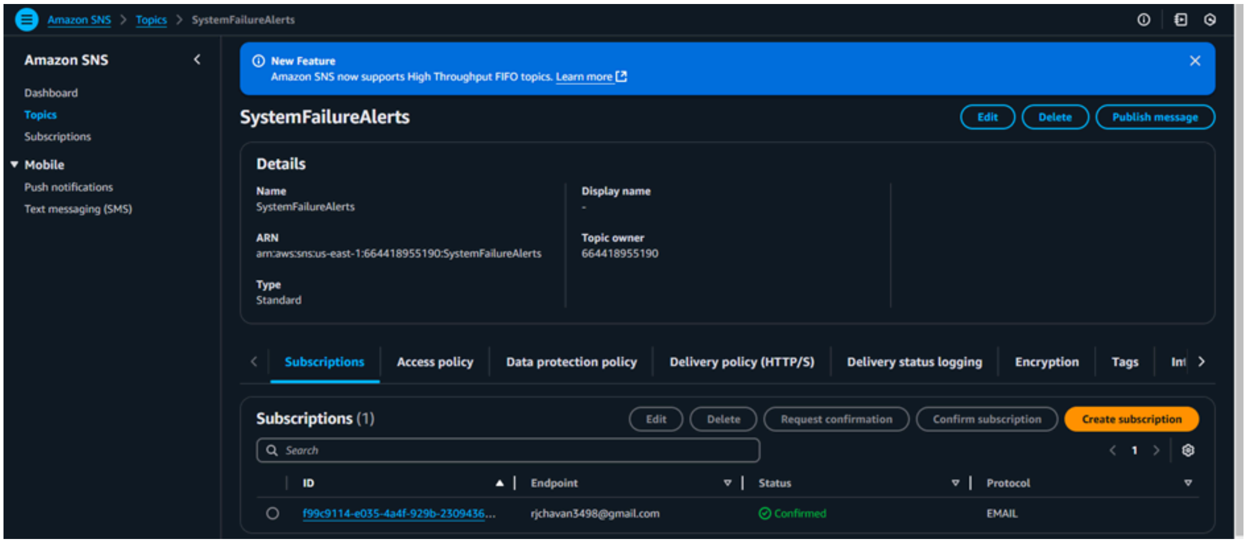
Bonus Points

2. Use AWS Lambda & SNS to notify the team in case of system failures.

1. Create an SNS Topic for Notifications



New Feature
Amazon SNS now supports High Throughput FIFO topics. Learn more

SystemFailureAlerts

Details

Name
SystemFailureAlerts

Display name
-

ARN
arn:aws:sns:us-east-1:664418955190:SystemFailureAlerts

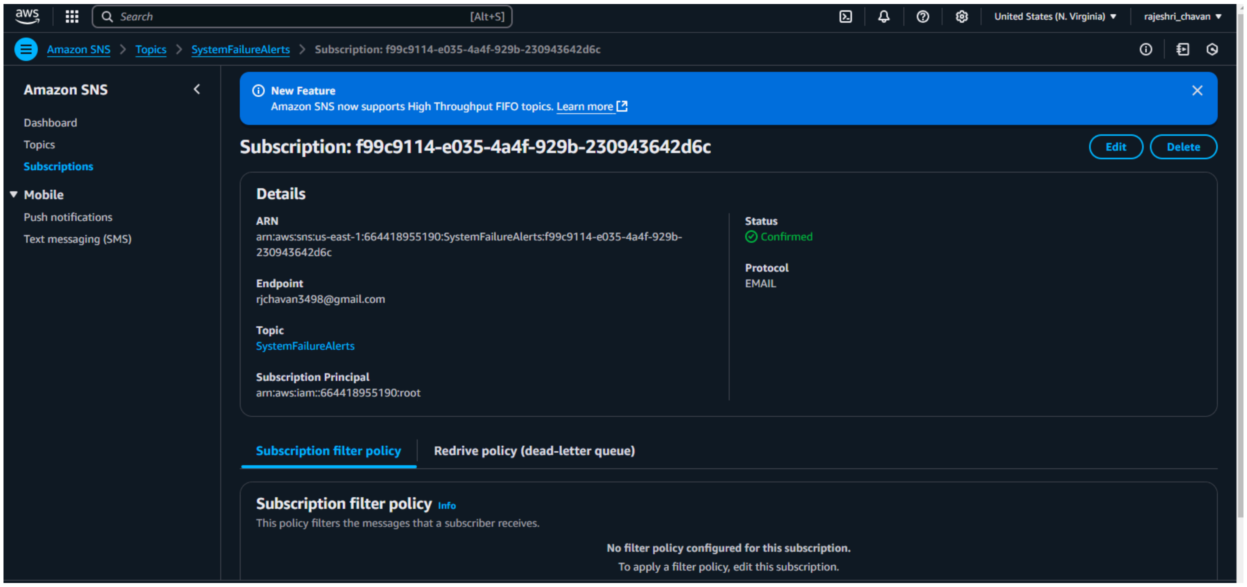
Topic owner
664418955190

Type
Standard

Subscriptions (1)

