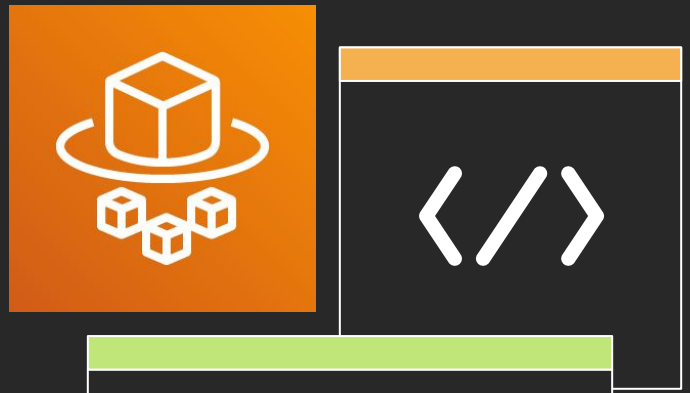
AWS Fargate



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Zhehan Xiang - Zhipeng Lin

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Introducción y Relevancia

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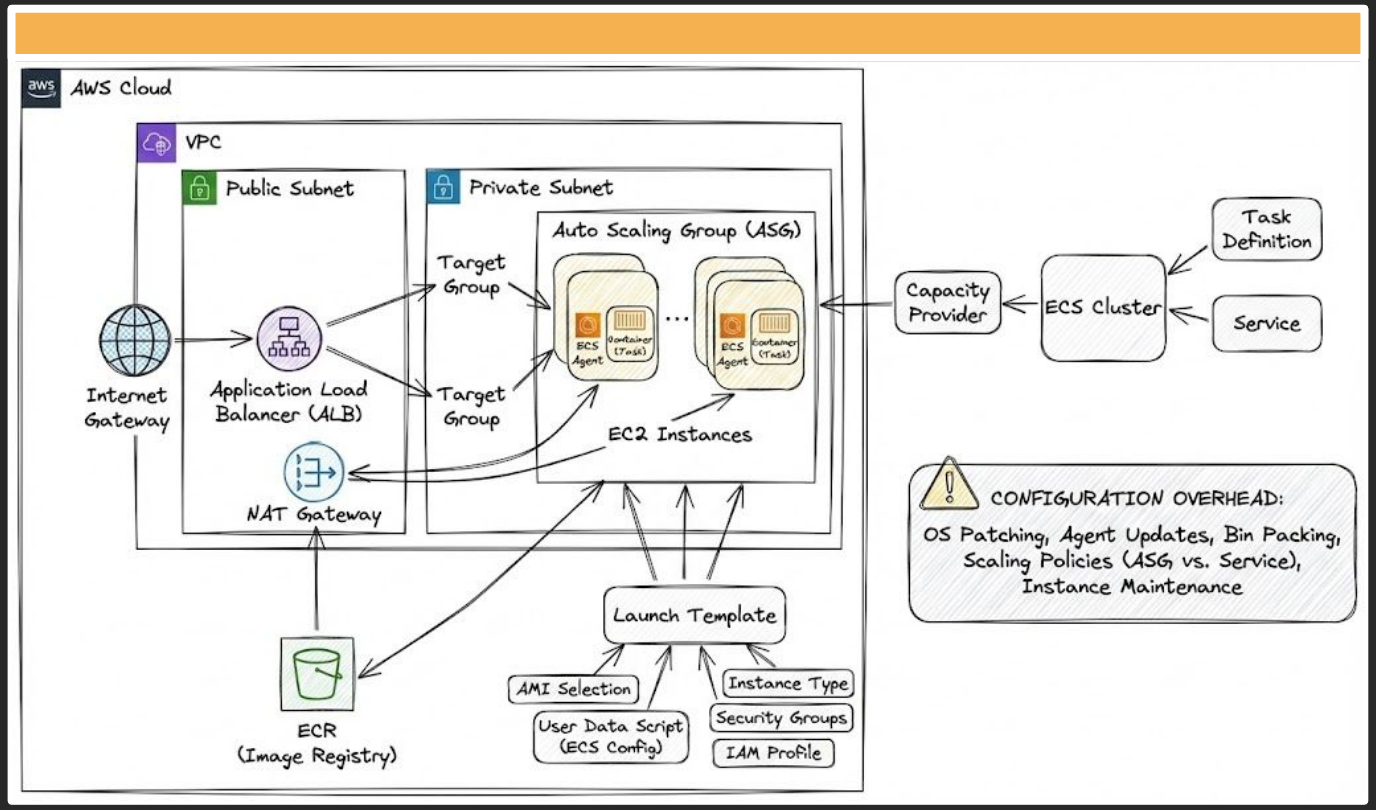
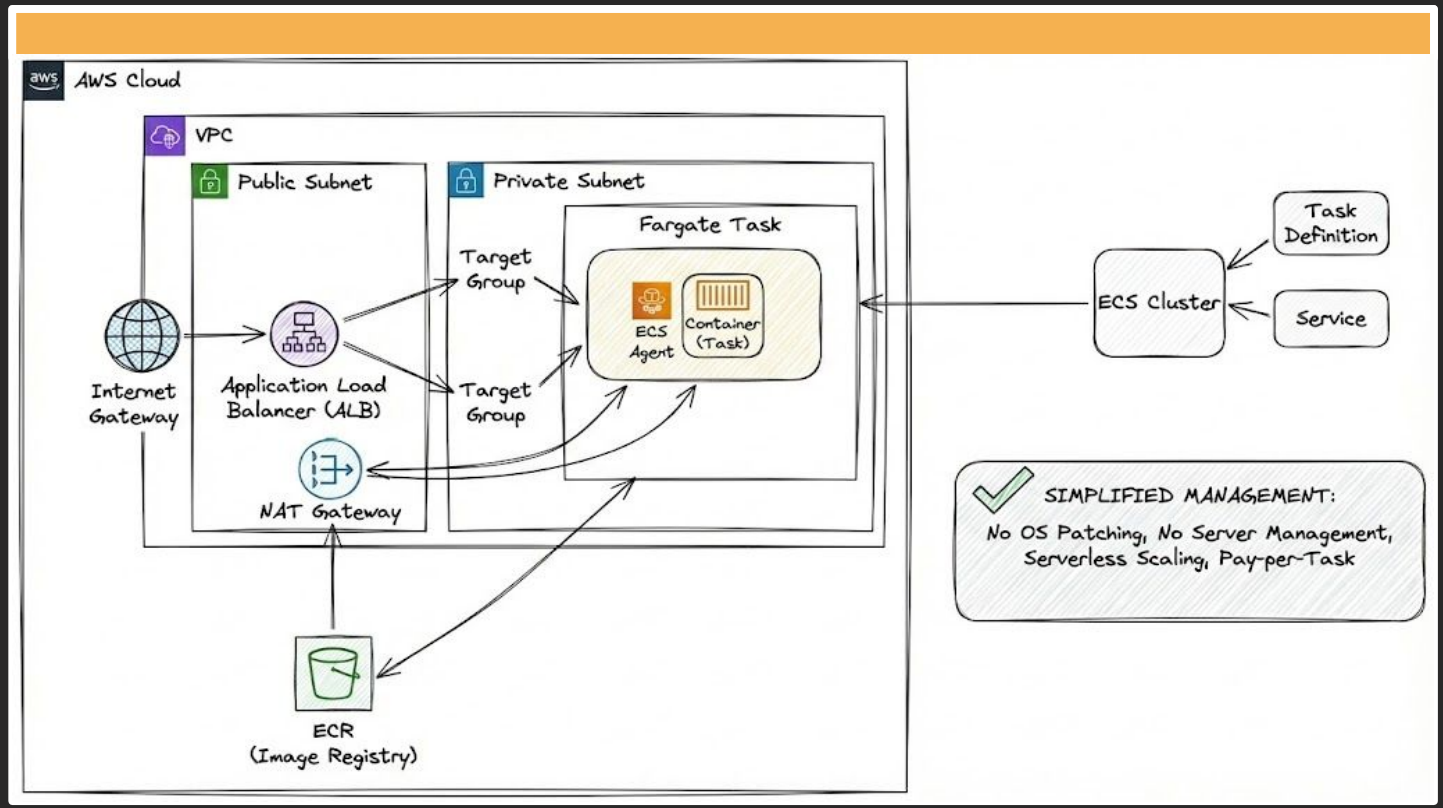
SERVERLESS COMPUTE FOR CONTAINER


