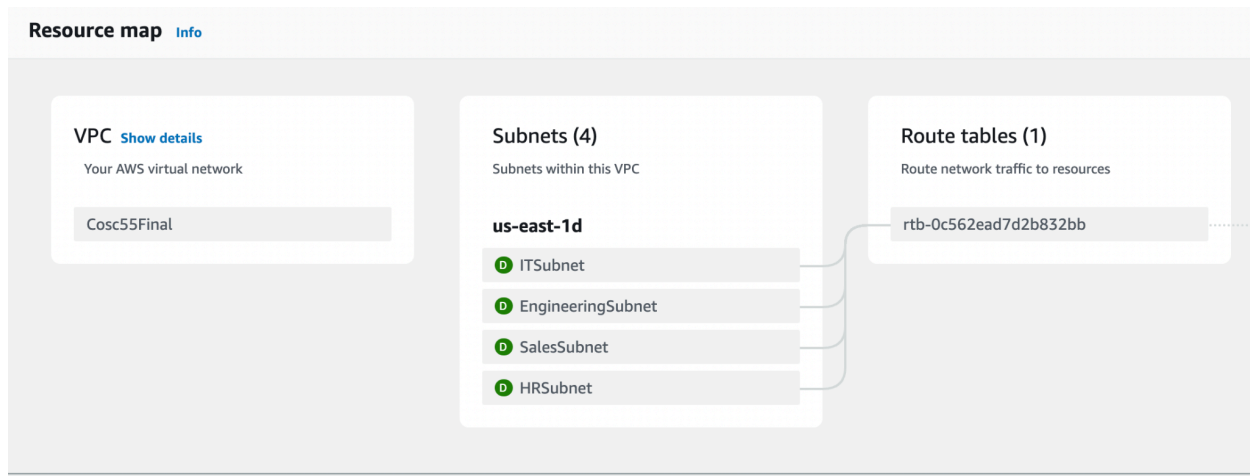# Task 1:

1. **Create the VPC:**
   - **IPv4 CIDR Block:** 10.0.0.0/16
   - **Tenancy:** Default
   - **VPC:** Cosc55Final

1. **Creating Subnets:**
   - **Engineering Subnet:**
     - **Subnet Name:** EngineeringSubnet
     - **Availability Zone:** Choose an available zone.
     - **CIDR Block:** 10.0.1.0/24
   - **Same for other departments:**
     - **Sales Subnet:** 10.0.2.0/24
     - **IT Subnet:** 10.0.3.0/24
     - **HR Subnet:** 10.0.4.0/24
2. **Attach Internet Gateway:**
   - **Go to "Internet Gateways"** in the VPC Dashboard.
   - **Attach the Internet Gateway** to VPC.

3. **Update Route Tables:**
   - **Add a Route:**
     - **Destination:** 0.0.0.0/0

- **Target:** Select Cosc55Final
  - **Associate the Route Table** with all subnets.

Route tables (2) Info

Find resources by attribute or tag

	Name	▽	Route table ID	▽	Explicit subnet associ...	▽	Edge associations	▽	Main	▽	VPC	▽
	–		rtb-0c562ead7d2b832bb		4 subnets		–		Yes		vpc-013672a7327f89de4	Cosc...	6

1. **Launch the Engineering Server (Ubuntu Web Server):**
   - **Name:** EngineeringWebServer
   - **Type:** Ubuntu Server
   - **Instance Type:** t2.medium
   - **Configure Network:**
     - **VPC:** Cosc55Final
     - **Subnet:** EngineeringSubnet
   - **Create and Configure Security Group:**
     - **Allow HTTP (port 80)**
     - **Allow HTTPS (port 443)**
     - **Allow SSH (port 22)**
2. **Launch the Sales Server (Windows CRM Server):**
   - **Name:** SalesCRMServer
   - **AMI:** Microsoft Windows Server
   - **Instance Type:** t2.medium
   - **Subnet:** SalesSubnet
   - **Security Group:**
     - **Allow HTTPS (port 443)**
     - **Allow RDP (port 3389)**
3. **Launch the IT Server (RedHat File Server):**
   - **Repeat the steps above**, but:
     - **Name:** ITFileServer
     - **Type:** Red Hat
     - **Instance Type:** t2.micro
     - **Subnet:** ITSubnet
     - **Security Group:**
       - **Allow SSH (port 22)**
4. **Launch the HR Server (Ubuntu Intranet Server):**
   - **Repeat the steps above**, but:
     - **Name:** HRIntranetServer
     - **Type** Ubuntu Server
     - **Instance Type:** t2.micro
     - **Subnet:** HRSubnet

