



# Stories 8 : Host a Website Using NGINX server and attach Azure Public Load Balancer to two VMS

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Tags	
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## Load Balancer

A load balancer is a networking device or software application that distributes incoming network traffic across multiple servers to ensure that no single server bears too much load. The primary purpose of a load balancer is to optimize resource utilization, maximize throughput, minimize response time, and avoid server overload.

Here are the key functions and features of load balancers:

- Distribution of Traffic:** Load balancers distribute incoming network traffic or application requests across multiple servers. This helps in preventing any single server from becoming a bottleneck and ensures that the overall system can handle more concurrent requests.
- High Availability:** Load balancers enhance the availability and reliability of applications by directing traffic only to healthy servers. If one server becomes unavailable or fails, the load balancer automatically redirects traffic to other available servers.
- Scalability:** Load balancers facilitate **horizontal scaling** by allowing additional servers to be added to the server pool. As the demand for a

service increases, more servers can be deployed, and the load balancer ensures an even distribution of traffic.

4. **Health Monitoring:** Load balancers regularly check the health of backend servers by sending health probes or monitoring specific health indicators. Unhealthy servers are automatically taken out of rotation until they recover.
5. **Security:** Load balancers can provide a level of security by hiding the internal IP addresses of backend servers. They act as an intermediary between clients and servers, protecting the servers from direct exposure to the internet.
6. **Content Switching:** Load balancers can make decisions based on content, such as directing specific types of traffic to specific servers. This is useful for optimizing the handling of different types of requests.

**Frontend IP**" refers to the IP address and configuration associated with the external-facing side of the load balancer. The frontend IP is the entry point for incoming network traffic that is destined for the resources behind the load balancer.

**Backend Pool** refers to a collection of backend resources, typically servers or virtual machines, that are responsible for handling incoming network traffic. The load balancer distributes incoming requests among the servers in the backend pool to optimize resource utilization and ensure high availability.

**Health probes**, also known as health checks or health monitoring, are mechanisms used by load balancers to assess the status and health of backend servers or services. The primary purpose of health probes is to ensure that only healthy and responsive servers receive incoming traffic. If a server is determined to be unhealthy based on the results of health probes, the load balancer can automatically route traffic away from that server, preventing it from impacting the overall performance and reliability of the application or service.

- Azure Load Balancer is a single point of contact for clients. Load balancer distributes inbound flows that arrive at the load balancer's

Lab : Create load balancer and attach two different vms.