AWS Cloud
VPC
Public Subnet
Private Subnet
Auto Scaling Group (ASG)
Target Group
Target Group
Internet Gateway
Application Load Balancer (ALB)
NAT Gateway
EC2 Instances
ECS Agent
Container (Task)
Capacity Provider
ECS cluster
Task Definition
Service
CONFIGURATION OVERHEAD:
OS Patching, Agent Updates, Bin Packing, Scaling Policies (ASG vs. Service), Instance Maintenance
Launch Template
AMI Selection
User Data Script (ECS Config)
Instance Type
Security Groups
IAM Profile
ECR (Image Registry)


AWS Cloud
VPC
Public Subnet
Private Subnet
Fargate Task
Target Group
Target Group
ECS Agent
Container (Task)
Internet Gateway
Application Load Balancer (ALB)
NAT Gateway
ECR (Image Registry)
Task Definition
ECS Cluster
Service
SIMPLIFIED MANAGEMENT:
No OS Patching, No Server Management, Serverless Scaling, Pay-per-Task

EC2 vs. Fargate

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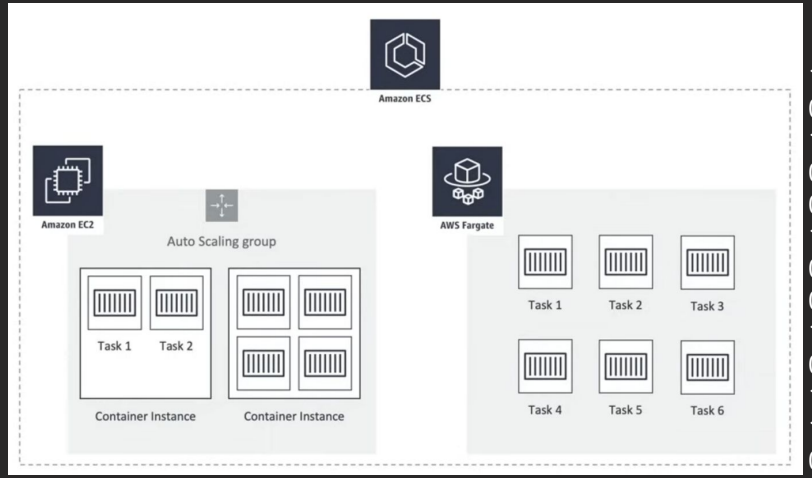
Modelo EC2: Eres dueño de la VM, pagas por capacidad reservada (aunque no la uses), tienes control total pero responsabilidad total.

Modelo Fargate: AWS gestiona toda la infraestructura. Pagas por vCPU/RAM consumida, mayor aislamiento y seguridad.



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¿Cuándo usar cuál?

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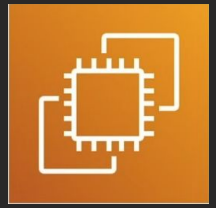
Fargate: Cargas de trabajo variables, entornos de desarrollo, o cuando no quieres administrar SO.

EC2: Cargas muy constantes (coste), control profundo del hardware (GPUs específicas), o Reserved Instances.



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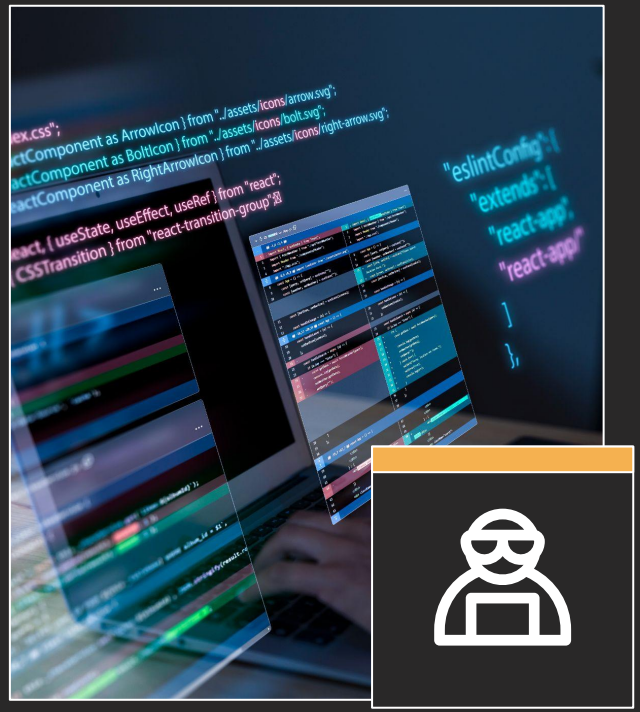
“Hands-on” Teórico: Tutorial

