

COMPUTAÇÃO EM NUVEM

ECS Docker

Realizando um Deploy em uma
aplicação nodejs com ECS e Docker

PROF: EMANUEL COUTINHO



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Nossa Pauta

O que você vai aprender hoje

01 **Serviços**

02 **Infraestrutura**

03 **Custos**

04 **Pratica**

05 **Considerações finais**



Serviços

- Amazon Elastic Container Service (ECS)
- Amazon Elastic Container Registry (ECR)
- Amazon Elastic Compute Cloud (EC2)
- Docker

ECS

O Amazon ECS é um serviço de orquestração de contêineres totalmente gerenciado que facilita a implantação, o gerenciamento e a escala de aplicações em contêineres.

AWS Fargate

O Fargate lida com os aspectos de gerenciamento de infraestrutura de sua workload para você.

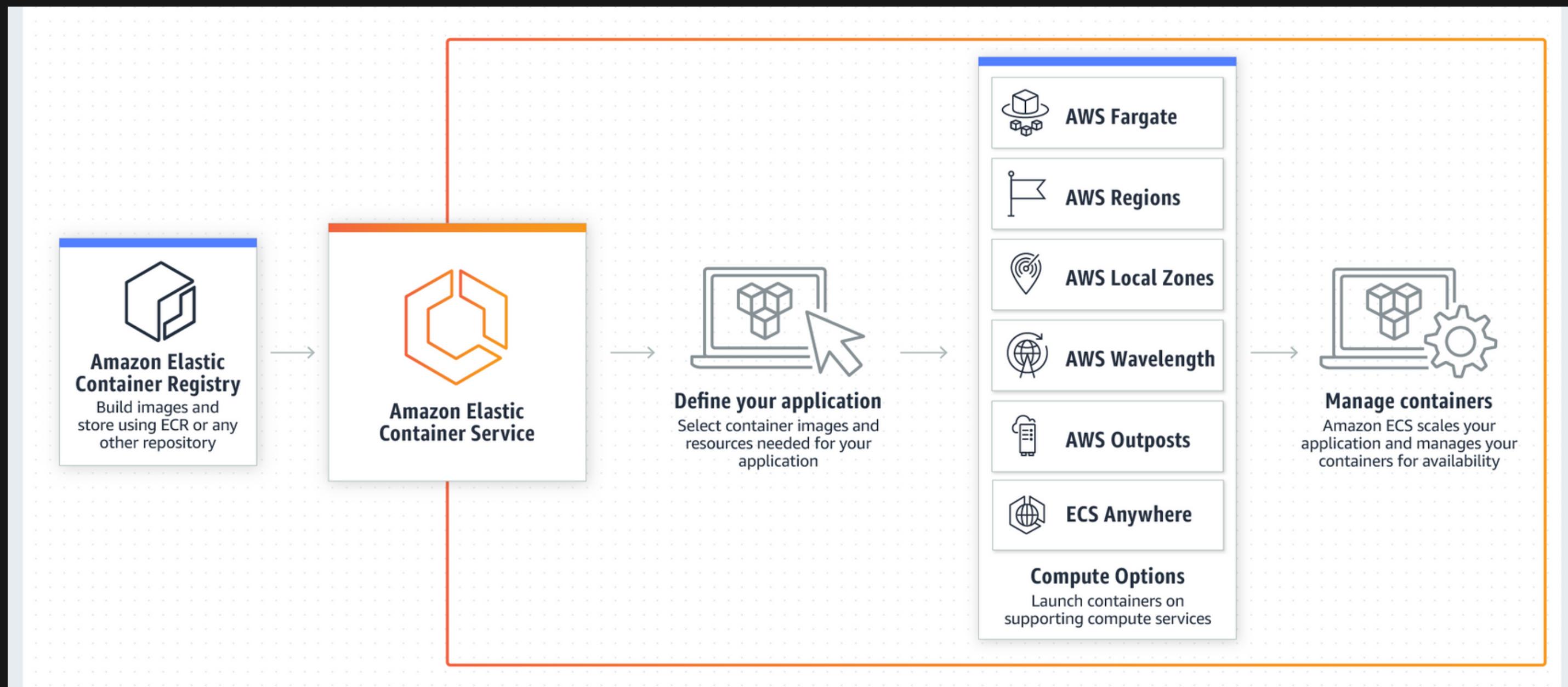
IAM

Você pode atribuir permissões granulares para cada um de seus contêineres.

CI/CD

Processo comum para arquiteturas de microserviço que são baseadas em contêineres do Docker.

ECS – Infraestrutura AWS



Definição de preço do ECS

Modelo de tipo de execução do AWS Fargate

Com o AWS Fargate, você paga pela quantidade de recursos de memória e vCPU solicitados pela sua aplicação em contêineres.

Modelo de tipo de execução do Amazon EC2

Você paga pelos recursos da AWS (como instâncias do Amazon EC2 ou volumes do Amazon EBS) criados para armazenar e executar sua aplicação.

ECR

Oferece hospedagem de alta performance para que você possa implantar imagens e artefatos de aplicações de forma confiável em qualquer lugar.

Integração ECS

você pode armazenar e executar facilmente imagens de contêiner para aplicativos com qualquer orquestrador.

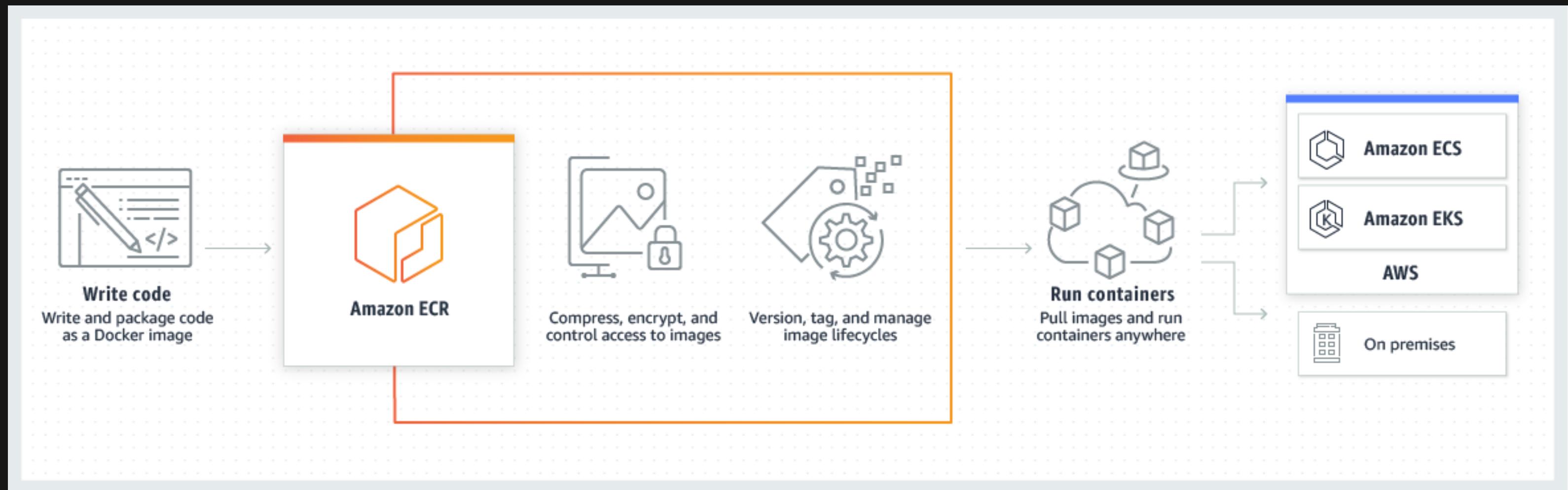
Suporte OCI e Docker

permite que você use comandos do Docker CLI ou suas ferramentas do Docker preferidas para interagir com o Amazon ECR

Controle de acesso

O Amazon ECR usa o AWS IAM para controlar e monitorar quem e o quê podem acessar suas imagens de contêiner.

ECR – Infraestrutura AWS



Detalhes de preços ECR

Região:	Leste dos EUA (Norte da Virgínia) 
<hr/>	
Definição de preço	
Transferência de dados para DENTRO	
Todas as transferências de dados para dentro	0,00 USD por GB
<hr/>	
Transferência de dados para FORA ***	
Próximos 9,999 TB/mês	0,09 USD por gigabyte
Próximos 40 TB/mês	0,085 USD por gigabyte
Próximos 100 TB/mês	0,07 USD por gigabyte
Maiores que 150 TB/mês	0,05 USD por gigabyte

Docker

Conjunto de produtos de PaaS que usam virtualização de nível de sistema operacional para entregar software em pacotes chamados contêineres.