	ID	Endpoint	Status	Protocol
○	f99c9114-e035-4a4f-929b-2309436...	rjchavan3498@gmail.com	✓ Confirmed	EMAIL

2. Subscribe Team Members to SNS Notifications


aws
Search
[Alt+S]
United States (N. Virginia)
rajeshri_chavan
Amazon SNS > Topics > SystemFailureAlerts > Subscription: f99c9114-e035-4a4f-929b-230943642d6c
Amazon SNS
Dashboard
Topics
Subscriptions
Mobile
Push notifications
Text messaging (SMS)
Edit
Delete
Subscription filter policy
Redrive policy (dead-letter queue)
Info

New Feature
Amazon SNS now supports High Throughput FIFO topics. Learn more

Subscription: f99c9114-e035-4a4f-929b-230943642d6c

Details

ARN
arn:aws:sns:us-east-1:664418955190:SystemFailureAlerts:f99c9114-e035-4a4f-929b-230943642d6c

Status
✓ Confirmed

Protocol
EMAIL

Endpoint
rjchavan3498@gmail.com

Topic
SystemFailureAlerts

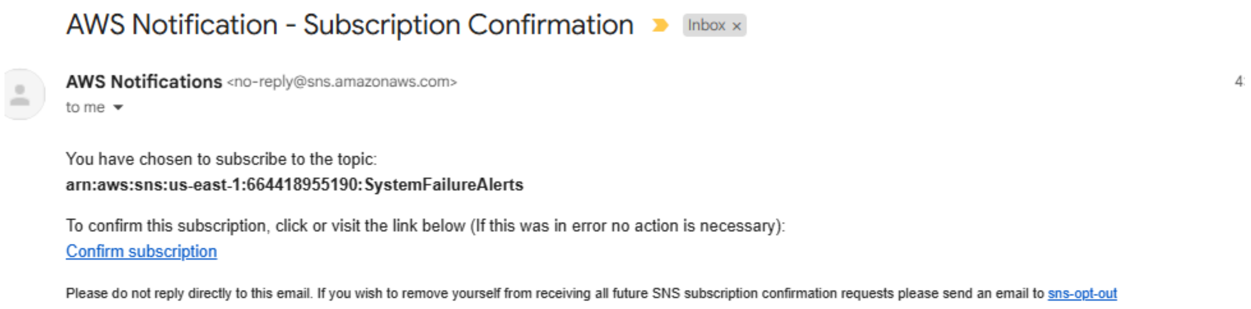
Subscription Principal
arn:aws:iam::664418955190:root

Subscription filter policy

This policy filters the messages that a subscriber receives.

No filter policy configured for this subscription.
To apply a filter policy, edit this subscription.

Confirm the subscription via email (if using email).



AWS Notification - Subscription Confirmation

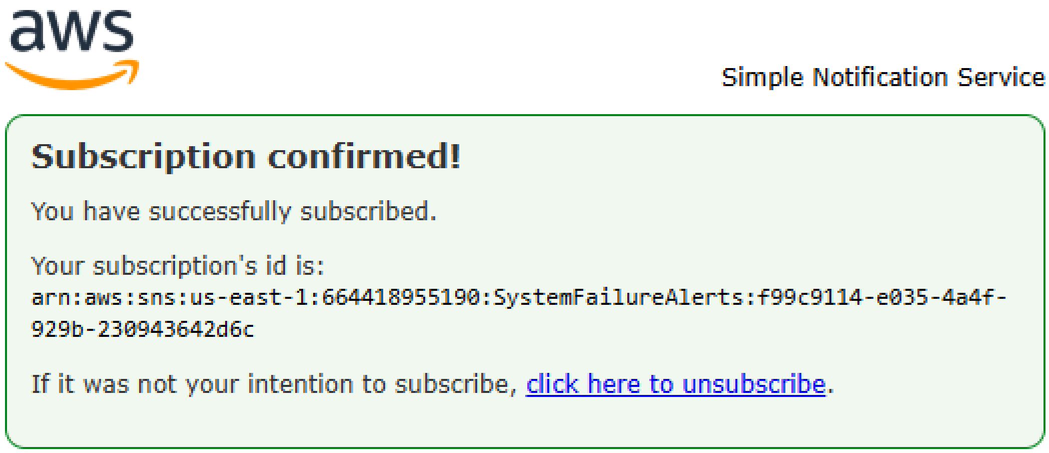
AWS Notifications <no-reply@sns.amazonaws.com>

