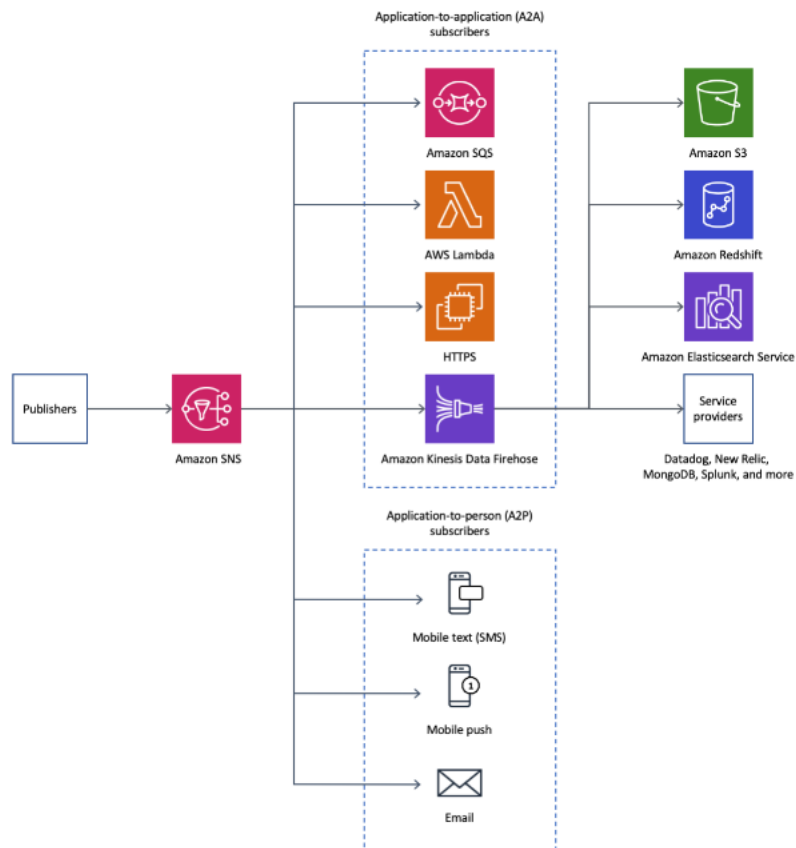


## SNS SERVICE FOR AWS BY TRIGGERING THE LAMBDA FUNCTION

### What is SNS?

Sending push notifications to iOS, Android, Fire OS, Windows, and Baidu-based devices is simple with the help of the mobile notification service. The sender can deliver messages, updates, promotions, or news to a single user, a group of users, or all of your users with a single message. Additionally, communications can be sent to MacOS desktop computers, iOS VoIP apps, emails, and SMS messaging.



### Types of SNS Topics

There are 2 types of SNS Topics:

- Standard Topic
- FIFO Topic

# A simple Python app to receive SNS notifications and act on them.

Services used

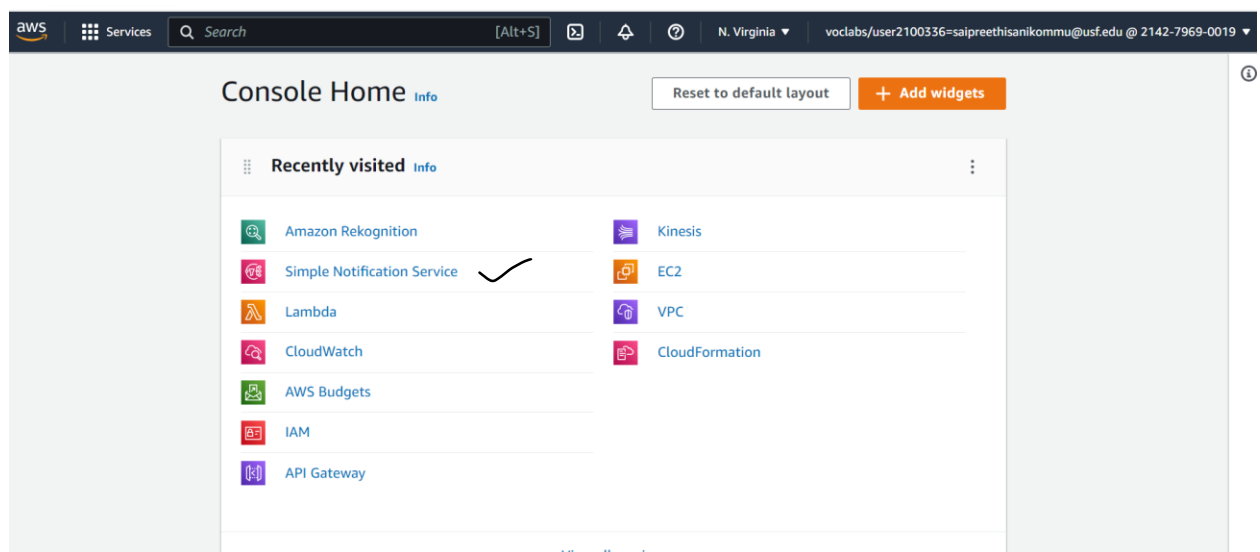
SNS

LAMBDA

CLOUD WATCH

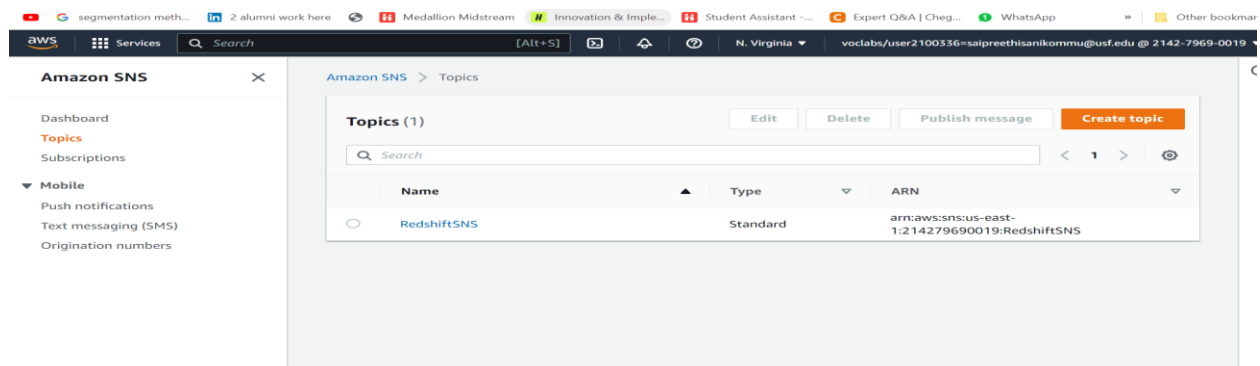
## Procedure : step1

- 1.Go to AWS console Home
- 2. Search for SNS OR SIMPLE NOTIFICATION
- 3. CLICK ON THAT



## STEP2

The Go to Topics and click on the create topic



### STEP 3

Here we are choosing the standard instead of FIFO , you could see the usages of them below when you select the particular type that you want

The screenshot shows the AWS Management Console interface for creating a new Amazon SNS topic. The breadcrumb navigation at the top indicates the path: Amazon SNS > Topics > Create topic. The main heading is 'Create topic'. Under the 'Details' section, the 'Type' is set to 'Standard' (selected with a radio button). The 'FIFO (first-in, first-out)' option is also visible but not selected. The 'Name' field contains 'MyTopic'. Below the name field, there is a note: 'Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).'.

**Details**

Type [Info](#)  
Topic type cannot be modified after topic is created

☐ FIFO (first-in, first-out)

- Strictly-preserved message ordering
- Exactly-once message delivery
- High throughput, up to 300 publishes/second
- Subscription protocols: SQS

☒ Standard

- Best-effort message ordering
- At-least once message delivery
- Highest throughput in publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Name

MyTopic

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

### Creating a project name cloud computing

This screenshot shows the 'Name' and 'Display name' sections of the 'Create topic' page. The 'Name' field is filled with 'cloud computing'. Below it, a note states: 'Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).'.

