From mail to Grafana Oncall

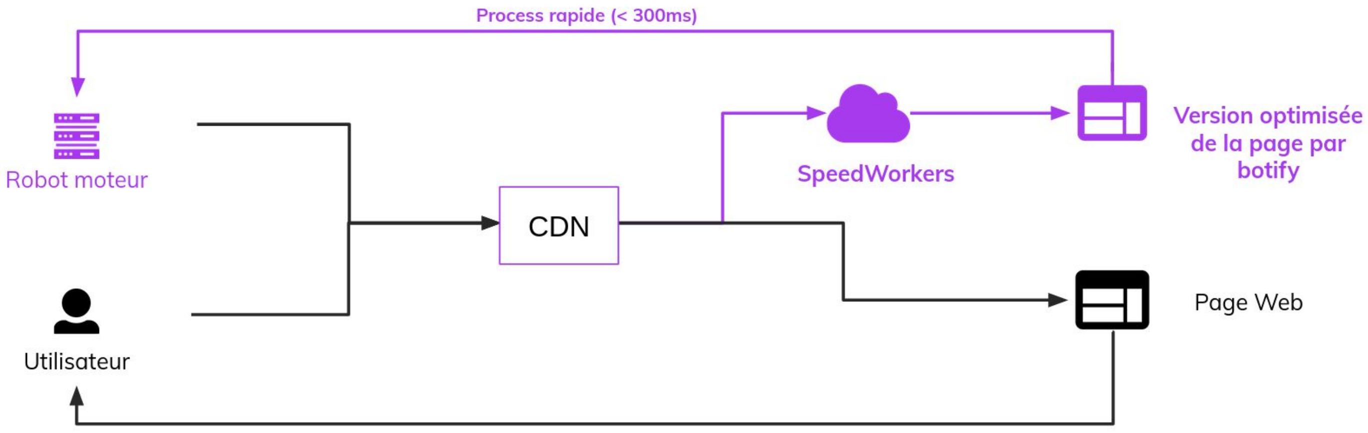
Meetup SRE Paris
13-02-2023

botify

Botify SpeedWorker

- It's a ~CDN between Google and our customer infrastructure
- By intercepting and responding to Google Crawler request, we can add intelligence

=> which means we are in the customer critical path, even more during important events



