

Documentação Técnica — Integração Multi-Cloud Azure + AWS via VPN Site-to-Site

Visão Geral do Projeto

Este projeto tem como objetivo criar uma integração entre as plataformas **Microsoft Azure** e **Amazon Web Services (AWS)**, utilizando uma conexão VPN site-to-site. A comunicação deve ocorrer exclusivamente através de IPs privados, garantindo segurança e isolamento de rede.

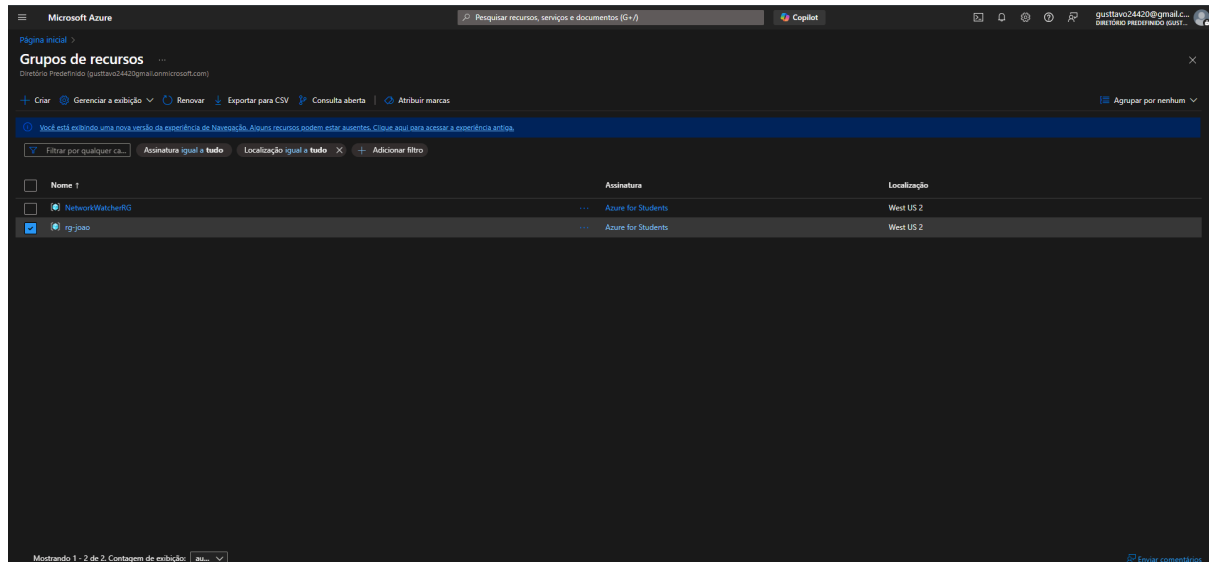
Descrição da arquitetura:

- **Azure:**
 - VNet com subnet privada.
 - Gateway VPN.
 - VM Ubuntu com IP privado.
- **AWS:**
 - VPC com subnet privada.
 - Virtual Private Gateway (VGW) e Customer Gateway (CGW).
 - Instância EC2 Ubuntu com IP privado.
- **Conexão VPN Site-to-Site:**
 - Criptografada.
 - Túnel estabelecido entre os dois ambientes.
 - Tráfego roteado exclusivamente por IP privado.

CONFIGURAÇÃO NA AZURE

Criar um grupo de recursos no Azure para implantar os recursos

- Nome do Grupo de Recursos: rg-joao
- Região: West-US 2



Criar uma Rede Virtual (VNet)

- Nome do Grupo de Recursos: rg-joao
- Região: West-US 2
- Nome da VNet: vnet-azure-joao
- IPv4 da VNet: 10.0.0.0/16
- Nome da Sub-rede: sub-net-privada
- IPv4 da Sub-rede : 10.0.1.0/24
- Nome da Sub-rede: GatewaySubnet
- IPv4 da Sub-rede : 10.0.255.0/27

Microsoft Azure

Pesquisar recursos, serviços e documentos (G+/I)

Copilot

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DIRETÓRIO PREDEFINIDO (GUST...

Página inicial >

Redes virtuais

Diretório Predefinido (gusttavo24420@gmail.onmicrosoft.com)

+ Criar

Gerenciar a exibição

Renovar

Exportar para CSV

Consulta aberta

Atribuir marcas

Agrupar por nenhum

Você está exibindo uma nova versão da experiência de Navegação. Alguns recursos podem estar ausentes. Clique aqui para acessar a experiência antiga.

Filtrar por qualquer ca...Assinatura igual a tudoGrupo de Recursos igual a tudoLocalização igual a tudoAdicionar filtro

Não há redes virtuais para exibir

Crie uma rede virtual para conectar os recursos do Azure uns aos outros com segurança. Conecte a rede virtual às suas redes locais usando um Gateway de VPN ou ExpressRoute do Azure.