Microsserviços

Cria e escala arquiteturas de aplicativos distribuídas ao aproveitar as implantações de código padronizadas

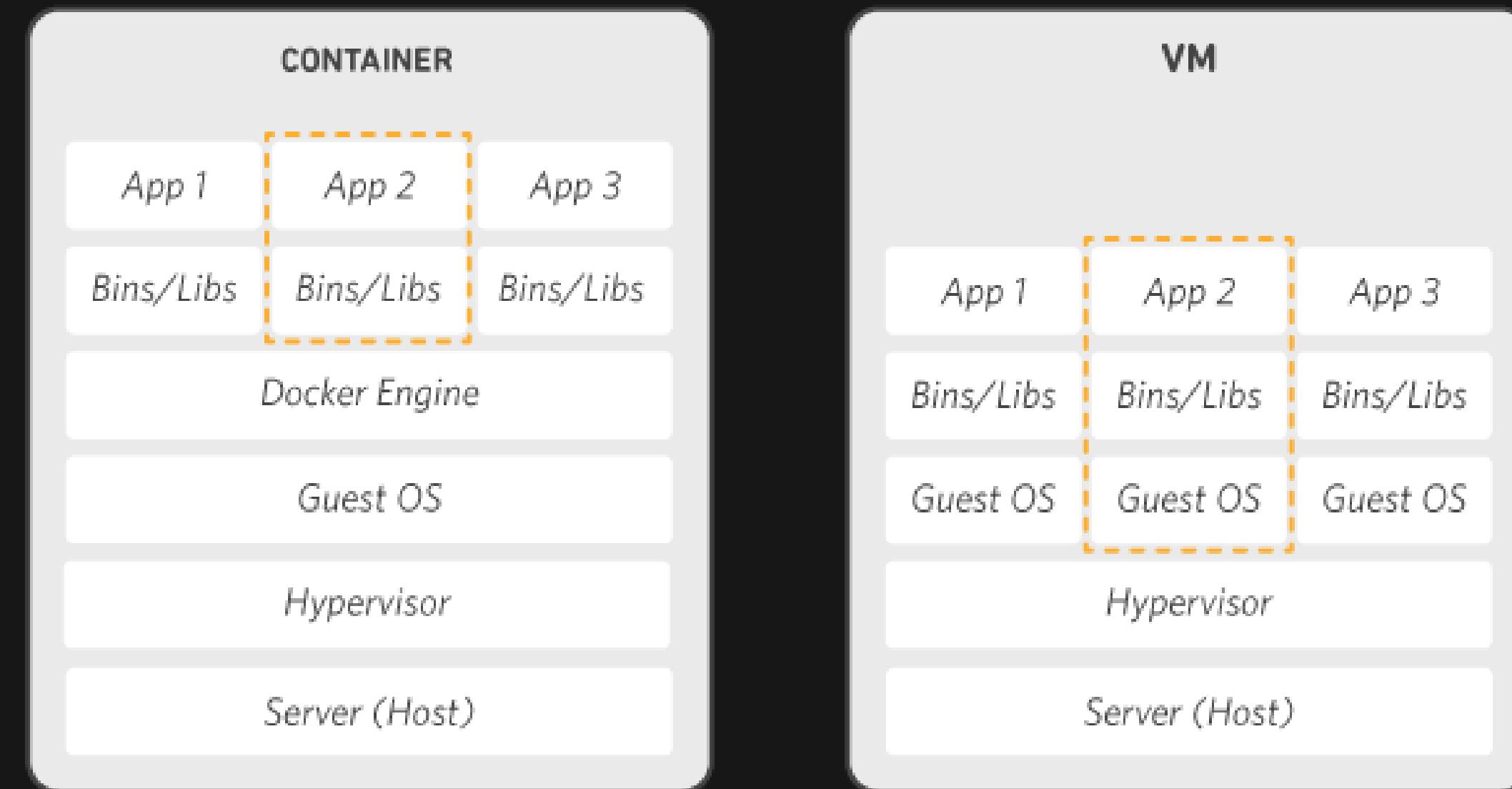
Processamento de dados

Disponibiliza processamento de big data como serviço. Tendo pacotes de dados e ferramentas de análise em contêineres portáteis.

distribuição contínuas

Acelera a distribuição de aplicações padronizando ambientes e removendo conflitos entre pilhas e versões de linguagens.

Docker – Infraestrutura



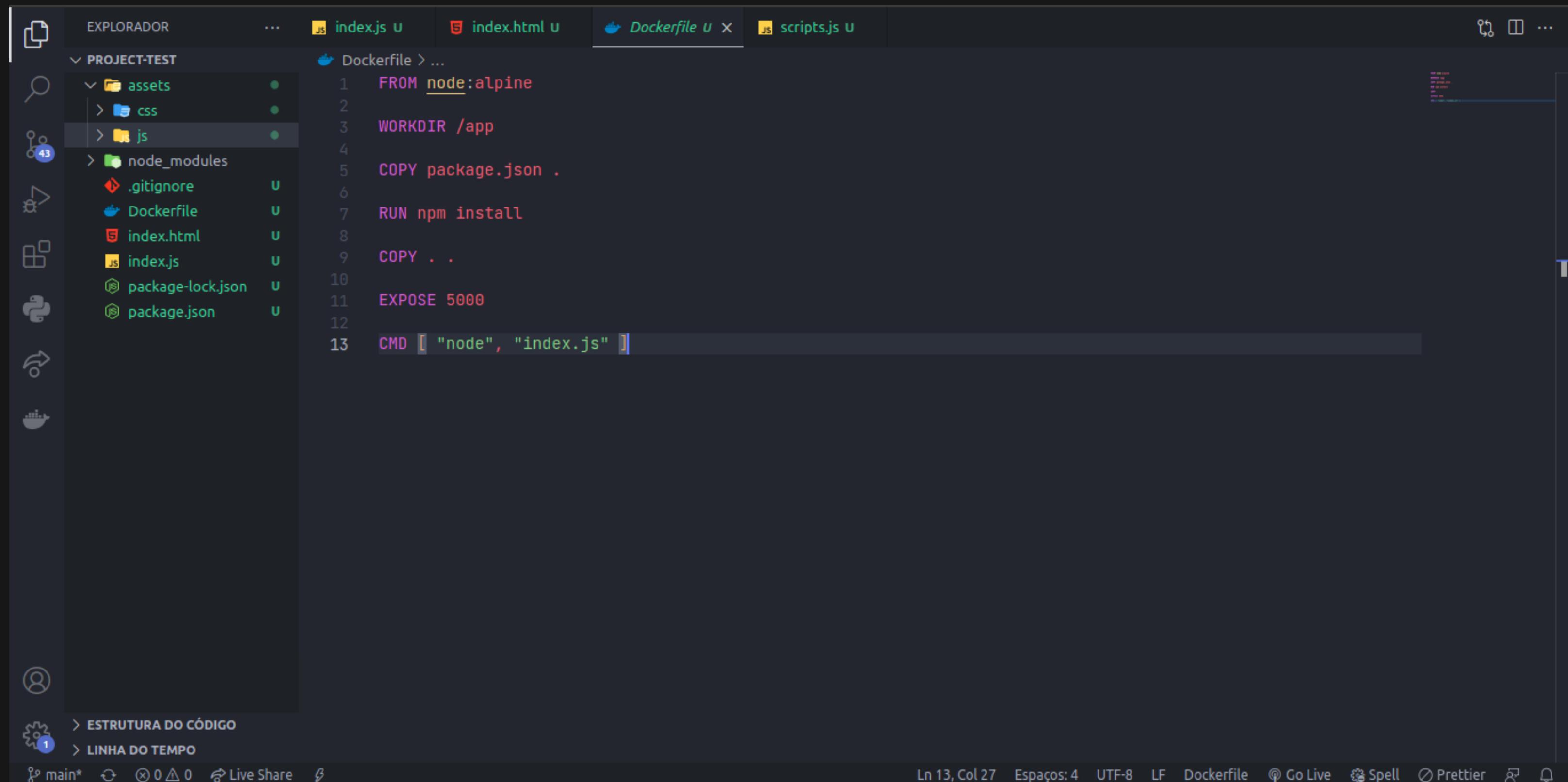
Prática

-
- Configuração no projeto para criar sua imagem com o Docker
 - Envio da imagem para um repositório na AWS ECR
 - Criar um Cluster para o site usando AWS ECS
 - Definir a Task responsável pelo Container da imagem do site
 - Executar uma nova task no Cluster da aplicação
 - Configurar o grupo de segurança referente a instância ec2 utilizada
 - Configurar o VPC(liberando a porta de acesso ao site)
 - Apresentação do site em funcionamento

Configuração no projeto para criar sua imagem com o Docker

- Antes de começar a fazer as configurações na ECS, primeiro vamos precisar construir uma imagem da aplicação web usando o Docker.
- Para isso, precisamos colocar as informações e comandos de execução da aplicação em um arquivo chamado **Dockerfile** na raiz do projeto em questão.
- O Docker vai reconhecer esse arquivo no momento que ele for chamado para construir a imagem, assim aplicando as configurações corretas da construção dessa imagem.

Configuração no projeto para criar sua imagem com o Docker



The screenshot shows the Visual Studio Code interface with a dark theme. On the left is the Explorer sidebar, which lists a project structure under 'PROJECT-TEST'. The 'Dockerfile' tab is active in the top navigation bar. The code editor displays a Dockerfile with the following content:

```
1 FROM node:alpine
2
3 WORKDIR /app
4
5 COPY package.json .
6
7 RUN npm install
8
9 COPY . .
10
11 EXPOSE 5000
12
13 CMD [ "node", "index.js" ]
```

The code editor has syntax highlighting for Dockerfile commands. The status bar at the bottom shows 'Ln 13, Col 27' and other file-related information.

Configuração no projeto para criar sua imagem com o Docker

- Após isso, vamos começar a configurar o ECR para fazer o upload da imagem da aplicação web.
- A execução do script para criar a imagem do docker será mostrada durante a configuração do ECR.

Envio da imagem para um repositório na AWS ECR

The screenshot shows the 'Criar repositório' (Create Repository) page in the AWS ECR console. The top navigation bar includes the AWS logo, a search bar, and account information for 'Norte da Virgínia' and 'alysson_ufc'. The breadcrumb path indicates the user is in the 'Amazon ECR > Repositórios > Criar repositório' section.

Configurações gerais

Configurações de visibilidade Info
Escolha a configuração de visibilidade para o repositório.

Privado
O acesso é gerenciado pelas permissões da política do IAM e do repositório.

