

● BootCamp AWS – Module 4

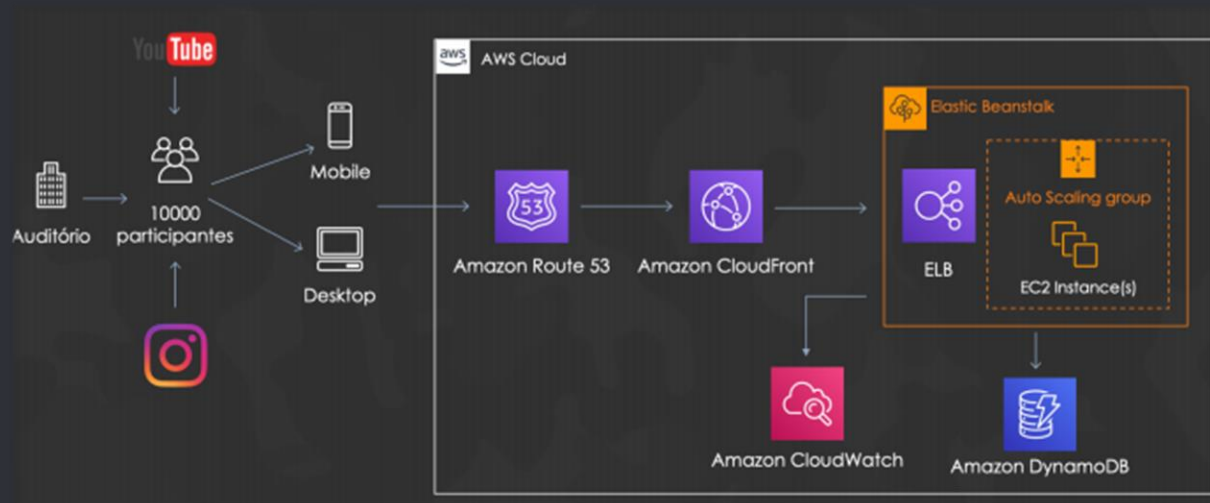
○ THE CLOUD BOOTCAMP CONFERENCE

In this project we will make an application that needs to withstand the high demand of a large number of users accessing simultaneously.

This application will be used in "The Cloud Bootcamp Conference", with participants from all over the world. More than 10,000 people are expected to participate, both in person and as online.

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○ Architecture



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DynamoDB

The screenshot displays the AWS Management Console for a DynamoDB instance. The left sidebar shows the navigation menu with options like Dashboard, Tables, Backups, Reserved capacity, Exports to S3, PartiQL editor, Preferences, DAX, and Events. The main content area is titled 'users' and includes tabs for Overview, Items, Metrics, Alarms, Capacity, Indexes, Global Tables, Backups, Contributor Insights, Triggers, Access control, and Tags. The 'Overview' tab is active, showing 'Recent alerts' (none), 'Kinesis data stream details' (no stream), and 'DynamoDB stream details' (no stream). The 'Table details' section provides a comprehensive overview of the table's configuration and status.

Property	Value
Table name	users
Primary partition key	email (String)
Primary sort key	-
Point-in-time recovery	DISABLED Enable
Encryption Type	DEFAULT Manage Encryption
KMS Master Key ARN	Not Applicable
Encryption Status	DISABLED Manage Contributor Insights NEW
Time to live attribute	DISABLED Manage TTL
Table status	Active
Creation date	May 31, 2021 at 4:20:32 PM UTC-3
Read/write capacity mode	Provisioned
Last change to on-demand mode	-
Provisioned read capacity units	5 (Auto Scaling Disabled)
Provisioned write capacity units	5 (Auto Scaling Disabled)
Last decrease time	-
Last increase time	-
Storage size (in bytes)	59.00 bytes
Item count	2 Manage live count
Region	US East (N. Virginia)
Amazon Resource Name (ARN)	arn:aws:dynamodb:us-east-1:365176486745:table/users

Storage size and item count are not updated in real-time. They are updated periodically, roughly every six hours.

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○ Elastic Beanstalk with:

- Application deploy;
- Instance types;
- Cluster min and max size;
- Load Balancer;
- Rolling updates and deployments;
- Monitoring;
- Managed updates;
- Network and security configurations.

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Elastic BeanStalk

The screenshot shows the AWS Elastic Beanstalk console for an environment named 'Tbconf-env'. The left sidebar contains navigation links for Environments, Applications, and Change history. The main content area shows the environment's details, including its health status (Ok), running version (tbconf-source), and platform (Python 3.7 running on 64bit Amazon Linux 2/3.2.2). A 'Recent events' table at the bottom lists the environment's history.

