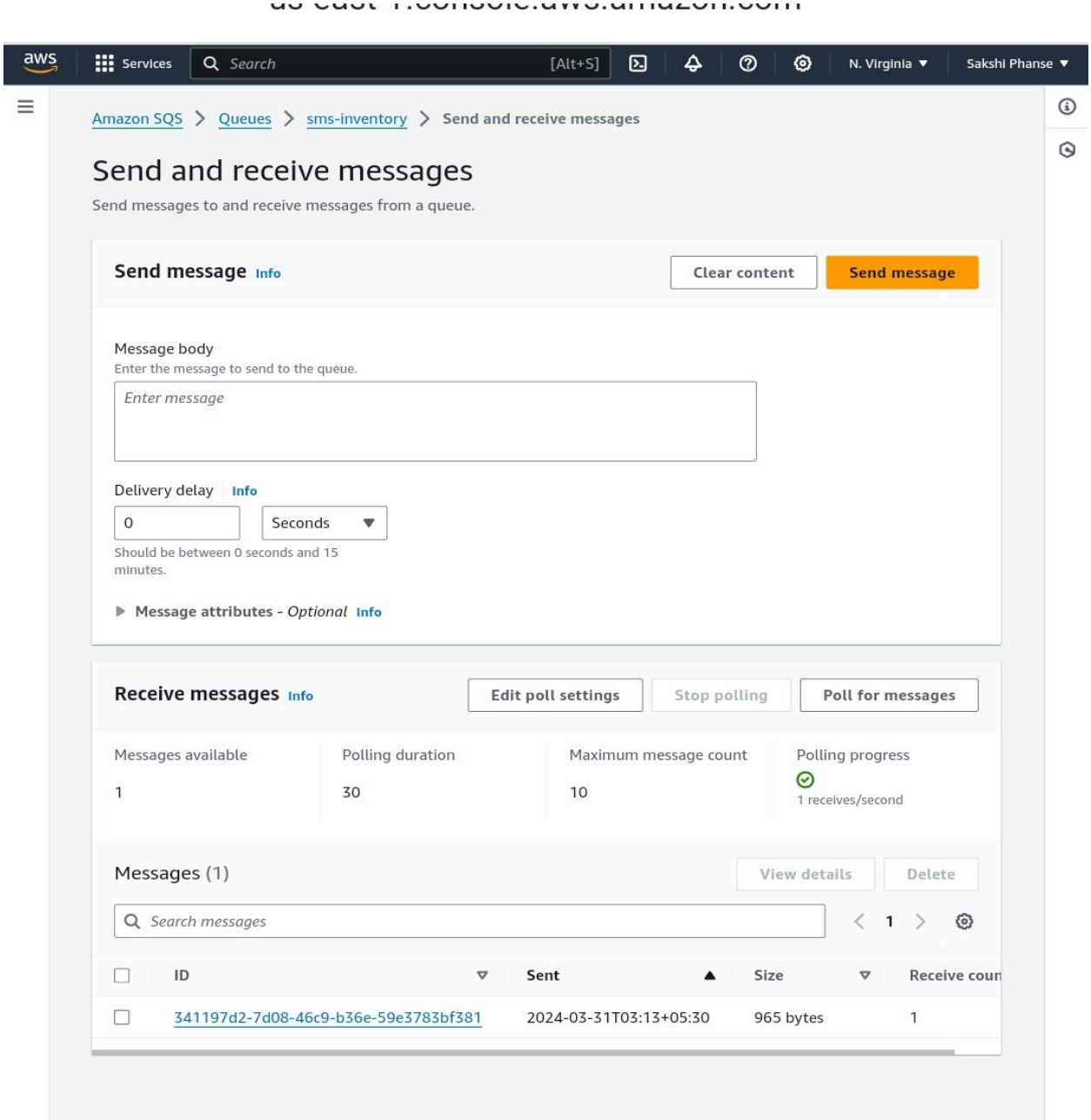
1 xWidget@$29.99USD
2 xWidget@$4.99USD
3 xWidget@$34USD

- Click on Publish Message

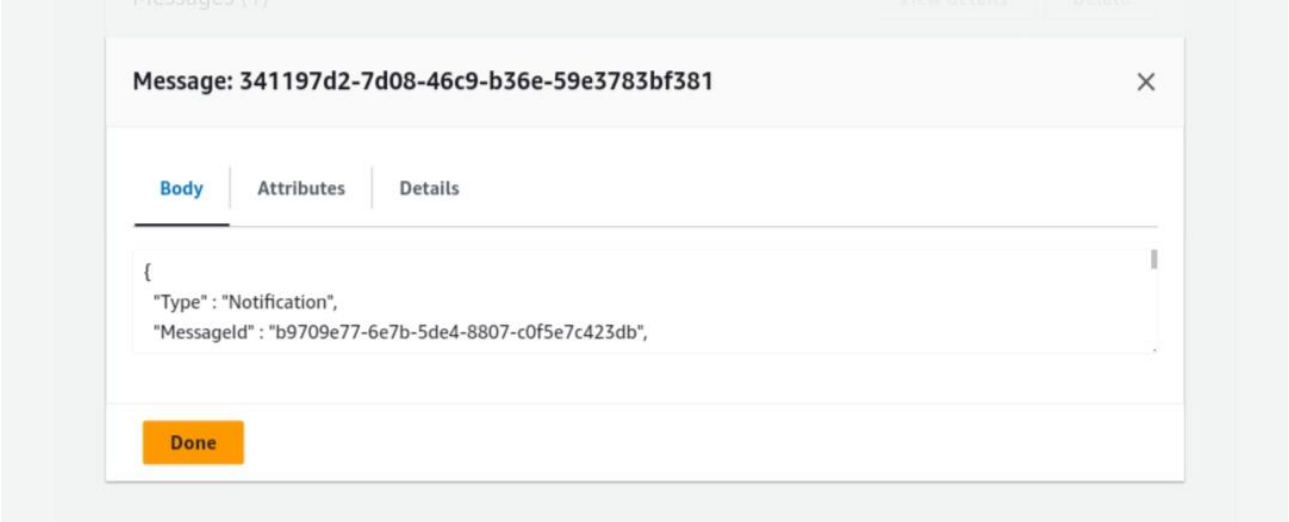


Step5: Verify the Subscription.

- Navigate to SQS.
- Select Your Queue.
- Click on Send and Receive Message.
- In Receive Message box click Poll for message.



- Click on Message Id to see the message.



CONCLUSION :

Implementing a fanout messaging model with Amazon SNS and SQS provides a scalable and efficient solution for distributing event notifications to multiple subscribers. By decoupling the sender and receiver, this setup enables parallel processing and ensures timely delivery of messages without the need for manual intervention. Leveraging these AWS services fosters the development of resilient and responsive cloud-native applications, enhancing overall system reliability and performance. With the ability to handle varying workloads and adapt to changing demands, this architecture empowers developers to build robust and dynamic solutions capable of meeting the evolving needs of modern applications.