Público
Visível publicamente e acessível para extrações de imagens.

Nome do repositório
Forneça um nome conciso. Um desenvolvedor deve ser capaz de identificar o conteúdo do repositório pelo nome.

885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site-v-final

23 de no máximo 256 caracteres (mínimo de 2). The name must start with a letter and can only contain lowercase letters, numbers, hyphens, underscores, periods and forward slashes.

Imutabilidade de etiquetas Info
Ative a imutabilidade de etiquetas para evitar que as etiquetas de imagem sejam substituídas por envios de imagens por push subsequentes usando a mesma etiqueta. Desative o recurso para permitir que as etiquetas de imagem sejam substituídas.

Desabilitado

Depois que um repositório é criado, a configuração de visibilidade do repositório não pode ser alterada.

Configurações de verificação de imagem

Aviso de obsolescência

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Envio da imagem para um repositório na AWS ECR

The screenshot shows the configuration step of creating a new AWS ECR repository. The top navigation bar includes the AWS logo, a services menu, a search bar, and account information for 'Norte da Virgínia' and 'alysson UFC'. The main content area is titled 'Configurações de verificação de imagem' (Image verification settings). It contains a warning box about the obsolescence of ScanOnPush and a 'Verificar por push' (Verify via push) section with a disabled toggle switch. Below this is a 'Configurações de criptografia' (Encryption settings) section for KMS encryption, also with a disabled toggle switch. A note states that KMS encryption settings cannot be changed after repository creation. At the bottom are 'Cancelar' and 'Criar repositório' buttons.

aws | Services | Search for services, features, blogs, docs, and more [Alt+S]

Norte da Virgínia | alysson UFC

usando a mesma etiqueta. Desative o recurso para permitir que as etiquetas de imagem sejam substituídas.

Desabilitado

Depois que um repositório é criado, a configuração de visibilidade do repositório não pode ser alterada.

Configurações de verificação de imagem

Aviso de obsolescência
A configuração do ScanOnPush no nível do repositório tornou-se obsoleta em favor dos filtros de verificação no nível do registro.

Verificar por push
Habilite a verificação por push para que cada imagem seja verificada automaticamente após ser enviada para um repositório. Se estiver desabilitada, cada verificação de imagem deve ser iniciada manualmente para obter os resultados da verificação.

Desabilitado

Configurações de criptografia

Criptografia do KMS
Você pode usar o AWS Key Management Service (KMS) para criptografar imagens armazenadas nesse repositório, em vez de usar as configurações de criptografia padrão.

Desabilitado

Não é possível alterar ou desabilitar as configurações de criptografia do KMS após a criação do repositório.

Cancelar Criar repositório

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Envio da imagem para um repositório na AWS ECR

The screenshot shows the AWS ECR console with a modal window titled "Comandos push para cat-random-site-v-final". The modal is divided into two tabs: "macOS / Linux" (selected) and "Windows". It contains instructions and command-line examples for pushing a Docker image to the repository. The background shows the ECR service page with navigation links like "Summary", "Images", and "Permissions".

Comandos push para cat-random-site-v-final

macOS / Linux | Windows

Verifique se você tem a versão mais recente do AWS CLI e do Docker instalada. Para obter mais informações, consulte [Primeiros passos com o Amazon ECR](#).

Use as etapas a seguir para autenticar e enviar uma imagem para o repositório. Para obter outros métodos de autenticação do registro, incluindo o auxiliar de credenciais do Amazon ECR, consulte [Autenticação do registro](#).

1. Recupere um token de autenticação e autentique seu cliente Docker em seu registro.
Use o AWS CLI:

```
aws ecr get-login-password --region us-east-1 | docker login --username AWS --password-stdin  
885129934642.dkr.ecr.us-east-1.amazonaws.com
```

Observação: se você receber um erro ao usar o AWS CLI, verifique se você tem a versão mais recente do AWS CLI e do Docker instalada.
2. Crie sua imagem do Docker usando o comando a seguir. Para obter informações sobre como criar um arquivo Docker do zero, consulte as instruções [aqui](#). Você pode pular esta etapa se sua imagem já estiver construída:

```
docker build -t cat-random-site-v-final .
```
3. Depois que a compilação for concluída, marque sua imagem para que você possa enviá-la para este repositório:

```
docker tag cat-random-site-v-final:latest 885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site-v-final:latest
```
4. Execute o seguinte comando para enviar essa imagem para o repositório da AWS recém-criado:

```
docker push 885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site-v-final:latest
```

Visualizar comandos push | **Editar**

C | **Excluir** | **Verificar**

< 1 > |

Status da Verificação | Vulnerabilidades

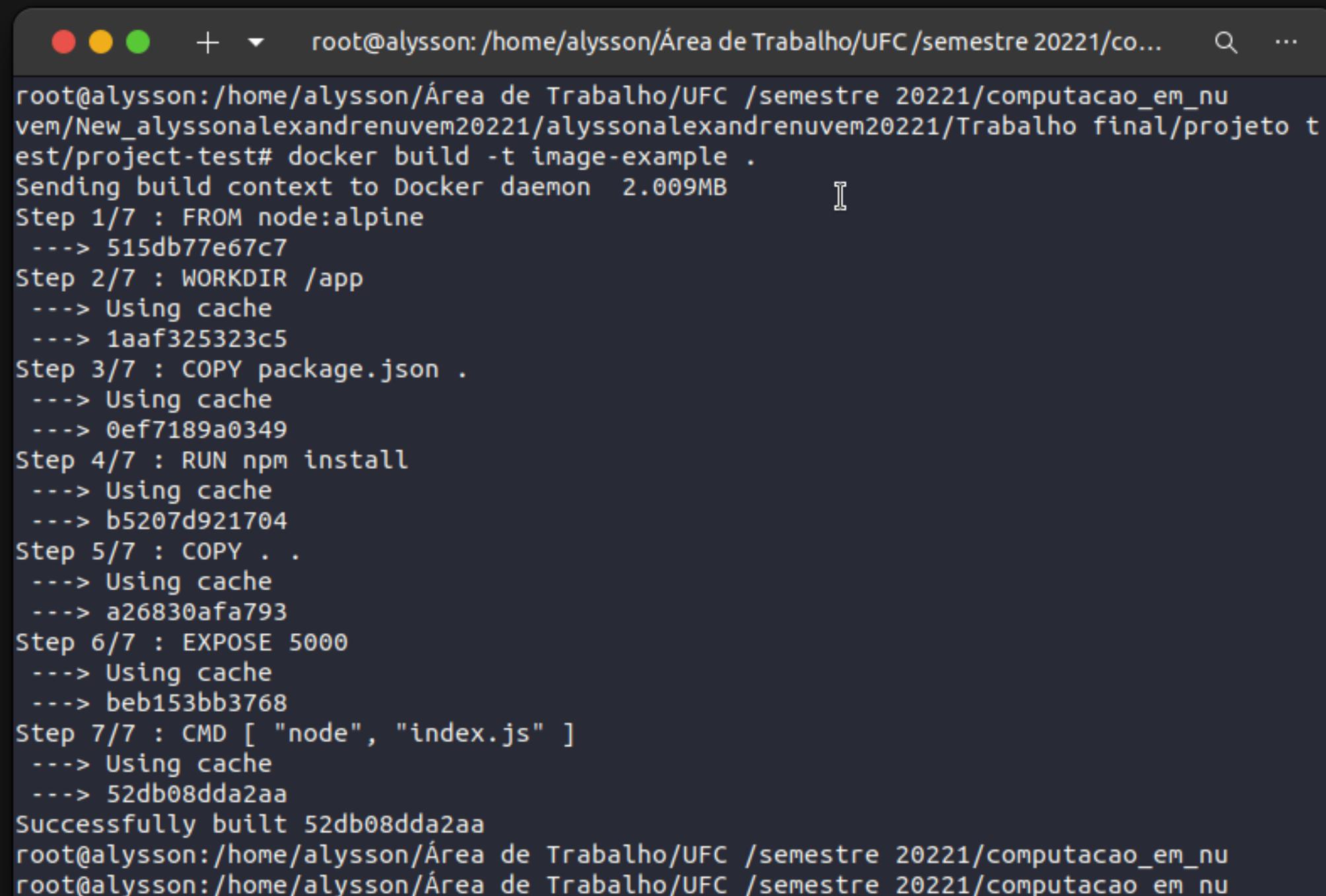
Fechar

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Envio da imagem para um repositório na AWS ECR

code:

docker build -t cat-random-site-v-final .



```
root@alysson:/home/alysson/Área de Trabalho/UFC /semestre 20221/computacao_em_nuvem/New_alyssonalexandrenuvem20221/alyssonalexandrenuvem20221/Trabalho final/projeto test/project-test# docker build -t image-example .
Sending build context to Docker daemon 2.009MB
Step 1/7 : FROM node:alpine
--> 515db77e67c7
Step 2/7 : WORKDIR /app
--> Using cache
--> 1aaaf325323c5
Step 3/7 : COPY package.json .
--> Using cache
--> 0ef7189a0349
Step 4/7 : RUN npm install
--> Using cache
--> b5207d921704
Step 5/7 : COPY . .
--> Using cache
--> a26830afa793
Step 6/7 : EXPOSE 5000
--> Using cache
--> beb153bb3768
Step 7/7 : CMD [ "node", "index.js" ]
--> Using cache
--> 52db08dda2aa
Successfully built 52db08dda2aa
root@alysson:/home/alysson/Área de Trabalho/UFC /semestre 20221/computacao_em_nuvem/New_alyssonalexandrenuvem20221/alyssonalexandrenuvem20221/Trabalho final/projeto test/project-test#
```