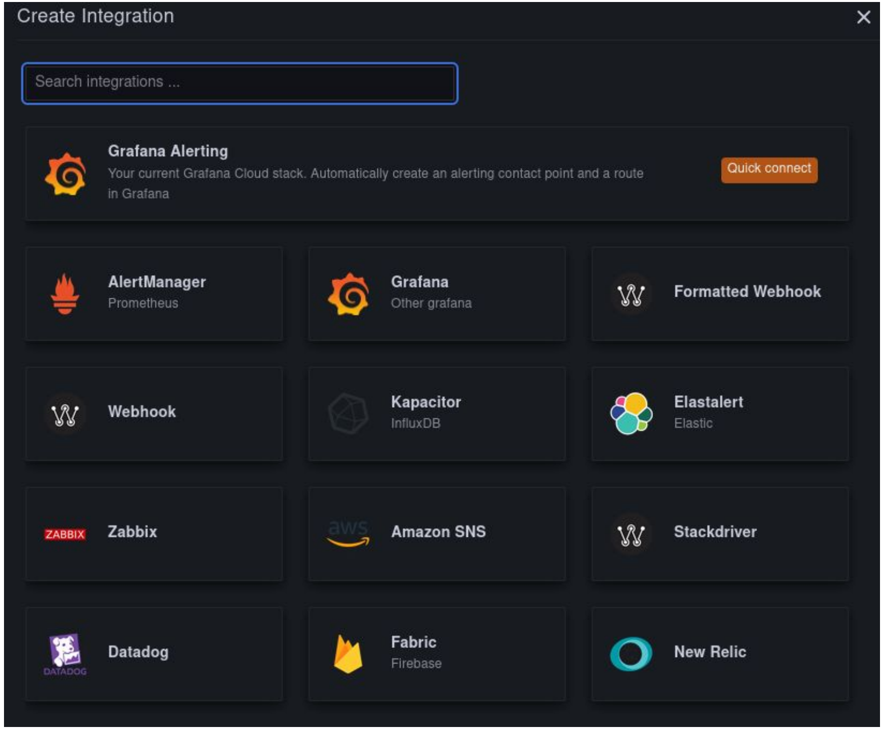
The request

- Some of our e-commerce customers do up to 50% of revenue during Black Friday
- Since this was their first Black Friday with SW, we wanted to reassure them

> **“Hey, let’s allow customers to wake-up oncall people!”**
> *An unknown CTO, 48 hours before Black Friday*

=> An email needs to trigger our on-call system

#1 How to start the Oncall in Grafana



Create Integration

Search integrations ...

Grafana Alerting

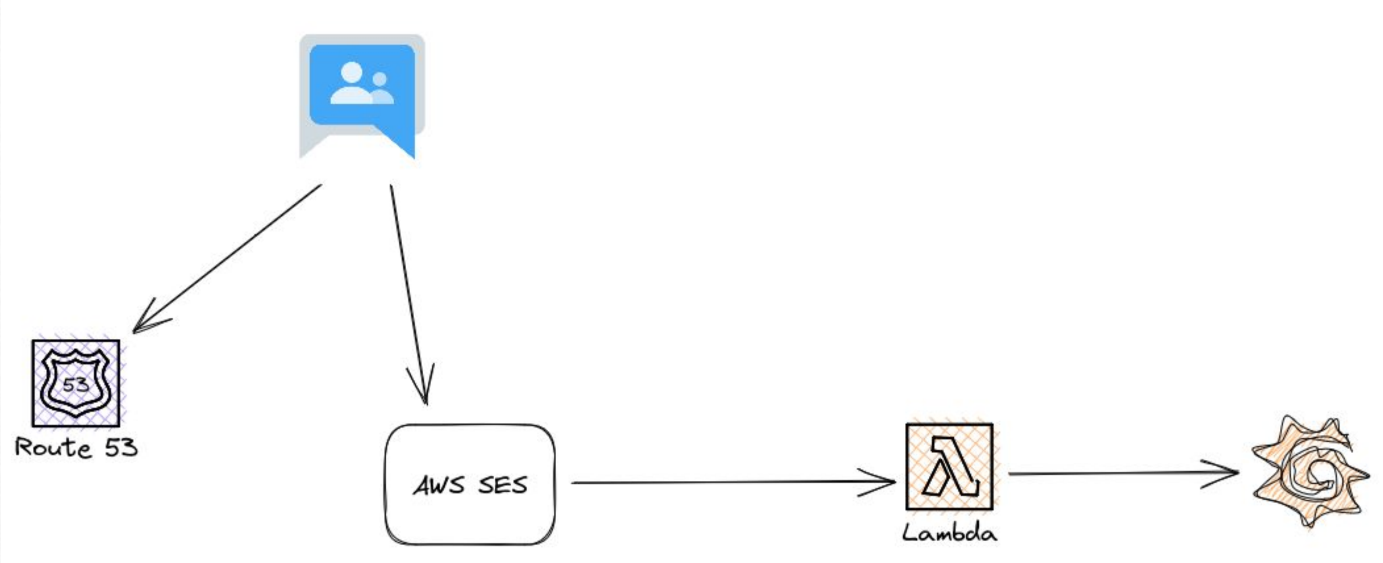
Your current Grafana Cloud stack. Automatically create an alerting contact point and a route in Grafana

No Google Workspace integration, but hey, webhooks!