ECS Key Terms

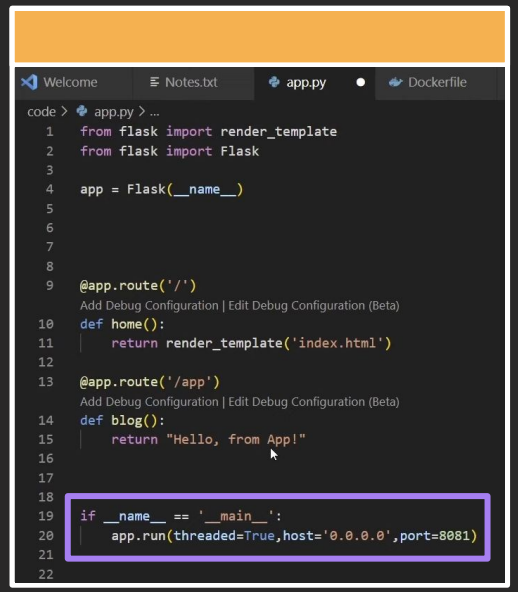
- **Task** - The lowest level building block of ECS - Runtimes instances
- **Task Definitions** - Templates for your **Tasks**. This is where you specify your Docker image, Memory/CPU Requirements, etc.
- **Container** (EC2 Only) - Virtualized Instance that run your **Tasks**.
- **Cluster** - EC2 - A group of Containers which run **Tasks**
  Fargate - A group of **Tasks**
- **Service** - A Task management system that ensures X amount of tasks are up and running.

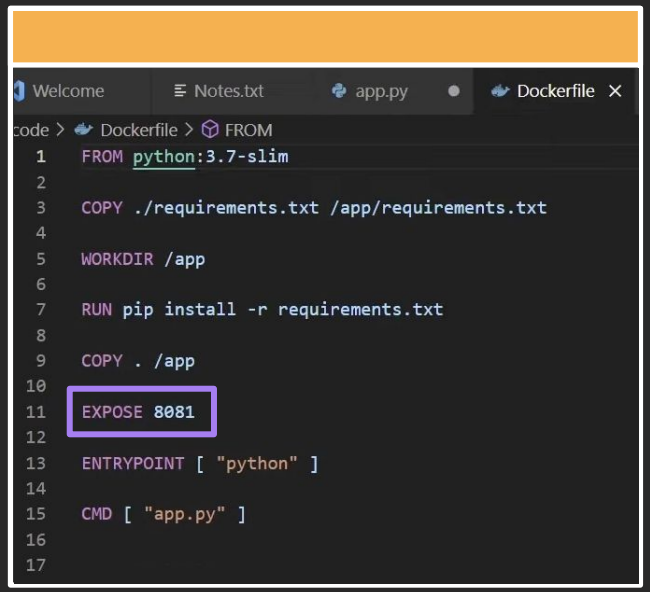


“Hands-on” Teórico: Tutorial

app.py code
Dockerfile code

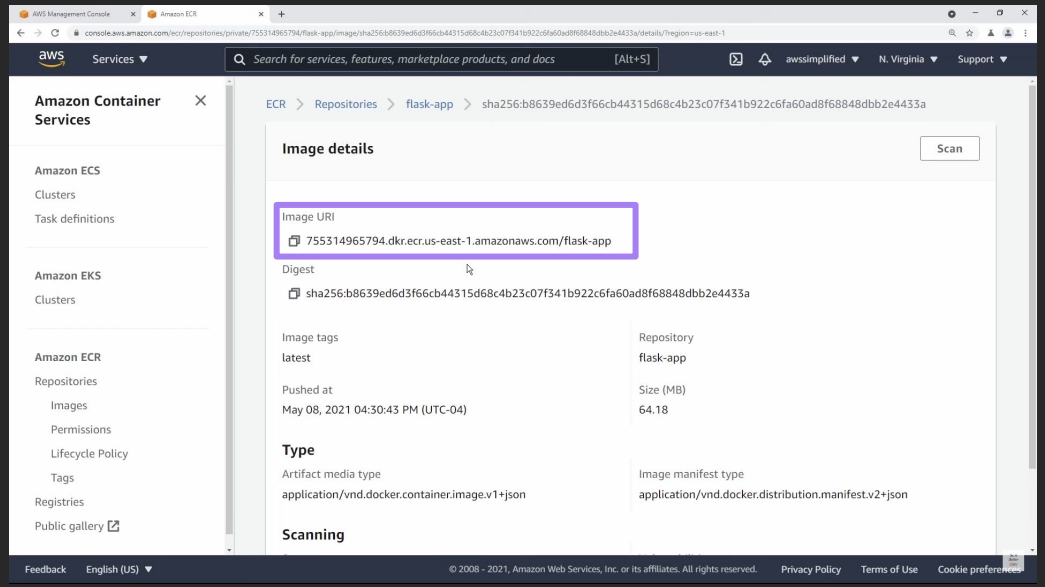
Preparamos nuestro proyecto y lo Dockerizamos



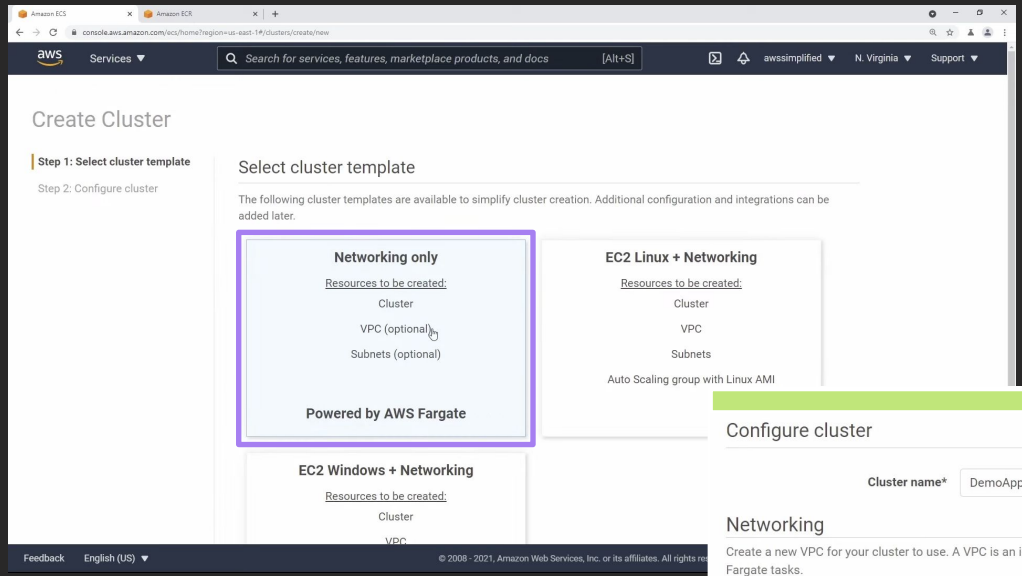


“Hands-on” Teórico: Tutorial

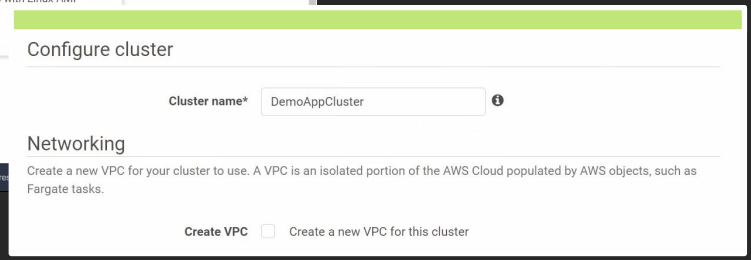
Tenemos nuestra imagen de Docker almacenada en ECR