Health
Ok
[Causes](#)

Running version
tbconf-source
[Upload and deploy](#)

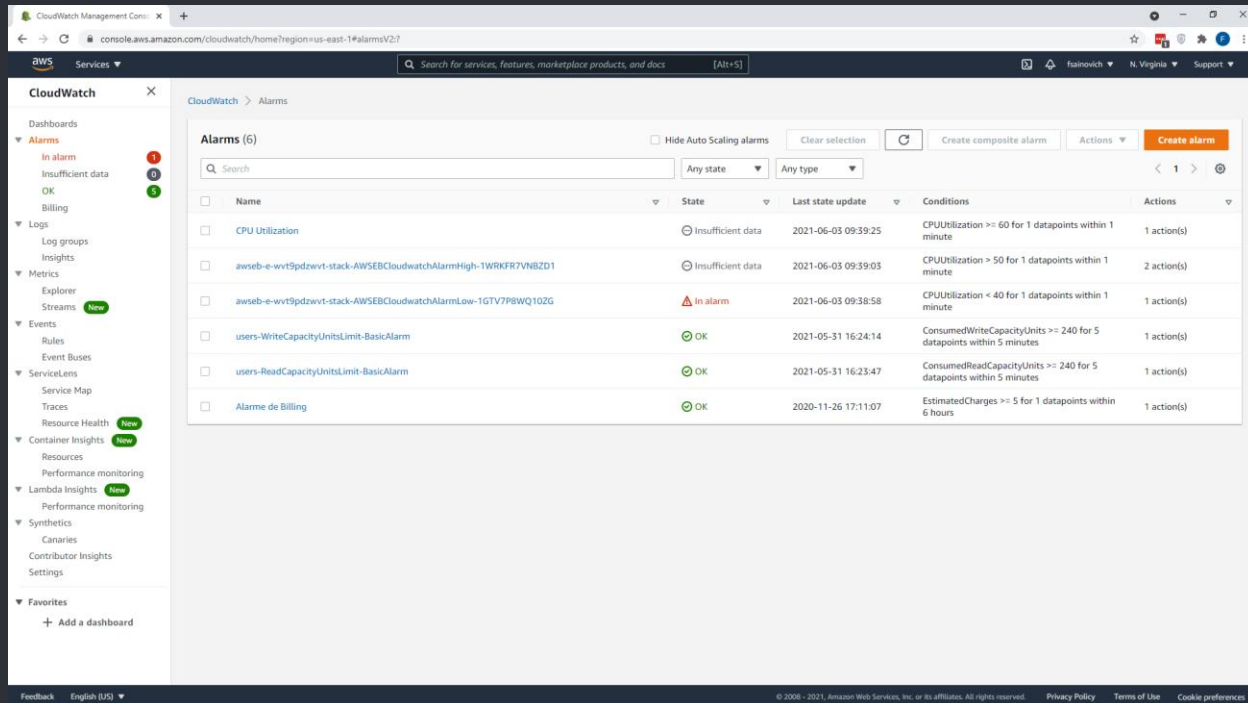
Platform
Python 3.7 running on 64bit Amazon Linux 2/3.2.2
[Platform update scheduled](#)
[Change](#)

Recent events [Show all](#)

Time	Type	Details
2021-06-01 20:13:09 UTC-0300	INFO	Environment health has transitioned from Warning to Ok.
2021-06-01 20:12:09 UTC-0300	INFO	Removed instance [i-08a99b7153f8a2b0d] from your environment.
2021-06-01 20:11:09 UTC-0300	WARN	Environment health has transitioned from Ok to Warning. No data received from 1 out of 3 instances.
2021-06-01 20:06:09 UTC-0300	INFO	Environment health has transitioned from Warning to Ok.
2021-06-01 20:03:09 UTC-0300	INFO	Added instance [i-0df34dfabb5557d76] to your environment.