+ Criar

Saber mais

Mostrando 1 - 0 de 0. Contagem de exibição: 10

Enviar comentários

Microsoft Azure

Pesquisar recursos, serviços e documentos (G+/I)

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Página inicial > Redes virtuais >

Criar rede virtual

Básicos

Segurança

Endereços IP

Rótulos

Revisar + criar

A VNet (rede Virtual) do Azure é o bloco de construção fundamental para a sua rede privada no Azure. A VNet habilita muitos tipos de recursos do Azure, como as VMs (Máquinas Virtuais) do Azure, para se comunicar com segurança entre si, a Internet e redes locais. A VNet é semelhante a uma rede tradicional que você opera no seu próprio data center, mas traz os benefícios adicionais da infraestrutura do Azure, como escala, disponibilidade e isolamento.

Saber mais

Detalhes do projeto

Selecione a assinatura para gerenciar os custos e os recursos implantados. Use grupos de recursos como pastas para organizar e gerenciar todos os seus recursos.

Assinatura *Azure for Students

Grupo de recursos *B1CWTJ-19-JOAO

Criar novo

Detalhes da instância

Nome da rede virtual *VNet-Azure-Joao

Região *US West US 2

Implantar em uma Zona Estendida do Azure

Anterior

Avançar

Revisar + criar

Enviar comentários

Microsoft Azure

Pesquisar recursos, serviços e documentos (G+/I)

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Página inicial > Redes virtuais >

Criar rede virtual

Básicos

Segurança

Endereços IP

Rótulos

Revisar + criar

Configure seu espaço de endereço de rede virtual com os endereços de IPv4 e IPv6 e as sub-redes necessárias. Saiba mais

Defina o espaço de endereço da rede virtual com um ou mais intervalos de endereços IPv4 ou IPv6. Crie sub-redes para segmentar o espaço de endereço da rede virtual em intervalos menores para uso por seus aplicativos. Quando você implanta recursos em uma sub-rede, o Azure atribui ao recurso um endereço IP da sub-rede. Saiba mais

+ Adicionar uma sub-rede

10.0.0.0/16

10.0.0.0 /16

10.0.0.0 - 10.0.255.255

65.536 endereços

Excluir espaço de endereço

Subredes	Intervalo de endereços IP	Dimensionar	Gateway da NAT
Sub-rede-privada	10.0.1.0 - 10.0.1.255	/24 (256 endereços)	-

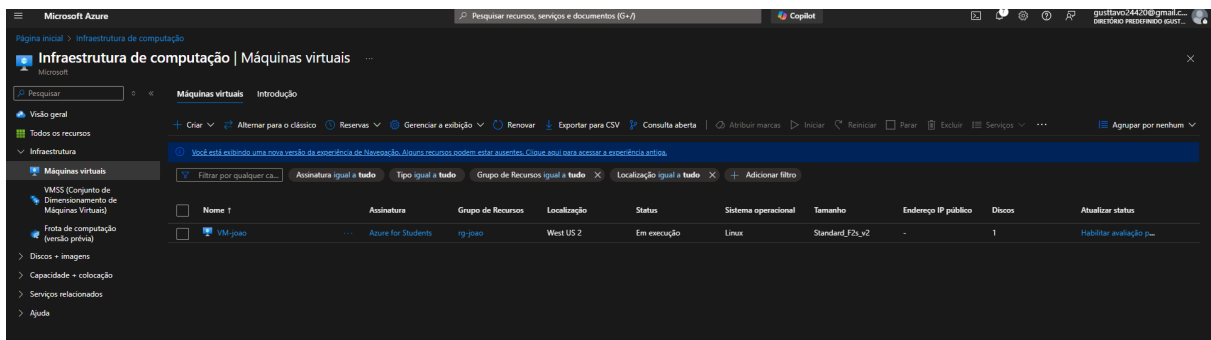
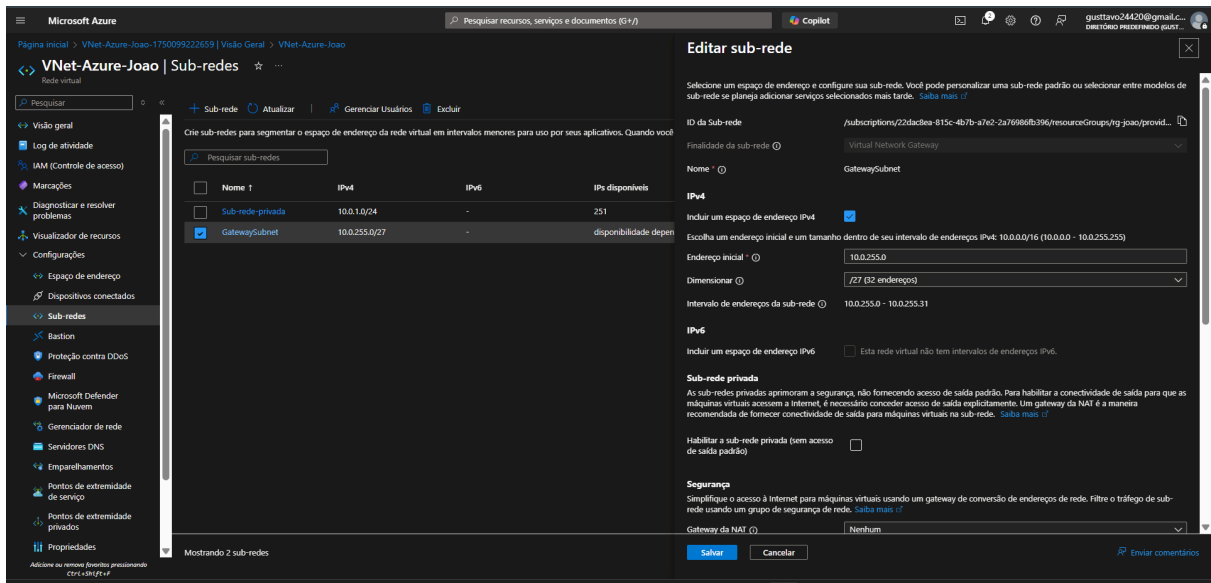
Adicionar espaço de endereço IPv4