Envio da imagem para um repositório na AWS ECR

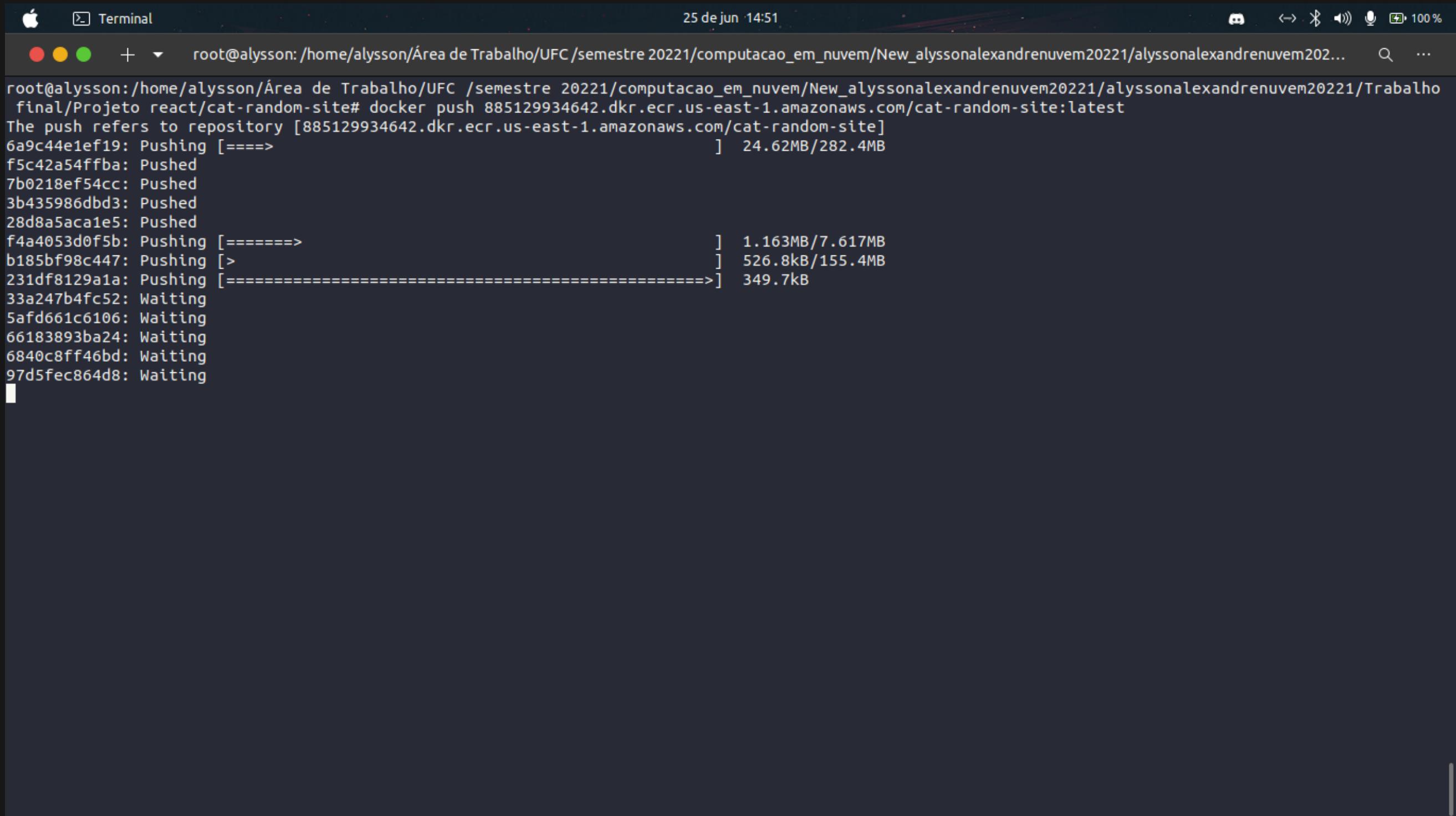
```
docker tag cat-random-
site-v-final:latest
885129934642.dkr.ecr.us-
east-
1.amazonaws.com/cat-
random-site-v-final:latest
```

```
root@alysson:/home/alysson# docker images
REPOSITORY
885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site-v-final
cat-random-site-v-final
project-test
public.ecr.aws/c6q9l7z0/project-test
app-cat-cloud
public.ecr.aws/c6q9l7z0/app-cat-cloud
<none>
cat-random-site_dev
node
node
```

TAG
late
late
late
late
late
late
late
<non
late
late
late
aloi

Envio da imagem para um repositório na AWS ECR

docker push 885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site-v-final:latest



The screenshot shows a macOS Terminal window with a dark theme. The title bar indicates it's a Terminal window. The date and time '25 de jun 14:51' are shown at the top right. The main pane displays the command being run and its progress:

```
root@alysson:/home/alysson/Área de Trabalho/UFC /semestre 20221/computacao_em_nuvem/New_alyssonalexrenuvem20221/alyssonalexrenuvem202... + 25 de jun 14:51
root@alysson:/home/alysson/Área de Trabalho/UFC /semestre 20221/computacao_em_nuvem/New_alyssonalexrenuvem20221/alyssonalexrenuvem20221/Trabalho
final/Projeto react/cat-random-site# docker push 885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site:latest
The push refers to repository [885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site]
6a9c44e1ef19: Pushing [=====] 24.62MB/282.4MB
f5c42a54ffba: Pushed
7b0218ef54cc: Pushed
3b435986dbd3: Pushed
28d8a5aca1e5: Pushed
f4a4053d0f5b: Pushing [=====] 1.163MB/7.617MB
b185bf98c447: Pushing [>] 526.8kB/155.4MB
231df8129a1a: Pushing [=====] 349.7kB
33a247b4fc52: Waiting
5af661c6106: Waiting
66183893ba24: Waiting
6840c8ff46bd: Waiting
97d5fec864d8: Waiting
```

Envio da imagem para um repositório na AWS ECR

The screenshot shows the AWS ECR (Amazon Elastic Container Registry) console. The left sidebar lists navigation options: Private registry, Public registry, Repositories, Summary, Images, Permissions, Lifecycle Policy, Tags, Getting started, Documentation, and Public gallery. The main content area displays the details of a specific image. The URL is 885129934642.dkr.ecr.us-east-1.amazonaws.com/cat-random-site-v-final:latest. The image was pushed on June 26, 2022, at 11:52:02 UTC-03. The image type is an Image, and it has a size of 55.12 MB. A basic verification was completed successfully on June 26, 2022, at 11:55:23 UTC-03, with no vulnerabilities found.

Amazon Elastic Container Registry

Image

Detalhes do {type}

Verificar

Etiquetas de imagem

latest

URI

sha256:cc7af7c79fad4a5c7c79404af7a9511feb5efd42d1b55225a07f78633b890c86

Digest

sha256:cc7af7c79fad4a5c7c79404af7a9511feb5efd42d1b55225a07f78633b890c86

General information

Tipo de artefato: Image

Repositório: cat-random-site-v-final

Enviado por push em: 26 de junho de 2022, 11:52:02 (UTC-03)

Tamanho (MB): 55.12

Verificação básica

Status da verificação: Concluído, 26 de junho de 2022, 11:55:23 (UTC-03)

The scan was completed successfully.

Vulnerabilidades: Nenhum

Criar um Cluster para o site usando AWS ECS

The screenshot shows the AWS ECS Clusters page. On the left, there's a sidebar with navigation links for Amazon ECS (Clusters, Task Definitions, Account Settings), Amazon EKS, Amazon ECR (Repositories), AWS Marketplace, Discover software, and Subscriptions. The main content area is titled "Clusters" and contains a brief description of what an ECS cluster is. It features two buttons: "Create Cluster" (blue) and "Get Started". Below this, there's a "View" dropdown set to "list" and a "card" button, along with a "view all" link and a refresh icon. A search bar at the top right says "Search for services, features, blogs, docs, and more" with a keyboard shortcut "[Alt+S]". The main cluster card for "ClusterTrabalhoCompNuvem" is shown, indicating it's a FARGATE cluster. It displays metrics: 0 Services, 0 Running tasks, 0 Pending tasks under FARGATE; and 0 Services, 1 Running tasks, 0 Pending tasks under EC2. It also shows CPUUtilization at 0.00% and MemoryUtilization at 1.53%. There are 1 EC2 container instances. The cluster uses CloudWatch monitoring with "Default Monitoring" checked.

New ECS Experience
Tell us what you think

Amazon ECS

Clusters

Task Definitions

Account Settings

Amazon EKS

Clusters

Amazon ECR

Repositories

AWS Marketplace

Discover software

Subscriptions

Services

Search for services, features, blogs, docs, and more [Alt+S]

Norte da Virgínia alysson_ufc

Clusters

An Amazon ECS cluster is a regional grouping of one or more container instances on which you can run task requests. Each account receives a default cluster the first time you use the Amazon ECS service. Clusters may contain more than one Amazon EC2 instance type.

For more information, see the [ECS documentation](#).

