Agenda

1. Team Member Introductions

2. Problem Domain & Project Overview

3. Solutions

4. Application Demonstration

5. Q&A

Team DataVerse

Robert Gillespie

David Siebert

David Prutch

Gerald Reitmeyer

Robert Gillespie

Current Army National Guards Member. I chose cybersecurity because I wanted to learn a skill set that would help protect the people's sensitive information.

David Siebert

US Army retired. Previous civilian finance & healthcare licensed careers. Enrolled @ Code Fellows for my educational interests & future career rewards.

GitHub

AIRBORNE

INFRA CARE LABORAMUS

CompTIA ITF+ CERTIFIED

DATAVERSE SOLUTIONS
by Globex

Code Fellows

Gerald Reitmeyer

Worked in retail and landscaping before taking Code Fellows. Had a interest in cyber security since high school.

GitHub

CompTIA
ITF+
CERTIFIED

DATAVERSE SOLUTIONS
by Globex

Code Fellows

David Prutch

US Navy Veteran. Previous Software QA Manager. Chose Cyber Security Engineering to increase my tech skills and provide greater future career possibilities.

GitHub

in

SunFlow

- Develops smart IOT home devices, powered by solar energy.

Products:

- Smart thermostats
- Security cameras
- Lighting systems

Device Control Parameters:

- Mobile app
- Reducing energy consumption
- Maximizing efficiency

Network Integration Prototype

- Connect SunFlow to Globex Central Server
  - Provide access from any endpoint
  - Centrally store company data
  - Secure company resources
- Make process easily repeatable

Solutions

- AWS VPC with EC2 Windows Server 2019 instance

- VPN Connection from AWS VPC to pfSense

- Internal Network access to Server
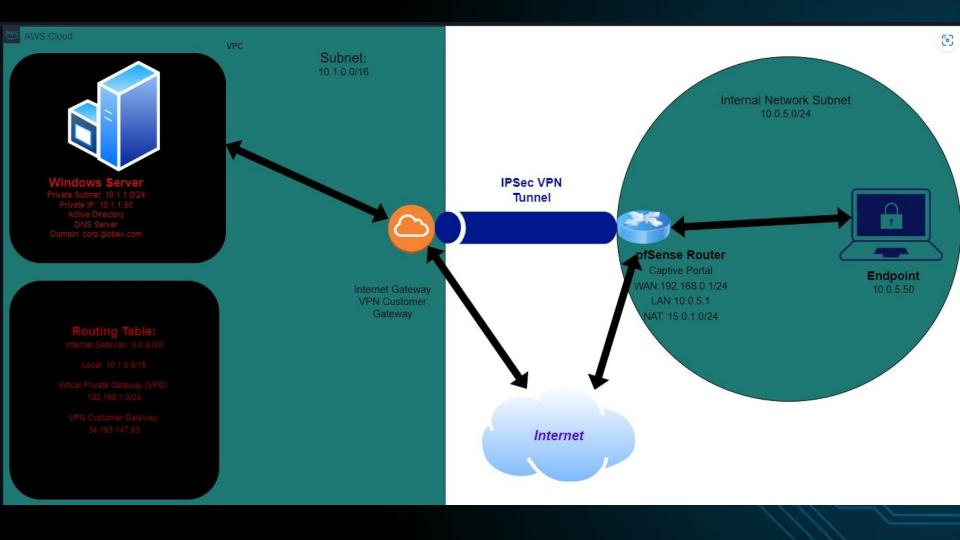
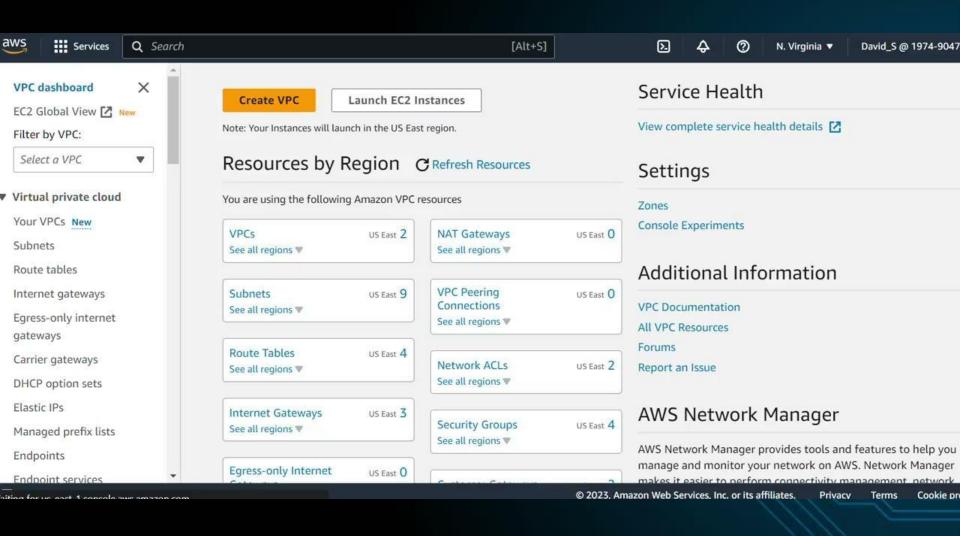- Active Directory & DNS in Windows Server