Name

cloud computing

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

Display name - *optional*  
To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message. [Info](#)

My Topic

Maximum 100 characters.

▼ **Encryption - optional**  
Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic.

☐ Encryption [Learn more](#)

Enabling server side encryption adds at-rest encryption to your topic. Amazon SNS encrypts your message as soon as it is received. The message is decrypted immediately prior to delivery.

encryption address just means that when the sns service receives your message when you try to publish a message to the topic as they need to save in the database

**▼ Access policy - optional**  
This policy defines who can access your topic. By default, only the topic owner can publish or subscribe to the topic. [Info](#)

Choose method

☒ **Basic**  
Use simple criteria to define a basic access policy

☐ **Advanced**  
Use a JSON object to define an advanced access policy.

Define who can publish messages to the topic

☒ **Only the topic owner**  
Only the owner of the topic can publish to the topic

☐ **Everyone**  
Anybody can publish

☐ **Only the specified AWS accounts**  
Only the specified AWS account IDs can publish to the topic

Define who can subscribe to this topic

☒ **Only the topic owner**  
Only the owner of the topic can subscribe to the topic

☐ **Everyone**

JSON preview

```
{
  "Version": "2008-10-17",
  "Id": "__default_policy_ID",
  "Statement": [
    {
      "Sid": "__default_statement_ID",
      "Effect": "Allow",
      "Principal": {
        "AWS": "*"
      },
      "Action": [

```

Choosing the Access policy as basic and clicking on the only topic owner as the we are choosing the encryption of the message type

access rules They do have some default settings here that you can pick from or just suggested options, but access policy basically informs sns who can subscribe to the subject, who can receive messages from the topic, and who can submit messages to the topic.

Rather of being extremely basic or sophisticated, basic only permits you to choose from these various pre-selected options here. With advanced, you can alter the policy template as you can see above.

**▼ Delivery status logging - optional** [Info](#)  
These settings configure the logging of message delivery status to CloudWatch Logs.

Log delivery status for these protocols

☐ AWS Lambda

☐ Amazon SQS

☐ HTTP/S

☐ Platform application endpoint

☐ Amazon Kinesis Data Firehose

Success sample rate  
The percentage of successful message deliveries to log.

%

**IAM roles**  
Amazon SNS requires permission to write logs to CloudWatch Logs. You can use separate roles for successful and failed message deliveries.

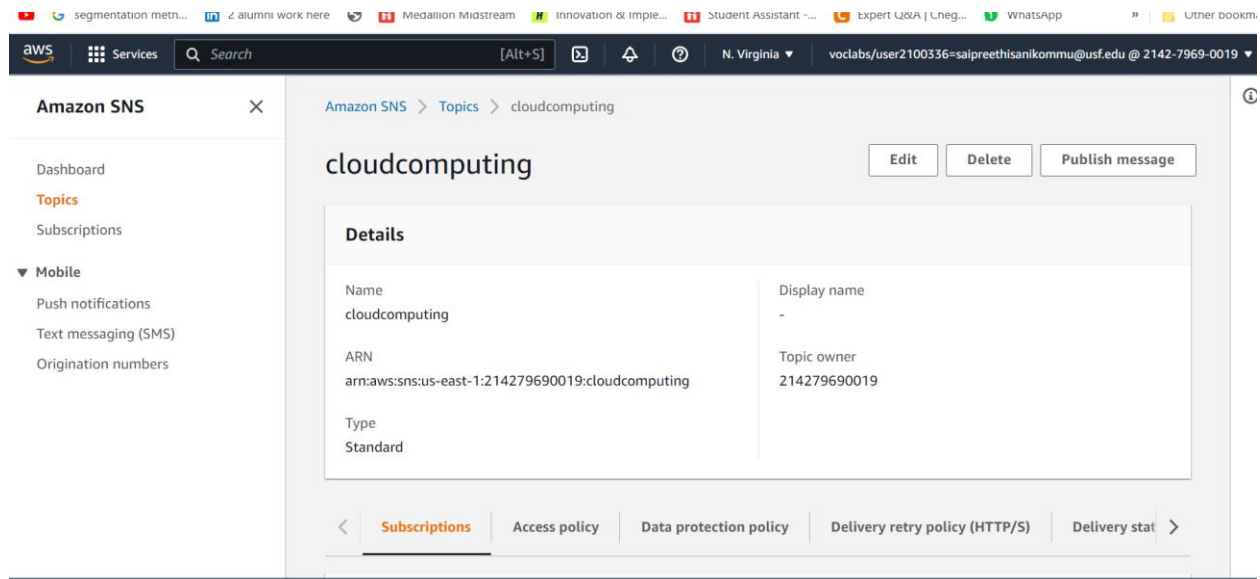
Service role [Info](#)

☒ **Use existing service role**  
Choose an existing service role from your account

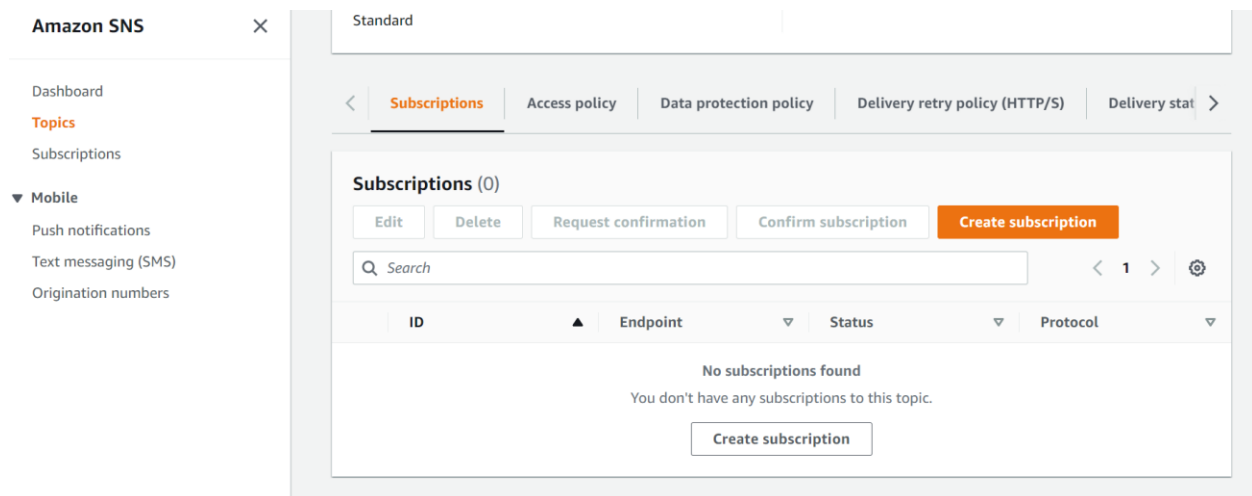
☐ **Create new service role**  
Create a new service role in your account