Create Cluster Get Started

View list card view all

1 - 2 of 2

ClusterTrabalhoCompNuvem > CloudWatch monitoring
Default Monitoring

FARGATE

0 Services 0 Running tasks 0 Pending tasks

EC2

0 Services 1 Running tasks 0 Pending tasks

0.00% CPUUtilization 1.53% MemoryUtilization

1 EC2 container instances

EXTERNAL

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Criar um Cluster para o site usando AWS ECS

The screenshot shows the AWS ECS Cluster Creation interface at Step 1: Select cluster template. The top navigation bar includes the AWS logo, Services, a search bar, and account information for 'Norte da Virgínia' and 'alysson_ufc'. The main content area is titled 'Select cluster template' and displays three cluster template options:

- Networking only**:
 - Resources to be created:
 - Cluster
 - VPC (optional)
 - Subnets (optional)
 - For use with either AWS Fargate (Windows/Linux) or with External instance capacity.
- EC2 Linux + Networking**:
 - Resources to be created:
 - Cluster
 - VPC
 - Subnets
 - Auto Scaling group with Linux AMI
- EC2 Windows + Networking**:
 - Resources to be created:
 - Cluster
 - VPC
 - Subnets
 - Auto Scaling group with Windows AMI

At the bottom, there is a note about required fields (*Required), a 'Cancel' button, and a highlighted 'Next step' button.

Criar um Cluster para o site usando AWS ECS

Screenshot of the AWS ECS Cluster creation interface.

Cluster name*: ClusterTrabalhoCompNuvem

Create an empty cluster

Instance configuration

Provisioning Model: On-Demand Instance

With On-Demand Instances, you pay for compute capacity  the hour, with no long-term commitments or upfront payments.

Spot

Amazon EC2 Spot Instances let you take advantage of unused EC2 capacity in the AWS cloud. Spot Instances are available at up to a 90% discount compared to On-Demand prices.

[Learn more](#)

EC2 instance type*: t2.micro

Manually enter desired instance type

Number of instances*: 1

EC2 AMI ID*: Amazon Linux 2 AMI [ami-0663...]

Root EBS Volume Size (GiB): 30

Key pair: None - unable to SSH

You will not be able to SSH into your EC2

https://us-east-1.console.aws.amazon.com/ecs/home?region=...

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Criar um Cluster para o site usando AWS ECS

The screenshot shows the 'Networking' configuration page for creating an AWS ECS cluster. The top navigation bar includes the AWS logo, 'Services' dropdown, search bar ('Search for services, features, blogs, docs, and more'), and user information ('Norte da Virgínia' and 'alysson_ufc').

VPC: A dropdown menu is open, showing 'vpc-0495cac3cef816f55...' and a link to check the structure in the EC2 console.

Subnets: A dropdown menu is open, showing 'subnet-086223b9345e604f' (172.31.80.0/20) in 'us-east-1a' with the option to 'assign ipv6 on creation: Disabled'. Below it is a 'Select a subnet...' button.

Auto assign public IP: Set to 'Enabled'.

Security group: A dropdown menu is open, showing 'sg-0fb3c54e4fbf63477' (selected), 'Create a new security group', 'sg-08a9d9c3f1cb5b403' (disabled), and 'sg-0fb3c54e4fbf63477 (default)'.

Container instance IAM role: A dropdown menu is open, showing 'sg-0d01ddc7d2591445d (launch-wizard-1)' and 'sg-0fb3c54e4fbf63477 (default)' (selected).

Text at the bottom: 'The Amazon ECS container agent makes communication between your instances and the cluster easier. The agent requires the ecsInstanceRole IAM policy and role for the service to know that the agent belongs to you. If you do not have an IAM role for your instances, we recommend creating one using the Launch Wizard.' The 'Container instance IAM role' dropdown is highlighted with a mouse cursor.

Criar um Cluster para o site usando AWS ECS

The screenshot shows the AWS Management Console interface for creating a Container instance IAM role. The top navigation bar includes the AWS logo, a search bar, and account information for 'Norte da Virgínia' and 'alysson_ufc'. The main content area is titled 'Container instance IAM role' and contains the following sections:

- Container instance IAM role:** A dropdown menu currently set to 'ecsInstanceRole'.
- Note:** A callout box states: "For container instances to receive the new ARN and resource ID format, the root user needs to opt in for the container instance IAM role. Opt in and try again."
- Tags:** A table with two columns: 'Key' and 'Value'. Buttons for 'Add key' and 'Add value' are present.
- CloudWatch Container Insights:** A section describing CloudWatch Container Insights as a monitoring solution. It includes a checkbox labeled 'CloudWatch Container Insights' and 'Enable Container Insights'.
- Buttons at the bottom:** 'Cancel', 'Previous', and a highlighted 'Create' button.

*Required

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Criar um Cluster para o site usando AWS ECS

The screenshot shows the AWS ECS Launch status page. At the top, there's a navigation bar with the AWS logo, a search bar, and account information for 'Norte da Virgínia' and 'alysson_ufc'. Below the header, the title 'Launch status' is displayed. A message states: 'Your container instances are launching, and it may take a few minutes until they are in the running state and ready to access. Usage hours on your new container instances start immediately and continue to accrue until you stop or terminate them.' There are two buttons: 'Back' and 'View Cluster' (which is highlighted in blue). The main content area is titled 'ECS status - 3 of 3 complete ClusterTrabalhoCompNuvem'. It contains three green boxes with checkmarks: 1. 'ECS cluster' - ECS Cluster ClusterTrabalhoCompNuvem successfully created. 2. 'ECS Instance IAM Policy' - IAM Policy for the role ecsInstanceRole successfully attached. 3. 'CloudFormation Stack' - CloudFormation stack EC2ContainerService-ClusterTrabalhoCompNuvem and its resources successfully created. Below this, a section titled 'Cluster Resources' lists the following configuration details:

Instance type	t2.micro
Desired number of instances	1
Key pair	
ECS AMI ID	ami-06634c1b99d35f2c7
VPC	vpc-0495cac3cef816f55
Subnets	subnet-086223b9345e604fe
VPC Availability Zones	us-east-1a, us-east-1b, us-east-1c, us-east-1d, us-east-1e, us-east-1f
Security group	sg-0fb3c54e4fbf63477
Launch configuration	EC2ContainerService-ClusterTrabalhoCompNuvem-EcsInstanceLc-BnQh1enAZifn
Auto Scaling group	EC2ContainerService-ClusterTrabalhoCompNuvem_EcsInstanceAsg_PMR6057236G1

At the bottom, there are links for 'Feedback', 'Language selection', 'Privacy', 'Terms', and 'Cookie preferences', along with a copyright notice: '© 2022, Amazon Web Services, Inc. or its affiliates.'

Criar um Cluster para o site usando AWS ECS

The screenshot shows the AWS ECS Cluster details page for 'ClusterTrabalhoCompNuvem'. The left sidebar navigation includes 'Clusters' (selected), 'Task Definitions', 'Account Settings', 'Amazon EKS', 'Clusters', 'Amazon ECR', 'Repositories', 'AWS Marketplace', 'Discover software', and 'Subscriptions'. The main content area displays cluster statistics: Cluster ARN (arn:aws:ecs:us-east-1:885129934642:cluster/ClusterTrabalhoCompNuvem), Status (ACTIVE), Registered container instances (0), Pending tasks count (0 Fargate, 0 EC2, 0 External), Running tasks count (0 Fargate, 0 EC2, 0 External), Active service count (0 Fargate, 0 EC2, 0 External), and Draining service count (0 Fargate, 0 EC2, 0 External). Below this is a table with columns: Service Name, Status, Service typ..., Task Definit..., Desired tas..., Running tas..., Launch typ..., Platform ver... A 'Create' button is visible at the top of the table. The bottom of the page includes links for Feedback, Unified Settings, Copyright notice (© 2022, Amazon Web Services, Inc. or its affiliates.), Privacy, Terms, and Cookie preferences.

Criar um Cluster para o site usando AWS ECS

Screenshot of the AWS ECS Cluster details page for "ClusterTrabalhoCompNuvem".

Cluster ARN: arn:aws:ecs:us-east-1:885129934642:cluster/ClusterTrabalhoCompNuvem

Status: ACTIVE

Registered container instances: 1

- Pending tasks count: 0 Fargate, 0 EC2, 0 External
- Running tasks count: 0 Fargate, 0 EC2, 0 External
- Active service count: 0 Fargate, 0 EC2, 0 External
- Draining service count: 0 Fargate, 0 EC2, 0 External

ECS Instances tab selected.

An Amazon ECS instance is either an External instance registered using ECS Anywhere or an Amazon EC2 instance.

To register an External instance, choose Register External Instances and follow the steps. [Learn More](#)

To register an Amazon EC2 instance, you can use the Amazon EC2 console. [Learn More](#)

Actions dropdown: Register External Instances, Actions ▾

Last updated on June 26, 2022 12:32:51 PM (0m ago)

Container Instance	ECS Instance	Availability Zo...	External Insta...	Agent Connec...	Status	Running tasks...	CPU av...
7245fa4654474181a1a31c...	i-0675f26b9a8c34562	us-east-1a	false	true	ACTIVE	0	1024

Filter by attributes (click or press down arrow to view filter options)

<https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:instanceId=i-0675f26b9a8c34562;sort=instanceId>

Definir a Task responsável pelo Container da imagem do site

Screenshot of the AWS Step Functions console showing the "Select launch type compatibility" step.

The page title is "Select launch type compatibility". The sub-section title is "Step 1: Select launch type compatibility". Below it is "Step 2: Configure task and container definitions".

The main content area contains three options:

- FARGATE**: Price based on task size. Requires network mode awsvpc. AWS-managed infrastructure, no Amazon EC2 instances to manage.
- EC2**: Price based on resource usage. Multiple network modes available. Self-managed infrastructure using Amazon EC2 instances.
- EXTERNAL**: Price based on instance-hours and additional charges for other AWS services used. Self-managed on-premise infrastructure with ECS Anywhere.

At the bottom left is a note: "*Required". At the bottom right are "Cancel" and "Next step" buttons.

Page footer: Feedback, Looking for language selection? Find it in the new Unified Settings, © 2022, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences.