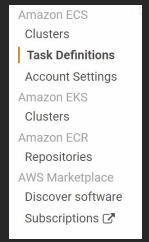
“Hands-on” Teórico: Tutorial



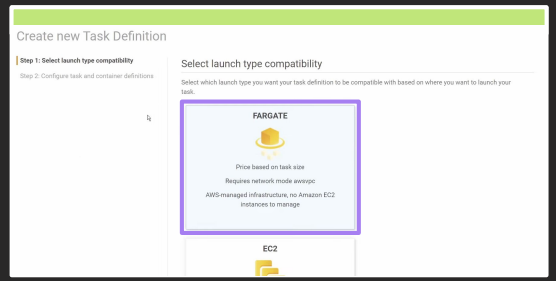
Cambiamos de servicio, ahora ECS (ejecutar, administrar y escalar contenedores Docker), para crear un Cluster.

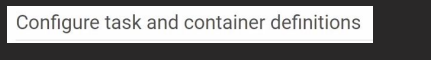


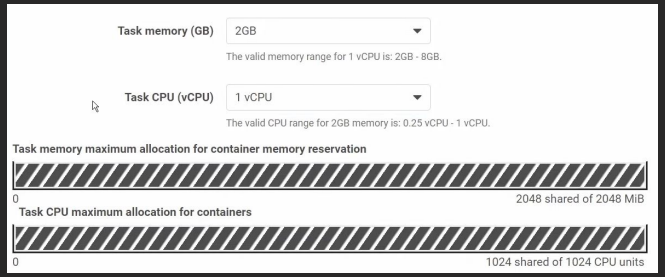
“Hands-on” Teórico: Tutorial

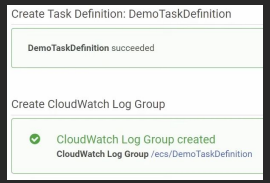


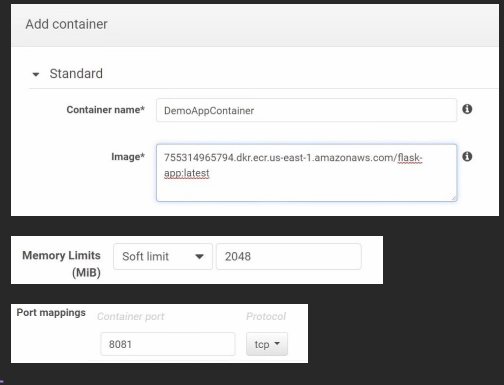
Ahora definimos una tarea con nuestro proyecto Dockerizado y almacenado en ECR