#2 AWS SES

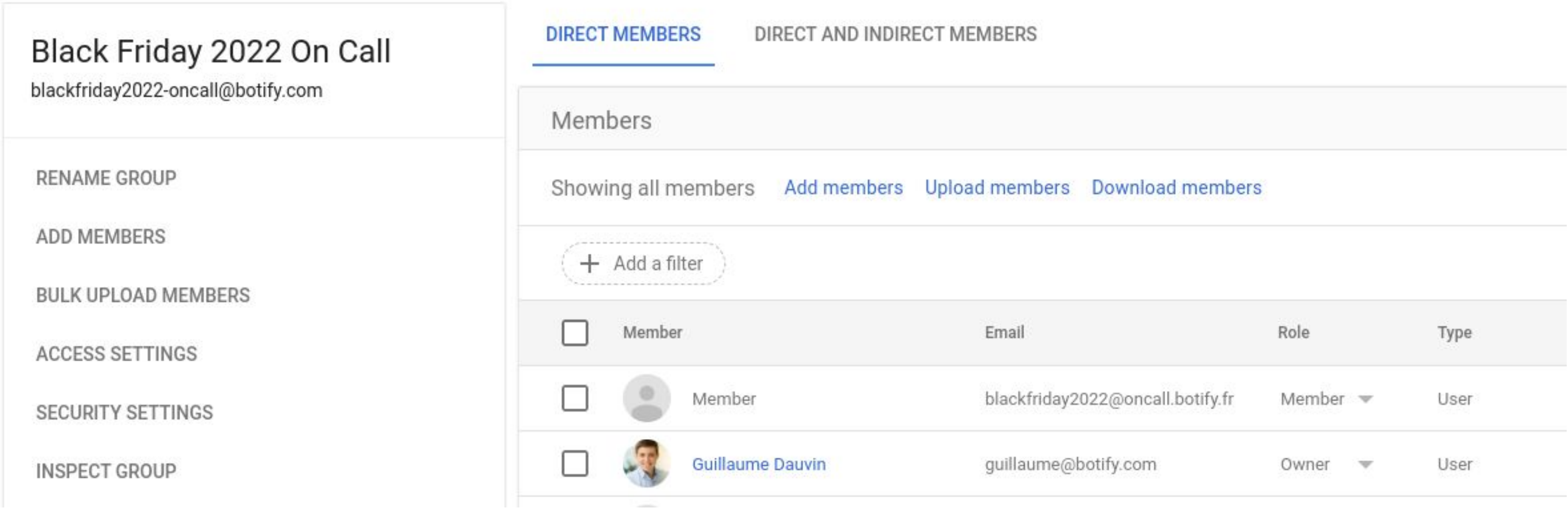
- “Simple” Email Service
- Mostly made to send (tons of) emails
- But can also receive mails and alert lambda for processing!

Let's glue!



Step 0: Google Workspace

Create a more “pro” email address for customers



Black Friday 2022 On Call

blackfriday2022-oncall@botify.com

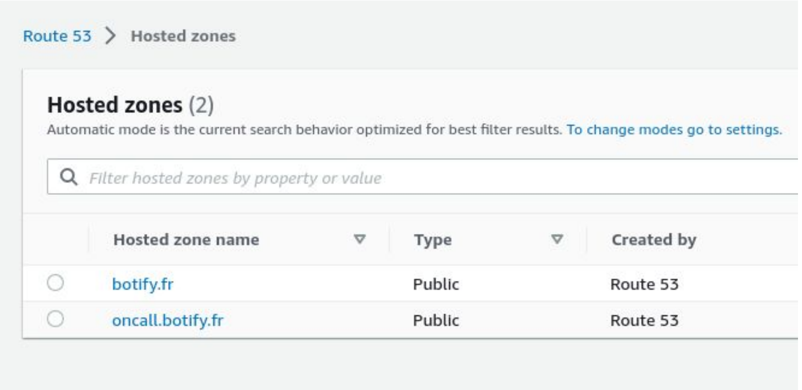
Members

Showing all members

	Member	Email	Role	Type
□	Member	blackfriday2022@oncall.botify.fr	Member ▾	User
□	Guillaume Dauvin	guillaume@botify.com	Owner ▾	User