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CloudWatch



The screenshot displays the AWS CloudWatch Alarms console. The left sidebar shows the navigation menu with categories like Dashboards, Alarms, Logs, Metrics, Events, ServiceLens, and Container Insights. The main panel shows a list of 6 alarms. The 'Alarms (6)' section includes a search bar, filters for 'Any state' and 'Any type', and buttons for 'Clear selection', 'Create composite alarm', 'Actions', and 'Create alarm'. The table lists the following alarms:

Name	State	Last state update	Conditions	Actions
CPU Utilization	Insufficient data	2021-06-03 09:39:25	CPUUtilization >= 60 for 1 datapoints within 1 minute	1 action(s)
aws-e-wwt9pdzwt-stack-AWSEBCloudwatchAlarmHigh-1WRKFR7NBZD1	Insufficient data	2021-06-03 09:39:03	CPUUtilization > 50 for 1 datapoints within 1 minute	2 action(s)
aws-e-wwt9pdzwt-stack-AWSEBCloudwatchAlarmLow-1GTVP8WQ102G	In alarm	2021-06-03 09:38:58	CPUUtilization < 40 for 1 datapoints within 1 minute	1 action(s)
users-WriteCapacityUnitsLimit-BasicAlarm	OK	2021-05-31 16:24:14	ConsumedWriteCapacityUnits >= 240 for 5 datapoints within 5 minutes	1 action(s)
users-ReadCapacityUnitsLimit-BasicAlarm	OK	2021-05-31 16:23:47	ConsumedReadCapacityUnits >= 240 for 5 datapoints within 5 minutes	1 action(s)
Alarme de Billing	OK	2020-11-26 17:11:07	EstimatedCharges >= 5 for 1 datapoints within 6 hours	1 action(s)

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CloudFront + Route53

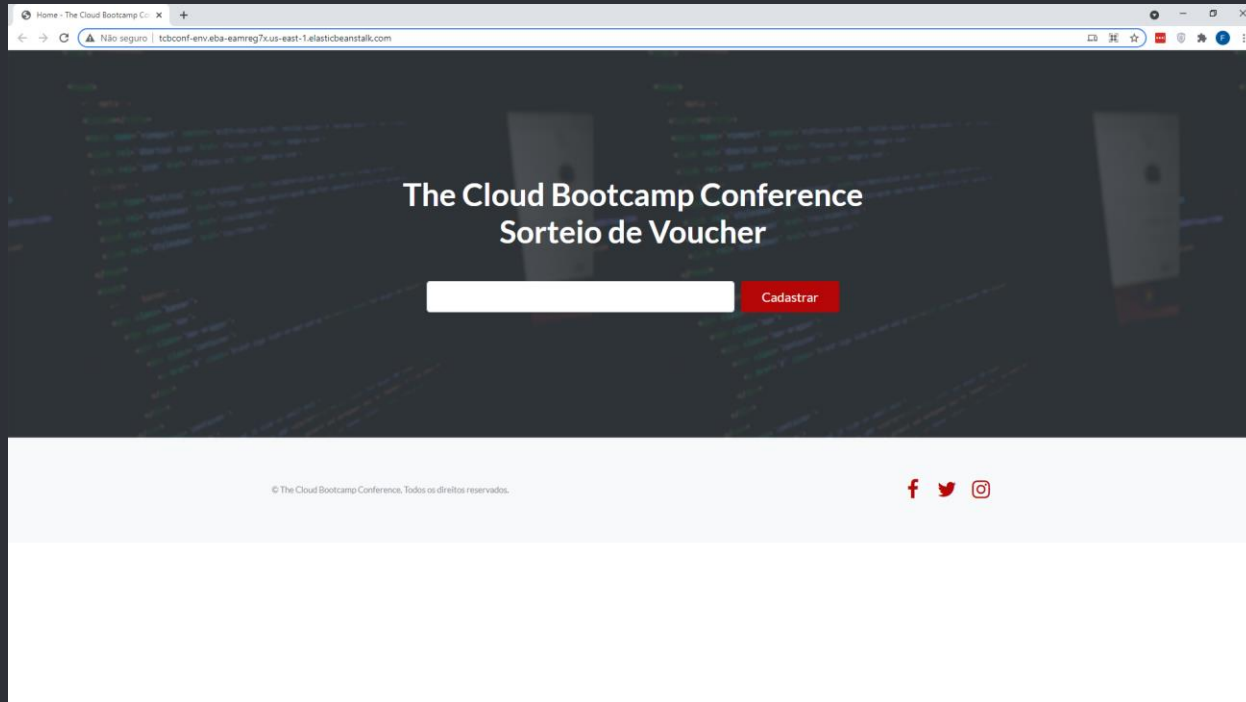
The screenshot displays the AWS CloudFront console interface. The left-hand navigation pane includes sections for Distributions, Policies, Functions, Telemetry, Reports & analytics, Security, Key management, and Savings Bundle. The main content area is titled 'CloudFront Distributions > E2XGWDZGCUAJ' and features a tabbed interface with 'General' selected. The 'General' tab shows the following configuration details:

- Distribution ID:** E2XGWDZGCUAJ
- ARN:** arn:aws:cloudfront:365176486745:distribution/E2XGWDZGCUAJ
- Log Prefix:** -
- Delivery Method:** Web
- Cookie Logging:** Off
- Distribution Status:** Deployed
- Comment:** -
- Price Class:** Use All Edge Locations (Best Performance)
- AWS WAF Web ACL:** -
- State:** Enabled
- Alternate Domain Names (CNAMEs):** tbcconf2.fraiovich.tec.br
- SSL Certificate:** *fraiovich.tec.br (2ca1b2b9-2d59-457e-8cf4-8f37c297450)
- Domain Name:** d2d5og8cmjzcf8.cloudfront.net
- Custom SSL Client Support:** Clients that Support Server Name Indication (SNI) - (Recommended)
- Security Policy:** TLSv1.2_2019
- Supported HTTP Versions:** HTTP/2, HTTP/1.1, HTTP/1.0
- IPv6:** Enabled
- Default Root Object:** -
- Last Modified:** 2021-05-31 18:43 UTC-3
- Log Bucket:** -

The bottom of the console shows a footer with 'Feedback', 'English (US)', and copyright information for 2018-2021 Amazon Web Services, Inc.

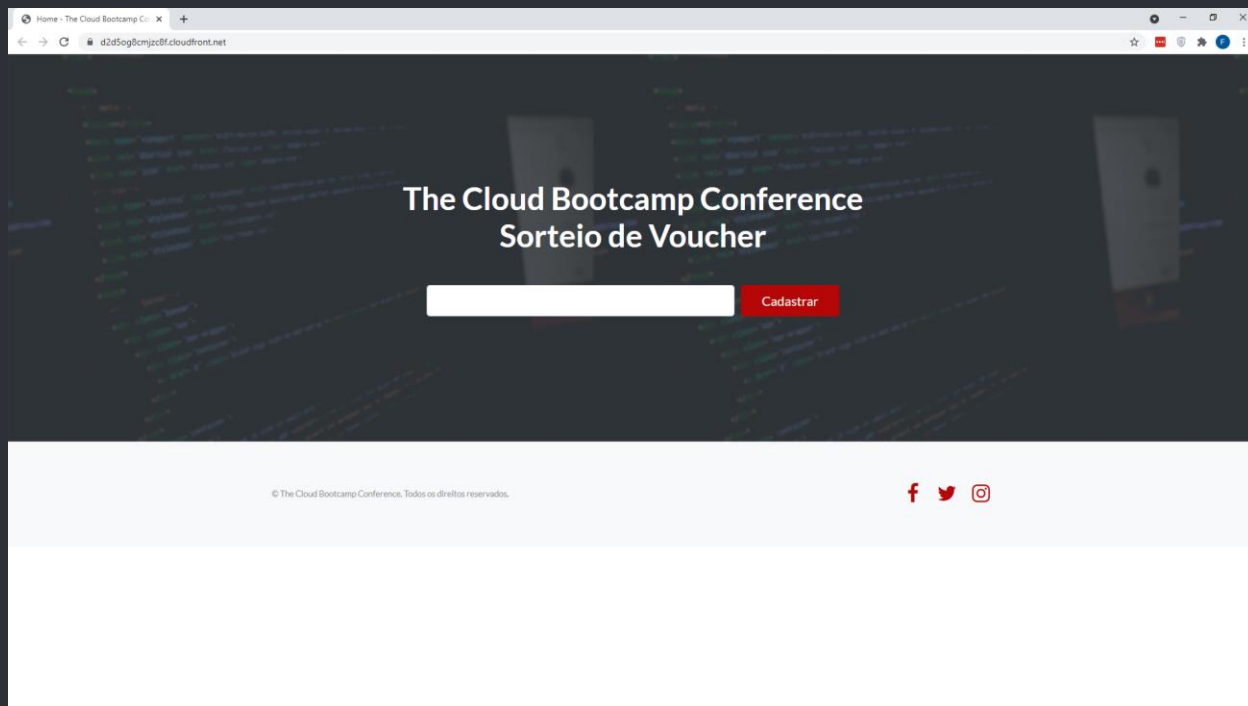
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○ Application Access – Elastic Beanstalk Endpoint



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○ Application Access – CloudFront Endpoint



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○ DynamoDB – Data Item

The screenshot displays the AWS DynamoDB console interface. On the left, a navigation sidebar lists various services and tools. The main content area is divided into two panes. The left pane shows the 'users' table selected, with a search filter for 'email'. The right pane displays the 'items' tab for the 'users' table, showing a single item with the email 'fernando.sainovich@gmail.com'.

