

CLOUD .NET

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NASHUA

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Microsoft AWS Google

About me!



Nashua Cloud .NET User Group

<https://www.meetup.com/nashuaug/>

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A+, Security+, Azure Solutions Architect Expert



The background of the slide is a photograph of a server room. Several tall, black server racks are visible, each filled with blue-lit components. The racks are arranged in rows, and the floor is a dark, reflective surface. The overall lighting is dim, with the primary light source being the blue glow from the servers.

Azure Networks 103

Getting Started with Cloud Networking

Azure Fundamentals

- Storage
- Compute
- Network

Azure Networking

Azure Networking connects and secures resources across regions, on-premises, and the internet

Enables global reach, high availability, and scalability for cloud applications

Key Services

Azure Load Balancer

Azure Application Gateway

Azure Front Door

Azure DNS



Benefits of Azure Networking

Global Scale

Connect resources and users worldwide

Resilience

Ensure uptime with redundant architectures

Security

Advanced threat protection and encryption

Cost Optimization

Pay-as-you-go model for networking services

Azure Networking



All networking services

Provide connectivity to your resources in Azure, deliver and protect applications, and help secure your network.



Application Gateway

Build secure, scalable, and highly available web front ends in Azure



Azure Communications Gateway

Rapidly connect your fixed and mobile networks with Microsoft Teams



Azure DDoS Protection

Protect your applications from Distributed Denial of Service (DDoS) attacks



Azure DNS

Host your DNS domain in Azure



Virtual WAN

Microsoft-managed hub and spoke service for connectivity and security



Azure ExpressRoute

Dedicated private network fiber connections to Azure



Azure Firewall

Native firewalling capabilities with built-in high availability, unrestricted cloud scalability, and zero maintenance



Azure Front Door

Scalable, security-enhanced delivery point for global, microservice-based web applications



Azure Network Function Manager

Extend Azure management for deploying 5G and SD-WAN network functions on edge devices



Azure Operator Service Manager

Manage network services across hybrid cloud sites



VPN Gateway

Establish secure, cross-premises connectivity



Azure Orbital Ground Station

Satellite ground station and scheduling services for fast down linking of data



Azure Private 5G Core

Rapidly deploy and manage private 5G networks at the enterprise edge



Azure Private Link

Private access to services hosted on the Azure platform, keeping your data on the Microsoft network



Load Balancer

Deliver high availability and network performance to your applications



Virtual Network

Provision private networks, optionally connect to on-premises datacenters



Web Application Firewall

A cloud-native web application firewall (WAF) service that provides powerful protection for web apps

Resource Groups

Container that holds related resources for an Azure solution

Can include all the resources for the solution, or only those resources that you want to manage as a group

Best Practice to add resources that share the same lifecycle to the same resource group so you can easily deploy, update, and delete them as a group



Account, Subscriptions, Resource Groups

Account

Subscriptions

Resource Groups

Resources

Resource Group

Resource group is a logical container for a group of resources

There is no cost associated with creating a resource group

Deleting a Resource Group deletes all resources within the Resource Group



Examples of Resources

Virtual Machine

Storage

Virtual Network

Network Interface

Virtual Hard Drive

Virtual Networks

Private Network in Azure

Benefits:

Scalability

Security

Global Reach

Virtual Networks Core Concepts

Virtual Networks (VNets)

