

# SBA- Azure Fundamentals Final Project

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# Introduction

I am an IT professional with a Bachelor's degree in Computer Science and Entrepreneurship, experienced in software development and project management. I hold a CompTIA A+ certification and graduated in IT Support from Per Scholas. I have worked as an IT Help Desk at PCA Companies and as a Technical Support Engineer II at Tek Experts. I am passionate about **networking**, learning new things, and sharing my expertise, and I am focused on advancing my career.

# Project Overview

## Background / Scenario-

**AZFK-Tech**, a newly founded business, has asked you, a contractor, to help them build up their cloud infrastructure. But before you can install your infrastructure in their production environment, you must first demonstrate your ability to do so in a virtual lab environment. Note that Azure only allows 3 public IPs per region.

## Objectives-

- Using the skills learned throughout the course, complete the following Skills-Based assessment (SBA).
  - **Part 1: Set up Department Group Resources.**
  - **Part 2: Set up the VNets for each department.**
  - **Part 3: Set up VMs for each department.**
  - **Part 4: Create and Apply Security Group Policies to each department.**
  - **Part 5: Set up a Database.**
  - **Part 6: Set up a Web App for the Marketing and Sales (MAS) department.**
  - **Part 7: Deploy a shared storage between all departments.**
  - **Part 8: Deploy Monitoring resources.**
  - **Part 9: Questions.**
  - **Part 10: Presentation/Submission.**

# Azure Fundamentals: Key services and concepts

Azure is Microsoft's cloud platform, providing a variety of services such as computing, analytics, storage, and networking.

Key services:

- **Compute:** VMs, App Services, AKS
- **Storage:** Blob, File, Disk
- **Networking:** VNet, Load Balancer, VPN Gateway
- **Database:** SQL Database, Cosmos DB, MySQL/PostgreSQL
- **Identity:** Active Directory, AD B2C

Compute services:

- **Cloud Computing Models:** IaaS, PaaS, SaaS
- **Architecture:** Regions, Availability Zones, Resource Groups
- **Management:** ARM, Azure Policy, Azure Monitor
- **Security:** Security Center, Key Vault

# Implementation

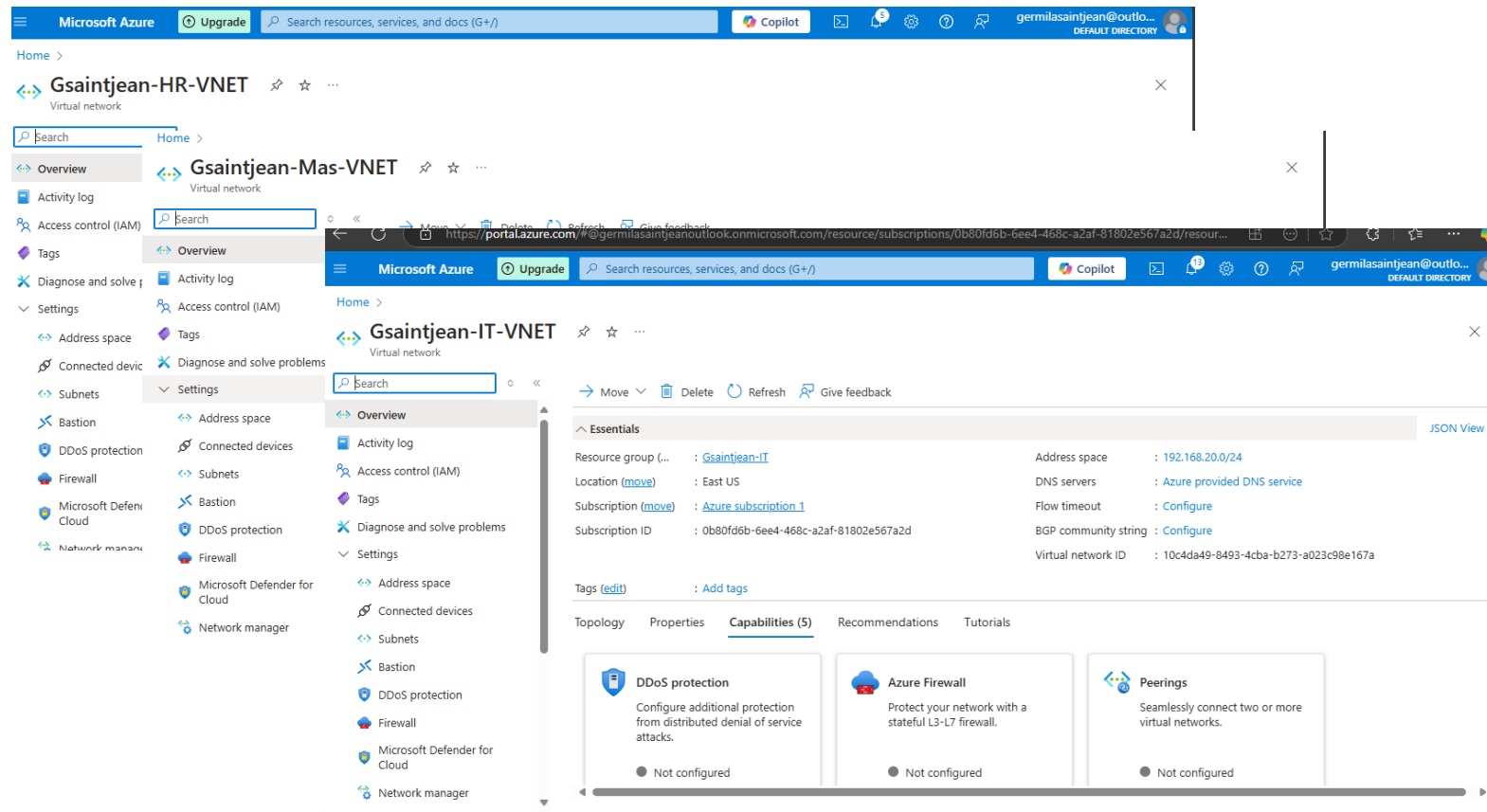
- Set up Department Group Resources: MAS-HR-IT