Navigation Sidebar:

- DynamoDB
- Dashboard
- Tables
- Backups
- Reserved capacity
- Exports to S3
- PartiQL editor
- Preferences
- DAX
- Dashboard
- Clusters
- Subnet groups
- Parameter groups
- Events
- Try the preview of the new console

Table Selection Pane:

- Buttons: Create table, Delete table
- Search: Filter by table name
- Dropdown: Choose a table ...
- Actions: [Dropdown]
- Table Name: users

Table Details Pane (users):

- Buttons: Create item, Actions [Dropdown]
- Scan: [Table] users: email
- Filter: [Table] users: email
- Start search
- email [Dropdown]
- Item: fernando.sainovich@gmail.com

Footer:

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Extra 1 – Custom CNAME with registered domain using GCP CloudDNS

The screenshot shows the Google Cloud Platform console for the 'fsainovich' zone. The 'RECORD SETS' tab is selected, displaying a table of DNS records. The table has columns for 'DNS name', 'Type', 'TTL (seconds)', and 'Data'. The records are as follows:

DNS name	Type	TTL (seconds)	Data
em3906.fsainovich.tec.br.	CNAME	300	u20915452.wl203.sendgrid.net.
fsainovich.tec.br.	NS	21600	ns-cloud-c1.googledomains.com. ns-cloud-c2.googledomains.com. ns-cloud-c3.googledomains.com. ns-cloud-c4.googledomains.com.
fsainovich.tec.br.	SOA	21600	ns-cloud-c1.googledomains.com. cloud-dns-hostmaster.google.com. 1 21600 3600 259200 300
s1_domainkey.fsainovich.tec.br.	CNAME	300	s1.domainkey.u20915452.wl203.sendgrid.net.
s2_domainkey.fsainovich.tec.br.	CNAME	300	s2.domainkey.u20915452.wl203.sendgrid.net.
tcboconf.fsainovich.tec.br.	CNAME	300	tcboconf-env-eba-eamreg7x.us-east-1.elasticbeanstalk.com.
tcboconf2.fsainovich.tec.br.	CNAME	300	d2d5g8cmjz8f.cloudfront.net.

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Extra 2 – TLS certificate

The screenshot displays the AWS Certificate Manager console. The left sidebar shows the navigation menu with 'Certificates' and 'Certificate Manager' selected. The main content area is titled 'Certificates' and includes a notification about public certificate transparency (CT) logs. Below this, there are buttons for 'Request a certificate', 'Import a certificate', 'Actions', and 'Manage certificate events'. A table lists the certificates, with one certificate for '*.fsainovich.tec.br' in 'Issued' status. The 'Status' section shows the certificate was imported at 2021-05-31T19:44:46UTC. The 'Details' section provides information about the certificate's type, domain name, and associated resources. The 'Tags' section is at the bottom.

Certificates

AWS Certificate Manager logs domain names from your certificates into public certificate transparency (CT) logs when renewing certificates. You can opt out of CT logging. [Learn more](#)

[Request a certificate](#) [Import a certificate](#) [Actions](#) [Manage certificate events](#)

Name	Domain name	Additional names	Status	Type	In use?	Renewal eligibility
-	*.fsainovich.tec.br	-	Issued	Imported	Yes	Ineligible

Status

Status Issued
Detailed status The cert was imported at 2021-05-31T19:44:46UTC [Reimport certificate](#)

Details

Type	Imported	Imported at	2021-05-31T19:44:46UTC
In use?	Yes	Not after	2021-08-29T14:29:31UTC
Domain name	*.fsainovich.tec.br	Expires in	87 Days
Number of additional names	0	Public key info	RSA 2048-bit
Identifier	2ca1b2b9-2d59-457e-8c4-8d37c297450	Signature algorithm	SHA256WITHRSA
Serial number	03 e3 2c f6 6f fe d7 f0 a2 c0 f2 b9 e8 a7 20 67 8c 2a	ARN	arn:aws:acm:us-east-1:365176486745:certificate/2ca1b2b9-2d59-457e-8c4-8d37c297450
Associated resources	arn:aws:cloudfront:365176486745:distribution/E2XGWIDZGCUAXJ, arn:aws:elasticloadbalancing:us-east-1:365176486745:loadbalancer/app/awseb-AWSEB-OTPPMEW8YAI/335e14559e2724d0	Validation state	None

Tags

[Edit](#)