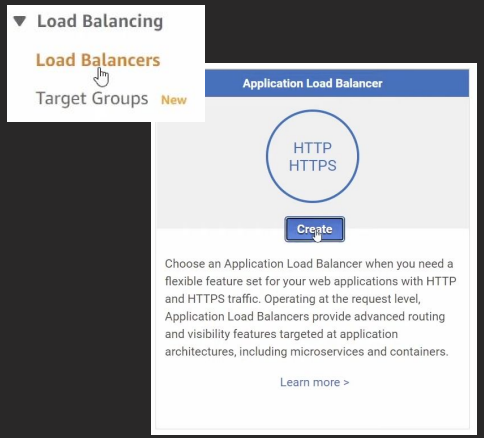


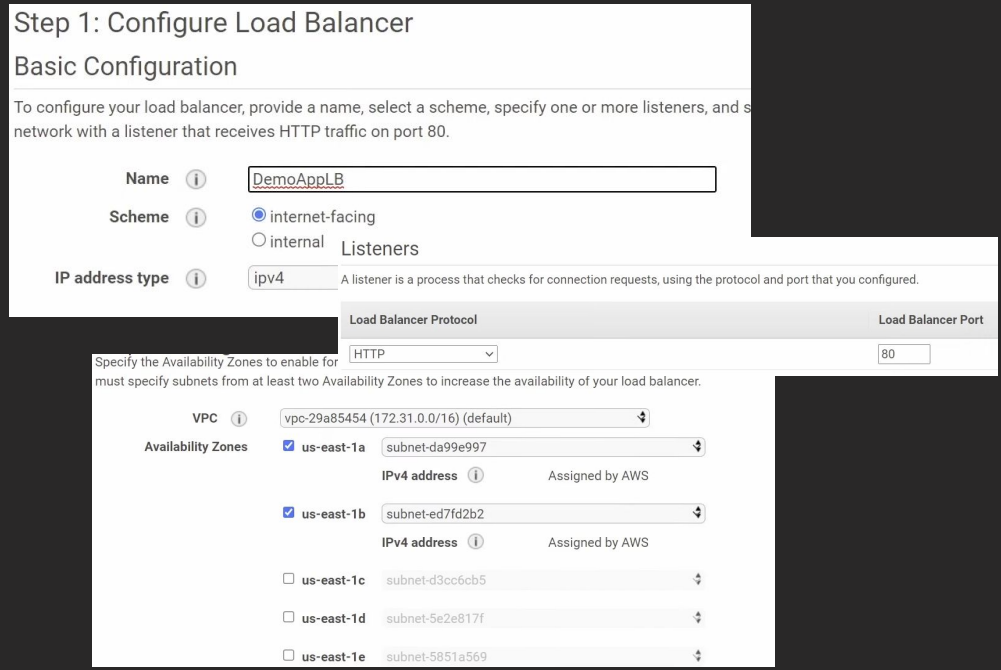




“Hands-on” Teórico: Tutorial

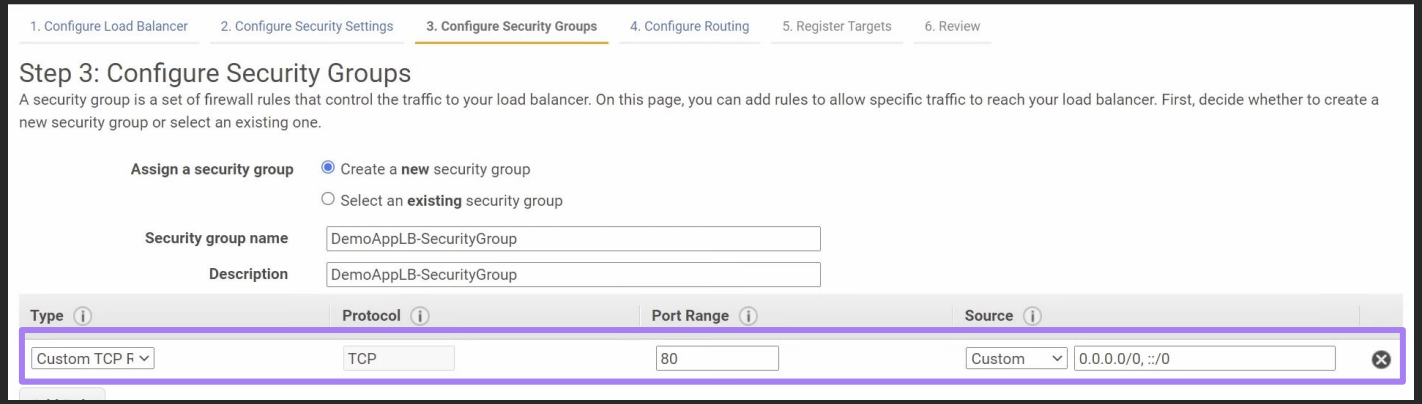
A continuación creamos un balanceador de carga a través del servicio EC2





“Hands-on” Teórico: Tutorial

No necesitamos hacer nada en la step 2, ya que hemos usado los valores por defecto (HTTP).
No se ha configurado HTTPS en este entorno de prueba.



“Hands-on” Teórico: Tutorial

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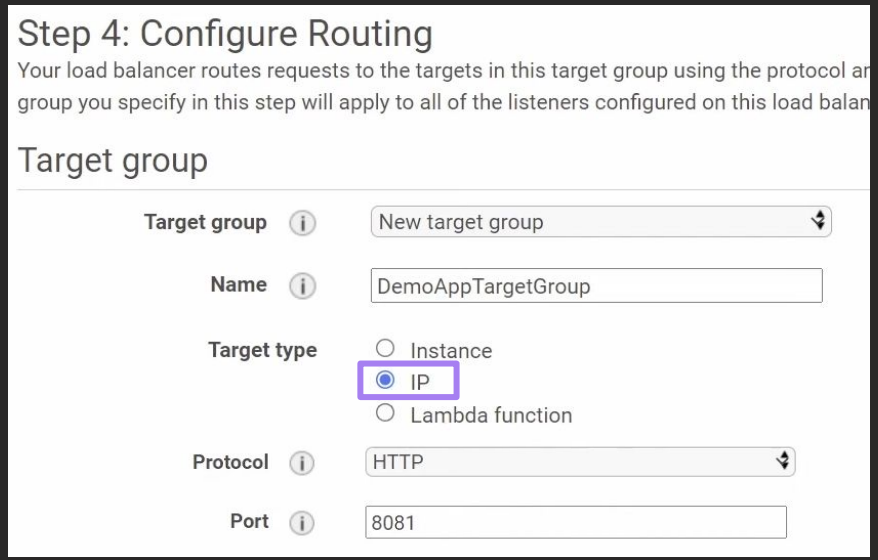
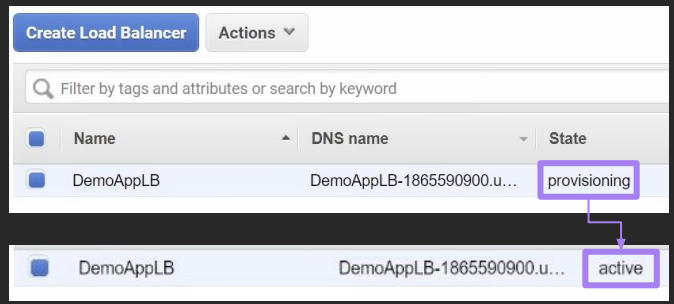
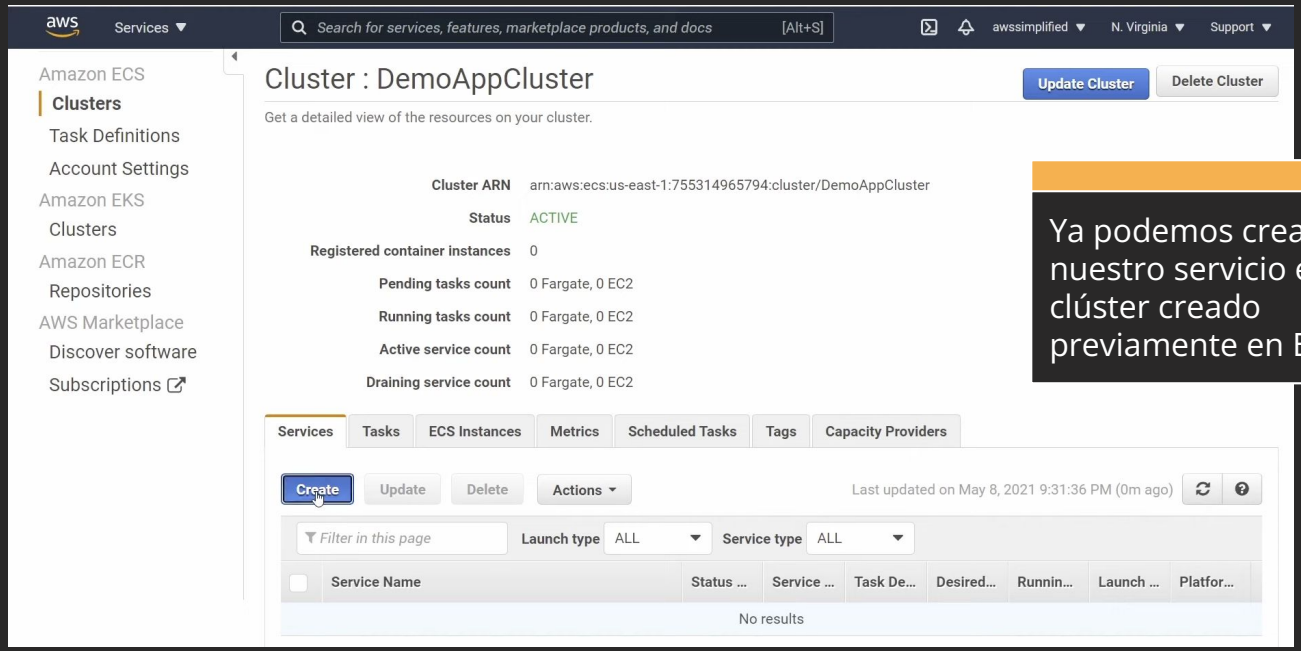


Tampoco vamos a registrar targets (step 5), ya que aún no tenemos nuestras instancias ejecutándose en Fargate

