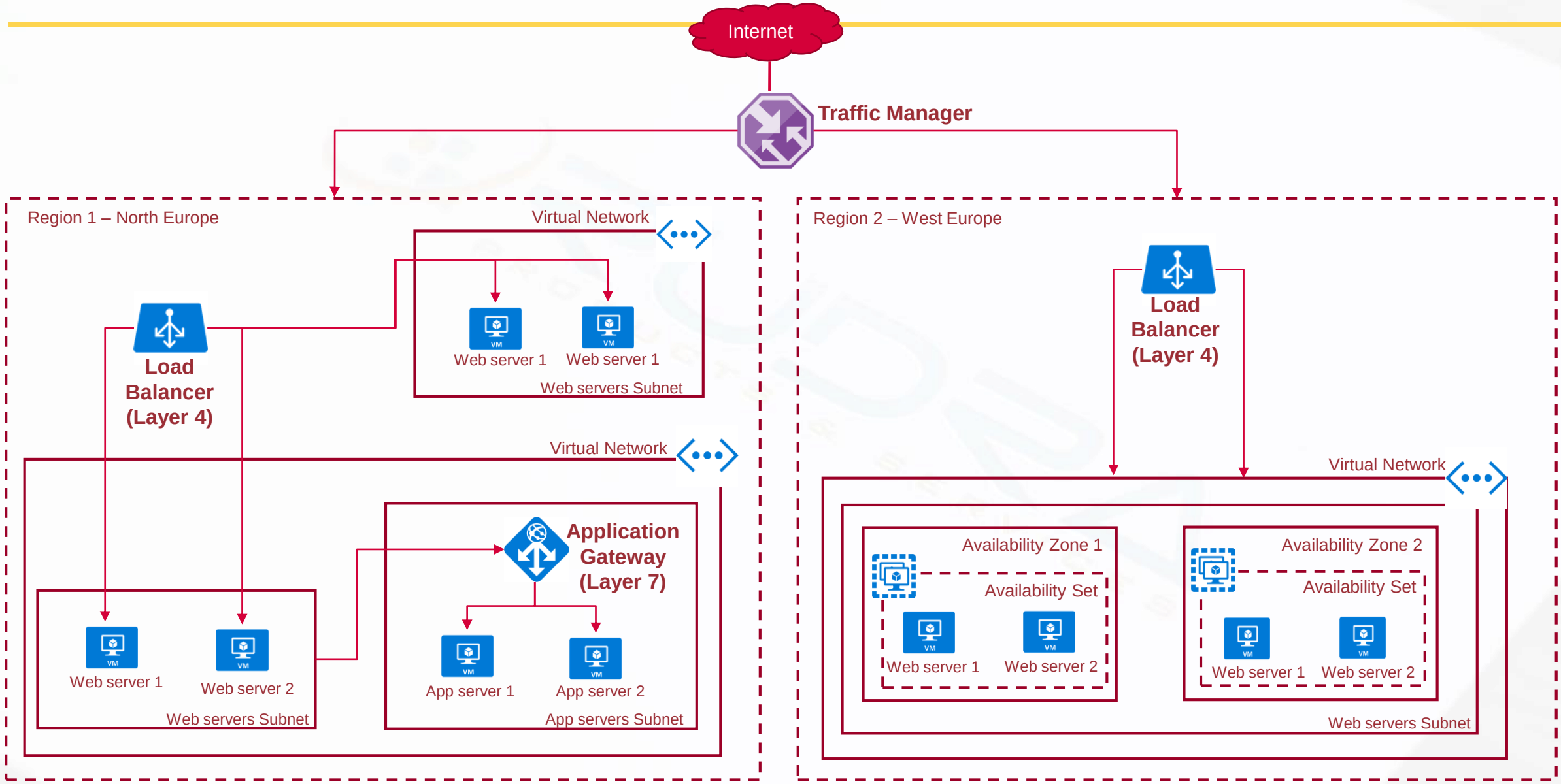
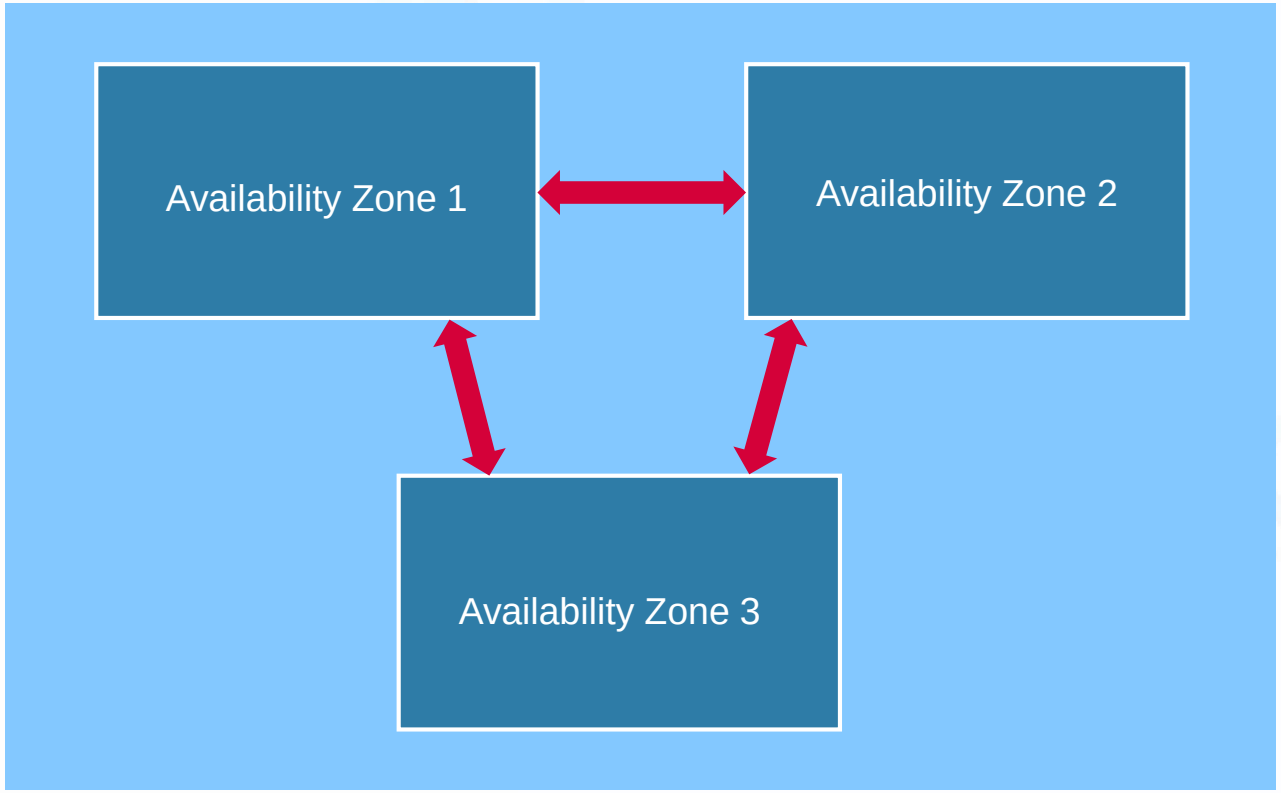
Delivering high availability solution on Azure