Name

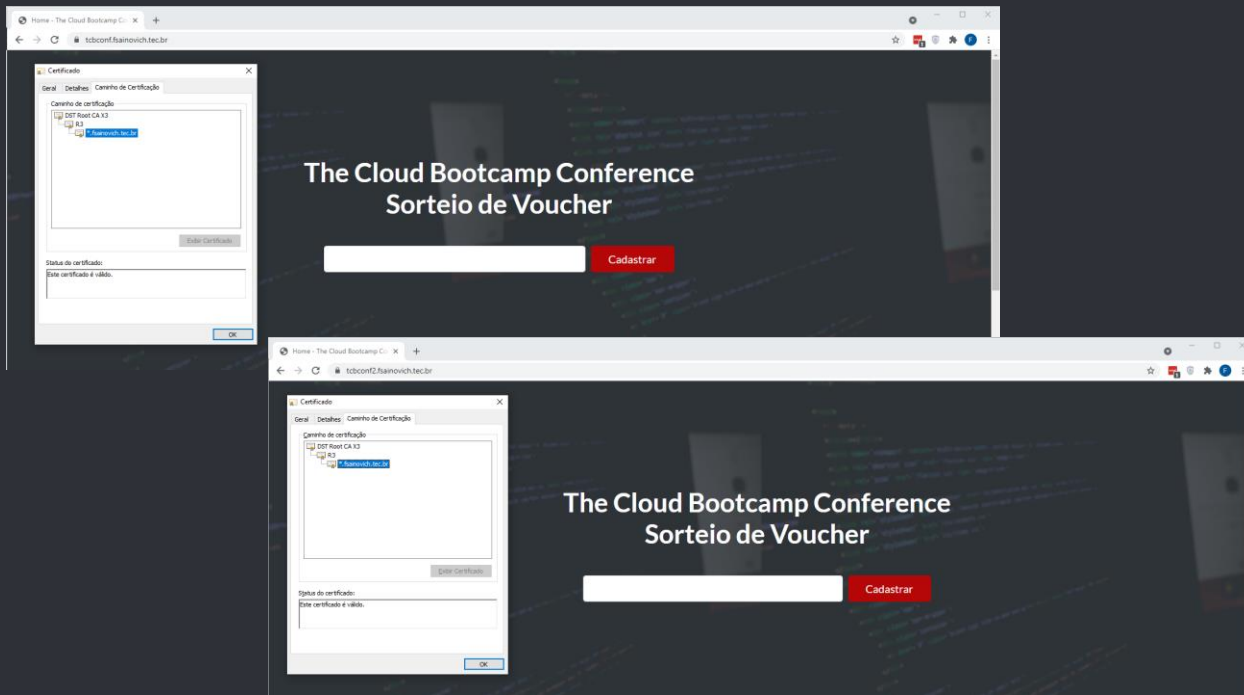
Key

Value

[Feedback](#) [English \(US\)](#) [Privacy Policy](#) [Terms of Use](#) [Cookie preferences](#)

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● Extra 2 – Access with TLS certificate for each CNAME – Elastic BeanStalk and CloudFront



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Extra 3 – AWS ChatBot – Integration with Slack

The screenshot displays the AWS Chatbot console interface. The browser address bar shows the URL: `us-east-2.console.aws.amazon.com/chatbot/home?region=us-east-1#/chat-clients/slack/workspaces/T0249EM4YNL/configurations/AWS-CHANNEL`. The console header includes the AWS logo, a search bar, and user information for 'fsainovich'. The left sidebar shows the 'AWS Chatbot' menu with 'Configured clients' expanded, listing 'Amazon Chime' and 'fsainovich'. The main content area is titled 'AWS-CHANNEL' and includes buttons for 'Send test message', 'Edit', and 'Delete'. Below the title, the 'Slack channel details' section shows the following information:

Name	aws-channel
Channel	aws-channel
Logging level	Off
ARN	arn:aws:chatbot:365176486745:chat-configuration/slack-channel/AWS-CHANNEL
IAM role	AWSChatBot-role
Metrics	View metrics in CloudWatch

The 'Topics' section below shows the following configuration:

SNS topic	AWS Region
Slack	US East (N. Virginia)

The footer of the console includes a 'Feedback' link, the language 'English (US)', and copyright information: '© 2008 - 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.' along with links for 'Privacy Policy', 'Terms of Use', and 'Cookie preferences'.

