**What is Azure Application Gateway?**

**Azure Application Gateway** is a **web traffic load balancer** that lets you manage traffic to your web applications.

Unlike the standard Azure Load Balancer, **Application Gateway operates at Layer 7 (HTTP/HTTPS)** of the OSI model, which means it can make routing decisions based on content (URLs, headers, etc.).

**💡 Key Features:**

| **Feature** | **Description** |
| --- | --- |
| **Layer 7 Load Balancing** | Routes traffic based on HTTP attributes (e.g., URL path, host header). |
| **SSL Termination** | Offload SSL processing to the gateway. |
| **Web Application Firewall (WAF)** | Built-in protection against OWASP Top 10 vulnerabilities. |
| **URL-based Routing** | Send traffic to different backends based on path. |
| **Session Affinity (Cookies)** | Sticky sessions support. |
| **Autoscaling** | Automatically scales based on traffic. |
| **Custom Probes** | Health check your backend services. |

**🛠️ How to Set It Up (Basic Steps)**

**✅ Step 1: Create a Virtual Network (VNet)**

* Application Gateway must be in a **subnet** inside a VNet.

**✅ Step 2: Deploy Application Gateway**

* Use the Azure Portal, CLI, ARM, Bicep, or Terraform.
* Choose whether to enable **WAF**, **Public or Private IP**, **autoscaling**, etc.

**✅ Step 3: Define Backend Pool**

* Add backend targets:
  + App Services
  + VMs / VMSS
  + IPs / FQDNs (even on-prem via VPN)

**✅ Step 4: Define Listener**

* Configure frontend IP and **Listener** for HTTP/HTTPS.
* Attach an SSL certificate (for HTTPS).

**✅ Step 5: Set Routing Rules**

* Create rules that match URLs, headers, etc.
* Associate them with specific backend pools.