Private networks within Azure

Subnets

Segmentation for better control

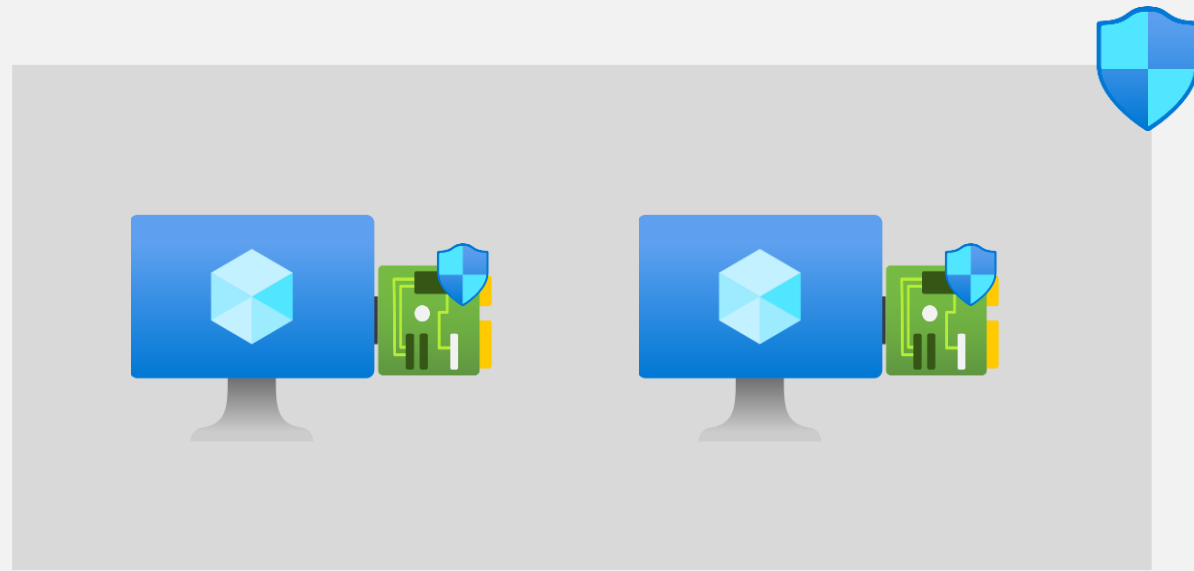
Network Security Groups (NSGs)

Security at the subnet/resource level

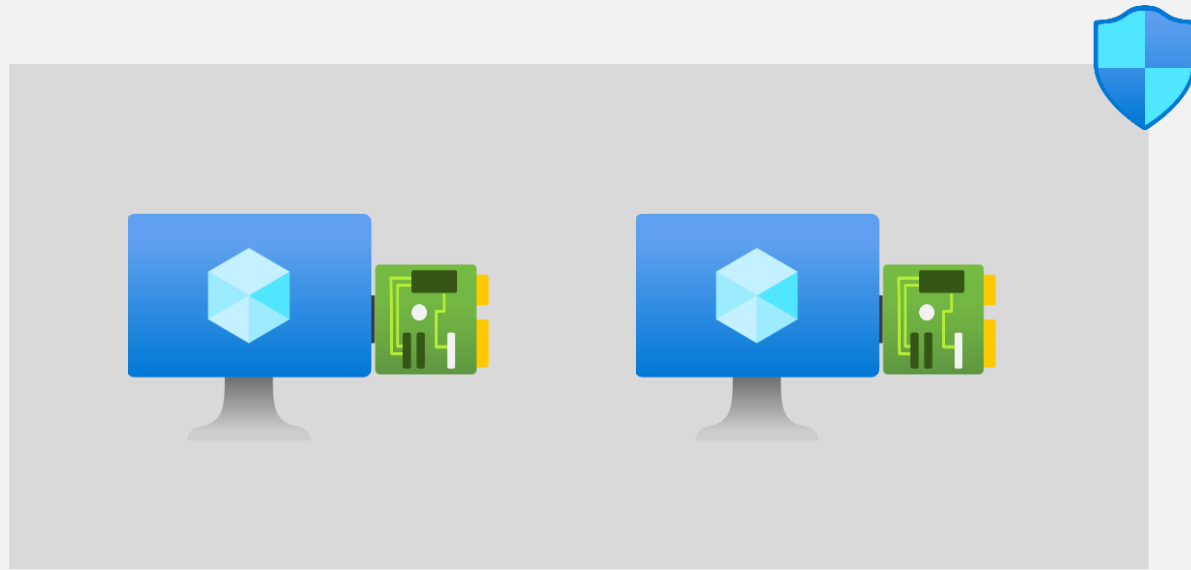
Regions and Availability Zones

Ensuring resilience.