Azure High Availability Services



Availability zones

Availability Zones is a high-availability offering that protects your applications and data from datacenter failures. Availability Zones are unique physical locations within an Azure region. Each zone is made up of one or more datacenters equipped with independent power, cooling, and networking



Services support availability zones

Azure services that support Availability Zones fall into two categories:

- Zonal services – you pin the resource to a specific zone (for example, virtual machines, managed disks, IP addresses)
- Zone-redundant services – platform replicates automatically across zones (for example, zone-redundant storage, SQL Database).

Service Type	Services that support Availability Zones
Networking	Standard IP address, Standard load balancer, VPN gateway, ExpressRoute and Application gateway
Compute	Virtual machines and virtual machines scaleset

Availability sets

- An availability set is a logical grouping of VMs within a datacenter that allows Azure to understand how your application is built to provide for redundancy and availability

- An availability set is composed of two additional groupings that protect against hardware failures and allow updates to safely be applied - fault domains (FDs) and update domains (UDs)

    - **Fault domains** - A fault domain is a logical group of underlying hardware that share a common power source and network switch, similar to a rack within an on-premises datacentre

    - **Update domains** - An update domain is a logical group of underlying hardware that can undergo maintenance or be rebooted at the same time.

    - **Managed Disk fault domains** - For VMs using Azure Managed Disks, VMs are aligned with managed disk fault domains when using a managed availability set. This alignment ensures that all the managed disks attached to a VM are within the same managed disk fault domain