Step 1: DNS

Since you can't redirect a single email address to a MX server, you need to create a new domain



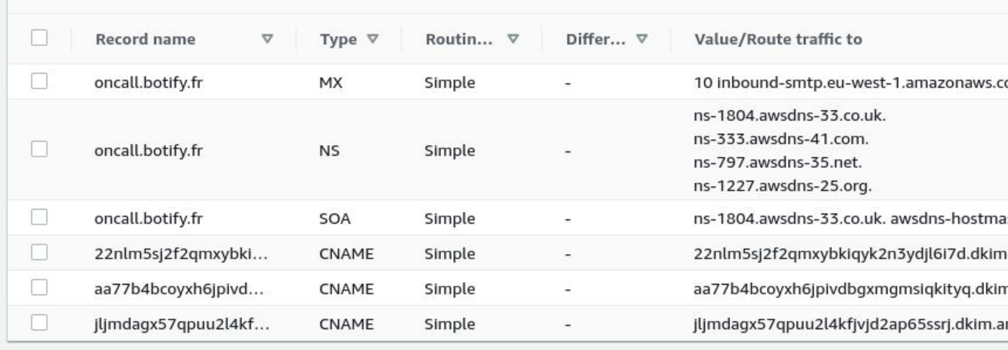
Route 53 > Hosted zones

Hosted zones (2)

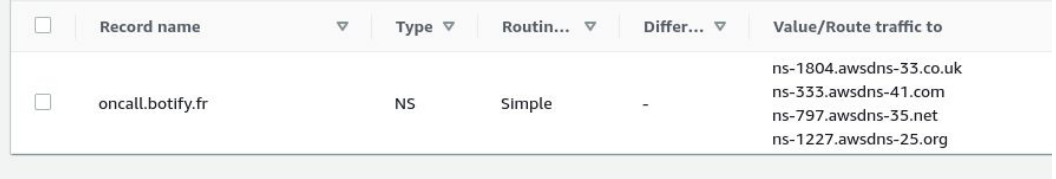
Automatic mode is the current search behavior optimized for best filter results. To change modes go to settings.

Filter hosted zones by property or value

	Hosted zone name	Type	Created by
○	botify.fr	Public	Route 53
○	oncall.botify.fr	Public	Route 53



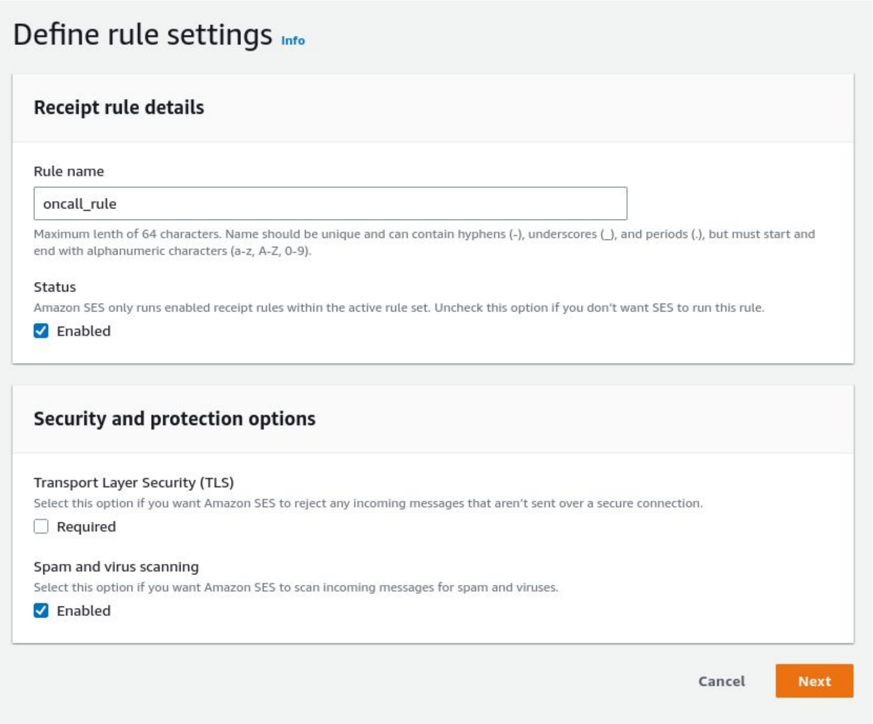
□	Record name	Type	Routin...	Differ...	Value/Route traffic to
□	oncall.botify.fr	MX	Simple	-	10 inbound-smtp.eu-west-1.amazonaws.c
□	oncall.botify.fr	NS	Simple	-	ns-1804.awsdns-33.co.uk. ns-333.awsdns-41.com. ns-797.awsdns-35.net. ns-1227.awsdns-25.org.
□	oncall.botify.fr	SOA	Simple	-	ns-1804.awsdns-33.co.uk. awsdns-hostma
□	22nlm5sj2f2qmxybki...	CNAME	Simple	-	22nlm5sj2f2qmxybkiqyk2n3ydjl6i7d.dkim
□	aa77b4bcoyxh6jpivd...	CNAME	Simple	-	aa77b4bcoyxh6jpivdbgxmgmsiqkityq.dkim
□	jljmdagx57qpuu2l4kf...	CNAME	Simple	-	jljmdagx57qpuu2l4kfjvjd2ap65ssrj.dkim.a