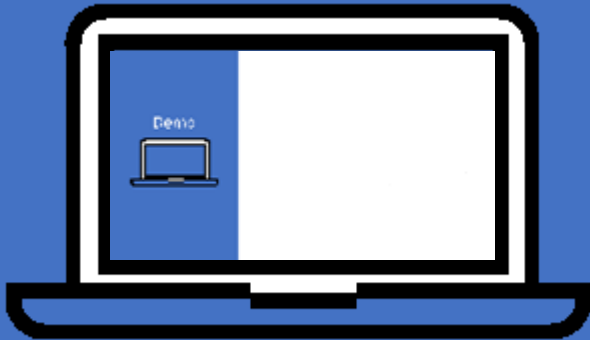
Virtual Networks Diagram



Virtual Networks Diagram



Demo



Virtual Networks

<https://learn.microsoft.com/en-us/azure/virtual-network/>

Azure DNS

Cloud-based DNS hosting service by Microsoft Azure that allows management of domain names and their associated records.

Translates human-readable domain names into computer-readable IP addresses

Use cases:

Hosting websites with custom domains

Managing private DNS zones for virtual networks

Simplifying DNS configuration for Azure-hosted resources

DNS Record Types

.A Record: Maps a domain name to an IP address.

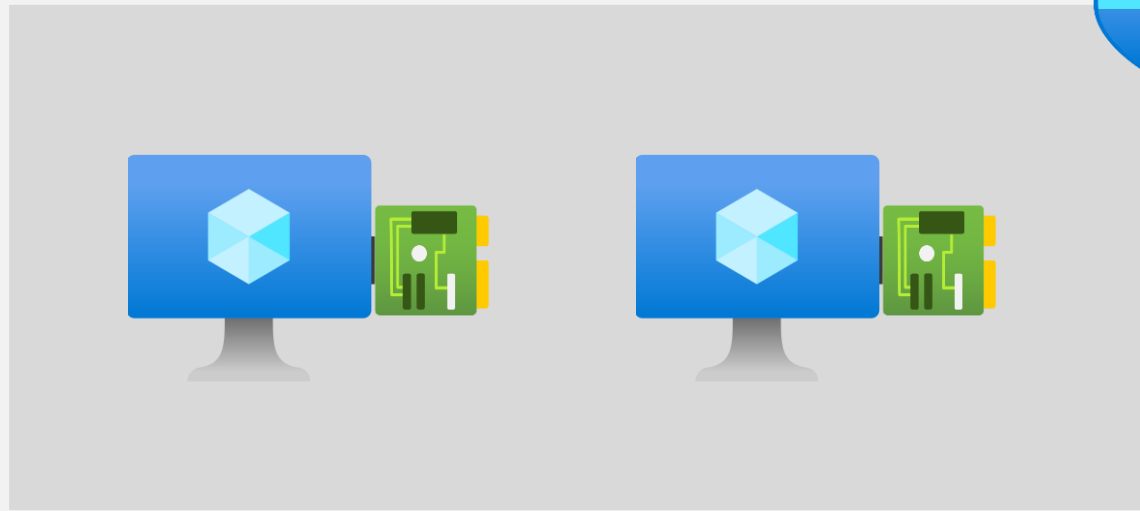
.CNAME Record: Alias of one name to another.

.MX Record: Specifies the mail server responsible for receiving email on behalf of a domain.

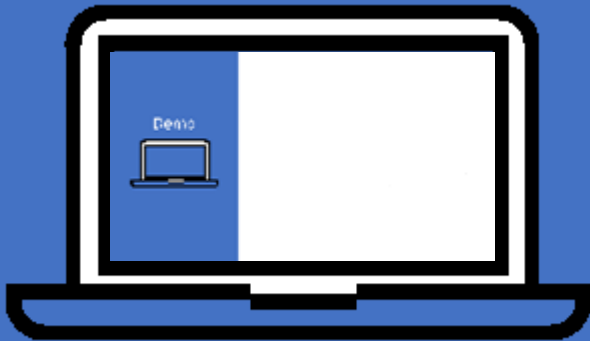
.TXT Record: Contains text information for various purposes.