IAM role for successful deliveries

Click on the create topic on the down

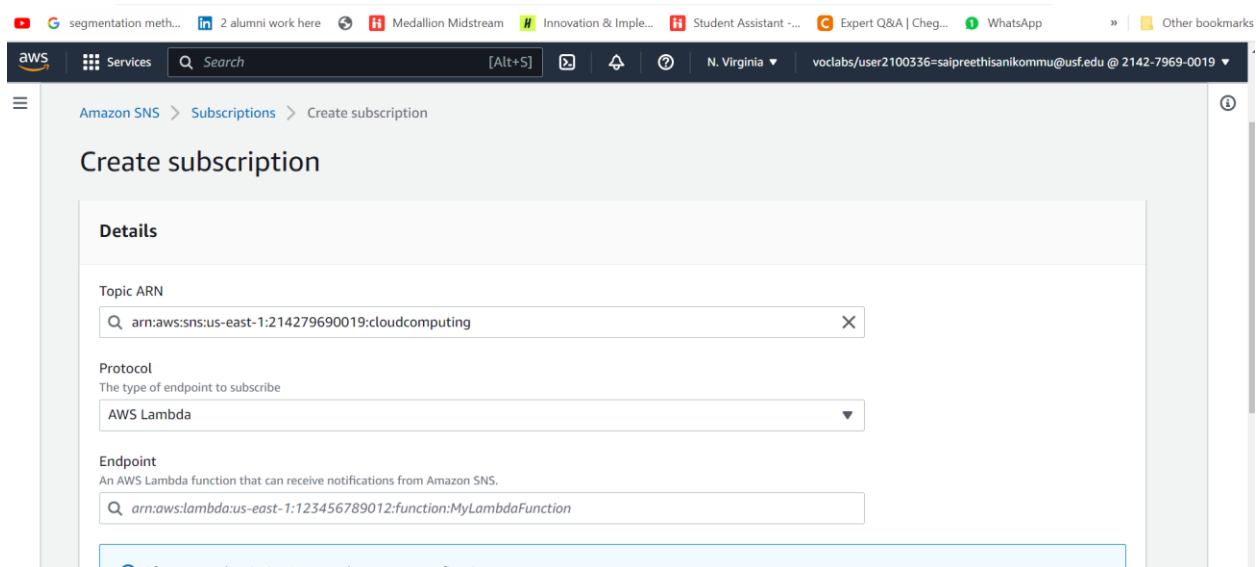


And the project is created , now go to the subscriptions in the bottom

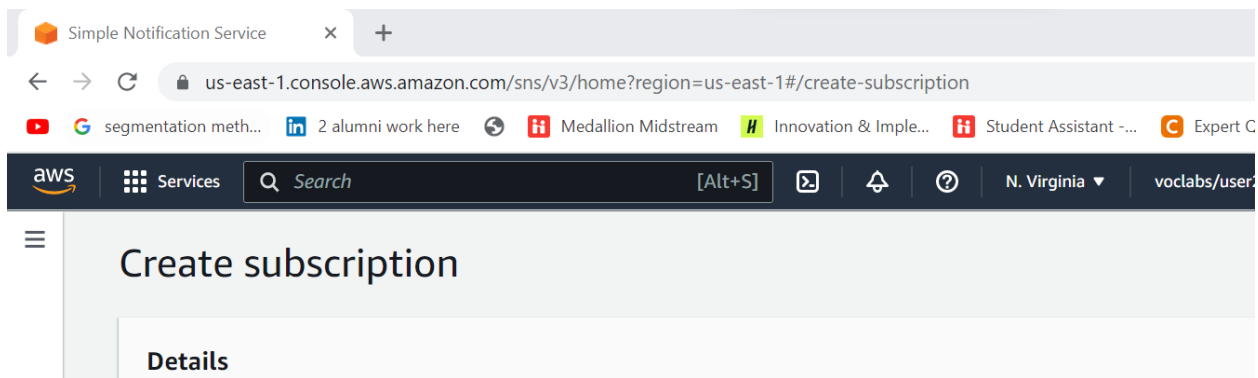


We could see there are no subscriptions been created but you could the access policy , data protection policy all these were created based on the data that we have give while creating the topic. We need to click on the create subscription.

We create a subscription in order to set the protocol to be a lambda function

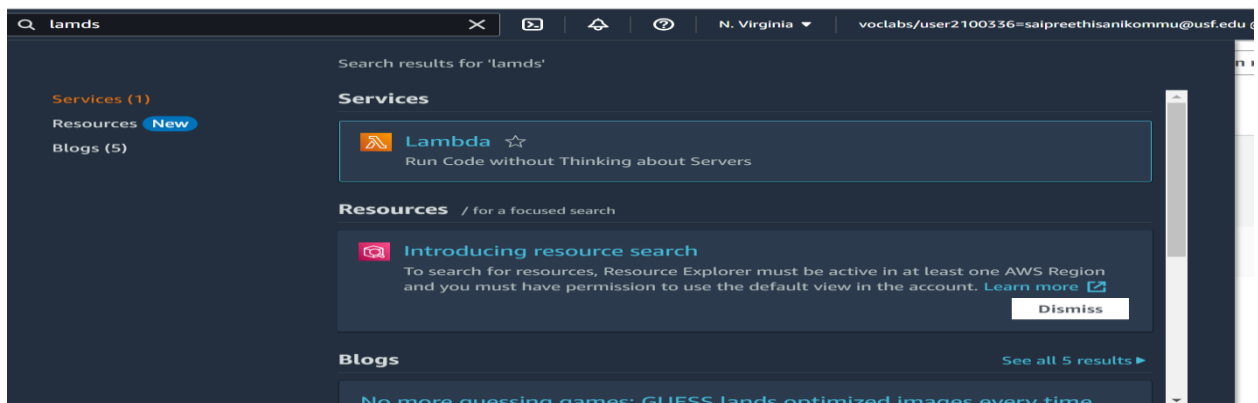


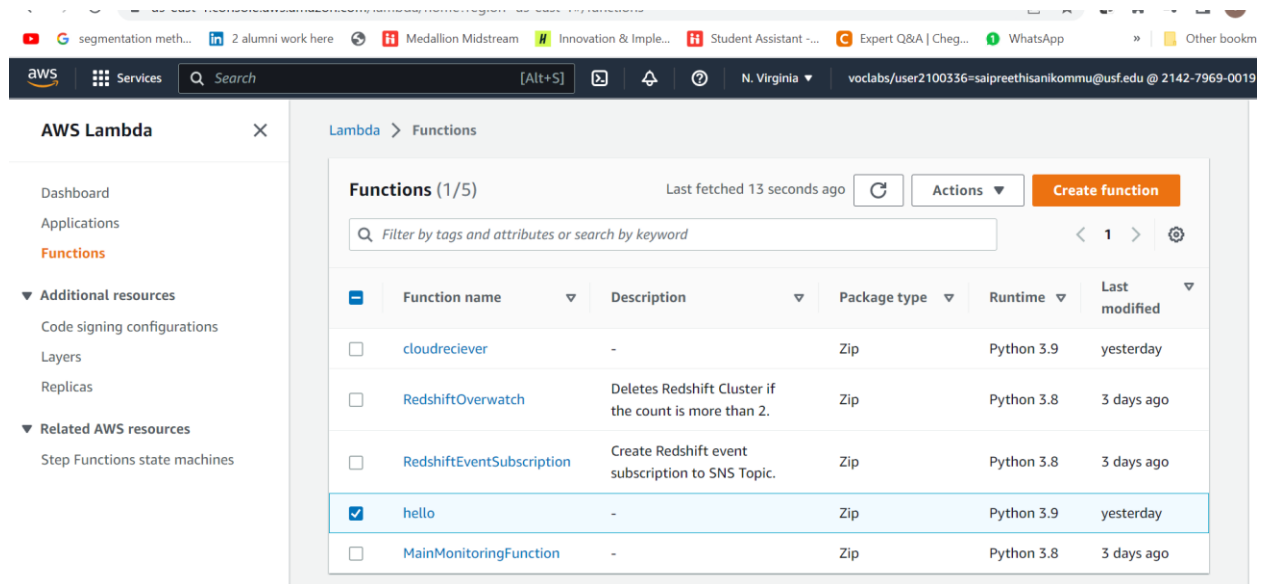
You could see that there is no endpoint , because we have not created the lamda function yet now duplicate the existing tab as we have see below