- Automation

AWS VPC with EC2 Win Serv 2019 instance

(Amazon Web Services Elastic Compute Cloud)

- *Security and compliance*
- *Scalability and flexibility*
- *Cost savings*
- *Accessibility and availability*
- *Disaster recovery and data backup*
- *Focus on core business*
- *Agility and innovation*

AWS Cloud

VPC

Subnet:
10.1.0.0/16

Windows Server
Private Subnet: 10.1.1.0/24
Private IP: 10.1.1.50
Active Directory
DNS Server
Domain: corp.globex.com

Routing Table:
Internet Gateway: 0.0.0.0/0

Local: 10.1.0.0/16

Virtual Private Gateway (VPG):
192.168.1.0/24

VPN Customer Gateway:
34.193.147.83

Internet Gateway
VPN Customer
Gateway

**IPSec VPN
Tunnel**

Internet

Internal Network Subnet
10.0.5.0/24

pfSense Router
Captive Portal
WAN:192.168.0.1/24
LAN:10.0.5.1
NAT: 15.0.1.0/24

Endpoint
10.0.5.50

VPC dashboard ✕

EC2 Global View 🔗 New

Filter by VPC:

Select a VPC ▼

▼ **Virtual private cloud**

Your VPCs New

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

| Create VPC | Launch EC2 Instances |

Note: Your Instances will launch in the US East region.

Resources by Region ⟳ Refresh Resources

You are using the following Amazon VPC resources

VPCs   US East **2**
See all regions ▼

NAT Gateways   US East **0**
See all regions ▼

Subnets   US East **9**
See all regions ▼

VPC Peering Connections   US East **0**
See all regions ▼

Route Tables   US East **4**
See all regions ▼

Network ACLs   US East **2**
See all regions ▼

Internet Gateways   US East **3**
See all regions ▼

Security Groups   US East **4**
See all regions ▼

Egress-only Internet   US East **0**

Service Health

View complete service health details 🔗

Settings

Zones

Console Experiments

Additional Information

VPC Documentation

All VPC Resources

Forums

Report an Issue

AWS Network Manager

AWS Network Manager provides tools and features to help you manage and monitor your network on AWS. Network Manager makes it easier to perform connectivity management, network
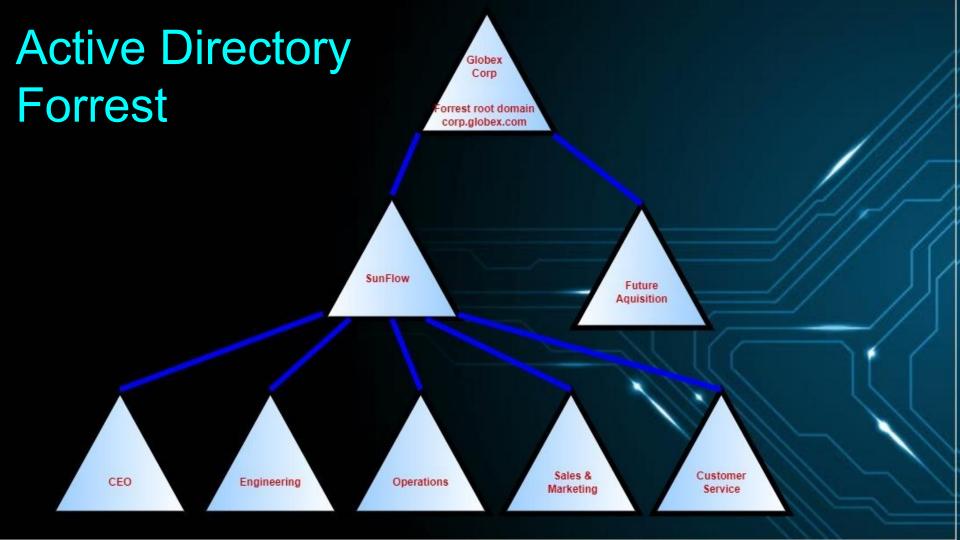
Windows Server