Definir a Task responsável pelo Container da imagem do site

Step 1: Select launch type compatibility

Step 2: Configure task and container definitions

Configure task and container definitions

A task definition specifies which containers are included in your task and how they interact with each other. You can also specify data volumes for your containers to use. [Learn more](#)

Task definition name* TaskCatSiteVersionFinal

Requires compatibilities* EC2

Task role None

Optional IAM role that tasks can use to make API requests to authorized AWS services. Create an Amazon Elastic Container Service Task Role in the [IAM Console](#)

Network mode <default>

If you choose <default>, ECS will start your container using Docker's default networking mode, which is Bridge on Linux and NAT on Windows. Windows tasks support the <default> and awsvpc network modes.

Task execution IAM role

This role is required by tasks to pull container images and publish container logs to Amazon CloudWatch on your behalf. If you do not have the ecsTaskExecutionRole already, we can create one for you.

Task execution role ecsTaskExecutionRole

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Definir a Task responsável pelo Container da imagem do site

The task size allows you to specify a fixed size for your task. Task size is required for tasks using the Fargate launch type and is optional for the EC2 or External launch type. Container level memory settings are optional when task size is set. Task size is not supported for Windows containers.

Task memory (MiB) 512

The amount of memory (in MiB) used by the task. It can be expressed as an integer using MiB, for example 1024, or as a string using GB, for example '1GB' or '1 gb'.

Task CPU (unit) 1 vCPU

The number of CPU units used by the task. It can be expressed as an integer using CPU units, for example 1024, or as a string using vCPUs, for example '1 vCPU' or '1 vcpu'.

Task memory maximum allocation for container memory reservation

0 512 shared of 512 MiB

Task CPU maximum allocation for containers

0 1024 shared of 1024 CPU units

Container definitions

Add container

Container ...	Image	Hard/Soft ...	CPU Unit...	GPU	Inference A...	Essential ...
No results						

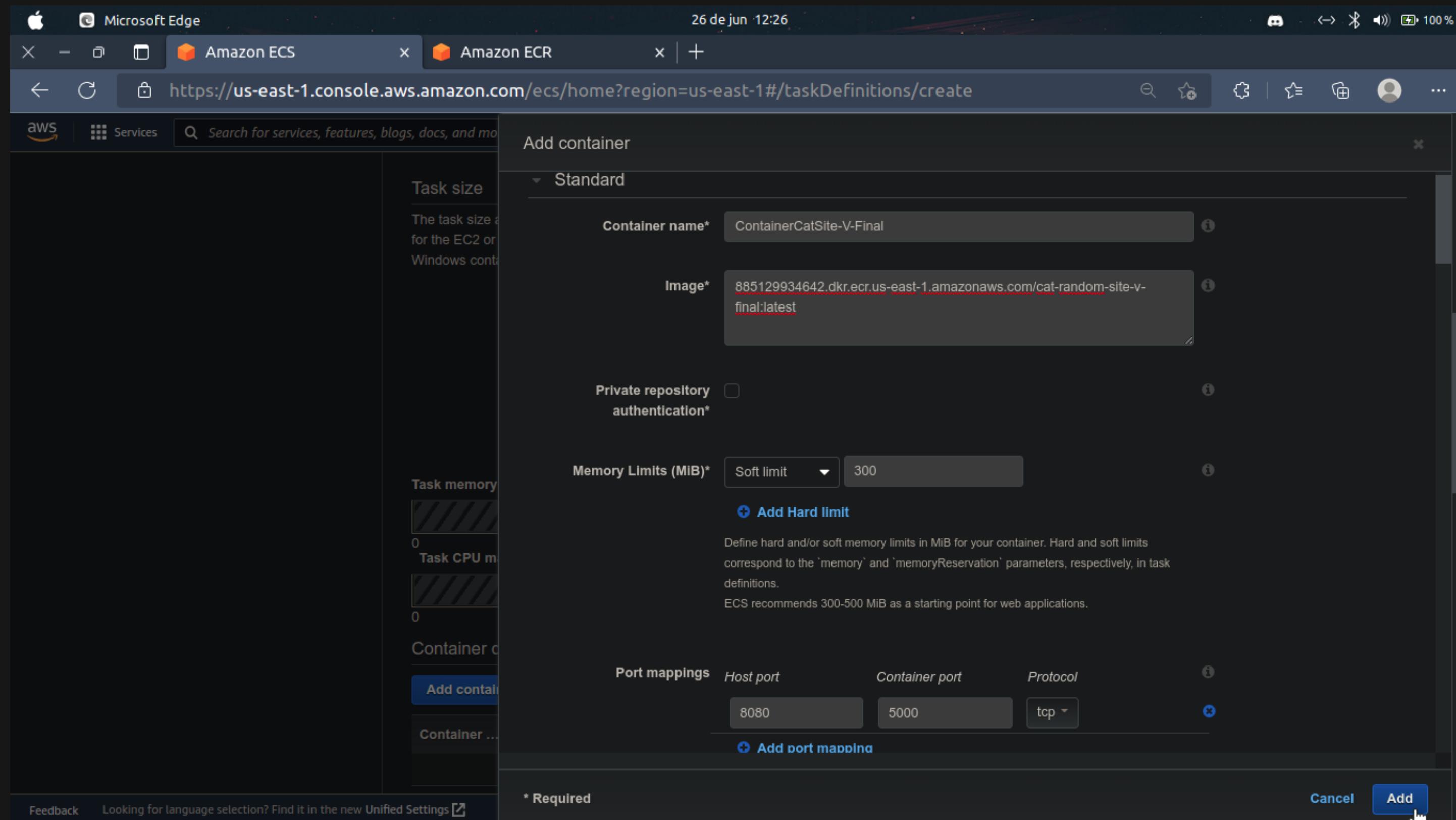
Elastic Inference

Elastic Inference provides cost efficient hardware acceleration for deep learning inference for Amazon ECS tasks. [Learn more](#)

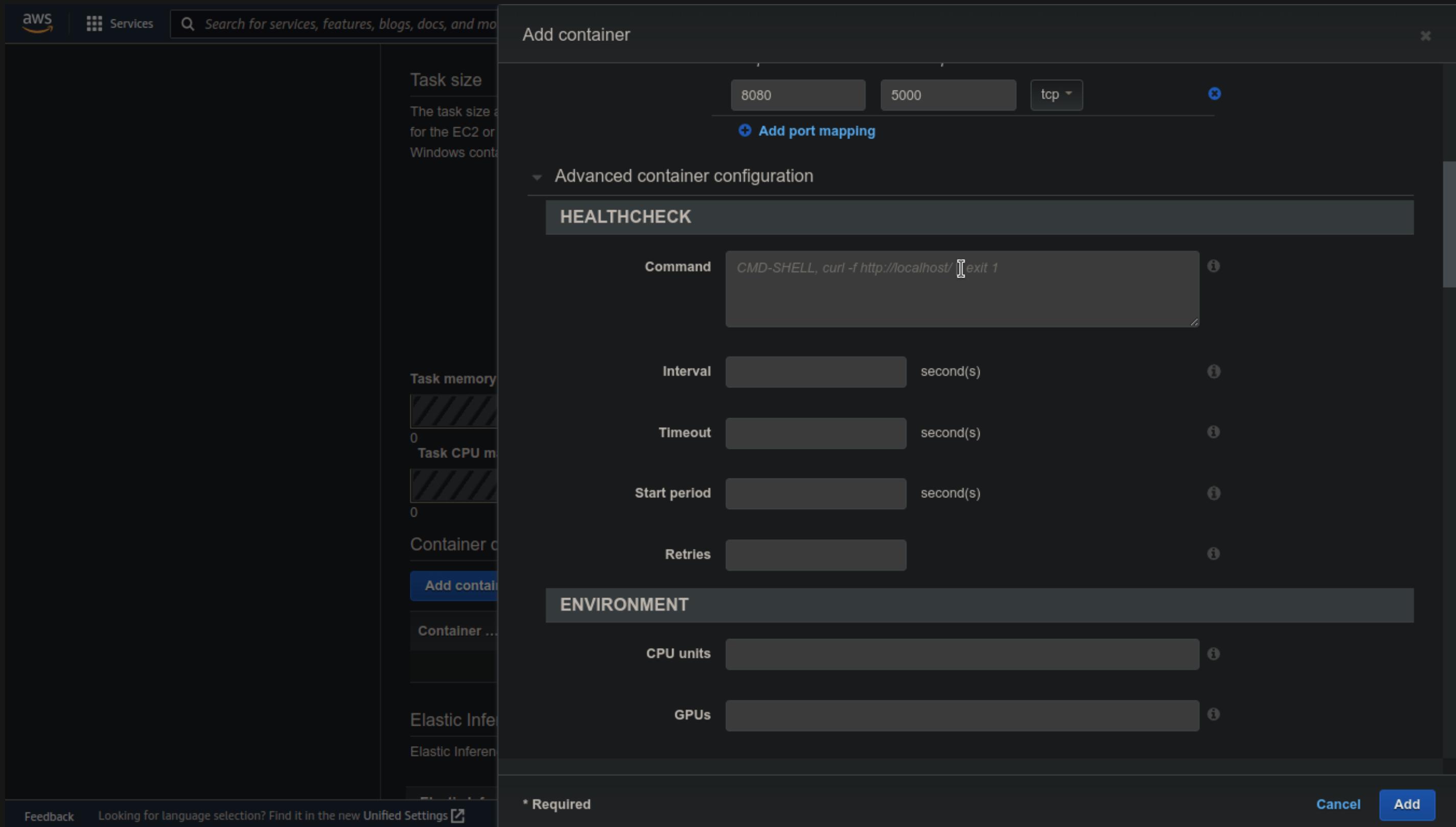
Feedback Looking for language selection? Find it in the new Unified Settings

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Definir a Task responsável pelo Container da imagem do site



Definir a Task responsável pelo Container da imagem do site



Definir a Task responsável pelo Container da imagem do site

The screenshot shows the AWS CloudFormation console with the following details:

- Task size**:
 - Task memory (MiB)**: 512
 - Task CPU (unit)**: 1 vCPU
 - Task memory maximum allocation for container memory reservation**: 212 shared of 512 MiB
 - Task CPU maximum allocation for containers**: 1024 shared of 1024 CPU units
- Container definitions**:
 - Add container**
 - | Container ... | Image | Hard/Soft ... | CPU Unit... | GPU | Inference A... | Essential ... |
|---------------|---------------|---------------|-------------|-----|----------------|---------------|
| Contain... | 8851299346... | --/300 | | | true | |
- Elastic Inference**: Elastic Inference provides cost efficient hardware acceleration for deep learning inference for Amazon ECS tasks. [Learn more](#)

At the bottom, there are links for Feedback, Language selection, Copyright notice, Privacy, Terms, and Cookie preferences.