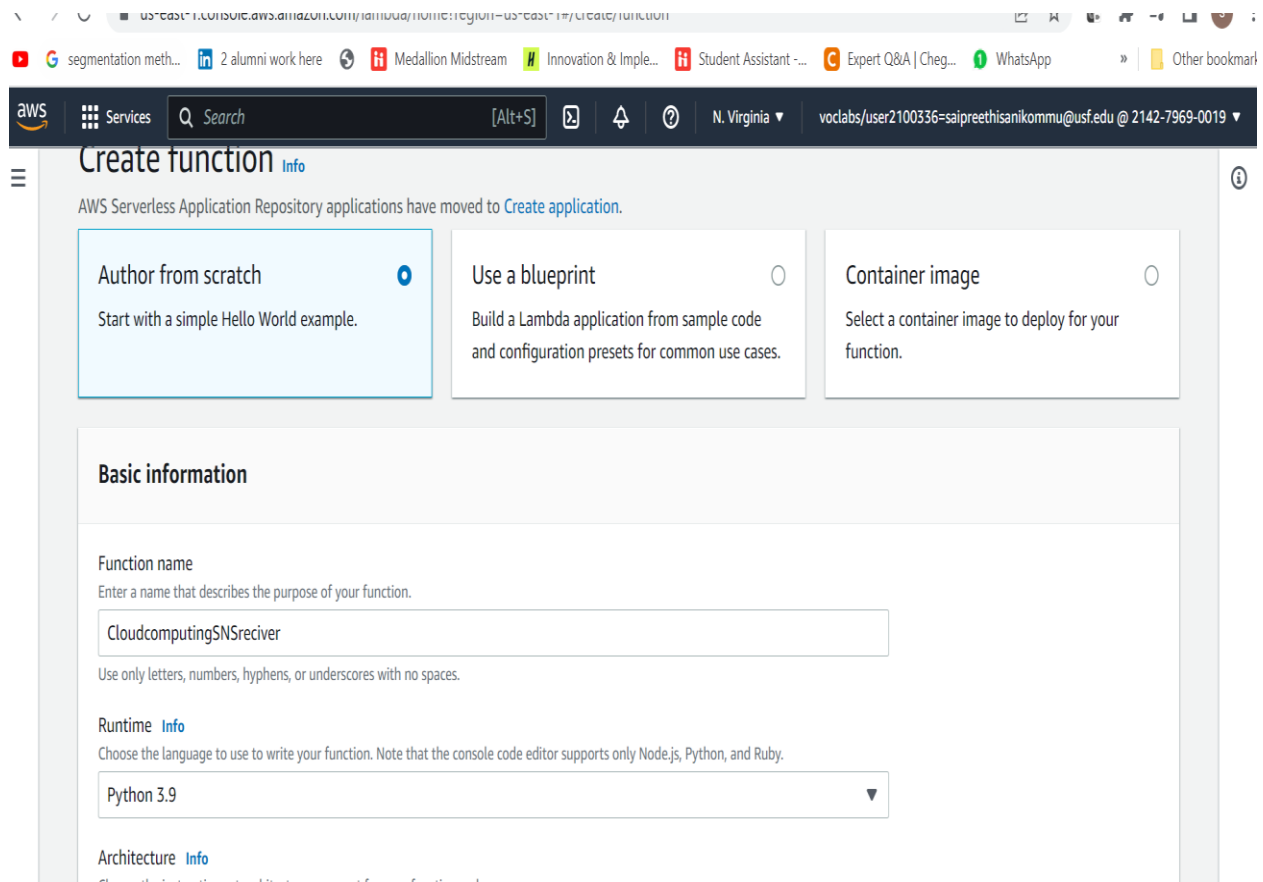
Now a new tab will be open below showing the console

Search for the Lambda in the console, it will open as show in the below

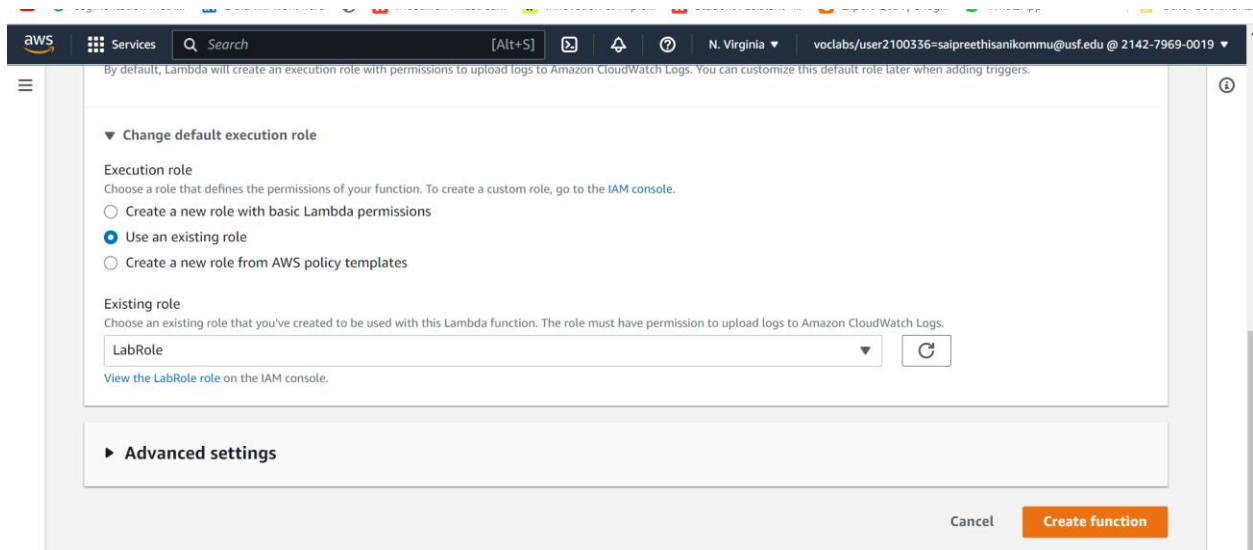




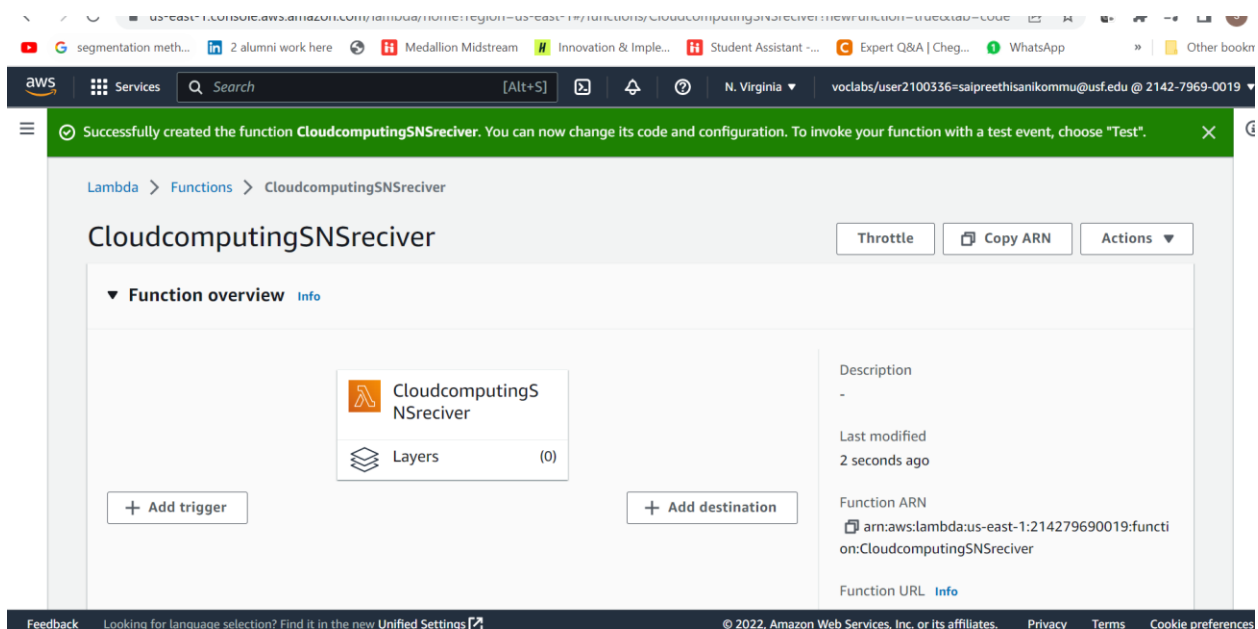
Now we need to go to functions and create a function I have named this as CloudcomputingSNSreciver and I chose the python 3.9 , use can actually choose whatever the language you wanted as we have nodejs, html, .net etc..