- Primary DNS Server

    - Remote location traffic flows through central location

    - Traffic Mirroring on AWS end

- Active Directory

    - Independent Organizational Units

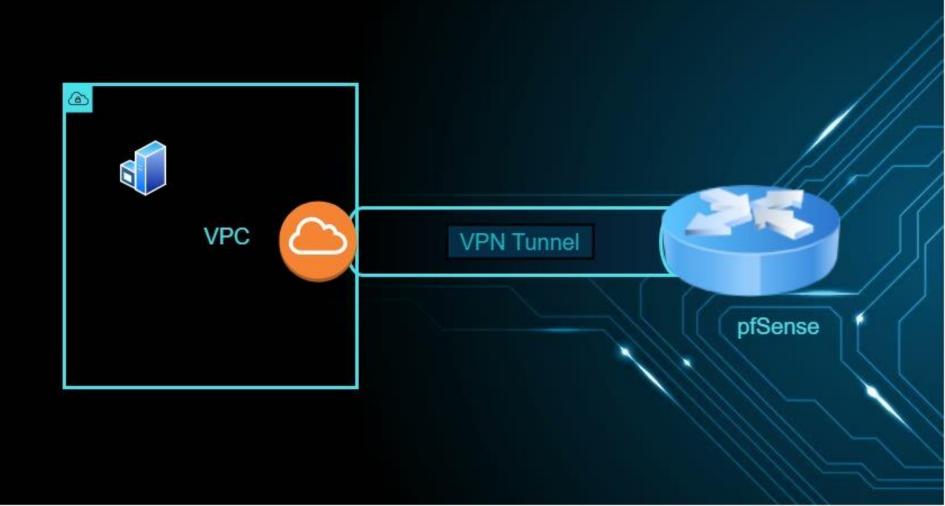   - Group Policy based on individual subsidiary needs
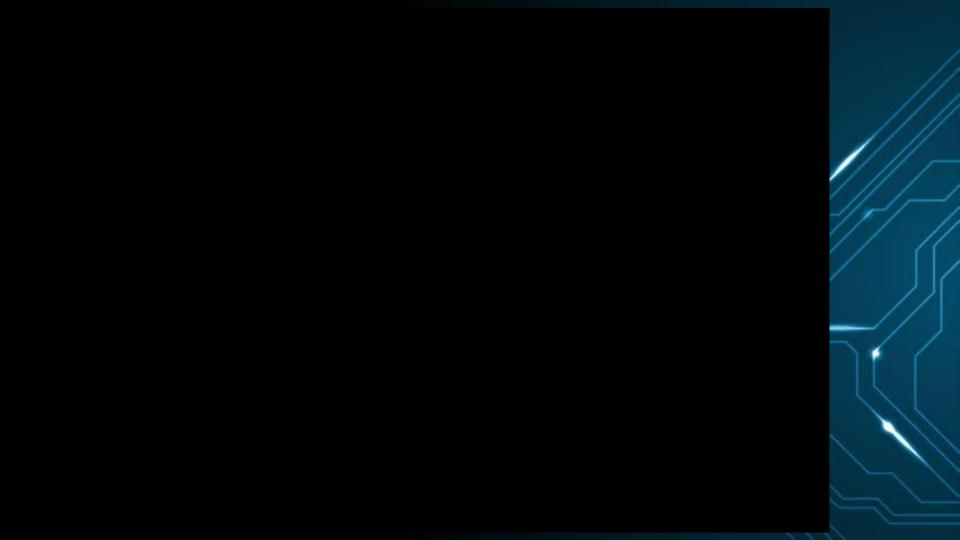
    - Automated insertion

DNS

Windows Server 2019

Active Directory Forrest

IPSec VPN Connection

- Multiple Site to Site VPN Connection

- IPSec - Secure, Encrypted, Reliable and Free
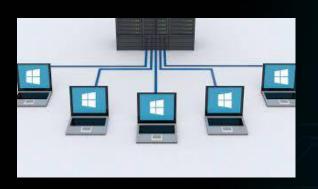
- pfSense router to connect to AWS VPC
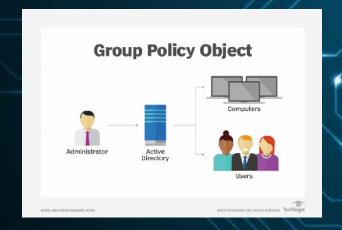
VPC

VPN Tunnel

pfSense

Domain and Group policy

- Domain
  - Users, workstations, etc.
  - Devices can join

- Group Policy
  - Apply to all users and computers
  - Specify different permissions

Resources & Thanks

- Special Thanks to our families and friends for putting up with us during the process.

To our Incredible instructors, TAs, and fellow students:

Thank you for making this learning journey unforgettable.

Your support and dedication have made all the difference.

Questions?