Anterior

Avançar

Revisar + criar

Enviar comentários



Criar o Gateway VPN

- Nome do Gateway VPN: vpn-azure-aws
- Região: West-US 2
- Tipo de Gateway: VPN
- SKU: VpnGw1
- Geração: Geração 1
- Rede Virtual: vnet-azure-joao
- Endereço IP Público: IP PUBLICO
- Tipo de Endereço IP Público: Básico
- Atribuição: Dinâmica
- Modo ativo-ativo habilitado: Desabilitado

- Configurar BGP: Desabilitado

Microsoft Azure

Página inicial > Hybrid connectivity | ExpressRoute gateways >

Criar gateway de rede virtual

Selecione a assinatura para gerenciar os custos e os recursos implantados. Use grupos de recursos como pastas para organizar e gerenciar todos os seus recursos.

Assinatura: Azure for Students

Grupo de recursos: rg-joao (derivado do grupo de recursos da rede virtual)

Detalhes da instância

Nome: VPN-Gateway-Azure-Joao

Região: West US 2

Tipo de gateway: ☒ VPN ☐ ExpressRoute

SKU: VpnGw1

Geração: Generation1

Habilitar Conectividade Avançada: ☐ Habilitado ☒ Desabilitado

Rede virtual: VNet-Azure-Joao

Sub-rede: GatewaySubnet (10.0.255.0/27)

Endereço IP público: ☒ Criar novo ☐ Usar existente

Nome do endereço IP público: IP-PUBLICO

SKU do endereço IP público: Standard

Atribuição: ☐ Dinâmico ☒ Estático

Anterior Avançar Marcar > Baixar um modelo para automação

Criar o Local Network Gateway no Azure

- Nome: lng-azure-aws
- Grupo de Recursos: rg-joao
- Região: West-US 2
- Endereço IP: IP do 1ºPrimeiro Túnel da conexão Site-to-Site VPN
- Espaço(s) de Endereço: 10.1.0.0/16

Microsoft Azure

Página inicial > LocalNetworkGatewayCreate-20250616164859 | Visão Geral > Local-Network-AWS-Joao | Conexões >

Criar conexão

Básico Configurações Marcas Revisar > criar

Crie uma conexão segura para a rede virtual usando o Gateway de VPN ou o ExpressRoute.

Detalhes do projeto

Assinatura: Azure for Students

Grupo de recursos: rg-joao

Detalhes da instância

Tipo de conexão: Site a site (IPsec)

Nome: Connection-Azure-to-AWS-Joao

Região: West US 2

Criar a conexão no Virtual Network Gateway do Azure

- Nome: connection-azure-to-aws-Joao
- Tipo de Conexão: Site-to-Site

- Local Network Gateway: Selecionar o criado anteriormente
- Chave Compartilhada: Configurada no 1º Primeiro Túnel da conexão Site-to-Site VPN
- Esperar até o status mudar para: Conectado

CONFIGURAÇÃO NA AWS

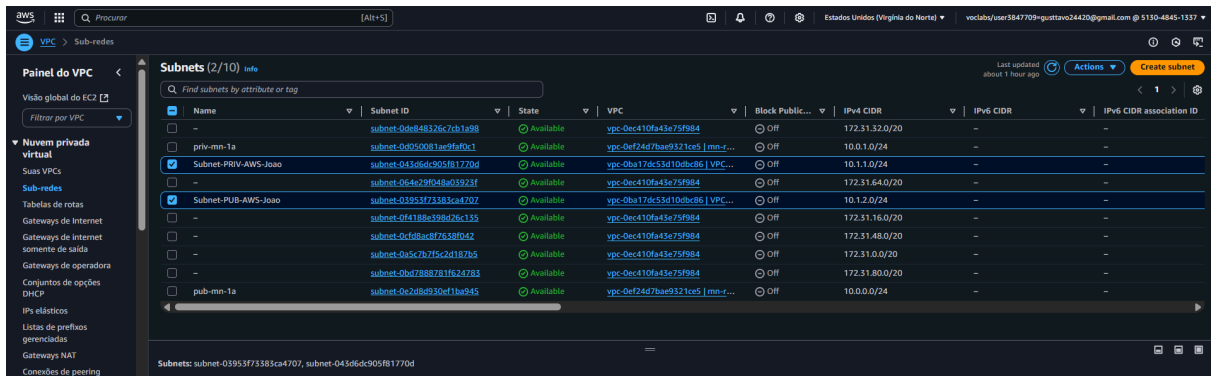
Criando uma VPC.