I have chose the Labrole as I donot have permission to any other one's

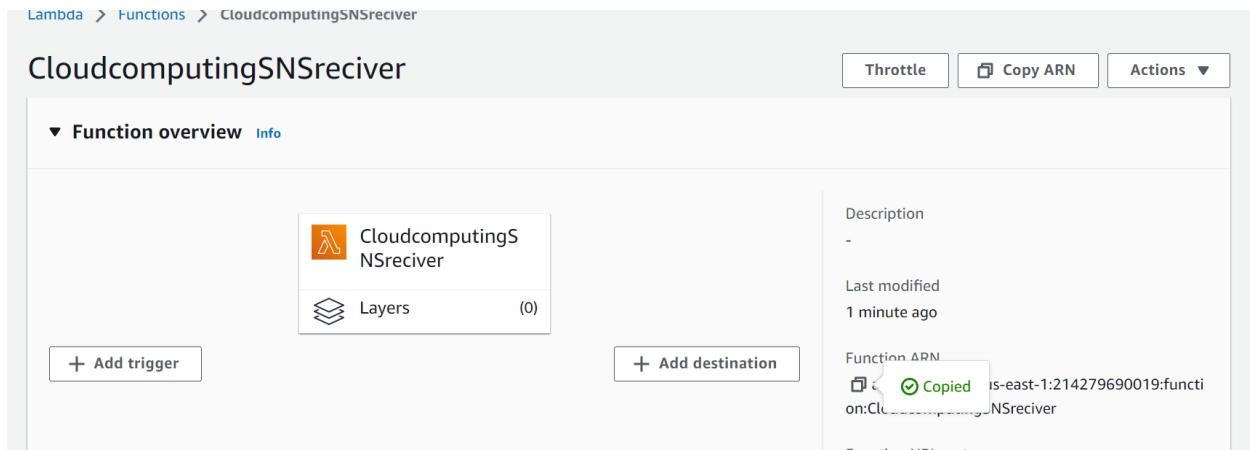


Go ahead and create the function

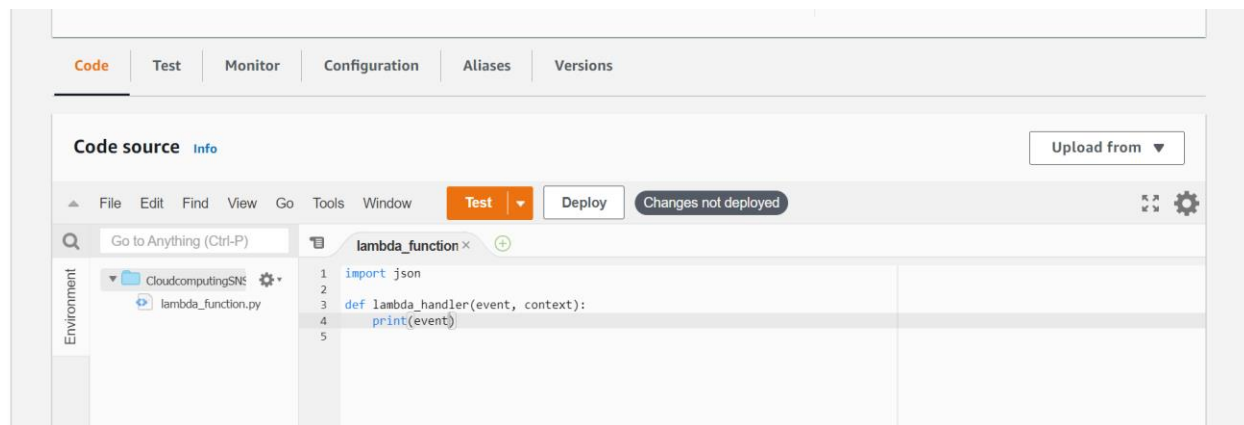


Above image show the function that is created successfully and ARN has been generated which is the FUNCTION ARN

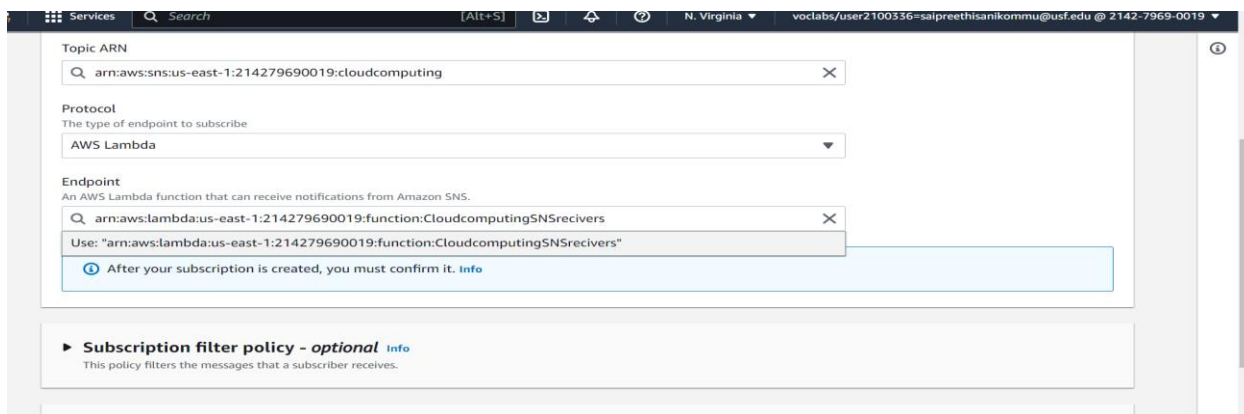




Go and copy the Function ARN and go to the code wanted to check I have given the code as event as I wanted to check how exactly the information looks like and click on deploy



Now to go to the create function tab and give the Function ARN that we have copied in the endpoint



aws Services Search [Alt+S] N. Virginia voclabs/user2100336=saipreethisanikommu@usf.edu @ 2142-7969-0019

After your subscription is created, you must confirm it. [Info](#)

▼ **Subscription filter policy - optional** [Info](#)  
This policy filters the messages that a subscriber receives.

☐ Subscription filter policy

▼ **Redrive policy (dead-letter queue) - optional** [Info](#)  
Send undeliverable messages to a dead-letter queue.