The screenshot displays the Microsoft Azure portal interface. The top navigation bar shows the user is logged in as 'germilasaintjean@outlo...'. The main content area is titled 'Resource groups' and shows a list of resource groups under the 'Default Directory'. The 'Gsaaintjean-IT' resource group is selected, and its 'Overview' page is displayed. The 'Overview' page shows the subscription 'Azure subscription 1' and the location 'East US'. Below this, a table lists the resources within the 'Gsaaintjean-IT' resource group.

Name	Type	Location
Gsaaintjean-IT-VNET	Virtual network	East US
ITAdmin	Virtual machine	East US
ITAdmin-ip	Public IP address	East US
ITAdmin-nsg	Network security group	East US
itadmin276_r3	Network interface	East US
ITAdmin_disk1_d9960e0e366e4d578916b04f1cb90ee8	Disk	East US
NSG-IT	Network security group	East US

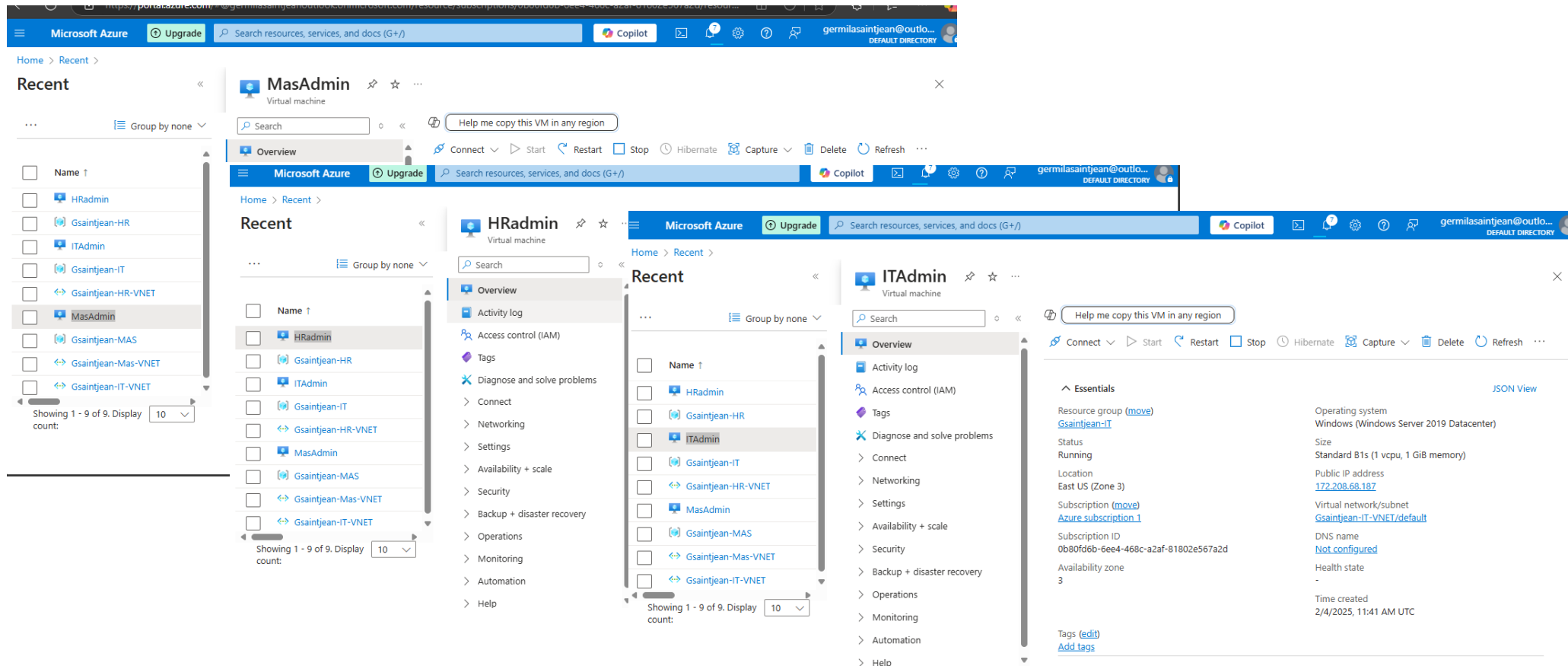
# Implementation

- Set up VNets for each department



# Implementation

- Set up VMs for each department



# Implementation

- Create and Apply Security Group Policies to each department

The screenshot displays the Microsoft Azure portal interface, showing three Network Security Groups (NSGs) side-by-side: NSG-HR, NSG-Mas, and NSG-IT. Each NSG is shown in its 'Overview' tab, displaying its location, subscription, and associated security rules.

**NSG-HR Overview:**

- Resource group: [GSAINTJEAN-IT](#)
- Location: East US
- Subscription: [Azure](#)
- Subscription ID: 0b80f6b-6ee4-468c-a2af-81802e567a2d
- Tags: [Add tags](#)

**NSG-Mas Overview:**

- Resource group: [GSAINTJEAN-IT](#)
- Location: East US
- Subscription: [Azure](#)
- Subscription ID: 0b80f6b-6ee4-468c-a2af-81802e567a2d
- Tags: [Add tags](#)