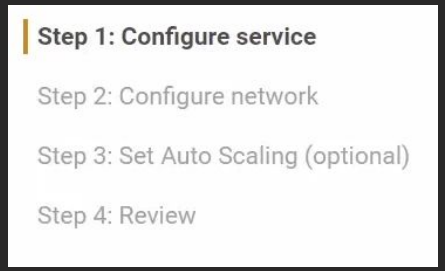


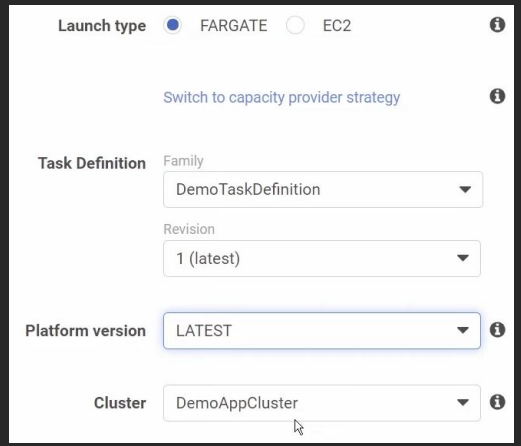
“Hands-on” Teórico: Tutorial



Ya podemos crear nuestro servicio en el clúster creado previamente en ECS

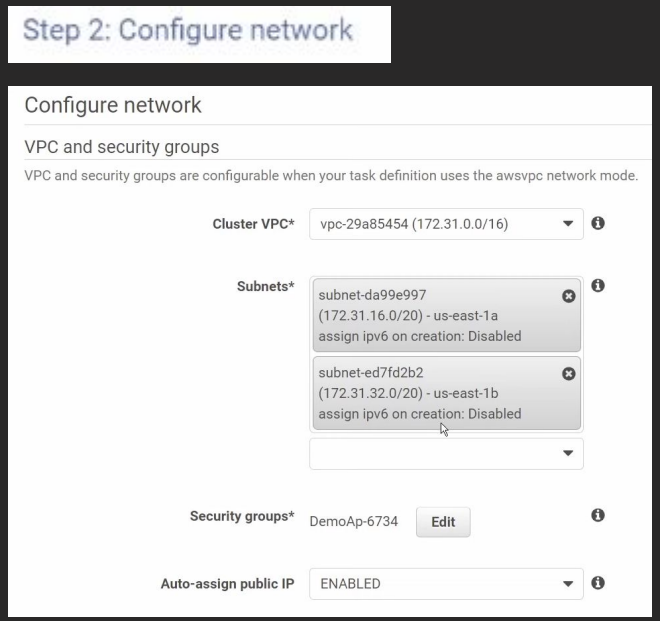
“Hands-on” Teórico: Tutorial

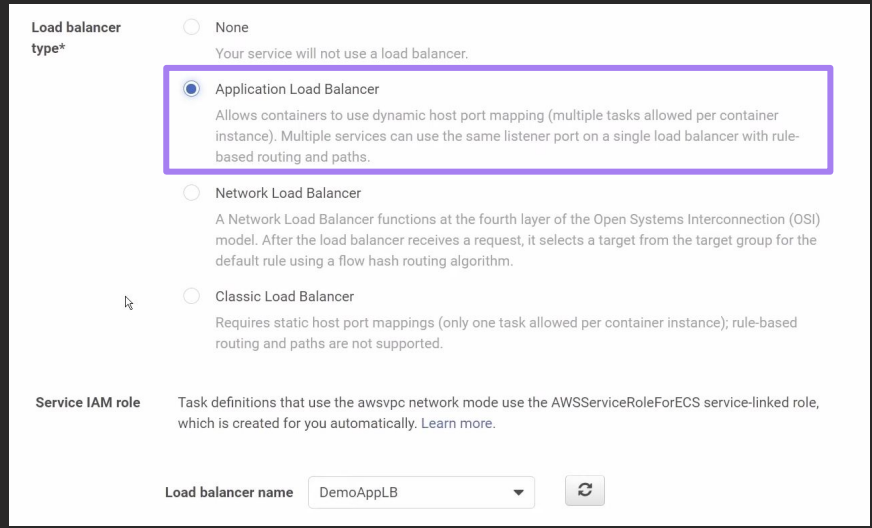


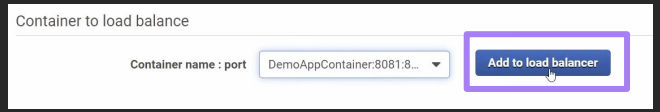


Number of tasks represents the minimum tasks that will be running. A maximum can be set through autoscaling.

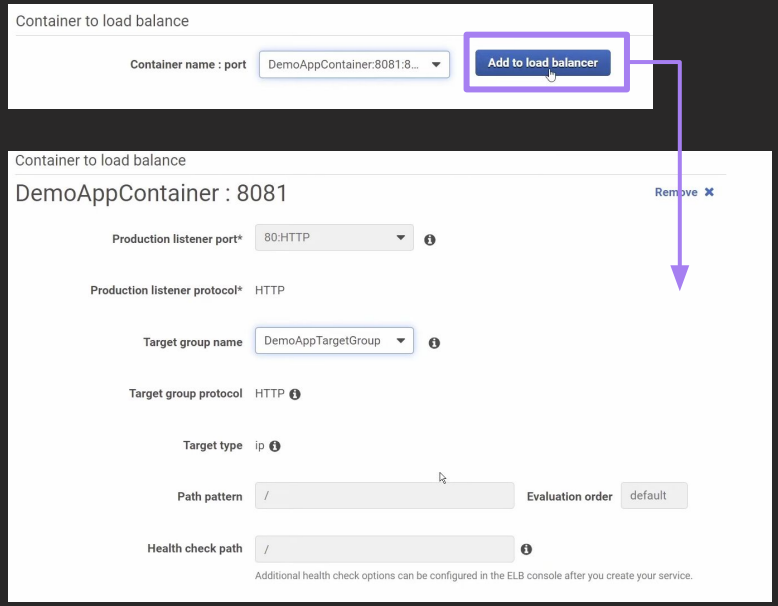
“Hands-on” Teórico: Tutorial



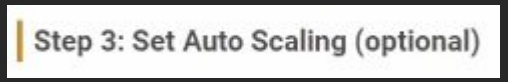


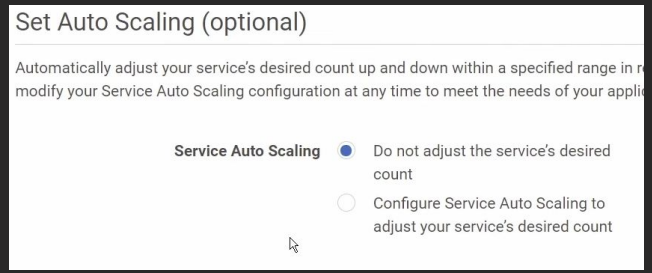


“Hands-on” Teórico: Tutorial



Si quisiéramos que el número de tareas definido anteriormente se ajuste a la demanda, podríamos configurarlo.