- Nome: VPC-AWS-Joao
- CIDR IPv4: 10.1.0.0/16

The screenshot shows the AWS Management Console interface for creating a new VPC. The 'VPC settings' section is active, showing options for 'Resources to create' (VPC only), 'Name tag - optional' (VPC-AWS-Joao), 'IPv4 CIDR block' (10.1.0.0/16), 'IPv6 CIDR block' (No IPv6 CIDR block), and 'Tenancy' (Default). The 'Tags' section at the bottom shows a single tag with the key 'Name' and the value 'VPC-AWS-Joao'.

Criação das subnet.

- CIDR IPv4 da VPC: 10.1.0.0/16
- Nome: Subnet-PRIV-AWS-Joao
- CIDR IPv4 da Sub-rede-privada : 10.1.1.0/24
- Nome: Subnet-PUB-AWS-Joao
- CIDR IPv4 da Sub-rede-publica : 10.1.2.0/24



Criação das EC2

- Nome: VM-AWS-Joao-priv

- ISO: Ubuntu Server 24.0

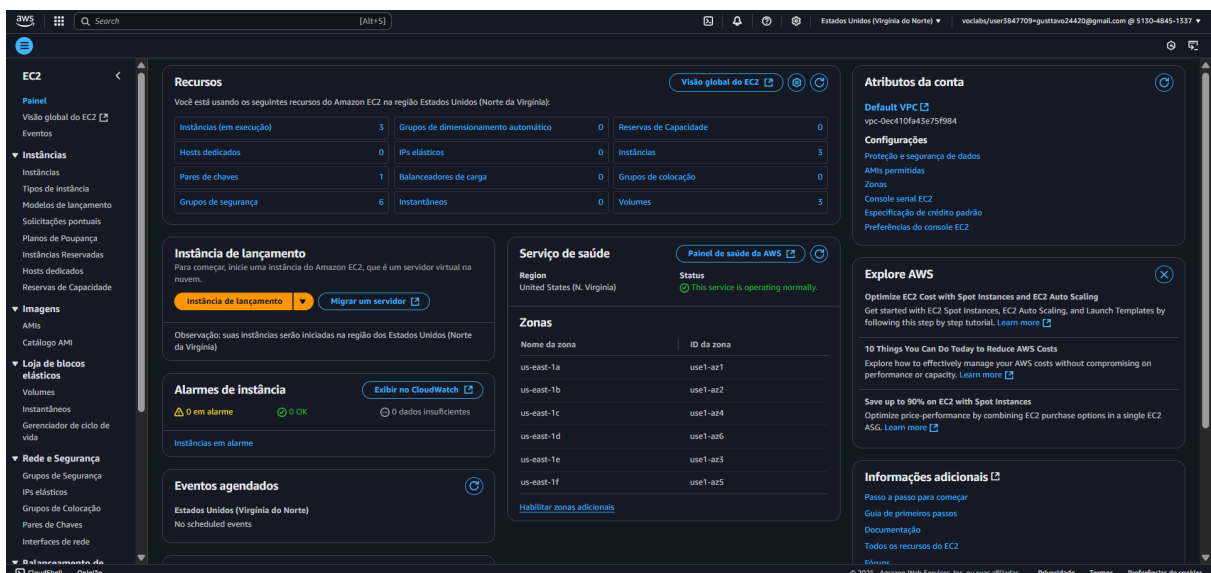
- Chave: Vockey

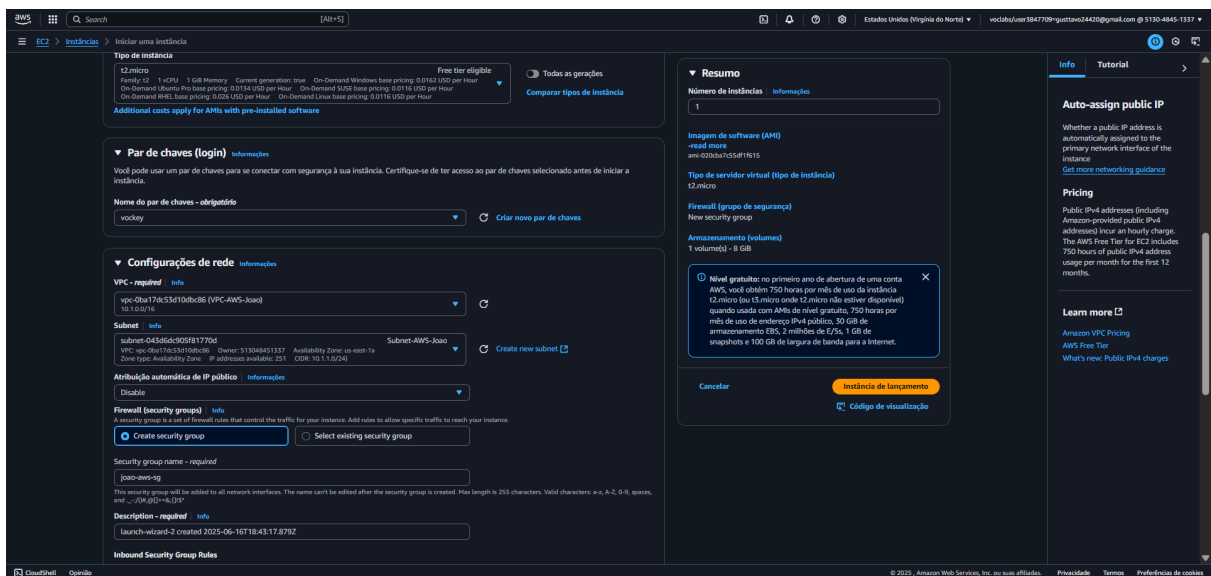
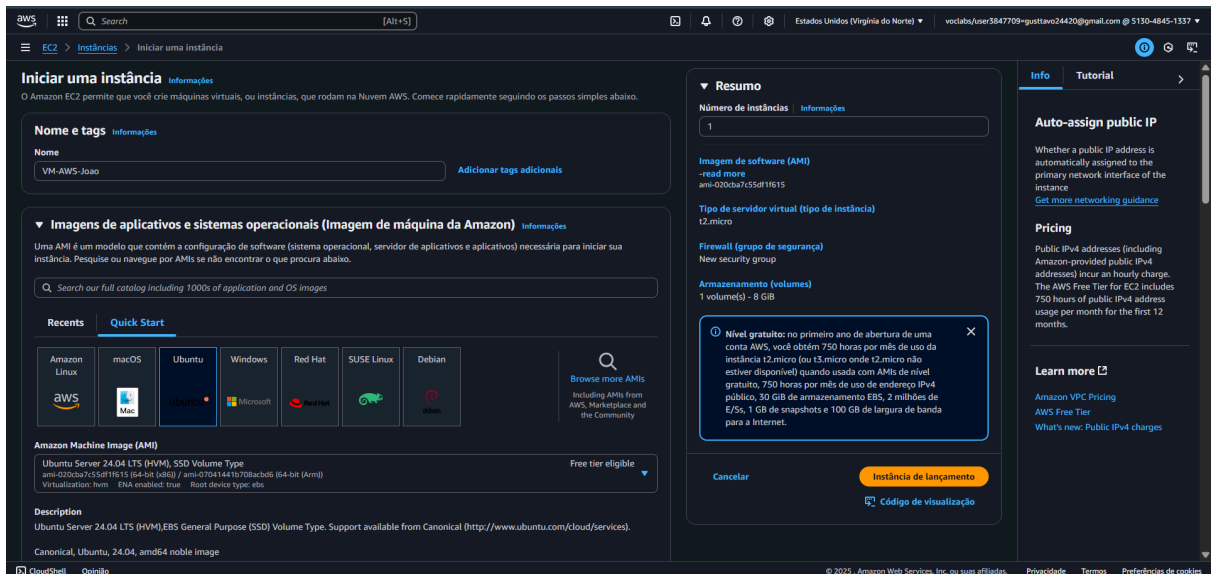
- Rede: VPC-AWS-Joao