□	Record name	Type	Routin...	Differ...	Value/Route traffic to
□	oncall.botify.fr	NS	Simple	-	ns-1804.awsdns-33.co.uk ns-333.awsdns-41.com ns-797.awsdns-35.net ns-1227.awsdns-25.org

Step 2: SES

Add action to received emails



Define rule settings Info

Receipt rule details

Rule name

oncall_rule

Maximum lenth of 64 characters. Name should be unique and can contain hyphens (-), underscores (_), and periods (.), but must start and end with alphanumeric characters (a-z, A-Z, 0-9).

Status

Amazon SES only runs enabled receipt rules within the active rule set. Uncheck this option if you don't want SES to run this rule.

☑ Enabled

Security and protection options

Transport Layer Security (TLS)

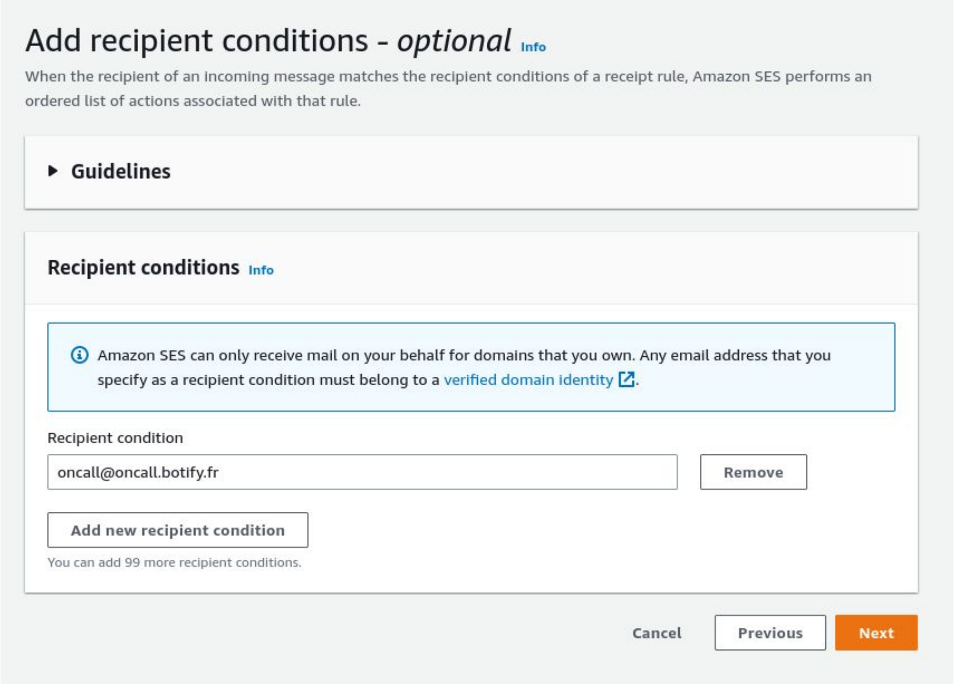
Select this option if you want Amazon SES to reject any incoming messages that aren't sent over a secure connection.