☐ Redrive policy (dead-letter queue)

Cancel **Create subscription**

Click on create subscription and subscription is successfully completed to cloudcomputing topic

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**Amazon SNS**

Dashboard  
Topics  
**Subscriptions**

▼ Mobile  
Push notifications  
Text messaging (SMS)  
Origination numbers

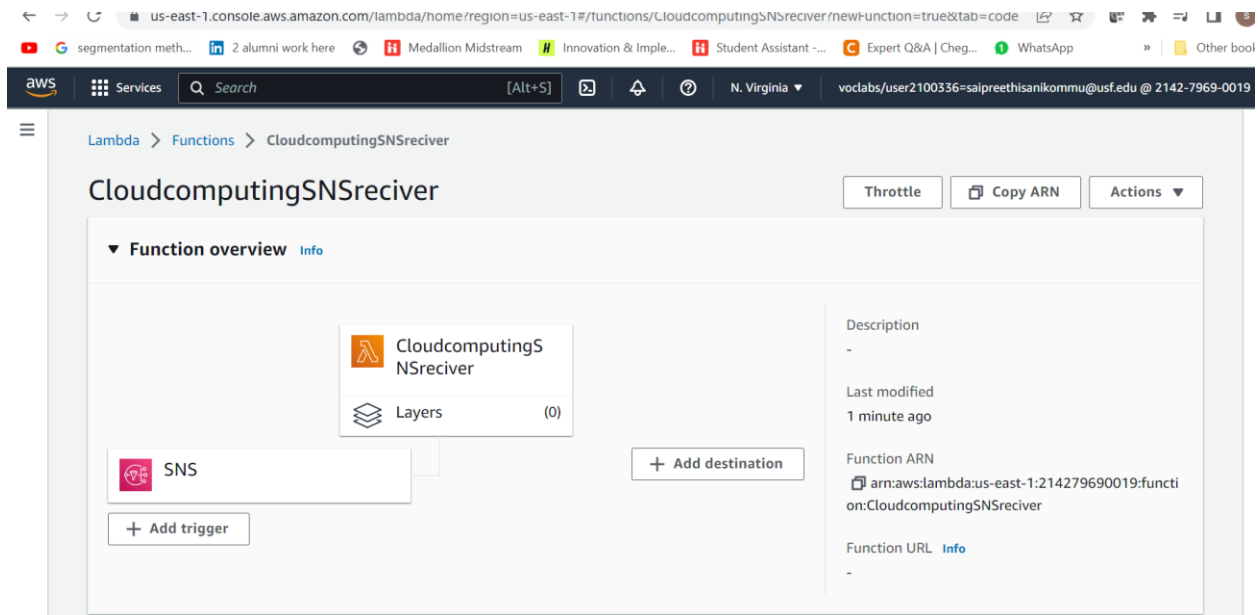
Subscription to cloudcomputing created successfully.  
The ARN of the subscription is arn:aws:sns:us-east-1:214279690019:cloudcomputing:ed31ac4c-6f8f-4f72-9dcc-21a9387f9ab6.

Amazon SNS > Topics > cloudcomputing > Subscription: ed31ac4c-6f8f-4f72-9dcc-21a9387f9ab6

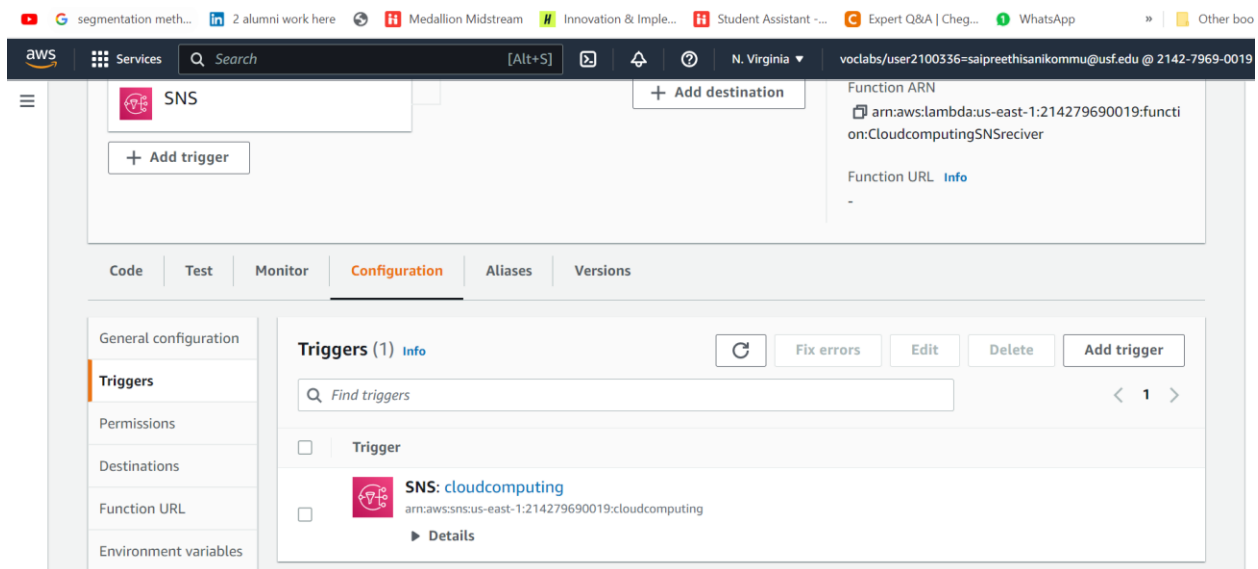
Subscription: ed31ac4c-6f8f-4f72-9dcc-21a9387f9ab6 **Edit** **Delete**

**Details**

ARN arn:aws:sns:us-east-1:214279690019:cloudcomputing:ed31ac4c-6f8f-4f72-9dcc-21a9387f9ab6	Status ✔ <b>Confirmed</b>
Endpoint arn:aws:lambda:us-east-1:214279690019:function:CloudcomputingSNSreciver	Protocol LAMBDA



Now to go to the Lambda functions tab there is you refresh the tab SNS will be created and you could see the same in the configuration tab



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**Amazon SNS**

- Dashboard
- Topics**
- Subscriptions

▼ Mobile

- Push notifications
- Text messaging (SMS)
- Origination numbers

Amazon SNS > Topics

Topics (2) Edit Delete Publish message Create topic

Search

	Name	Type	ARN
<input type="radio"/>	RedshiftSNS	Standard	arn:aws:sns:us-east-1:214279690019:RedshiftSNS
<input checked="" type="radio"/>	cloudcomputing	Standard	arn:aws:sns:us-east-1:214279690019:cloudcomputing

Now go to the SNS and go to the topic that we have created and click on the publish message

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**Amazon SNS**

- Dashboard
- Topics**
- Subscriptions

▼ Mobile

- Push notifications
- Text messaging (SMS)
- Origination numbers

Amazon SNS > Topics > cloudcomputing

cloudcomputing Edit Delete Publish message

**Details**

Name cloudcomputing	Display name -
ARN arn:aws:sns:us-east-1:214279690019:cloudcomputing	Topic owner 214279690019
Type Standard	

< Subscriptions Access policy Data protection policy Delivery retry policy (HTTP/S) Delivery status >

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Amazon SNS > Topics > cloudcomputing > Publish message

## Publish message to topic

### Message details

Topic ARN  
arn:aws:sns:us-east-1:214279690019:cloudcomputing

Subject - *optional*  
  
Maximum 100 printable ASCII characters

Time to Live (TTL) - *optional* [Info](#)  
This setting applies only to mobile application endpoints. The number of seconds that the push notification service has to deliver the message to the endpoint.

Now give the subject as some random name and give the message that you want to send to the endpoint and click on publish message on the bottom right corner

aws Services Search [Alt+S] N. Virginia voclabs/user2100336=saipreethisanikammu@usf.edu @ 2142-7969-0019