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Extra 3 – AWS ChatBot – Send CloudWatch Alarms to Slack

The screenshot shows a Slack interface with a channel named #aws-channel. The channel's sidebar on the left lists various categories like Conversas, Menções e reações, Mais, Canais, and Apps. The main content area displays a notification from CloudWatch Alarm for CPU Utilization in the us-east-1 region, account 365176486745. The notification states that the threshold was crossed (1 out of the last 1 datapoints [79.27817912383077 [01/06/21 23:01:00]] was greater than or equal to the threshold (60.0) (minimum 1 datapoint for OK -> ALARM transition)).

Metric Alarm Name: CPU Utilization
Alarm State: ALARM
Namespace: AWS/EC2
Metric: CPUUtilization
Timestamp: Tue, 1 Jun 2021 23:07:25 UTC
AutoScalingGroupName: awsrb-e-vv19pdzwtv-stack-AWSEBAutoScalingGroup-1M1V4YZKQUORS

Below the text, there is a graph titled "AWS/EC2 CPUUtilization" showing the percentage of CPU utilization over time. The graph has a red dashed line at 60.00, indicating the threshold. The y-axis is labeled "Percent" and ranges from 0.00 to 80.00. The x-axis shows time from 22:40 to 23:05. The graph shows several spikes, with the most recent one reaching approximately 79.28% at 23:01:00, which triggered the alarm.

At the bottom of the channel view, there is a text input field with the placeholder "Enviar uma mensagem para #aws-channel" and a "Send" button.

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○ Extra 3 – AWS ChatBot – Using slack to Start/Stop DEV instance with Lambda function

#aws-channel Adicionar um assunto

fernando.sainovich 19:29
@aws lambda invoke --function-name paraDesenvolvimento --region us-east-1

aws 19:29
@fernando.sainovich I can run the command

```
@aws lambda invoke --function-name paraDesenvolvimento --region us-east-1
```

In account 365176486745 with role service-role/AWSChatBot-role in region US East (N. Virginia).

Would you like me to do so?

fernando.sainovich 19:29
@aws lambda invoke --function-name paraDesenvolvimento --region us-east-1

aws 19:29
@fernando.sainovich I ran the command

```
@aws lambda invoke --function-name paraDesenvolvimento --region us-east-1
```

In account 365176486745 with role service-role/AWSChatBot-role in region US East (N. Virginia).

ExecutedVersion: \$LATEST
StatusCode: 200
Payload:
null

fernando.sainovich 19:31
@aws lambda invoke --function-name iniciaDesenvolvimento --region us-east-1

aws 19:31
@fernando.sainovich I can run the command

```
@aws lambda invoke --function-name iniciaDesenvolvimento --region us-east-1
```

In account 365176486745 with role service-role/AWSChatBot-role in region US East (N. Virginia).

Would you like me to do so?

fernando.sainovich 19:31
@aws lambda invoke --function-name iniciaDesenvolvimento --region us-east-1

aws 19:31
@fernando.sainovich I ran the command

```
@aws lambda invoke --function-name iniciaDesenvolvimento --region us-east-1
```

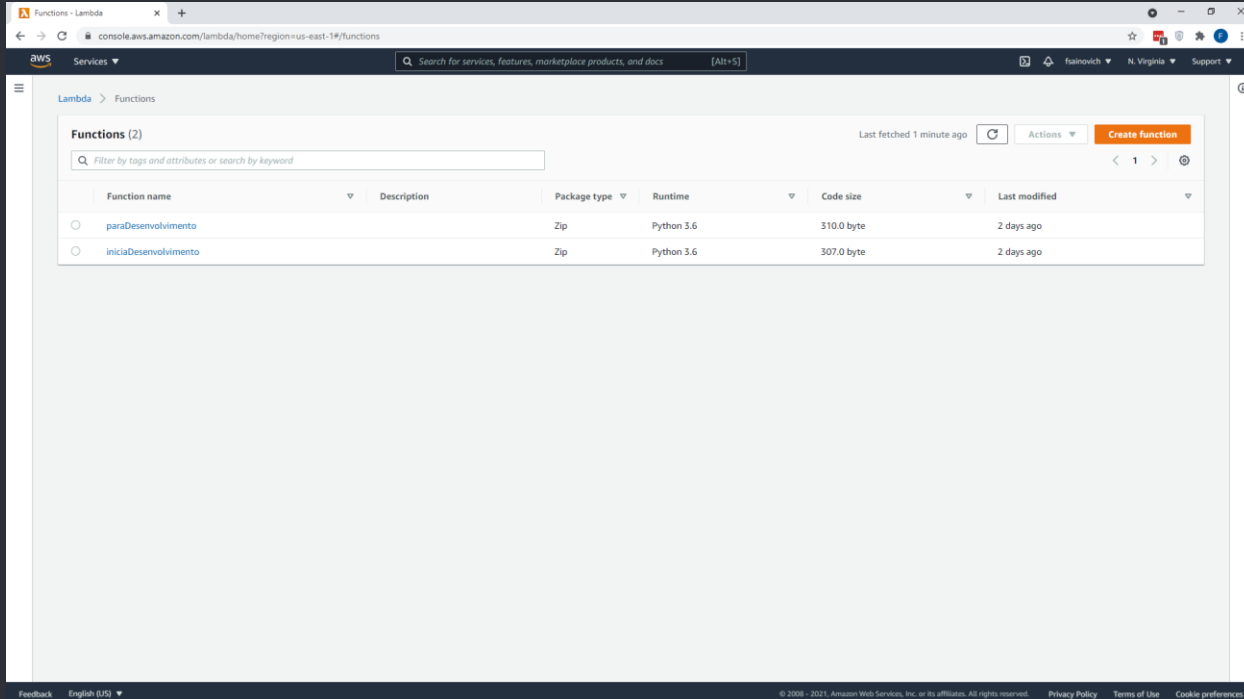
In account 365176486745 with role service-role/AWSChatBot-role in region US East (N. Virginia).