Virtual Networks Diagram



Demo



Azure DNS

<https://learn.microsoft.com/en-us/azure/dns/>

Load Balancer

A Layer 4 (TCP/UDP) load balancer designed to distribute traffic across multiple resources

Provides high availability and scalability for applications

Use cases:

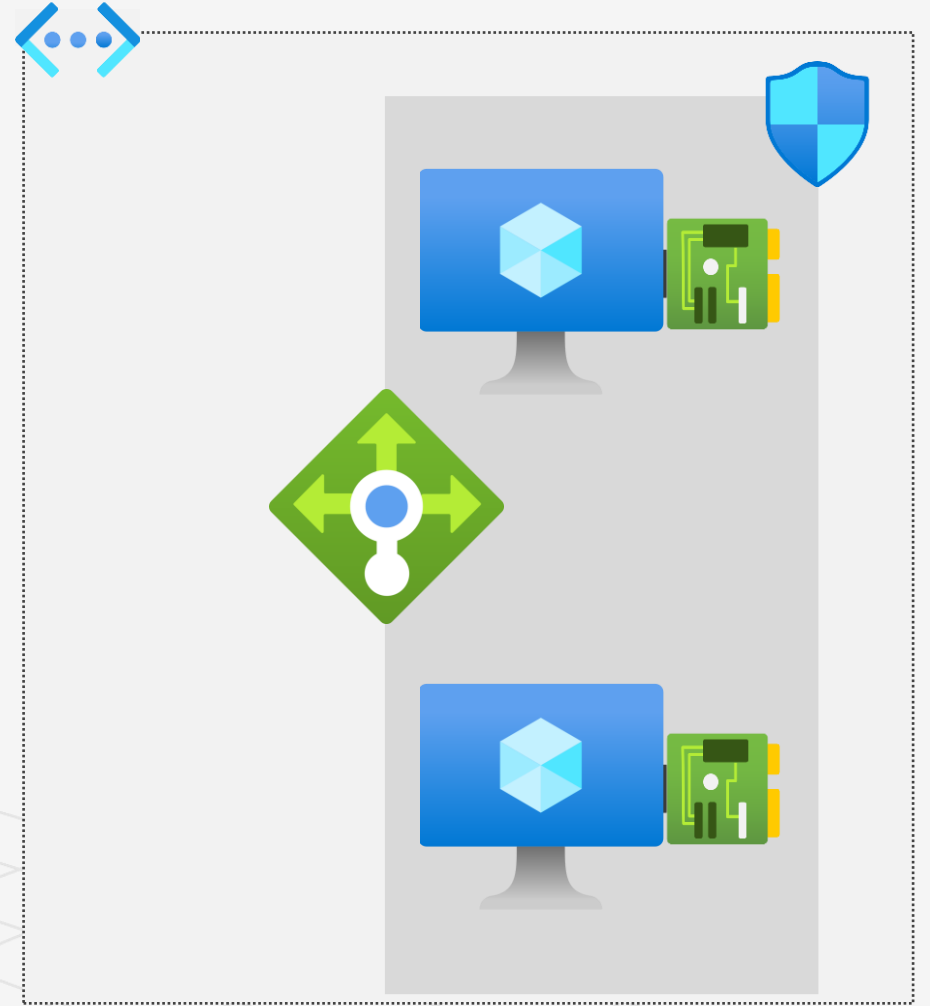
High Traffic Applications

Private Network Applications

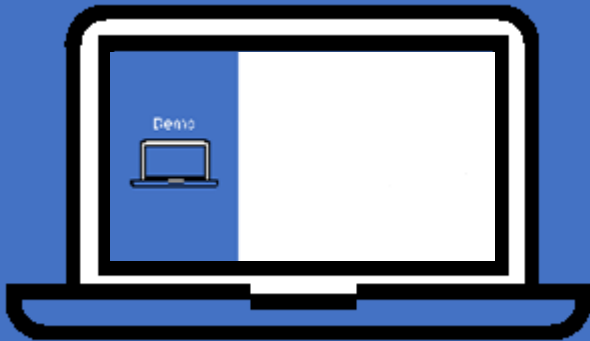
Hybrid Architecture

A decorative graphic consisting of a grid of light gray lines forming a series of diamond shapes, located in the bottom right corner of the slide.