**NSG-IT Overview:**

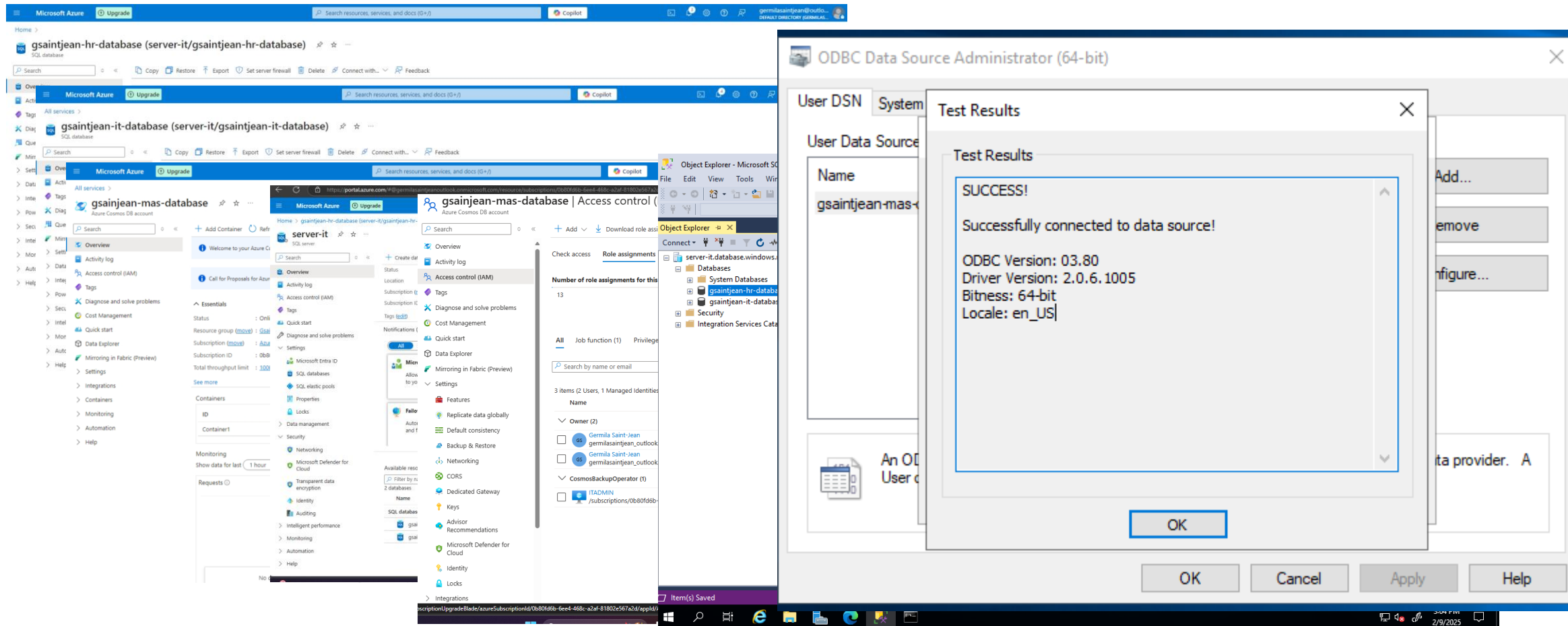
- Resource group: [GSAINTJEAN-IT](#)
- Location: East US
- Subscription: [Azure](#)
- Subscription ID: 0b80f6b-6ee4-468c-a2af-81802e567a2d
- Tags: [Add tags](#)

**Security Rules Table (NSG-IT):**

Priority	Name	Port	Protocol	Source	Destination	Action
100	AllowAnyCustomAnyInbound	Any	ICMP	Any	Any	Allow
110	AllowAnyRDPIInbound	3389	TCP	Any	Any	Allow
120	AllowAnyHTTPSIInbound	443	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
140	AllowAnyCustomAnyOutbound	Any	ICMP	Any	Any	Allow
150	AllowAnyRDPIOutbound	3389	TCP	Any	Any	Allow
160	AllowAnyHTTPSOOutbound	443	TCP	Any	Any	Allow
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