to me

You have chosen to subscribe to the topic:
arn:aws:sns:us-east-1:664418955190:SystemFailureAlerts

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):
Confirm subscription

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to sns-opt-out



Subscription confirmed!

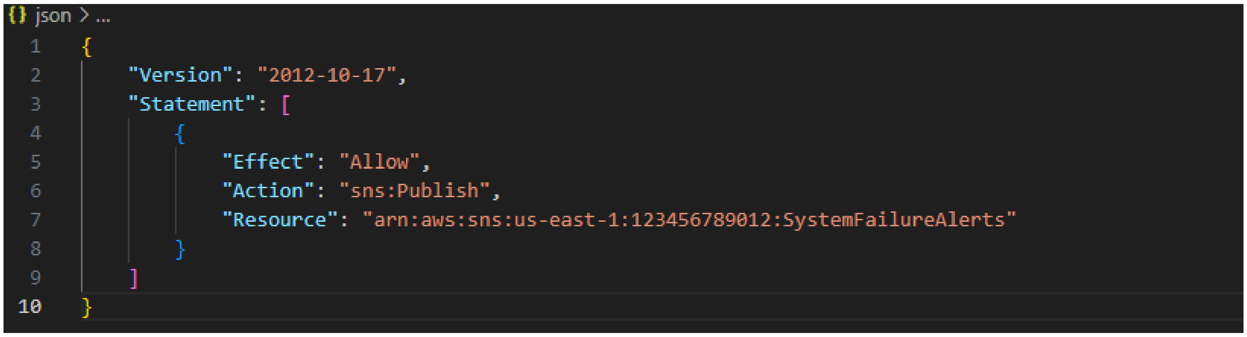
You have successfully subscribed.

Your subscription's id is:
arn:aws:sns:us-east-1:664418955190:SystemFailureAlerts:f99c9114-e035-4a4f-929b-230943642d6c

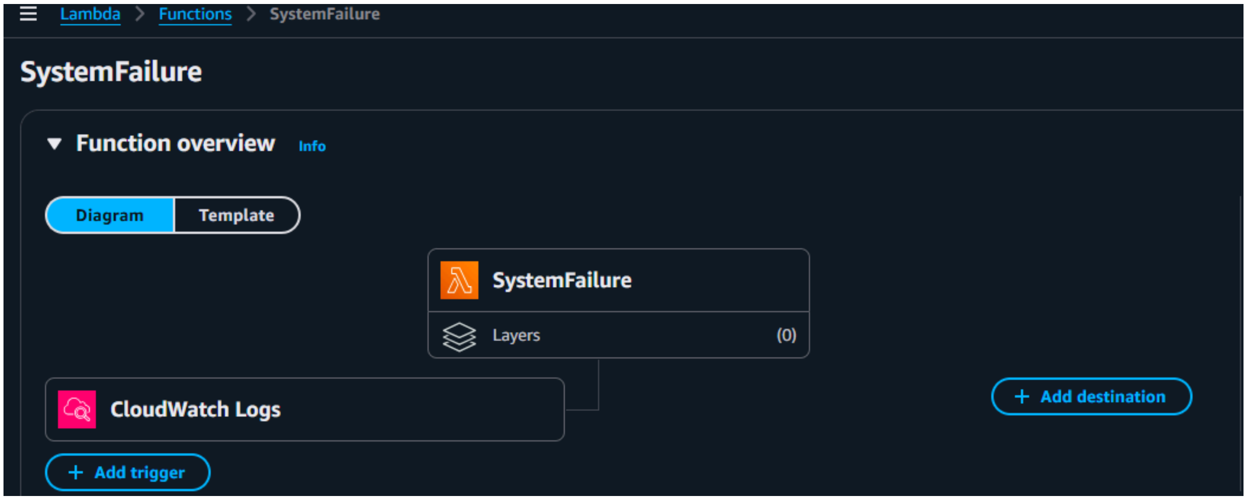
If it was not your intention to subscribe, click here to unsubscribe.