Virtual Networks Diagram



Demo



Load Balancer

<https://learn.microsoft.com/en-us/azure/load-balancer/>

Application Gateway

Web traffic (OSI layer 7) load balancer that enables you to manage HTTP/HTTPS-based traffic to your web applications

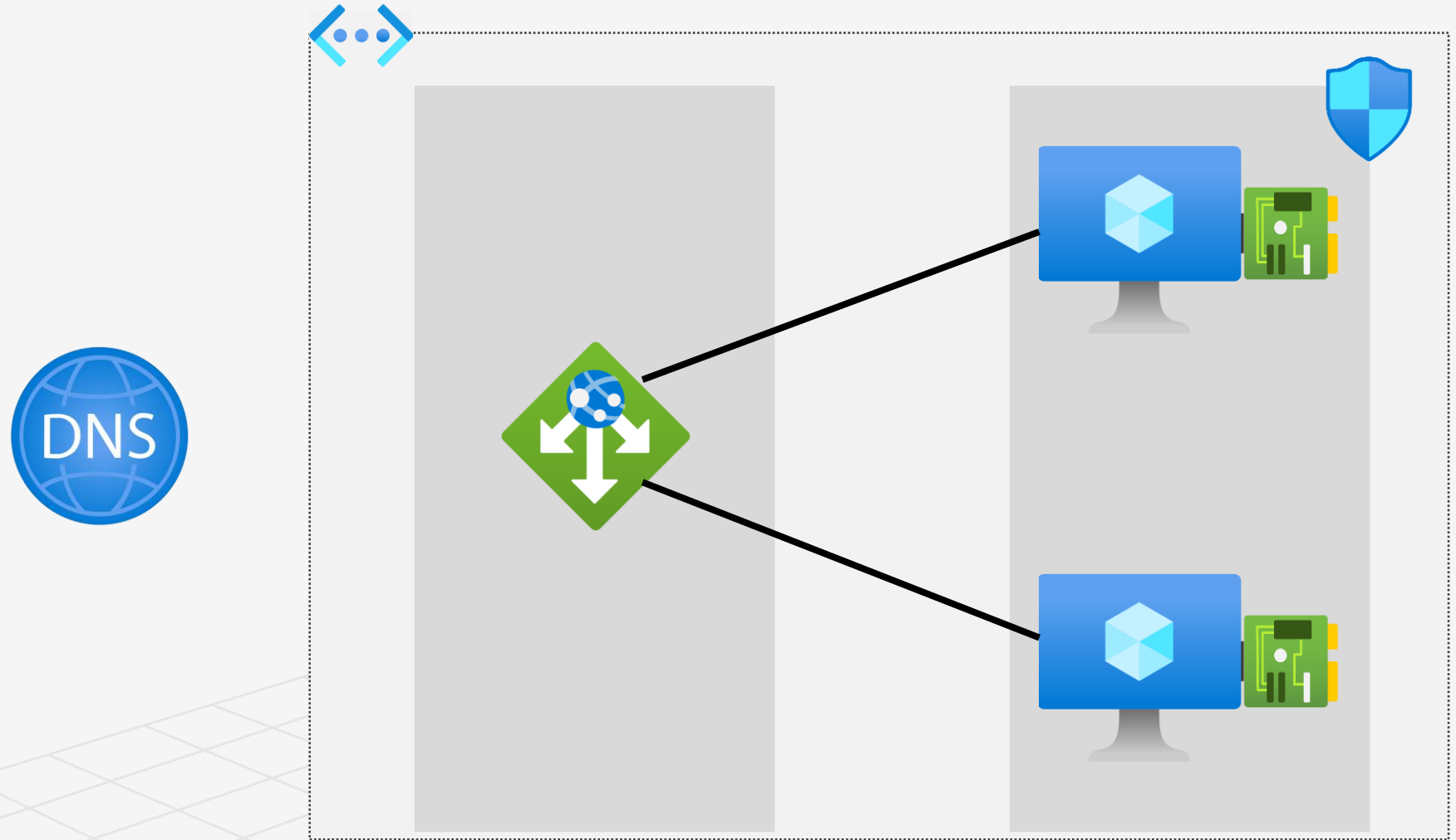
Use cases:

Hosting Multiple Websites

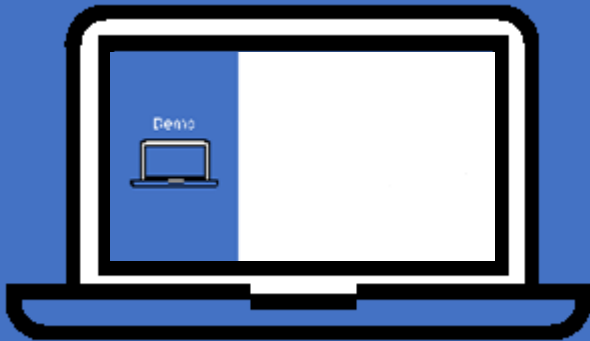
Secure Applications

Traffic Optimization

Virtual Networks Diagram



Demo



Application Gateway

<https://learn.microsoft.com/en-us/azure/application-gateway/>

Web Application Firewall

Cloud-native security service that protects web applications from common threats

Integrated with services like Application Gateway, Azure Front Door, and Azure CDN

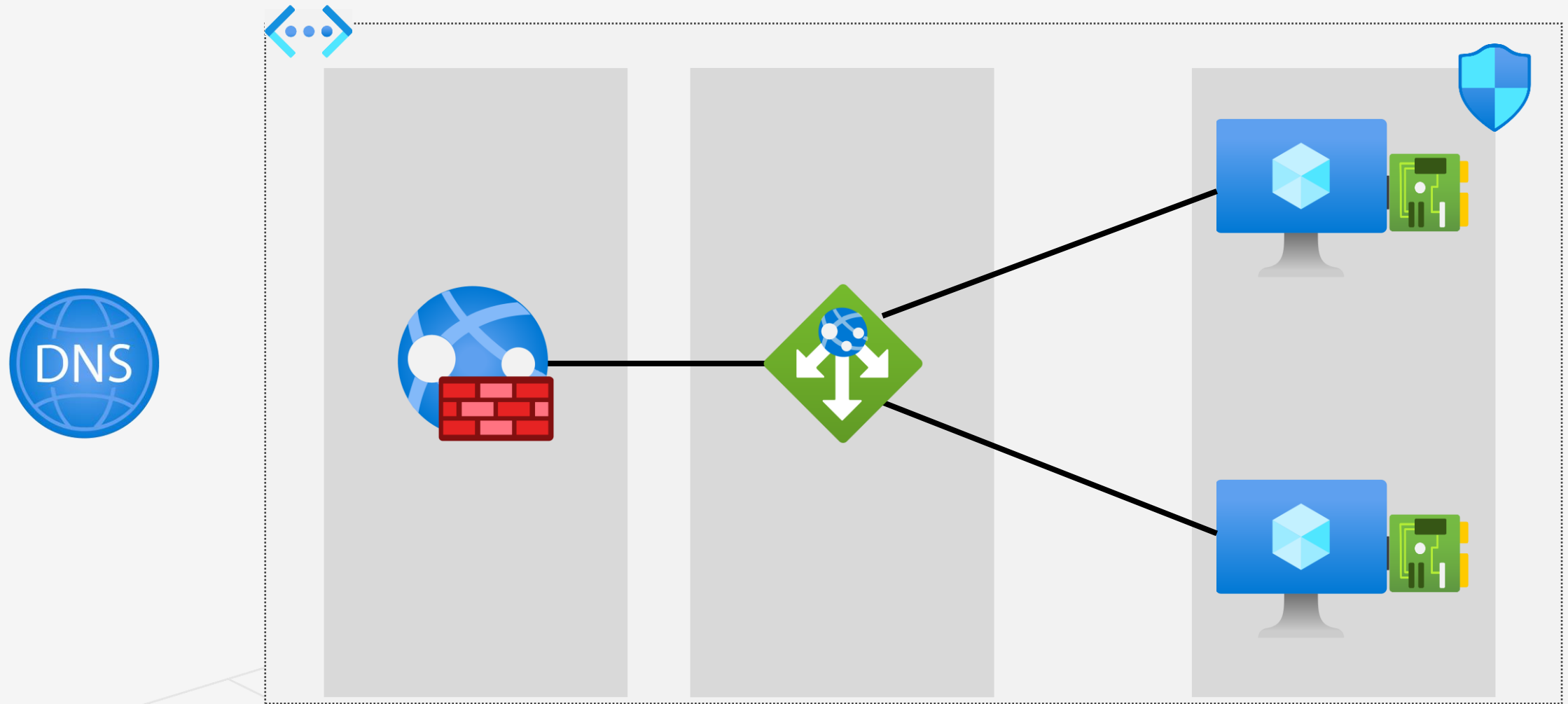
Use Cases:

Protect Public-Facing Applications

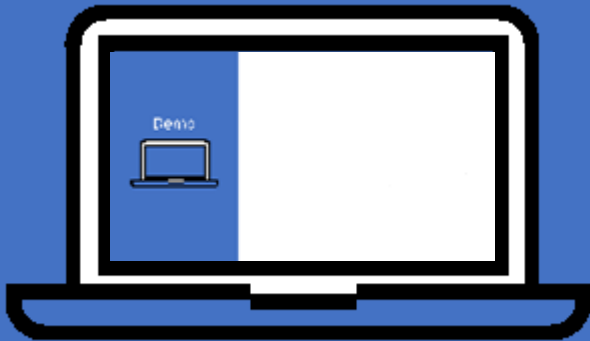
Regulatory Compliance

Custom Application Protection

Virtual Networks Diagram



Demo



Web Application Firewall

<https://learn.microsoft.com/en-us/azure/web-application-firewall/>

Front Door

global application delivery network for accelerating applications and securing traffic

Operates at Layer 7 (HTTP/HTTPS), providing intelligent routing and load balancing

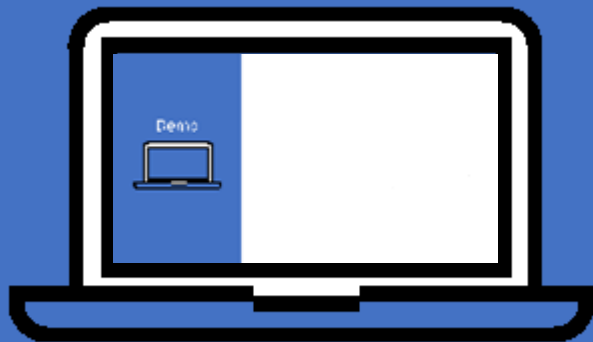
Use cases:

Global applications

Failover and Resilience

Web Application Security

Demo



Front Door

<https://learn.microsoft.com/en-us/azure/frontdoor/>

Summary

Overview of the Azure Networking

Virtual Networks

Private Network in Azure

DNS

Management of domain names and their associated records

Web Application Firewall

Run containers without managing infrastructure

Front Door

Orchestration for containerized applications

Load Balancer

Managed platform for hosting web apps and APIs

Application Gateway

HTTP/HTTPS load balancer

Resources

Azure Networking

<https://learn.microsoft.com/en-us/azure/?product=networking>

AZ-104: Configure and manage virtual networks for Azure administrators

<https://learn.microsoft.com/en-us/training/paths/az-104-manage-virtual-networks/>

Link to Slides in GitHub

<https://github.com/danielecolon/Azure-Compute-103>



What's Next

Azure Storage 101:

Getting Started with Cloud Storage

Sept 25th, 2024, 6:00 PM to 7:30 PM EDT

Azure Compute 102:

Getting Started with Cloud Compute

Dec 5th, 2024, 6:00 PM to 7:30 PM EDT

Azure Networking 103:

Getting Started with Cloud Networking

Jan 15th, 2024, 6:00 PM to 7:30 PM EDT