Definir a Task responsável pelo Container da imagem do site

The screenshot shows the AWS Elastic Inference configuration interface. At the top, there's a navigation bar with the AWS logo, a search bar, and account information for 'Norte da Virgínia' and 'alysson UFC'. The main content area is titled 'Elastic Inference' and describes it as providing cost efficient hardware acceleration for deep learning inference for Amazon ECS tasks. It includes sections for 'Elastic Inference accelerator name' (with a dropdown menu showing 'None'), 'Constraint' (describing task placement constraints), 'Service integration' (mentioning AWS App Mesh), 'Proxy configuration' (mentioning FireLens), and 'Log router integration' (mentioning FireLens). Each section has an 'Enable [feature]' checkbox. At the bottom, there's a 'Volumes' section with a 'Add volume' button.

Definir a Task responsável pelo Container da imagem do site

The screenshot shows the AWS Management Console interface for creating a new task definition. The left sidebar is for Amazon ECS, with 'Task Definitions' selected. The main area shows a green success message box: 'Created Task Definition successfully'. Below it, the task definition details are shown:

- Task definition name:** TaskCatSiteVersionFinal
- Task role:** None (with a note about optional IAM roles)
- Network mode:** <default> (with a note about Docker's default networking mode)
- Compatibilities:** EXTERNAL, EC2
- Requires compatibilities:** EC2

At the bottom, there are links for Feedback, Unified Settings, Copyright notice, Privacy, Terms, and Cookie preferences.

Executar uma nova task no Cluster da aplicação

The screenshot shows the AWS ECS Cluster details page for 'ClusterTrabalhoCompNuvem'. The left sidebar is collapsed, showing options like 'Clusters', 'Task Definitions', and 'Account Settings'. The main content area displays cluster statistics: Cluster ARN (arn:aws:ecs:us-east-1:885129934642:cluster/ClusterTrabalhoCompNuvem), Status (ACTIVE), Registered container instances (1), Pending tasks count (0 Fargate, 0 EC2, 0 External), Running tasks count (0 Fargate, 0 EC2, 0 External), Active service count (0 Fargate, 0 EC2, 0 External), and Draining service count (0 Fargate, 0 EC2, 0 External). Below these, there are tabs for Services, Tasks, ECS Instances, Metrics, Scheduled Tasks, Tags, and Capacity Providers. The 'Tasks' tab is selected, showing a table header with columns: Task, Task definiti..., Container In..., Last status ..., Desired stat..., Started at, Started By, Group, Launch type..., and Platform ver...'. A large blue button labeled 'Run new Task' is prominently displayed above the table, with a cursor hovering over it. The table below is empty, displaying 'No results'. At the bottom right of the table, there are refresh and help icons. The top right of the page shows 'Update Cluster' and 'Delete Cluster' buttons, along with account information ('Norte da Virgínia' and 'alysson UFC'). The bottom of the page includes links for Feedback, Language selection, and various AWS terms like Privacy, Terms, and Cookie preferences.

Executar uma nova task no Cluster da aplicação

The screenshot shows the AWS CloudFormation console with the 'Create New Stack' wizard. The left sidebar lists services: Task Definitions, Account Settings, Amazon EKS, Clusters, Amazon ECR, Repositories, AWS Marketplace, Discover software, and Subscriptions. The main area is titled 'Create New Stack' and contains the following fields:

- Launch type:** FARGATE (radio button)
- Task Definition:** Family dropdown set to 'TaskCatSiteVersionFinal' (with an 'Enter a value' button), Revision dropdown set to '1 (latest)'.
- Cluster:** ClusterTrabalhoCompNuvem
- Number of tasks:** 1
- Task Group:** 1

VPC and security groups: A note states: "VPC and security groups are configurable when your task definition uses the awsvpc network mode."

Task Placement: A note states: "Lets you customize how tasks are placed on instances within your cluster. Different placement strategies are available to optimize for availability and efficiency."

Placement Templates: AZ Balanced Spread (dropdown), with a detailed description: "This template will spread tasks across availability zones and within the availability zone spread tasks across instances. [Learn more](#)". Below it, the Strategy is listed as: "spread(attribute:ecs.availability-zone), spread(instanceId)".

Advanced Options: A link to expand advanced configuration options.

At the bottom, there are links for Feedback, Unified Settings, Copyright (© 2022, Amazon Web Services, Inc. or its affiliates.), Privacy, Terms, and Cookie preferences.

Executar uma nova task no Cluster da aplicação

The screenshot shows the AWS CloudWatch Metrics interface. A log stream named 'lambda' is selected. The log data is displayed in a table:

Time	Log Stream	Message
2022-07-12T10:45:00+00:00	lambda	Missing dependency: 'aws-sdk-node'
2022-07-12T10:45:00+00:00	lambda	Execution succeeded: 'test'

At the bottom of the page, there are navigation links for other log streams: 'lambda-2022-07-12T10:45:00+00:00', 'lambda-2022-07-12T10:45:00+00:00', and 'lambda-2022-07-12T10:45:00+00:00'.

Executar uma nova task no Cluster da aplicação

The screenshot shows the AWS ECS Tasks page. The top navigation bar includes tabs for Services, Tasks, ECS Instances, Metrics, Scheduled Tasks, Tags, and Capacity Providers. The 'Tasks' tab is selected, highlighted with an orange border.

Below the navigation bar are several buttons: 'Run new Task' (blue), 'Stop', 'Stop All', and 'Actions'. To the right of these buttons is a timestamp: 'Last updated on June 26, 2022 2:05:45 PM (0m ago)'. Further to the right are two small icons: a magnifying glass and a question mark, with the magnifying glass icon having a red square outline around it.

The main content area displays the task status information. It shows 'Desired task status: Running' (highlighted with a blue oval) and 'Stopped'. Below this, there are filters: 'Filter in this page' (with a trash bin icon), 'Launch type ALL' (with a dropdown arrow), and pagination controls: '< 1-1 >' and 'Page size 50' (with a dropdown arrow).

The table below has columns: Task, Task definition, Container instance, Last status ..., Desired stat..., Started at, Started By ..., Group, Launch type..., and Platform ver... . The first row shows a task with the ID '28a19a3f60b...', definition 'TaskCatSiteV...', container instance '7245fa46544...', last status 'RUNNING', desired status 'RUNNING', started at '2022-06-26 1...', started by '1', group 'EC2', launch type '--', and platform version '--'. There are checkboxes in the first column for each row.

	Task	Task definition	Container instance	Last status ...	Desired stat...	Started at	Started By ...	Group	Launch type...	Platform ver...
<input type="checkbox"/>	28a19a3f60b...	TaskCatSiteV...	7245fa46544...	RUNNING	RUNNING	2022-06-26 1...	1	EC2	--	--

Configurar o grupo de segurança referente a instância ec2 utilizada

- Basicamente, toda a estrutura do deploy foi feita para a aplicação web. Porém só falta uma pequena alteração nos grupos de segurança, mais precisamente com o VPC padrão o qual estamos usando na nossa máquina do EC2.
- O que precisaremos fazer nas configurações do VPC padrão é apenas liberar a porta 8080 da máquina para usarmos essa porta no DNS IPV4 público, assim ter acesso a aplicação web do deploy.
- Configurar o VPC(liberando a porta de acesso ao site)

• Configurar o VPC(liberando a porta de acesso ao site)

The screenshot shows the AWS EC2 Instances page. At the top, there is a green banner with the message "Encerradas com sucesso i-0fb0fb19b05a1521a". Below the banner, the main title is "Instâncias (1/1) Informações". A search bar contains the filter "Estado da instância = running". The table lists one instance:

Name	ID de instância	Estado da instância	Tipo de instância	Verificação de status
ECS Instance - EC2ContainerService-ClusterTrabalhoCompNuvem	i-0675f26b9a8c34562	Executando	t2.micro	2/2 verificações apr

Below the table, a detailed view for the instance "i-0675f26b9a8c34562" is shown. The tabs at the top of this view are "Detalhes", "Segurança", "Redes", "Armazenamento", "Verificações de status", "Monitoramento", and "Tags". The "Resumo da instância" section displays the following information:

ID de Instância i-0675f26b9a8c34562 (ECS Instance - EC2ContainerService-ClusterTrabalhoCompNuvem)	Endereço IPv4 público 44.201.238.173 endereço aberto	Endereços IPv4 privados 172.31.86.148
Endereço IPv6 -	Estado da instância Executando	DNS IPv4 público ec2-44-201-238-173.compute-1.amazonaws.com endereço aberto
Tipo de nome do host Nome do IP: ip-172-31-86-148.ec2.internal	Nome do DNS de IP privado (somente IPv4) ip-172-31-86-148.ec2.internal	Tipo de instância Endereços IP elásticos
Nome do DNS do recurso privado de resposta		

• Configurar o VPC(liberando a porta de acesso ao site)

The screenshot shows the AWS Management Console interface for managing security groups. The left sidebar navigation includes 'Instâncias', 'Tipos de instância', 'Modelos de execução', 'Solicitações spot', 'Savings Plans', 'Instâncias reservadas', 'Hosts dedicados', 'Instâncias programadas', 'Reservas de capacidade', 'Imagens', 'AMIs', 'Catálogo de AMIs', 'Elastic Block Store', 'Volumes', 'Snapshots', 'Lifecycle Manager', 'Rede e segurança', 'Security groups', 'IPs elásticos', 'Placement groups', 'Pares de chaves', 'Interfaces de rede', and 'Balanceamento de carga'. The main content area displays the details for the security group 'sg-0fb3c54e4fbf63477 - default'. The 'Detalhes' section shows the following information:

Nome do grupo de segurança default	ID do grupo de segurança sg-0fb3c54e4fbf63477	Descrição default VPC security group	ID da VPC vpc-0495cac3cef816f55
Proprietário 885129934642	Número de regras de entrada 3 Entradas de permissão	Número de regras de saída 1 Entrada de permissão	

Below this, there are tabs for 'Regras de entrada', 'Regras de saída', and 'Tags'. A message box says: 'Agora, você pode verificar a conectividade de rede com o Reachability Analyzer' with buttons 'Executar Reachability Analyzer' and 'X'. The 'Regras de entrada (3)' table lists the following rules:

Name	ID da regra do grupo	Versão do IP	Tipo	Protocolo	Intervalo de portas
-	sgr-0bee67306a58e6ee4	IPv6	TCP personalizado	TCP	8080
-	sgr-083d6bdf5cada6ef0	IPv4	TCP personalizado	TCP	8080
-	sgr-010b66042e7bc28...	-	Todo o tráfego	Tudo	Tudo

At the bottom, there are links for 'Feedback', 'Looking for language selection? Find it in the new Unified Settings', '© 2022, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

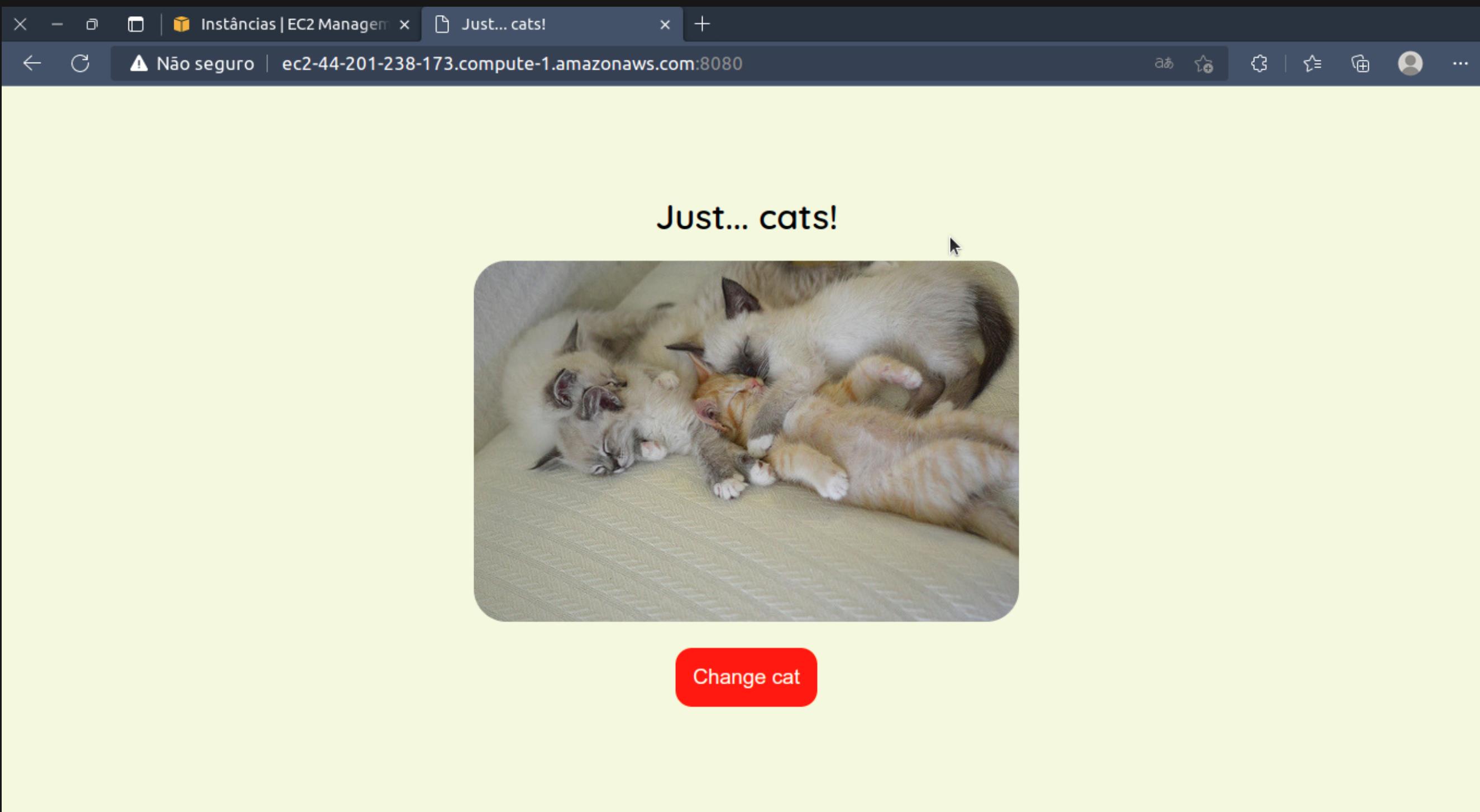
• Configurar o VPC(liberando a porta de acesso ao site)

The screenshot shows the AWS Management Console interface for managing security group rules. The top navigation bar includes the AWS logo, services menu, search bar, and account information for 'Norte da Virgínia' and 'alysson_ufc'. The current path is 'EC2 > Grupos de segurança > sg-0fb3c54e4fbf63477 - default > Editar regras de entrada'. The main content area is titled 'Editar regras de entrada' with a 'Informações' link. A sub-header states: 'As regras de entrada controlam o tráfego de entrada que tem permissão para acessar a instância.' Below this, a table lists three existing rules:

ID da regra do grupo de segurança	Tipo	Protocolo	Intervalo de portas	Origem	Descrição - opcional
sgr-0bee67306a58e6ee4	TCP personalizado	TCP	8080	Person... ▾	<input type="text"/> ::/0 X
sgr-083d6bdf5cada6ef0	TCP personalizado	TCP	8080	Person... ▾	<input type="text"/> 0.0.0.0/0 X
sgr-010b66042e7bc28db	Todo o tráfego	Tudo	Tudo	Person... ▾	<input type="text"/> sg-0fb3c54e4fbf63477 X

At the bottom left is a 'Adicionar regra' button. At the bottom right are 'Cancelar', 'Visualizar alterações', and a large orange 'Salvar regras' button.

- Apresentação do site em funcionamento



- Apresentação do site em funcionamento

<http://ec2-44-201-238-173.compute-1.amazonaws.com:8080/>

Considerações Finais

- Agora vamos para a pergunta sobre a apresentação
- Agradecimentos
- Fatura total da aws

1. Sobre o Deploy da aplicação feita na AWS com ECS, assinale V ou F nos itens abaixo:

- ECR é um serviço responsável por gerenciar o Cluster de uma aplicação. ()
- Docker é um SaaS usada pra criar contêineres. ()
- A Amazon ECS task definitions é usado para executar contêineres do Docker no Amazon ECS. ()
- A AWS ECR é responsável por guardar imagens em repositórios públicos ou privados. ()

**1. Sobre o Deploy da aplicação feita na AWS com ECS,
assinale V ou F nos itens abaixo:**

- ECR é um serviço responsável por gerenciar o Cluster de uma aplicação. (F)
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- A Amazon ECS task definitions é usado para executar contêineres do Docker no Amazon ECS. (V)
- A AWS ECR é responsável por guardar imagens em repositórios públicos ou privados. (V)

Obrigado pela atenção!
Perguntas?

EXTRA: FATURAMENTO DA CONTA

The screenshot shows the AWS Billing Management Console in Microsoft Edge. The URL is <https://us-east-1.console.aws.amazon.com/billing/home?region=us-east-1#/bills?year=2022&month=6>. The page displays a bill for the month of June 2022. The total amount due is \$4,376.33. The bill details various AWS services and their estimated costs:

Cobranças de serviços da AWS	\$0.00
CloudWatch	\$0.00
Data Transfer	\$0.00
EC2 Container Registry (ECR)	\$0.00
Elastic Container Registry Public	\$0.00
Elastic Container Service	\$4,376.33

Detalhes

Ordens de compra

- Cost & Usage Reports
- Cost Categories
- Tags de alocação de custos
- Free Tier
- Billing Conductor
- Cost Management
- Cost Explorer
- Budgets
- Budgets Reports
- Planos de economia
- Preferências
- Preferências de faturamento
- Métodos de pagamento
- Faturamento consolidado
- Configurações fiscais

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