3. Create an AWS Lambda Function for Failure Detection

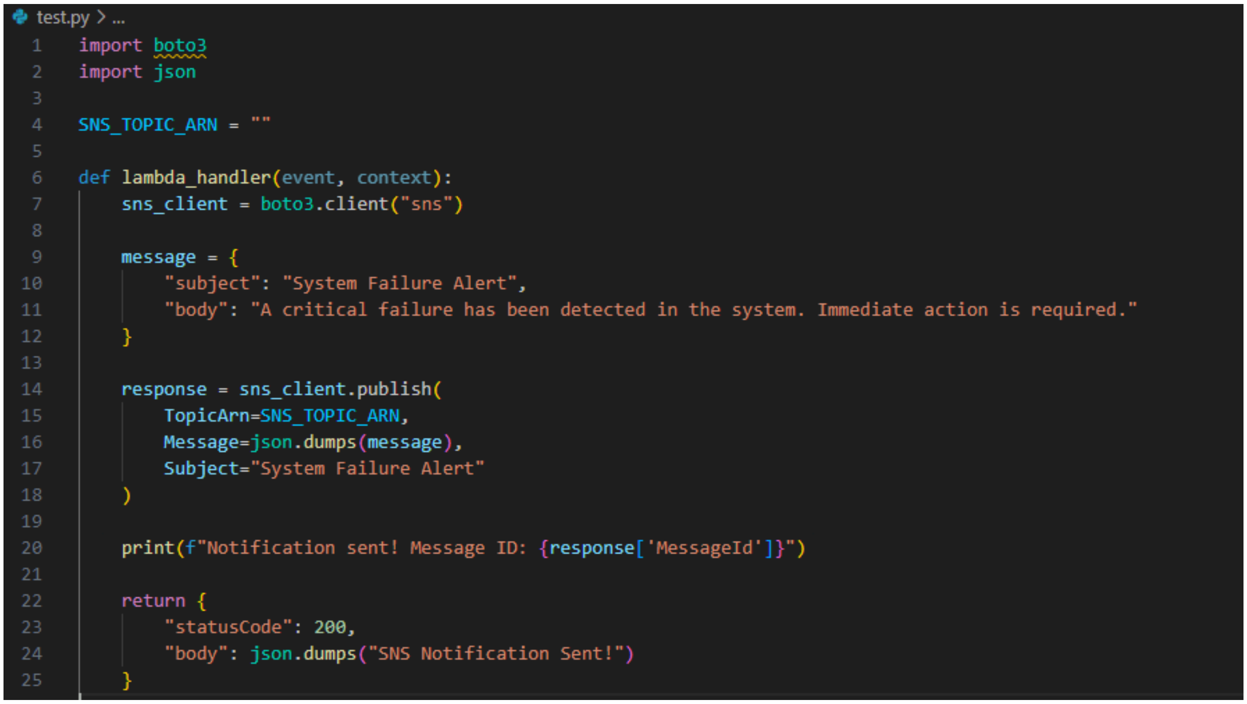
Attach role to lambda and add inline permissions to lambda role



```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": "sns:Publish",
            "Resource": "arn:aws:sns:us-east-1:123456789012:SystemFailureAlerts"
        }
    ]
}
```