A continuación creamos el servicio.

“Hands-on” Teórico: Tutorial

Task status: Running Stopped

Filter in this page

1-2 Page size 50

Task	Task Definition ...	Last status	Desired status	Group	Launch type	Platform version ...
6898741f90e446...	DemoTaskDefiniti...	PENDING	RUNNING	service:DemoApp...	FARGATE	1.4.0
6bfc2d7f70fd487...	DemoTaskDefiniti...	PENDING	RUNNING	service:DemoApp...	FARGATE	1.4.0

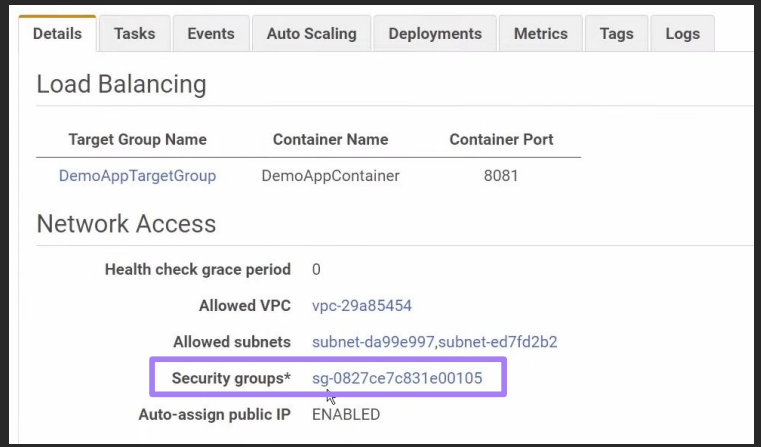
Task	Task Definition ...	Last status
6898741f90e446...	DemoTaskDefiniti...	RUNNING
6bfc2d7f70fd487...	DemoTaskDefiniti...	RUNNING

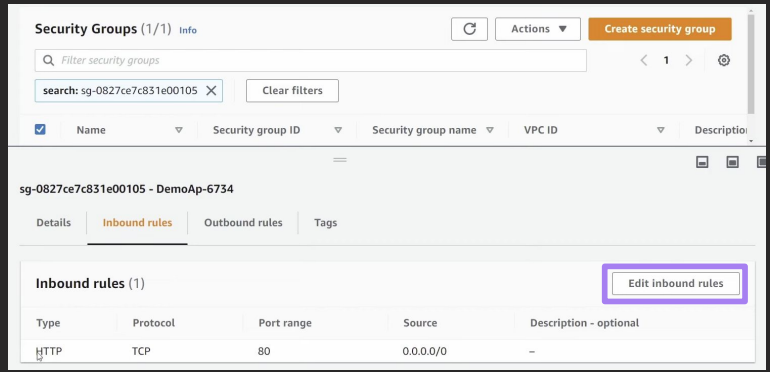
Task	Task Definition ...	Last status
65584627712247...	DemoTaskDefiniti...	PENDING
d6b0d739b4b842...	DemoTaskDefiniti...	PROVISIONING

Hemos creado el servicio con sus dos tareas. Estas pasarán de pendiente a listo, y después fallarán. Necesitamos permitir que se conecten a nuetsra red, con el Load Balancer, ya que este les hará “health pings”, pero no responderán, se pensará que no existen y se recrearán de nuevo infinitamente.

“Hands-on” Teórico: Tutorial

Accedemos a los detalles de nuestro Cluster de ECS y seleccionamos el Security group configurado para ver sus detalles. Vamos a editar las inbound rules.





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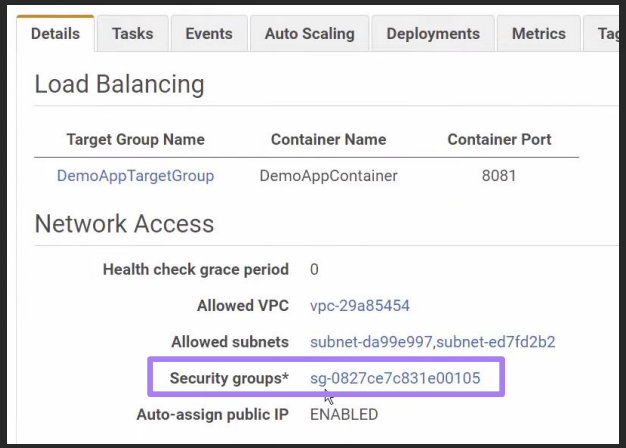
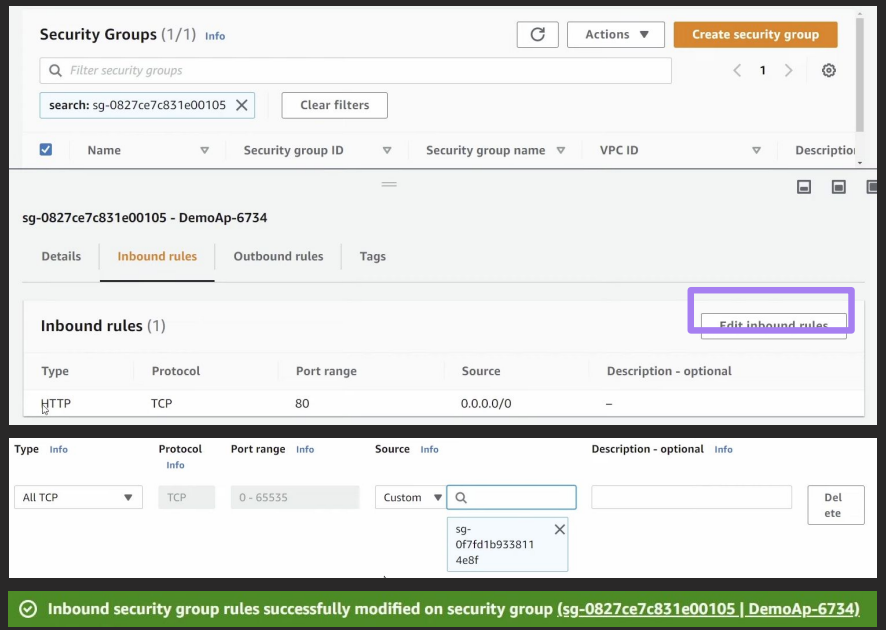
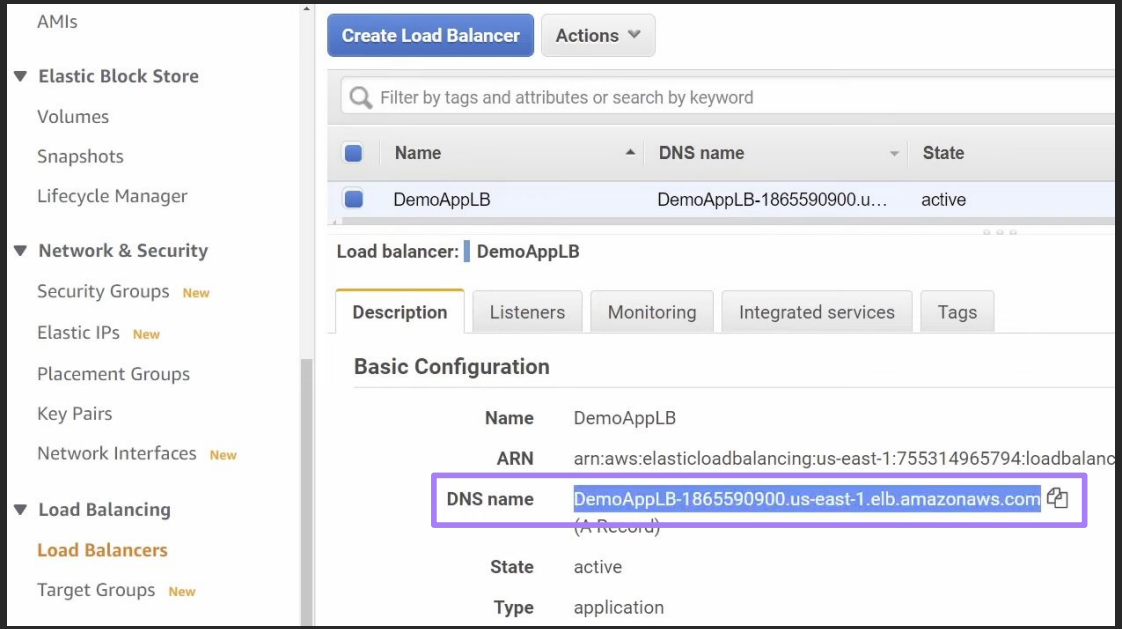
Accedemos a los detalles de nuestro Cluster de ECS y seleccionamos el Security group configurado para ver sus detalles. Vamos a editar las inbound rules.