☐ Required

Spam and virus scanning

Select this option if you want Amazon SES to scan incoming messages for spam and viruses.

☑ Enabled



Add recipient conditions - *optional* Info

When the recipient of an incoming message matches the recipient conditions of a receipt rule, Amazon SES performs an ordered list of actions associated with that rule.

▶ Guidelines

Recipient conditions Info

Amazon SES can only receive mail on your behalf for domains that you own. Any email address that you specify as a recipient condition must belong to a verified domain identity.

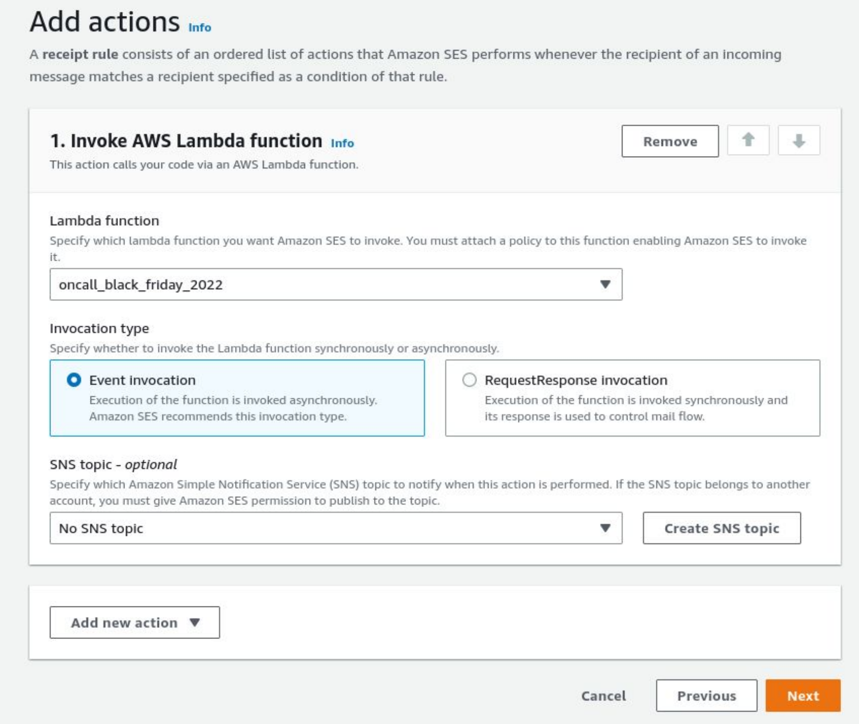
Recipient condition

oncall@oncall.botify.fr

You can add 99 more recipient conditions.

Step 2: SES

Trigger a lambda



Add actions Info

A **receipt rule** consists of an ordered list of actions that Amazon SES performs whenever the recipient of an incoming message matches a recipient specified as a condition of that rule.

1. Invoke AWS Lambda function Info

This action calls your code via an AWS Lambda function.

Lambda function

Specify which lambda function you want Amazon SES to invoke. You must attach a policy to this function enabling Amazon SES to invoke it.

oncall_black_friday_2022 ▼

Invocation type

Specify whether to invoke the Lambda function synchronously or asynchronously.

● Event invocation
Execution of the function is invoked asynchronously. Amazon SES recommends this invocation type.

