# Understanding Load Balancing in Azure

Load balancing is a crucial concept in cloud computing, ensuring the distribution of workloads across multiple resources to optimize performance, maximize throughput, and enhance availability. In Azure, load balancing is essential for maintaining efficient, scalable, and highly available applications.

## Azure offers four main types of load balancing services:

1. **Azure Load Balancer**
2. **Azure Application Gateway**
3. **Azure Traffic Manager**
4. **Azure Front Door**

# **Azure Load Balancer**

The Azure Load Balancer is a critical component in distributing incoming user requests evenly across backend resources. It operates at OSI Layer 4 (Transport Layer) and supports TCP/UDP protocols, making it ideal for handling network traffic at this level.

## Types of Azure Load Balancers

Azure Load Balancers are available in two primary types:

1. Public Load Balancer: Accessible from anywhere on the internet, designed to handle external traffic.
2. Private/Internal Load Balancer: Restricted to internal networks, ideal for managing internal applications and services.

## Service Categories

Azure Load Balancers are categorized into two service types:

1. Regional Service: Distributes network traffic within a specific virtual network.
2. Global Service: Handles network traffic across multiple regions, clouds, or on-premises networks.

## **Health Probes**

To ensure that traffic is directed to healthy and active resources, Azure Load Balancers utilize health probes. These probes continuously check the status of VMs (Virtual Machines). If a VM is responsive, the load balancer directs traffic to it. If a VM becomes unresponsive, the load balancer stops sending traffic to that VM, ensuring efficient and reliable routing.

## SKU Options-(Stock Keeping Unit)

Azure Load Balancers offer different SKUs to match your needs:

| **SKU** | **Type** | **Tier** |
| --- | --- | --- |
| Basic | Public / Internal | Regional |
| Standard | Public / Internal | Regional / Global |
| Gateway | Internal | Regional |

## Conclusion

Azure Load Balancers play a vital role in managing network traffic, ensuring that your applications remain highly available and responsive. Whether you need to manage internal traffic within a virtual network or distribute traffic across global regions, Azure provides the flexibility and scalability needed to meet your business requirements.