Message body

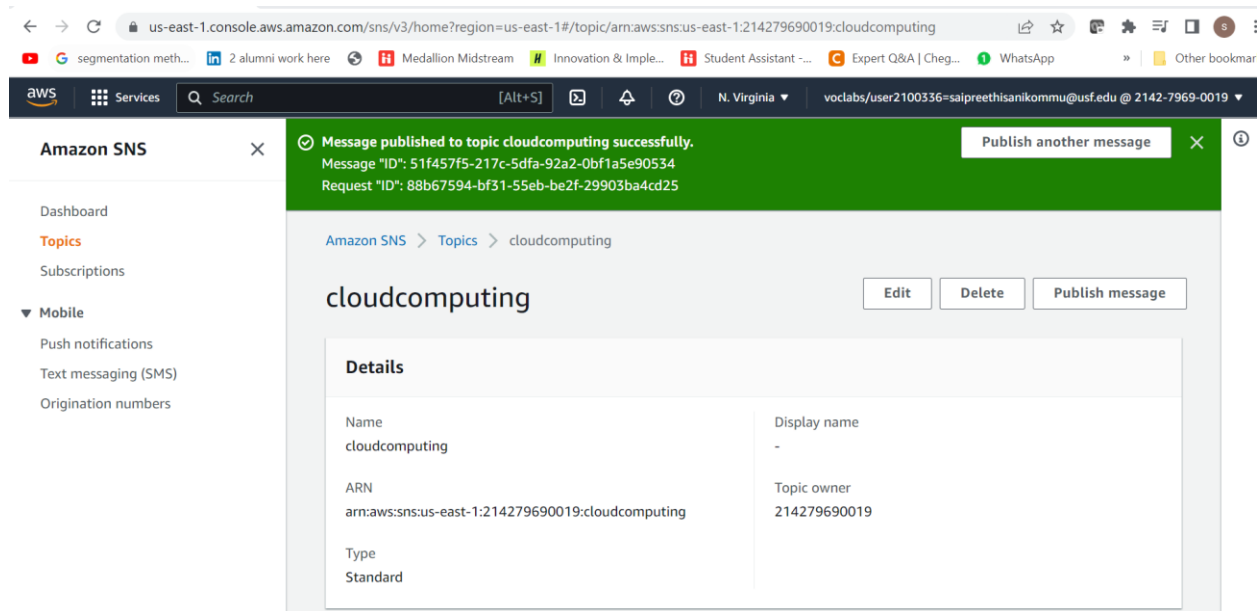
Message structure

☒ Identical payload for all delivery protocols.  
The same payload is sent to endpoints subscribed to the topic, regardless of their delivery protocol.

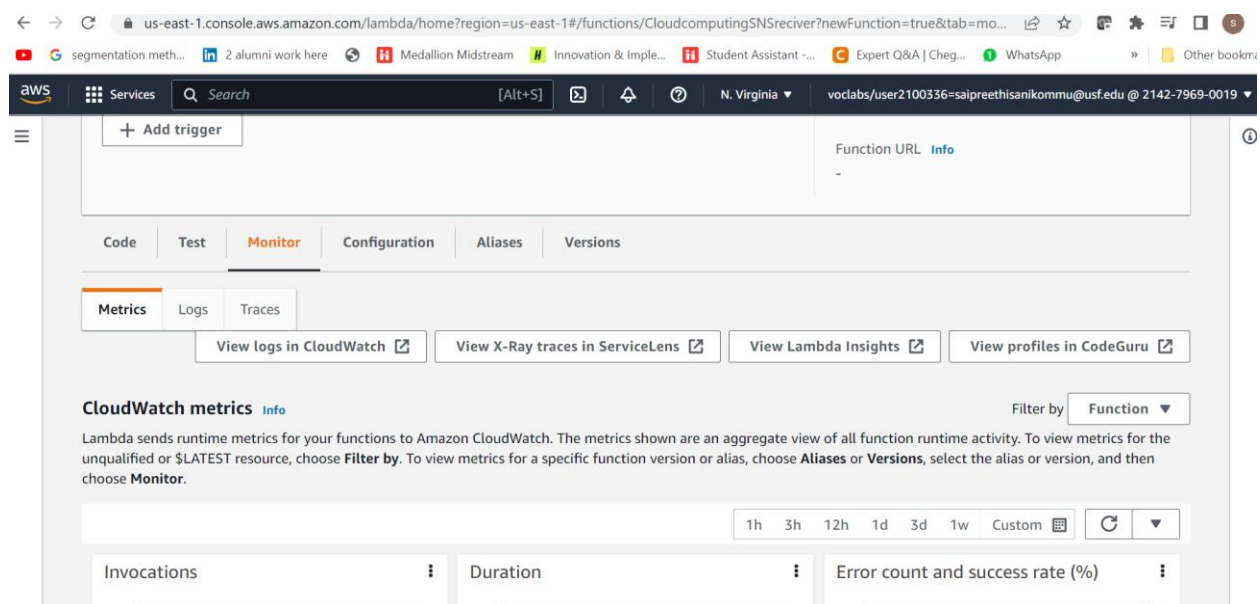
☐ Custom payload for each delivery protocol.  
Different payloads are sent to endpoints subscribed to the topic, based on their delivery protocol.

Message body to send to the endpoint

```
1 {  
2   "data": "Hey there I am doing the cloud computing Grad project"  
3 }
```



You could see the message got published successfully and go to the lambda service and go to the monitor you could see the message that is been generated in the cloudwatch metrics and now click on the view logs in the cloudwatch

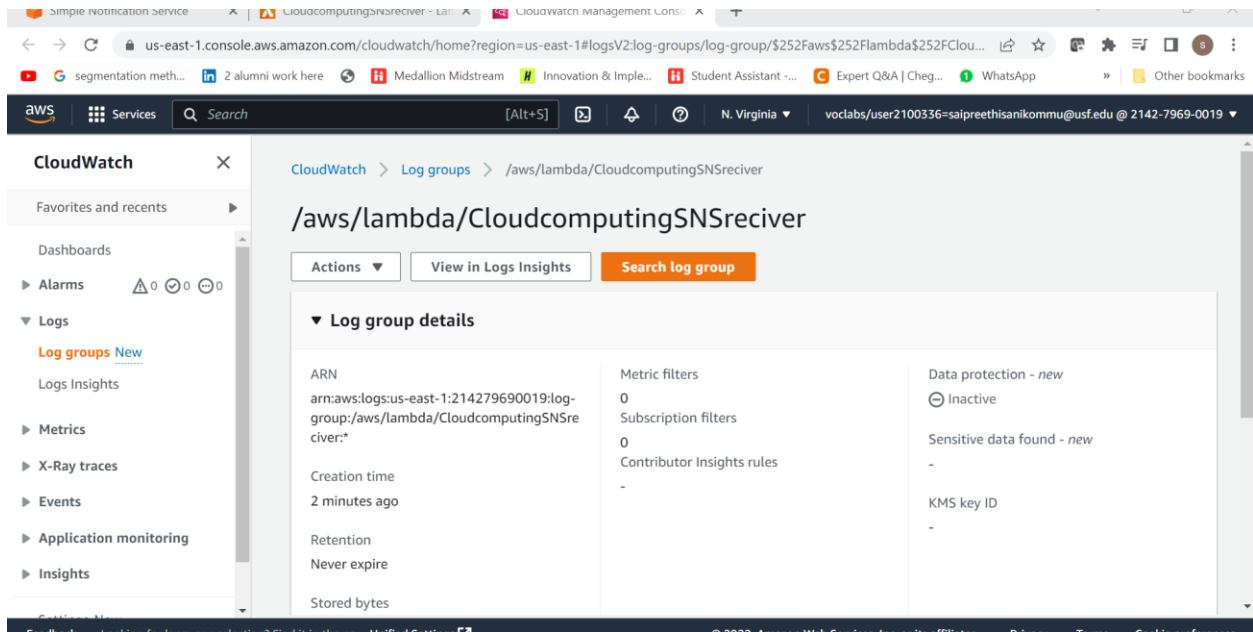


The screenshot shows the AWS CloudWatch console. On the left, there's a sidebar with navigation links: CloudWatch, Favorites and recents, Dashboards, Alarms (0), Logs, Log groups (New), Logs Insights, Metrics, X-Ray traces, Events, Application monitoring, and Insights. The main content area is titled 'Log streams (1)' and includes a search bar, a 'Filter log streams or try prefix search' input, and a table of log streams. The table has columns for 'Log stream' and 'Last event time'. One log stream is listed: '2022/12/02/[\$LATEST]3297ea7a8ea546cb95ae7646c6b13af3' with a last event time of '2022-12-02 17:55:17 (UTC-05:00)'.