- Rede: Subnet-PRIV-AWS-Joao

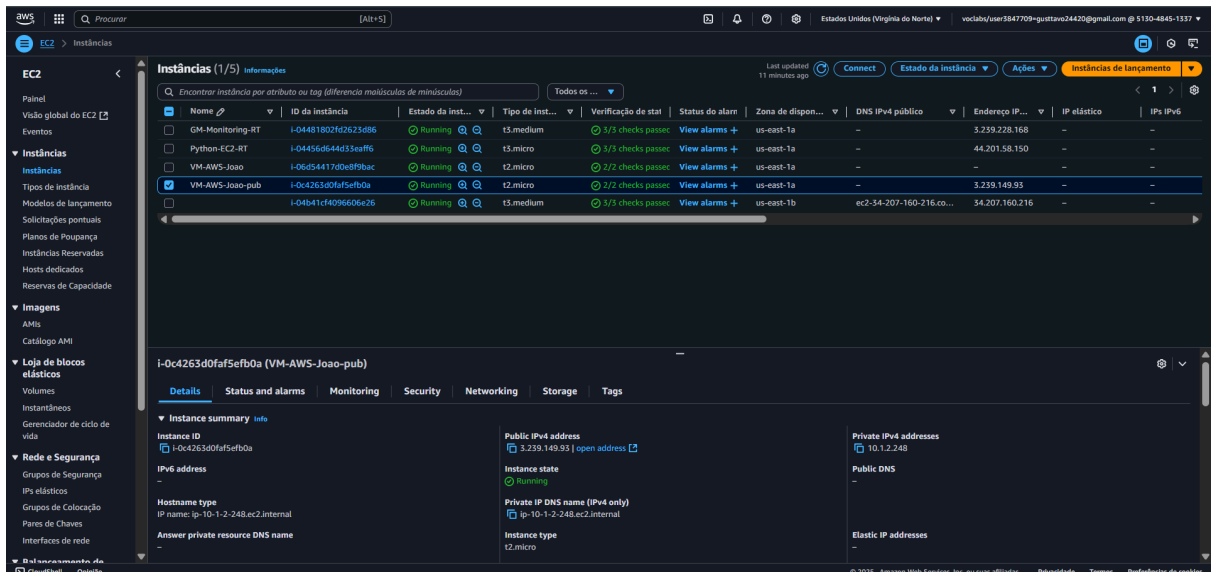
- IP Público: Desabilitado

- Grupo de Segurança: joao-aws-sg



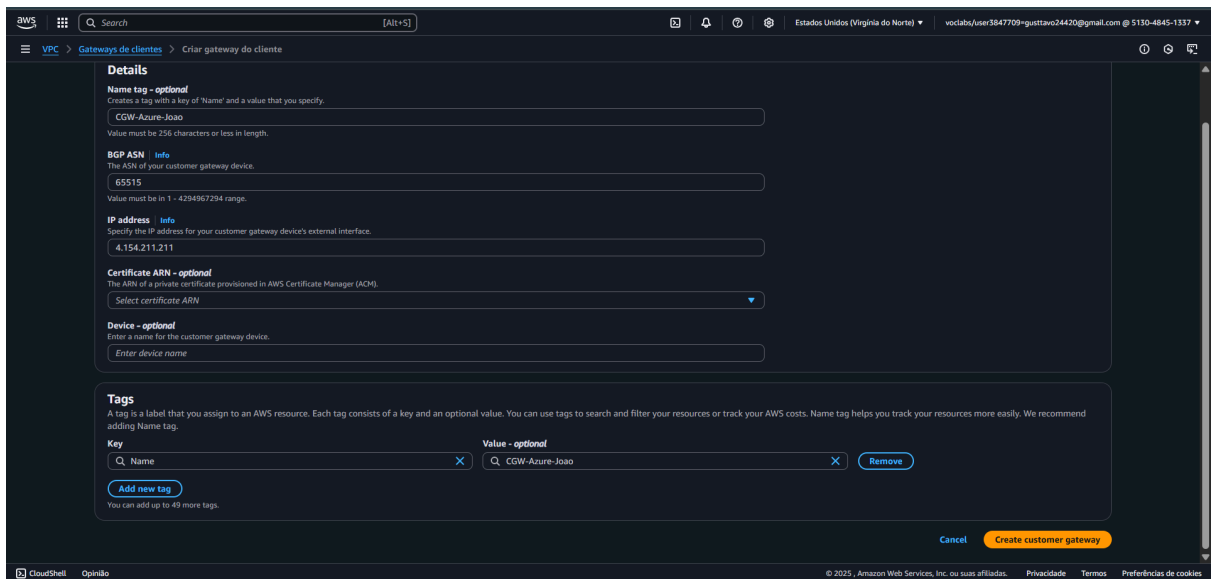


- Nome:VM-AWS-Joao-pub
- ISO:Ubuntu Server 24.0
- Chave:Vockey
- Rede:VPC-AWS-Joao-pub
- Rede:Subnet-PUB-AWS-Joao
- IP Publico:Habilitado
- Grupo de Segurança:joao-aws-sg



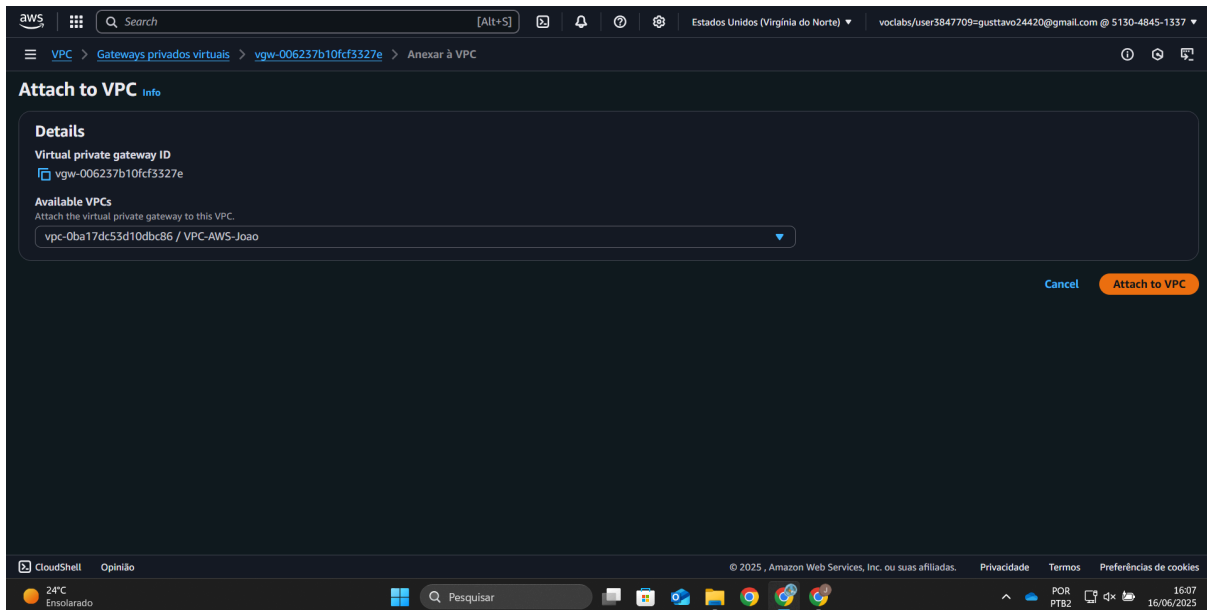
Criar um Customer Gateway apontando para o IP público do Azure VPN Gateway