4. Write Lambda Code to Publish SNS Notification

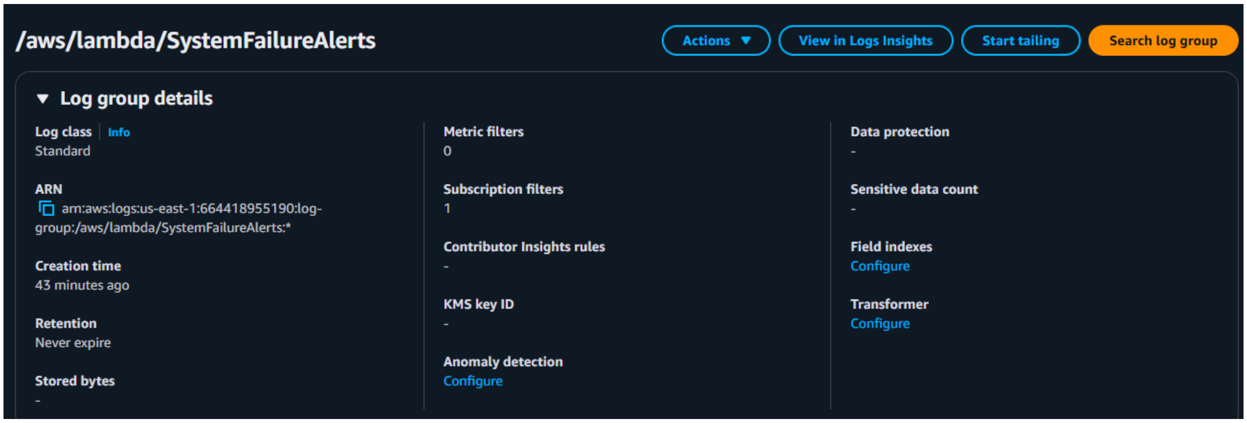


```python
import boto3
import json

SNS_TOPIC_ARN = ""

def lambda_handler(event, context):
    sns_client = boto3.client("sns")

    message = {
        "subject": "System Failure Alert",
        "body": "A critical failure has been detected in the system. Immediate action is required."
    }

    response = sns_client.publish(
        TopicArn=SNS_TOPIC_ARN,
        Message=json.dumps(message),
        Subject="System Failure Alert"
    )

    print(f"Notification sent! Message ID: {response['MessageId']}")

    return {
        "statusCode": 200,
        "body": json.dumps("SNS Notification Sent!")
    }
```

6. Trigger Lambda on System Failures

You need to define what counts as a "system failure." You can trigger the Lambda function in various ways:

Create log group



/aws/lambda/SystemFailureAlerts

Log group details

Log class | Info
Standard

ARN
arn:aws:logs:us-east-1:664418955190:log-group:/aws/lambda/SystemFailureAlerts:*

Creation time
43 minutes ago

Retention
Never expire

Stored bytes
-

Metric filters
0

Subscription filters
1

Contributor Insights rules
-

KMS key ID
-

Anomaly detection
Configure

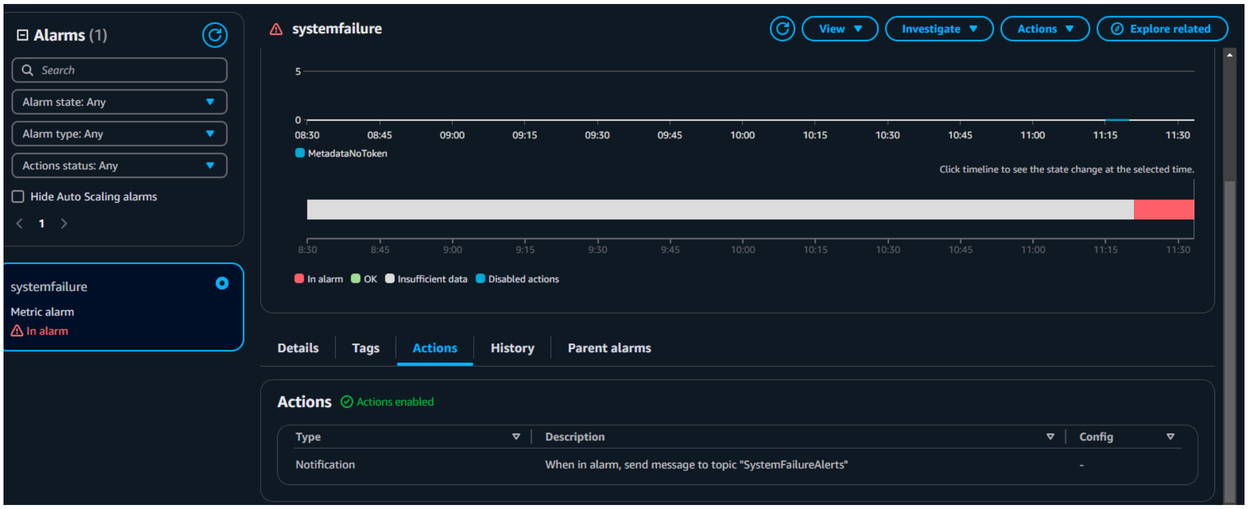
Data protection
-

Sensitive data count
-

Field indexes
Configure

Transformer
Configure

Create an alarm for system failure choose the metrics and set the threshold and choose the sns



Alarms (1)