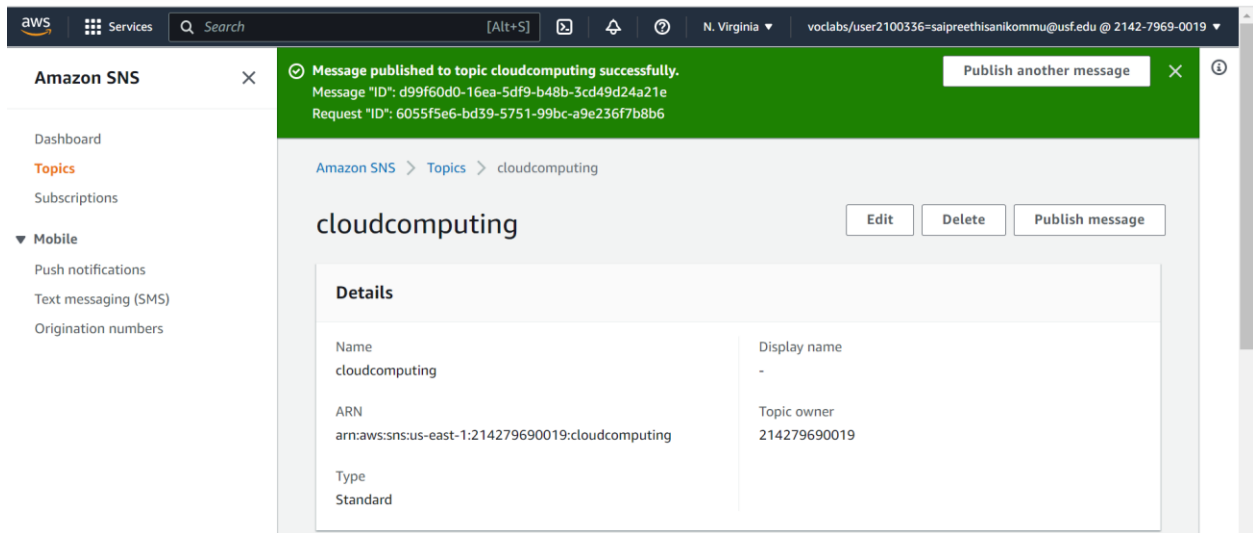
Now the cloud watch is opened and go to the loggroups and click on the logstreams , you could see the message that you have published as below in the records

The screenshot shows the AWS CloudWatch console with the 'Filtered log events' view. The main area displays a table of log events with columns for 'Timestamp' and 'Message'. The first event is a 'START' message with a detailed JSON payload. The second event is an 'END' message. The third event is a 'REPORT' message. The table shows the following events:

Timestamp	Message
2022-12-02T17:55:17.625-05:00	START RequestId: 1ba9d5b1-e5a8-470f-ad0e-6cb5316905c7 Version: \$LATEST
2022-12-02T17:55:17.625-05:00	{       "Records": [         {           "EventSource": "aws:sns",           "EventVersion": "1.0",           "EventSubscriptionArn": "arn:aws:sns:us-east-1:214279690019:cloudcomputing:ed31ac4c-6f8f-4f72-9d0c-21a9387f9ab6",           "Sns": {             "Type": "Notification",             "MessageId": "51f457f5-217c-5d4a-92a2-0b1fa5e90534",             "TopicArn": "arn:aws:sns:us-east-1:214279690019:cloudcomputing",             "Subject": "clouds",             "Message": "{\\n \\tdata\\:\\\"Hey there I am doing the cloud computing Grad project\\\"\\n\\n\\\", \\\"Timestamp\\\": \\\"2022-12-02T22:55:17.269Z\\\", \\\"SignatureVersion\\\": \\\"1\\\", \\\"Signature\\\": \\\"kF17QJm05wi192hw/HbD0Tic453t13SQ3AuyK41+RKhr3CdbZj4WwJKZQl1dYFR1xpd7YKDaHEhvwQM6vYt17FUR8FZjC6Y7c7nbnRqcrWdAFz9tyhGv6NC4XMQvLZea1fRASuU0BmuPta3rafi0nV38UE71/2EsreFA7JlCO5/anB7R/6CLoknQ4iWl/zyzhzr3WSM75sf1zCXKQvPYEw4swMOepVe423ufAKAw7usyinhJTZLc6YcVgdgSH+4sFbldcvBCw3Shoi+B11FFI0T1n412ks41/fHirVv53f6SOysVZa53IBz2UZLXG7Uk7BndBNCshfEWV3M2g==\\\", \\\"SigningCerturl\\\": \\\"https://sns.us-east-1.amazonaws.com/?Action=Unsubscribe&SubscriptionArn=arn:aws:sns:us-east-1:214279690019:cloudcomputing:ed31ac4c-6f8f-4f72-9d0c-21a9387f9ab6\\\", \\\"MessageAttributes\\\": {}}\\\"}",             "Timestamp": "2022-12-02T22:55:17.269Z",             "SignatureVersion": "1",             "Signature": "kF17QJm05wi192hw/HbD0Tic453t13SQ3AuyK41+RKhr3CdbZj4WwJKZQl1dYFR1xpd7YKDaHEhvwQM6vYt17FUR8FZjC6Y7c7nbnRqcrWdAFz9tyhGv6NC4XMQvLZea1fRASuU0BmuPta3rafi0nV38UE71/2EsreFA7JlCO5/anB7R/6CLoknQ4iWl/zyzhzr3WSM75sf1zCXKQvPYEw4swMOepVe423ufAKAw7usyinhJTZLc6YcVgdgSH+4sFbldcvBCw3Shoi+B11FFI0T1n412ks41/fHirVv53f6SOysVZa53IBz2UZLXG7Uk7BndBNCshfEWV3M2g==",             "SigningCerturl": "https://sns.us-east-1.amazonaws.com/?Action=Unsubscribe&SubscriptionArn=arn:aws:sns:us-east-1:214279690019:cloudcomputing:ed31ac4c-6f8f-4f72-9d0c-21a9387f9ab6",             "MessageAttributes": {}           }         }       ]     }
2022-12-02T17:55:17.626-05:00	END RequestId: 1ba9d5b1-e5a8-470f-ad0e-6cb5316905c7
2022-12-02T17:55:17.626-05:00	REPORT RequestId: 1ba9d5b1-e5a8-470f-ad0e-6cb5316905c7 Duration: 1.30 ms Billed Duration: 1.30 ms Memory Size: 128 MB Max Memory Used: 128 MB



This is the another message that I have deployed







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Student Assistant ~...

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Services

Search

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CloudWatch

Favorites and recents

Dashboards

Alarms 0 0 0

Logs

Log groups [New](#)

Logs Insights

Metrics

X-Ray traces

Events

Application monitoring

Insights

Cloudwatch log stream name: 2022/12/02/[\$LATEST]61eedba0137c427e930fc608bba42e1f

2022-12-02T18:26:07.981-05:00

Cloudwatch log group name: /aws/lambda/CloudcomputingSNSreciver

Cloudwatch log group name: /aws/lambda/CloudcomputingSNSreciver

Copy

2022-12-02T18:26:07.981-05:00

Lambda Request ID: 13fcf272-3780-43c1-8e44-2059b88ba0f8

Lambda Request ID: 13fcf272-3780-43c1-8e44-2059b88ba0f8

Copy

2022-12-02T18:26:07.981-05:00

Lambda function memory limits in MB: 128

Lambda function memory limits in MB: 128

Copy

2022-12-02T18:26:08.982-05:00

Lambda time remaining in MS: 1998

2022-12-02T18:26:08.984-05:00

END RequestId: 13fcf272-3780-43c1-8e44-2059b88ba0f8

END RequestId: 13fcf272-3780-43c1-8e44-2059b88ba0f8

Copy

2022-12-02T18:26:08.984-05:00

REPORT RequestId: 13fcf272-3780-43c1-8e44-2059b88ba0f8 Duration: 1003.46 ms Billed Dur...

REPORT RequestId: 13fcf272-3780-43c1-8e44-2059b88ba0f8 Duration: 1003.46 ms Billed Duration: 1004 ms

Memory Size: 128 MB Max Memory Used: 36 MB Init Duration: 161.63 ms

Copy