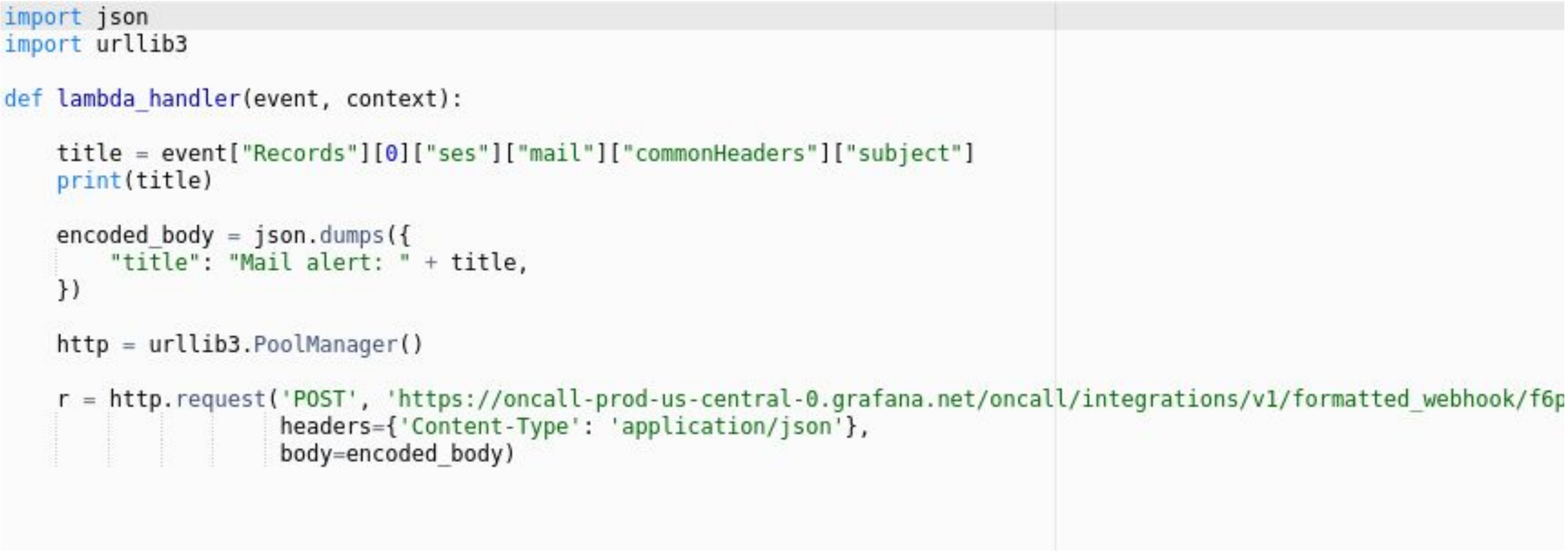
○ RequestResponse invocation
Execution of the function is invoked synchronously and its response is used to control mail flow.

SNS topic - *optional*

Specify which Amazon Simple Notification Service (SNS) topic to notify when this action is performed. If the SNS topic belongs to another account, you must give Amazon SES permission to publish to the topic.