Search

Alarm state: Any

Alarm type: Any

Actions status: Any

□ Hide Auto Scaling alarms

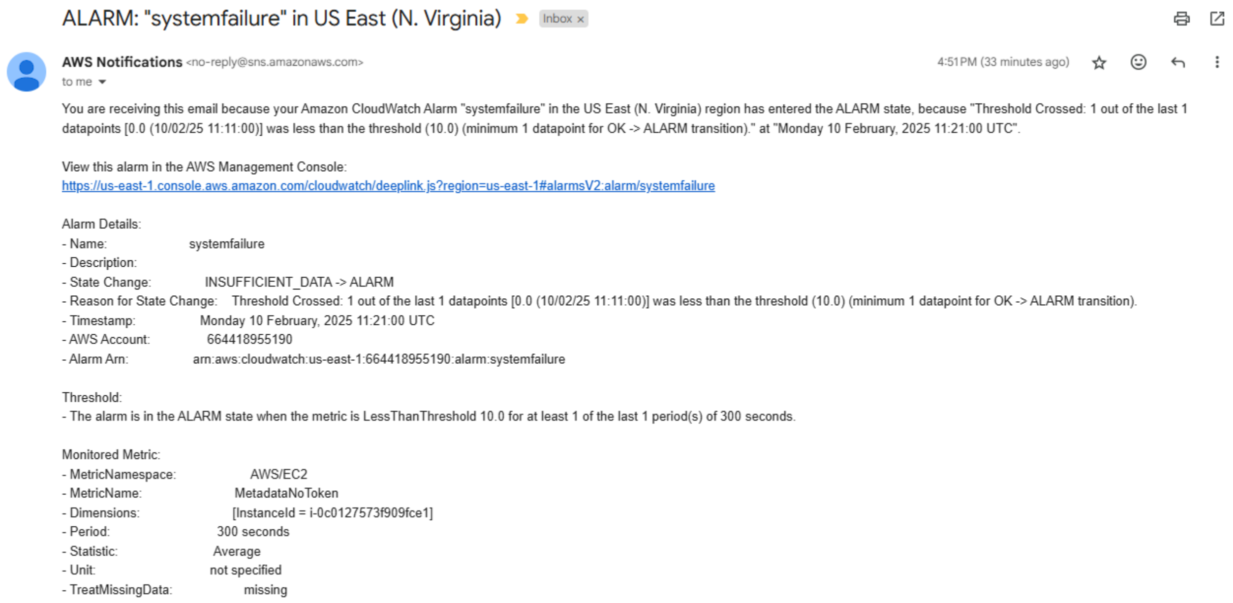
systemfailure
Metric alarm
In alarm

systemfailure

Details | Tags | Actions | History | Parent alarms

Actions ✓ Actions enabled

Type	Description	Config
Notification	When in alarm, send message to topic "SystemFailureAlerts"	-



ALARM: "systemfailure" in US East (N. Virginia)

AWS Notifications <no-reply@sns.amazonaws.com>

You are receiving this email because your Amazon CloudWatch Alarm "systemfailure" in the US East (N. Virginia) region has entered the ALARM state, because "Threshold Crossed: 1 out of the last 1 datapoints [0.0 (10/02/25 11:11:00)] was less than the threshold (10.0) (minimum 1 datapoint for OK -> ALARM transition)." at "Monday 10 February, 2025 11:21:00 UTC".

View this alarm in the AWS Management Console:
https://us-east-1.console.aws.amazon.com/cloudwatch/deeplink.js?region=us-east-1#alarmsV2:alarm/systemfailure

Alarm Details:
- Name: systemfailure
- Description:
- State Change: INSUFFICIENT_DATA -> ALARM
- Reason for State Change: Threshold Crossed: 1 out of the last 1 datapoints [0.0 (10/02/25 11:11:00)] was less than the threshold (10.0) (minimum 1 datapoint for OK -> ALARM transition).
- Timestamp: Monday 10 February, 2025 11:21:00 UTC
- AWS Account: 664418955190
- Alarm Arn: arn:aws:cloudwatch:us-east-1:664418955190:alarm:systemfailure

Threshold:
- The alarm is in the ALARM state when the metric is LessThanThreshold 10.0 for at least 1 of the last 1 period(s) of 300 seconds.

Monitored Metric:
- MetricNamespace: AWS/EC2
- MetricName: MetadataNoToken
- Dimensions: [InstanceId = i-0c0127573f909fce1]
- Period: 300 seconds
- Statistic: Average
- Unit: not specified
- TreatMissingData: missing