Create vnet

launch 2 servers

install nginx or apache2

### **Navigate to Load Balancers:**

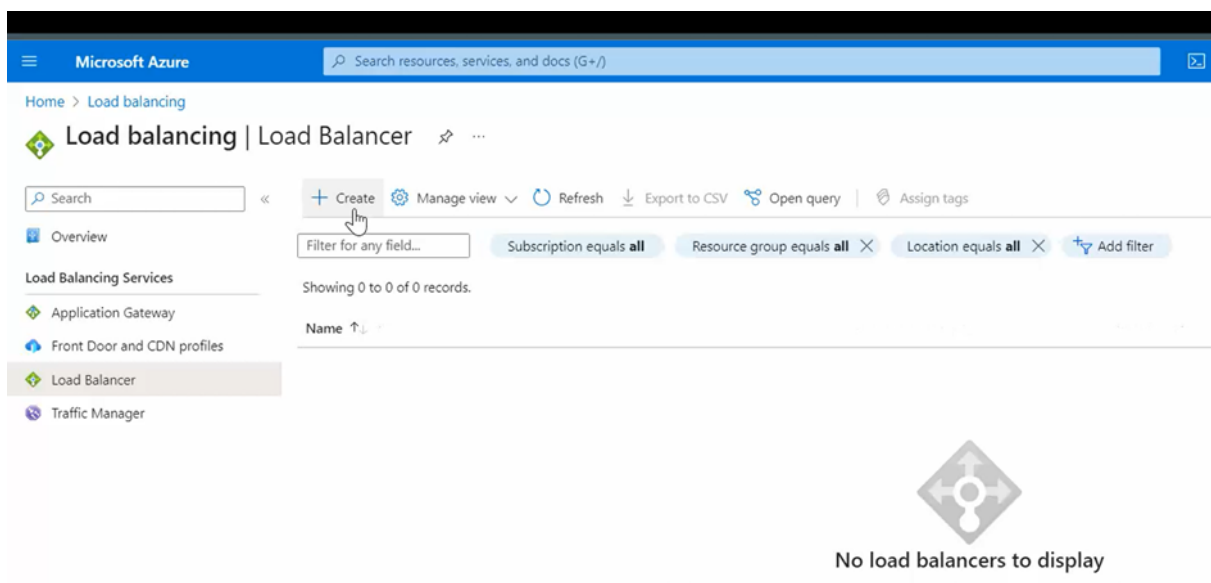
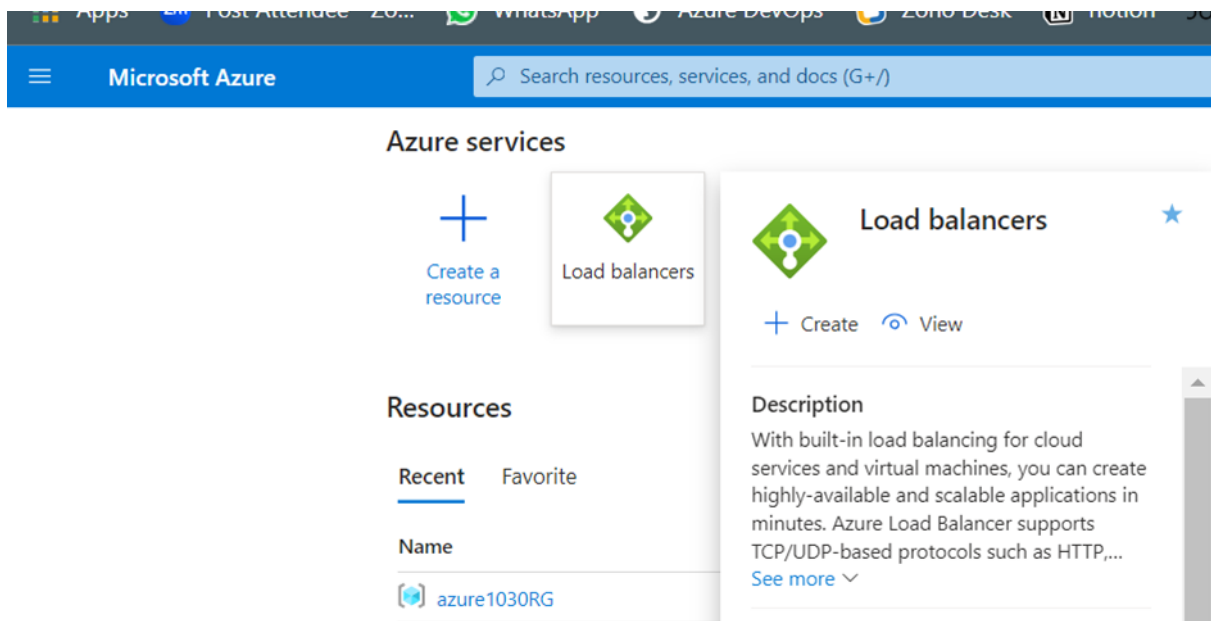
- In the Azure Portal, click on "Create a resource" or navigate to the "Create a resource" section.
- In the search bar, type "Load Balancer" and select the "Load Balancer" result.

### **Create Load Balancer:**

- Click on the "Create" button to start the creation process.

### **Basic Settings:**

- In the "Basics" tab, provide the following information:
  - **Subscription:** Choose your Azure subscription.
  - **Resource Group:** Create a new one or select an existing resource group.
  - **Name:** Give your load balancer a unique name.
  - **Region:** Choose the Azure region where you want to deploy the load balancer.



Select TYPE : public

CREATE A FRONTEND IP

### IP Configuration:

- Under the "IP Configuration" tab, configure the frontend IP configuration. You can choose either a new public IP address or use an existing one.

## Add a public IP address

Name \*  ✓

SKU ☒ Standard ☐ Basic

Tier ☒ Regional ☐ Global

Static IPs are assigned at the time the resource is created and released when the resource is deleted. Dynamic IPs are assigned when associating the IP to a resource and is released when you stop,

GIVE LOAD BALANCER CONFIGURATION NAME

Home > Load balancing | Load Balancer >

### Create load balancer

Basics Frontend IP configuration Backend pools Inbound rules Outbound rules Tags Review + create

A frontend IP configuration is an IP address used for inbound and/or outbound communication as defined within load balancing, inbound NAT, and outbound rules.