- Security Group:
    - **Allow HTTP (port 80)**
    - **Allow HTTPS (port 443)**
    - **Allow SSH (port 22)**

Security Groups (6) Info

	Name ▽	Security group ID ▽	Security group name ▽	VPC ID ▽
☐	–	sg-0803d4120ff9c147e	HRIntranetSecurityGroup	vpc-013672a7327f89de4 ↗
☐	–	sg-0bbaf0d3a7fa5913f	ITSecurityGroup	vpc-013672a7327f89de4 ↗
☐	–	sg-0f2a0b10bb53a380c	Sales Security Group	vpc-013672a7327f89de4 ↗
☐	–	sg-02f26ee4a37c2c987	default	vpc-0c1cc620b68f007e2 ↗
☐	–	sg-01a1f61735f8fa573	EngineeringWebServer Security Group	vpc-013672a7327f89de4 ↗

Instances (4) Info

Instance state = running ✕   Clear filters

	Name ✎ ▽	Instance ID	Instance state ▽	Instance type ▽	Status check	Alarm status	Availability Zone ▽	Public IPv4 DNS
☐	ITFileServer	i-065e23e745765cb7e	⊘ Running ⊕ ⊖	t2.micro	⊘ 2/2 checks passed	View alarms +	us-east-1d	–
☐	EngineeringW...	i-0962db385119c314a	⊘ Running ⊕ ⊖	t2.medium	⊘ 2/2 checks passed	View alarms +	us-east-1d	–
☐	SalesServer	i-0507456657b1a2321	⊘ Running ⊕ ⊖	t2.medium	⊘ 2/2 checks passed	View alarms +	us-east-1d	–
☐	HRIntranetSer...	i-06ab72644446353ef	⊘ Running ⊕ ⊖	t2.micro	⊘ 2/2 checks passed	View alarms +	us-east-1d	–

Set Up AWS Certificate Manager for HTTPS

	Certificate ID	Domain name ▽	Type ▽
☐	0e2ff4ac-79bd-4f50-b852-981cf7489be8	warrenkleinowenakelcosc55.com	Amazon Issued

Task 2: Testing

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
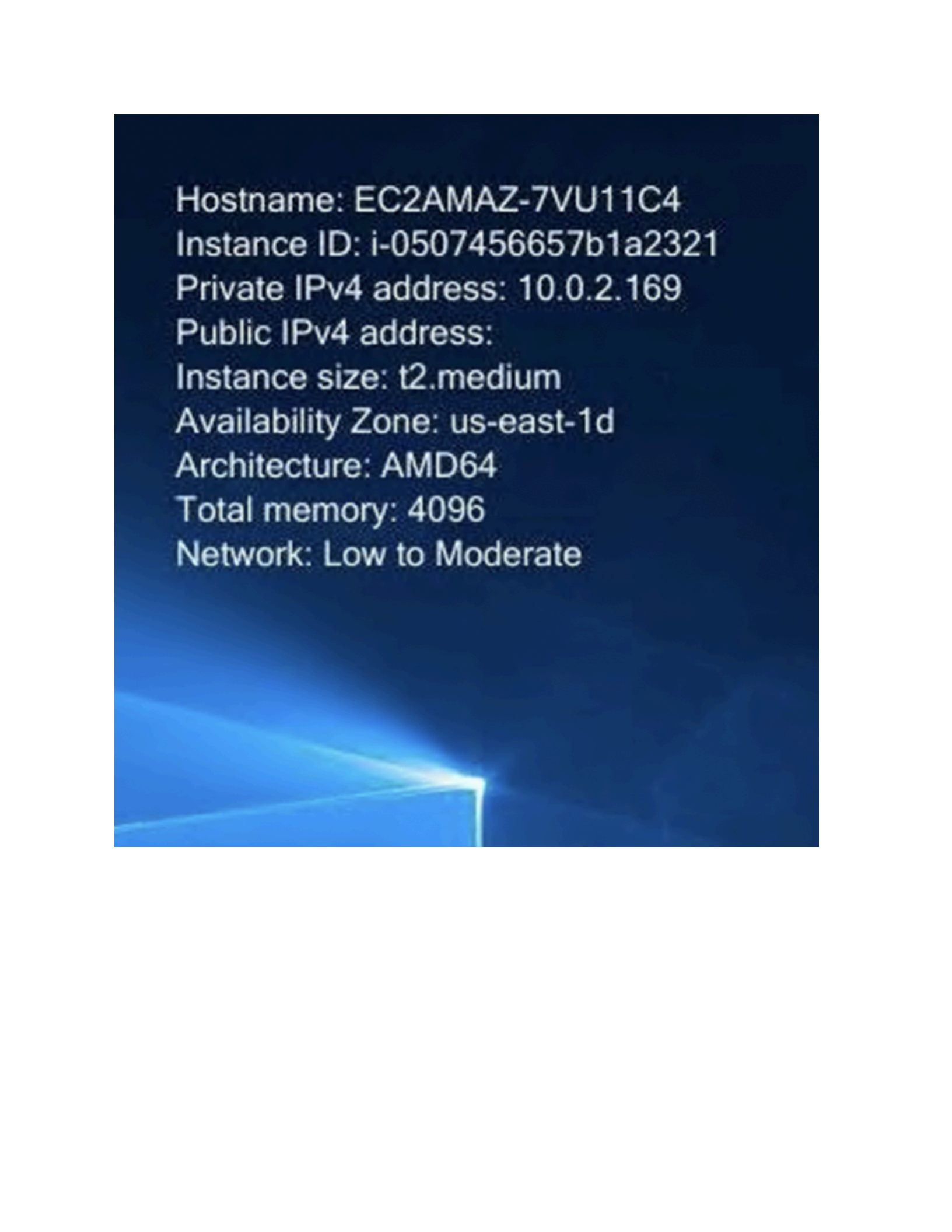See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-3-132:~$