ExecutedVersion: \$LATEST
StatusCode: 200
Payload:
null

Enviar uma mensagem para #aws-channel

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○ Extra 3 – AWS ChatBot – Lambda Functions



The screenshot displays the AWS Lambda console interface. At the top, the breadcrumb navigation shows 'Lambda > Functions'. Below this, the 'Functions (2)' section is visible, with a search bar and a 'Filter by tags and attributes or search by keyword' input. A table lists the functions, with columns for Function name, Description, Package type, Runtime, Code size, and Last modified. Two functions are listed: 'paraDesenvolvimento' and 'iniciaDesenvolvimento', both using Zip package type and Python 3.6 runtime. The console also shows a 'Create function' button and a 'Last fetched 1 minute ago' status.

Function name	Description	Package type	Runtime	Code size	Last modified
paraDesenvolvimento		Zip	Python 3.6	310.0 byte	2 days ago
iniciaDesenvolvimento		Zip	Python 3.6	307.0 byte	2 days ago

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Extra 3 – AWS ChatBot – DEV EC2 Instance states

The screenshot displays the AWS Management Console interface for EC2 instances. The top panel shows a list of instances with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4, and Elastic IP. The bottom panel shows the details for a specific instance, including Instance summary, Instance details, and Instance state.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4	Elastic IP
Tbconf-env	i-08a967153f8a2b0d	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-3-235-87-109.com...	3.235.87.109	-
Tbconf-env	i-082a6a9a208f180	Running	t2.micro	2/2 checks passed	No alarms	us-east-1e	ec2-54-224-15-121.co...	34.224.15.121	-
Desenvolvimento	i-057558ab74b5174a	Stopped	t2.micro	-	No alarms	us-east-1f	-	3.91.106.29	-

Instance: i-057558ab74b5174a (Desenvolvimento)

Instance summary

- Instance ID: i-057558ab74b5174a (Desenvolvimento)
- Instance state: **Stopped**
- Instance type: t2.micro
- AWS Compute Optimizer Finding: Opt-in to AWS Compute Optimizer for recommendations. | [Learn more](#)
- Platform details: [Ubuntu \(Inferred\)](#)
- Platform: [Linux/UNIX](#)

Instance details

- Instance ID: i-057558ab74b5174a (Desenvolvimento)
- Instance state: **Running**
- Instance type: t2.micro
- AWS Compute Optimizer Finding: Opt-in to AWS Compute Optimizer for recommendations. | [Learn more](#)
- Platform: [Ubuntu \(Inferred\)](#)
- Platform details: [Linux/UNIX](#)

Instance state

- Public IPv4 address: 3.235.78.151 | [open address](#)
- Public IPv4 DNS: ec2-3-235-78-151.compute-1.amazonaws.com | [open address](#)
- Elastic IP addresses: -
- IAM Role: -
- AMI ID: ami-0b6d7e426d25c0d7
- AMI name: [ubuntu/images/Ubuntu-Server/ubuntu-amd64-hvm-20180914-amzn2-ami](#)
- Private IPv4 address: 172.31.64.76
- Private IPv4 DNS: ip-172-31-64-76.ec2.internal
- VPC ID: [vpc-0b5f67e625a46893](#)
- Subnet ID: [subnet-02933a697bdc7f74a](#)
- Monitoring: disabled
- Termination protection: Disabled