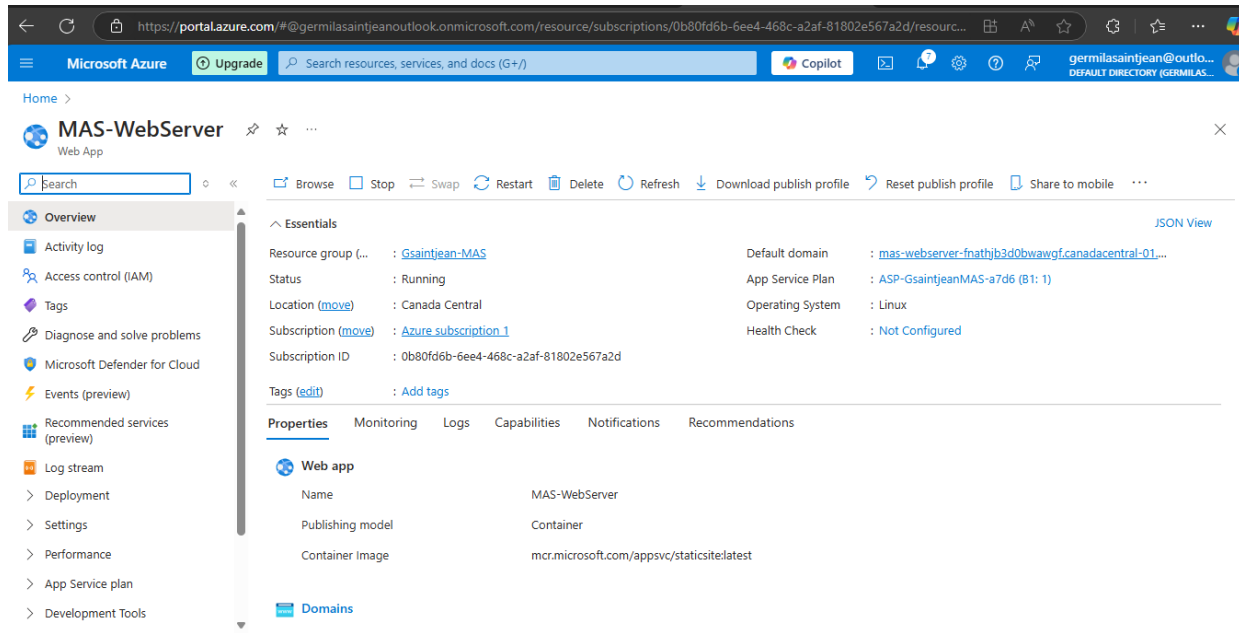
# Impementation

## Set up Database



# Implementation

- Set up a web App for the marketing and Sales (MAS) department



## Welcome to nginx!

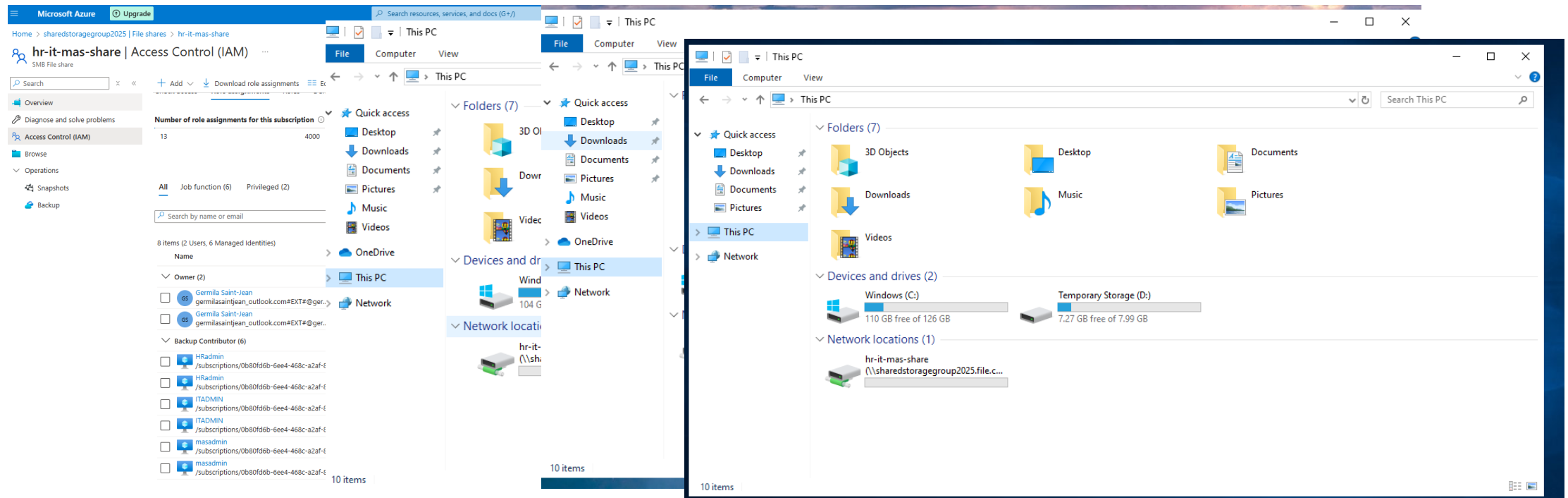
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to [nginx.org](https://nginx.org).  
Commercial support is available at [nginx.com](https://nginx.com).

Thank you for using nginx.