Hostname: EC2AMAZ-7VU11C4
Instance ID: i-0507456657b1a2321
Private IPv4 address: 10.0.2.169
Public IPv4 address:
Instance size: t2.medium
Availability Zone: us-east-1d
Architecture: AMD64
Total memory: 4096
Network: Low to Moderate

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

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applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-1-57:~$

```
programs included with the Ubuntu system are free software;
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
[ec2-user@ip-10-0-4-129 ~]$
```

```
ubuntu@ip-10-0-1-57:~$ ping 10.0.4.129
PING 10.0.4.129 (10.0.4.129) 56(84) bytes of data.
64 bytes from 10.0.4.129: icmp_seq=1 ttl=64 time=0.456 ms
64 bytes from 10.0.4.129: icmp_seq=2 ttl=64 time=0.396 ms
64 bytes from 10.0.4.129: icmp_seq=3 ttl=64 time=1.27 ms
64 bytes from 10.0.4.129: icmp_seq=4 ttl=64 time=0.924 ms
64 bytes from 10.0.4.129: icmp_seq=5 ttl=64 time=1.17 ms
64 bytes from 10.0.4.129: icmp_seq=6 ttl=64 time=0.470 ms
64 bytes from 10.0.4.129: icmp_seq=7 ttl=64 time=1.27 ms
64 bytes from 10.0.4.129: icmp_seq=8 ttl=64 time=1.14 ms
64 bytes from 10.0.4.129: icmp_seq=9 ttl=64 time=0.570 ms
64 bytes from 10.0.4.129: icmp_seq=10 ttl=64 time=0.484 ms
64 bytes from 10.0.4.129: icmp_seq=11 ttl=64 time=0.550 ms
64 bytes from 10.0.4.129: icmp_seq=12 ttl=64 time=1.37 ms
64 bytes from 10.0.4.129: icmp_seq=13 ttl=64 time=0.582 ms
64 bytes from 10.0.4.129: icmp_seq=14 ttl=64 time=1.64 ms
64 bytes from 10.0.4.129: icmp_seq=15 ttl=64 time=0.805 ms
^C
--- 10.0.4.129 ping statistics ---
15 packets transmitted, 15 received, 0% packet loss, time 14228ms
rtt min/avg/max/mdev = 0.396/0.873/1.642/0.392 ms
ubuntu@ip-10-0-1-57:~$
```

Testing communication between subnets: We allowed all traffic between the different subnets to test that communication was possible