- Endereço IP: IP Público do Gateway VPN do Azure
- Demais configurações: Padrão



Criar o Virtual Private Gateway e anexar à VPC

- Nome: VGW-AWS-Joao



Criar a conexão Site-to-Site VPN

- Nome: vpn-aws-to-azure-Joao
- Tipo de gateway de destino: Virtual Private Gateway
- Customer Gateway: Existente
- Opções de roteamento: Estático
- Prefixos IP estáticos: 10.0.0.0/16
- Demais configurações: Padrão
- Pre-shared key: Mudar a senha
- Tabela de Rotas: Liberar rota

VPN Connection

Name tag - optional
Create a tag with a key of 'Name' and a value that you specify.
VPN-AWS-to-Azure-Joao
Value must be 256 characters or less in length.

Target gateway type
☒ Virtual private gateway
☐ Transit gateway
☐ Not associated

Virtual private gateway
vgw-006237b10fcf5327e

Customer gateway
☒ Existing
☐ New

Customer gateway ID
cgw-0f2fe1bfa722446c8

Routing options
☐ Dynamic (requires BGP)
☒ Static

Static IP prefixes
10.0.0.0/16

Pre-shared key storage
☒ Standard
☐ Secrets Manager

Local IPv4 network CIDR - optional
The IPv4 CIDR range on the customer gateway (on-premises) side that is allowed to communicate over the VPN tunnels. The default is 0.0.0.0/0.
0.0.0.0/0

Remote IPv4 network CIDR - optional
The IPv4 CIDR range on the AWS side that is allowed to communicate over the VPN tunnels. The default is 0.0.0.0/0.
0.0.0.0/0

Modify VPN tunnel options

Select a VPN tunnel based on the tunnels outside IP address to modify its IPsec options.

Details
VPN connection ID
vpn-03738dca2c232f1a9
VPN tunnel outside IP address
34.226.77.136
☐ Confirm VPN tunnel modification
This tunnel you have chosen has an UP status. If you proceed your tunnel will go down temporarily during modification.

Inside IPv4 CIDR
The IPv4 CIDR range from the 169.254.0.0/16 range.
169.254.86.40/30

Pre-shared key storage
☒ Standard
☐ Secrets Manager

Pre-shared key
The pre-shared key must have 8-64 characters. Valid characters: A-Z, a-z, 0-9, and . The key cannot begin with a zero.
Serial134134

Phase 1 encryption algorithms
The permitted encryption algorithms for the VPN tunnel for phase 1 IKE negotiations.
Select encryption algorithms
AES128 X AES256 X AES128-GCM-16 X AES256-GCM-16 X

Phase 2 encryption algorithms
The permitted encryption algorithms for the VPN tunnel for phase 2 IKE negotiations.
Select encryption algorithms
AES128 X AES256 X AES128-GCM-16 X AES256-GCM-16 X

Phase 1 integrity algorithms
The permitted integrity algorithms for the VPN tunnel for phase 1 IKE negotiations.
Select integrity algorithms

AWS

Search

[Alt]+S

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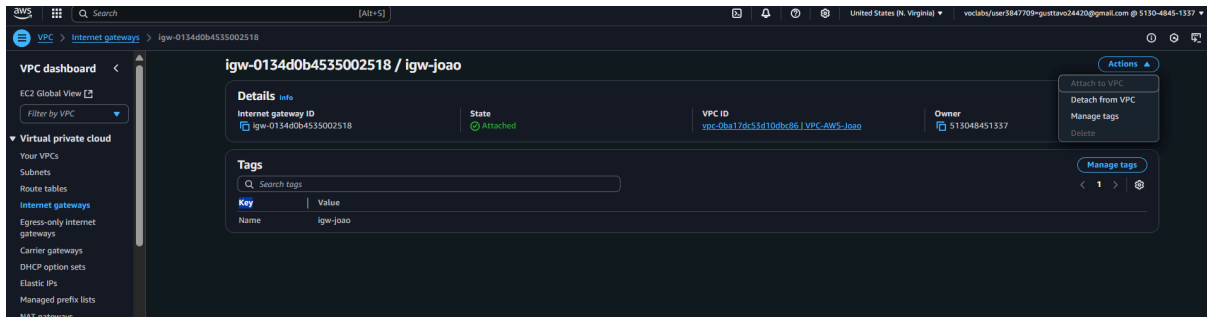
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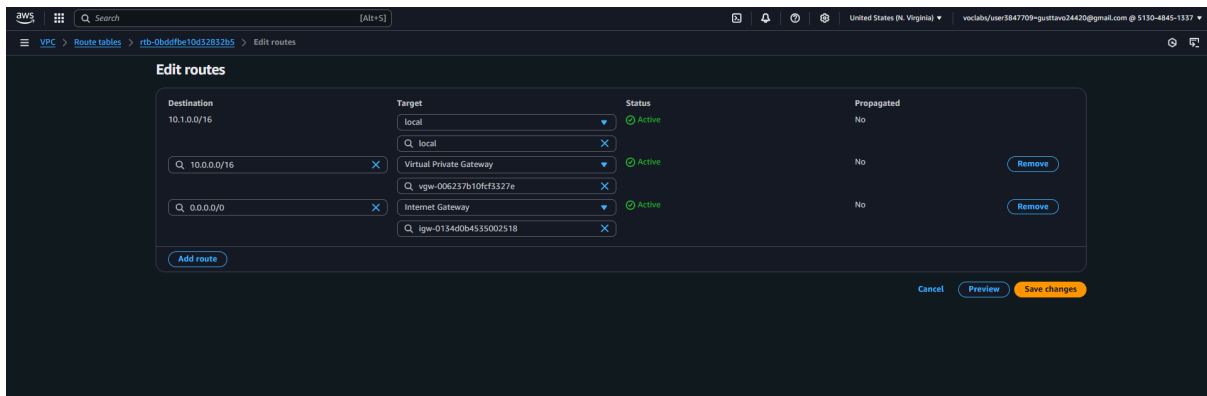
Criar Internet Gateway e anexar à VPC