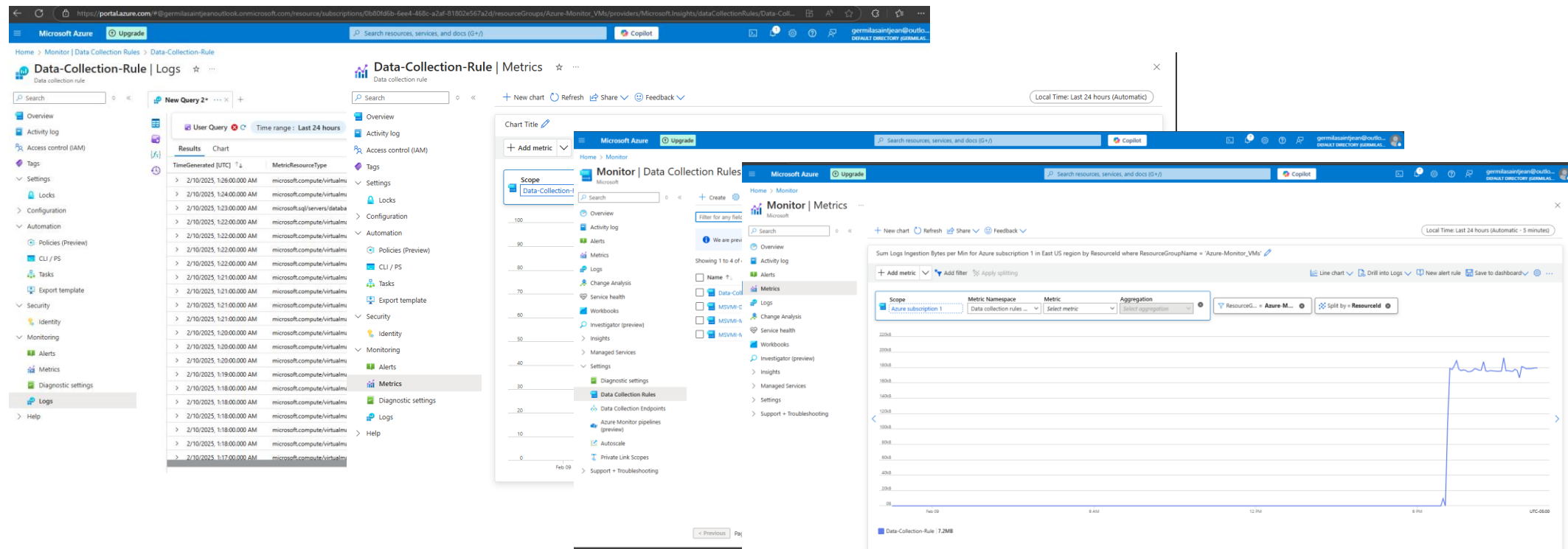
# Implementation

- Deploy a shared storage between all departements



# Implementation

- Deploy Monitoring resources



# Challenge and Solutions

- One of my first challenge was after deploying my IT-VM. It took me a while to figure out how to access HR-DB and MAS-DB because I didn't have enough space in my IT-VM. Whenever I tried to connect, the screen would freeze. I reconnected to my Azure portal, resized my CPU and RAM, and the VM finally ran properly.
- Setting up firewalls for each department was another challenge. I did a lot of research to figure out the ports that should not be able to ping any department.
- Creating databases for each department was also challenging. Every time I chose a region; I failed until I tried several regions and was successful. I created an Azure Cosmos SQL database for the MAS department and SQL databases for both HR and IT. I did a lot of research to find out which tools to use to access the different databases. I finally discovered that SQL Server Management Studio is suitable for SQL databases and Open Database Connectivity (ODBC) drivers for Azure Cosmos DB.
- Another challenge was accessing my file share in my VMs because I had entered the wrong path. After some research, I found the correct path.

# Results and Benefits

- I feel more comfortable deploying infrastructure in the Azure cloud.
- The challenges and errors I encountered taught me a lot as I was able to fix them.
- I now have a better understanding of the concepts and services.
- My research led me to discover a lot of helpful documentation.
- Previous labs and my notes were instrumental in deploying this project.
- By reviewing my previous labs, I realized there were things I didn't understand well.
- Now, I feel ready to focus on my Azure exam, as I have a better grasp of the concepts and services

# Conclusion and Final thoughts

I appreciate everyone's time