+ Add a frontend IP configuration

Name ↑↓	IP address ↑↓
Add a frontend IP to get started	

#### Add frontend IP configuration

Name \*  ✓

IP version ☒ IPv4 ☐ IPv6

IP type ☒ IP address ☐ IP prefix

Public IP address \*  [Create new](#)

Gateway Load balancer ☐ ☐

CONFIGURE BACKEND POOLS



**Backend Pools:** Configure the backend pool, which defines the set of virtual machines or instances that will receive the incoming traffic. You can create a new backend pool and add virtual machines to it.

## Add backend pool ...

Name *	mybackendpool
Virtual network ⓘ	vm1-vnet (mylabRG)
Backend Pool Configuration	<div><input checked="" type="radio"/> NIC</div> <div><input type="radio"/> IP address</div>

### IP addresses

You can only add resources IP address in the Virtual Network. The configuration is associated with the IP address and will apply to any resource which has this IP address assigned.

Backend Address Name	IP address	Resource Name	
a3afe84b-6130-44e9-9d36-98a80...	10.3.0.4	vm1 (mylabRG)	
af7c7629-7096-441a-92c7-02756...	10.3.0.3	vm2 (mylabRG)	
93f085ed-c42c-46a4-880d-58225...			

### Health Probes:

- PSet up health probes to monitor the health of your backend instances. This includes specifying a protocol, port, and probing interval.

PORT : Incoming traffic hitting on load balancer

Backend Port: Backend vm ports on which application is running x`

### ADD LOAD BALANCING RULE

Create load balancing rules to define how incoming traffic should be distributed. Specify the frontend IP, port, backend pool, and other settings.

Home > Load balancing | Load Balancer >

## Create load balancer

Basics Frontend IP configuration Backend pools **Inbound rules** Outbound rules Tags Review + create

**Load balancing rule**  
A load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. The load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. Only backend instances that the health probe considers healthy receive new traffic.

+ Add a load balancing rule

Name ↑↓	Frontend IP configuration ↑↓	Backend pool ↑↓	Health probe ↑↓
Add a rule to get started			

**Inbound NAT rule**  
An inbound NAT rule forwards incoming traffic sent to a selected IP address and port combination to a specific virtual machine.

+ Add an inbound nat rule

Name ↑↓	Frontend IP configuration ↑↓	Service ↑↓	Target ↑↓
Add a rule to get started			

**Add load balancing rule**

myloadbalancer

A load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. Only backend instances that the health probe considers healthy receive new traffic.

Name \* myloadbalancingrule

IP Version \* ☒ IPv4 ☐ IPv6

Frontend IP address \* myloadbalancer (To be created)

Backend pool \* mybackendpool

Protocol ☒ TCP ☐ UDP

Port \* 80

Backend port \* 80

Health probe \* (new) myhealthprobe (TCP:80)

Session persistence ☐ None

Idle timeout (minutes) \* 4

## CREATE OUTBOUND RULE

Home > Load balancing | Load Balancer >

## Create load balancer

Basics Frontend IP configuration Backend pools Inbound rules **Outbound rules** Tags Review + create

**Outbound rules**  
An outbound rule allocates source network address translation (SNAT) ports from Frontend IP addresses to a backend pool for outbound connections to the internet.

+ Add an outbound rule

Name ↑↓	Frontend IP configuration ↑↓	Backend pool ↑↓	Protocols ↑↓
Add a rule to get started			

**Add outbound rule**

Backend pool \* mybackendpool (2 instances)

**Port allocation**  
Azure automatically assigns the number of outbound ports to use for source network address translation (SNAT) based on the number of frontend IP addresses and backend pool instances. [Learn more about outbound connectivity](#)

Port allocation ☐ Manually choose number of outbound ports

Outbound ports  
Choose by \* Maximum number of backend instances

Ports per instance ☐ 31992

Available frontend ports 63992

Maximum number of backend instances \* 2

## Review + Create

## CHECK WITH FRONTEND IP