- Nome:igw-joao



Editar a tabela de rotas associada à VPC

- Destino: 10.0.0.0/24 - Target: Virtual Private Gateway
- Destino: 0.0.0.0/0 - Target: Internet Gateway



TESTAR A CONEXÃO

```
ubuntu@ip-10-1-1-224: ~  
ubuntu@ip-10-1-1-224:~$ ping 10.0.1.4  
PING 10.0.1.4 (10.0.1.4) 56(84) bytes of data.  
64 bytes from 10.0.1.4: icmp_seq=1 ttl=64 time=70.5 ms  
64 bytes from 10.0.1.4: icmp_seq=2 ttl=64 time=70.3 ms  
64 bytes from 10.0.1.4: icmp_seq=3 ttl=64 time=70.1 ms  
64 bytes from 10.0.1.4: icmp_seq=4 ttl=64 time=70.3 ms  
64 bytes from 10.0.1.4: icmp_seq=5 ttl=64 time=71.6 ms  
|  
  
senai@VM-joao: ~  
senai@VM-joao:~$ ping 10.1.1.224  
PING 10.1.1.224 (10.1.1.224) 56(84) bytes of data.  
64 bytes from 10.1.1.224: icmp_seq=1 ttl=64 time=70.1 ms  
64 bytes from 10.1.1.224: icmp_seq=2 ttl=64 time=70.2 ms  
64 bytes from 10.1.1.224: icmp_seq=3 ttl=64 time=70.7 ms  
64 bytes from 10.1.1.224: icmp_seq=4 ttl=64 time=71.2 ms  
|
```

```
ubuntu@ip-10-1-1-224: ~  
ubuntu@ip-10-1-2-248:~$ ssh -i 'labsuser (1).pem' ubuntu@10.1.1.224  
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1029-aws x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/pro  
  
System information as of Tue Jun 17 18:04:18 UTC 2025  
  
System load:  0.08      Processes:    104  
Usage of /:   25.7% of 6.71GB  Users logged in:  0  
Memory usage: 20%      IPv4 address for enX0: 10.1.1.224  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
Last login: Tue Jun 17 18:04:19 2025 from 10.1.2.248  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@ip-10-1-1-224:~$  
  
senai@VM-joao: ~  
senai@VM-joao:~$ ssh -i 'labsuser (1).pem' senai@10.0.1.4  
senai@10.0.1.4's password:  
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.11.0-1015-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/pro  
  
System information as of Tue Jun 17 18:05:01 UTC 2025  
  
System load:  0.02      Processes:    134  
Usage of /:   5.6% of 28.02GB  Users logged in:  0  
Memory usage: 7%      IPv4 address for eth0: 10.0.1.4  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check y  
our Internet connection or proxy settings  
  
Last login: Tue Jun 17 17:47:45 2025 from 10.1.2.248  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
senai@VM-joao:~$ |
```

```
ubuntu@ip-10-1-1-224: ~  
ubuntu@ip-10-1-1-224:~$ ping 10.0.1.4  
PING 10.0.1.4 (10.0.1.4) 56(84) bytes of data.  
64 bytes from 10.0.1.4: icmp_seq=1 ttl=64 time=70.5 ms  
64 bytes from 10.0.1.4: icmp_seq=2 ttl=64 time=70.3 ms  
64 bytes from 10.0.1.4: icmp_seq=3 ttl=64 time=70.1 ms  
64 bytes from 10.0.1.4: icmp_seq=4 ttl=64 time=70.3 ms  
64 bytes from 10.0.1.4: icmp_seq=5 ttl=64 time=71.6 ms  
|  
  
senai@VM-jaoa: ~  
senai@VM-jaoa:~$ ping 10.1.1.224  
PING 10.1.1.224 (10.1.1.224) 56(84) bytes of data.  
64 bytes from 10.1.1.224: icmp_seq=1 ttl=64 time=70.1 ms  
64 bytes from 10.1.1.224: icmp_seq=2 ttl=64 time=70.2 ms  
64 bytes from 10.1.1.224: icmp_seq=3 ttl=64 time=70.7 ms  
64 bytes from 10.1.1.224: icmp_seq=4 ttl=64 time=71.2 ms  
|
```