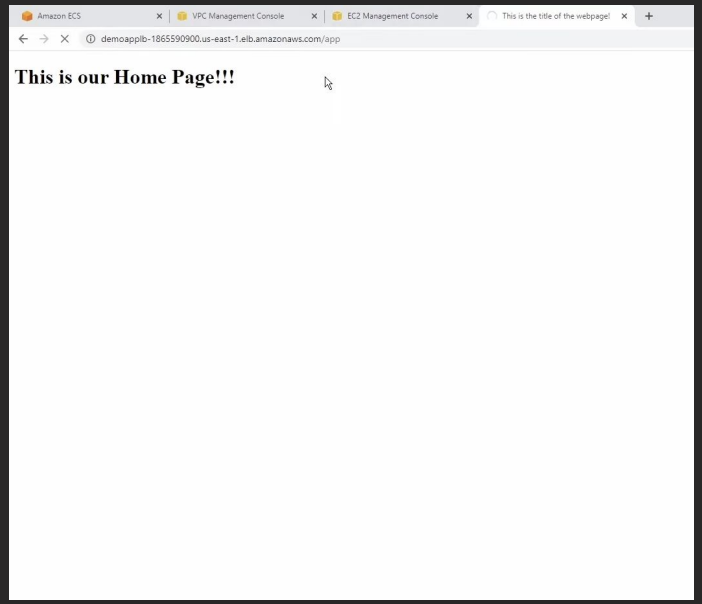


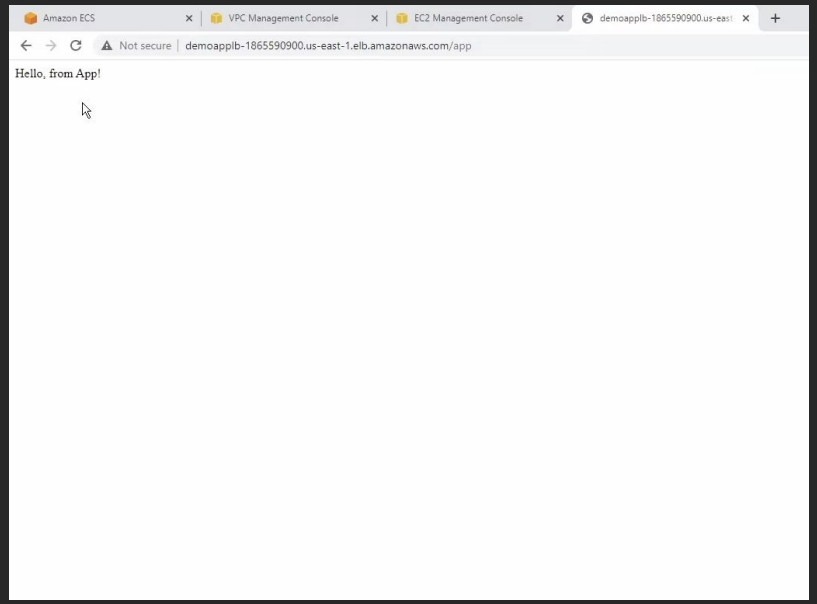


“Hands-on” Teórico: Tutorial



“Hands-on” Teórico: Tutorial

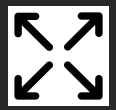




Modelos de precios

Pagas por CPU y GB de memoria por segundo.

Cuidado con dejar tareas zombies encendidas.



Right-Sizing

Comparativa de TCO: Fargate vs EC2

1001010100100101010

1010010010110111

Costes Operativos Ocultos

EC2:

- Parchear OS
- Agentes de Docker
- Escalar cluster
- (...)

Fargate: Null

Eficiencia de uso

EC2: Espacio para picos.

Fargate: 100%

Recursos de aprendizaje

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Página oficial: https://aws.amazon.com/es/fargate/
Workshop: https://awsworkshop.io/tags/fargate/
Otros: https://spacelift.io/blog/what-is-aws-fargate#what-is-aws-fargate
https://www.youtube.com/watch?v=DVrGXjjkpig
https://www.youtube.com/watch?v=o7s-eigrMAI

1 0 1 0 0 1 0 0 1 0 1 1 0 1 1 1

Conclusión final

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1 0 1 0 0 1 0 0 1 0 1 1 0 1 1 1

Gracias!

Pol Plana - Zixin Zhang - Zhehan Xiang - Zhipeng Lin

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