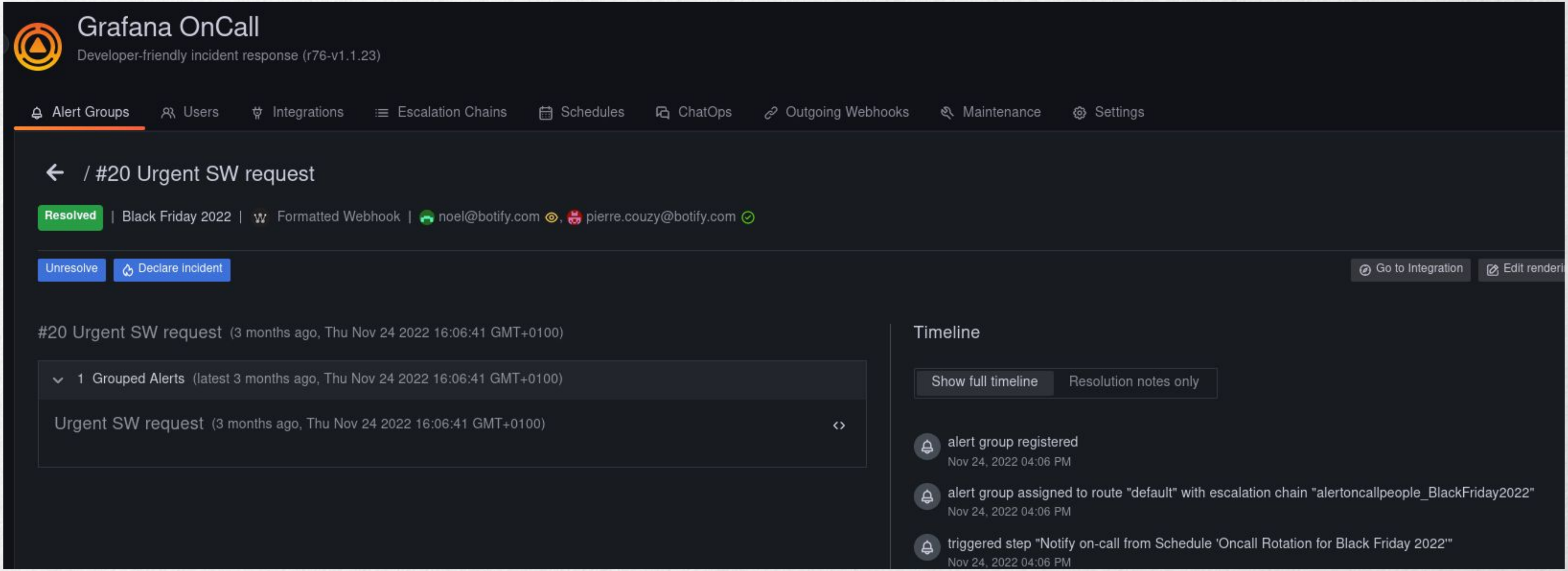
No SNS topic ▼

Step 3: Lambda



```python
import json
import urllib3

def lambda_handler(event, context):

    title = event["Records"][0]["ses"]["mail"]["commonHeaders"]["subject"]
    print(title)

    encoded_body = json.dumps({
        "title": "Mail alert: " + title,
    })

    http = urllib3.PoolManager()

    r = http.request('POST', 'https://oncall-prod-us-central-0.grafana.net/oncall/integrations/v1/formatted_webhook/f6p
                     headers={'Content-Type': 'application/json'},
                     body=encoded_body)
```

Results!



/ #20 Urgent SW request

Resolved | Black Friday 2022 | Formatted Webhook | noel@botify.com, pierre.couzy@botify.com

#20 Urgent SW request (3 months ago, Thu Nov 24 2022 16:06:41 GMT+0100)

1 Grouped Alerts (latest 3 months ago, Thu Nov 24 2022 16:06:41 GMT+0100)

Urgent SW request (3 months ago, Thu Nov 24 2022 16:06:41 GMT+0100)

Timeline

alert group registered
Nov 24, 2022 04:06 PM

alert group assigned to route "default" with escalation chain "alertoncallpeople_BlackFriday2022"
Nov 24, 2022 04:06 PM

triggered step "Notify on-call from Schedule 'Oncall Rotation for Black Friday 2022'"
Nov 24, 2022 04:06 PM

Pros and Cons

Pros:

- Proven technologies, almost no custom code, no maintenance
- SLAs know (SES: 99.9%, Lambda: 99.95%)
- Easy to implement

Cons:

- It's ugly (no, really)
- The mail content is not embedded in the alert; responders have to check their mails
- I hope dozens of tools are capable of doing the same for pennies

Thank you!