Oracle Cloud Infrastructure Networking Services

Oracle Corporation

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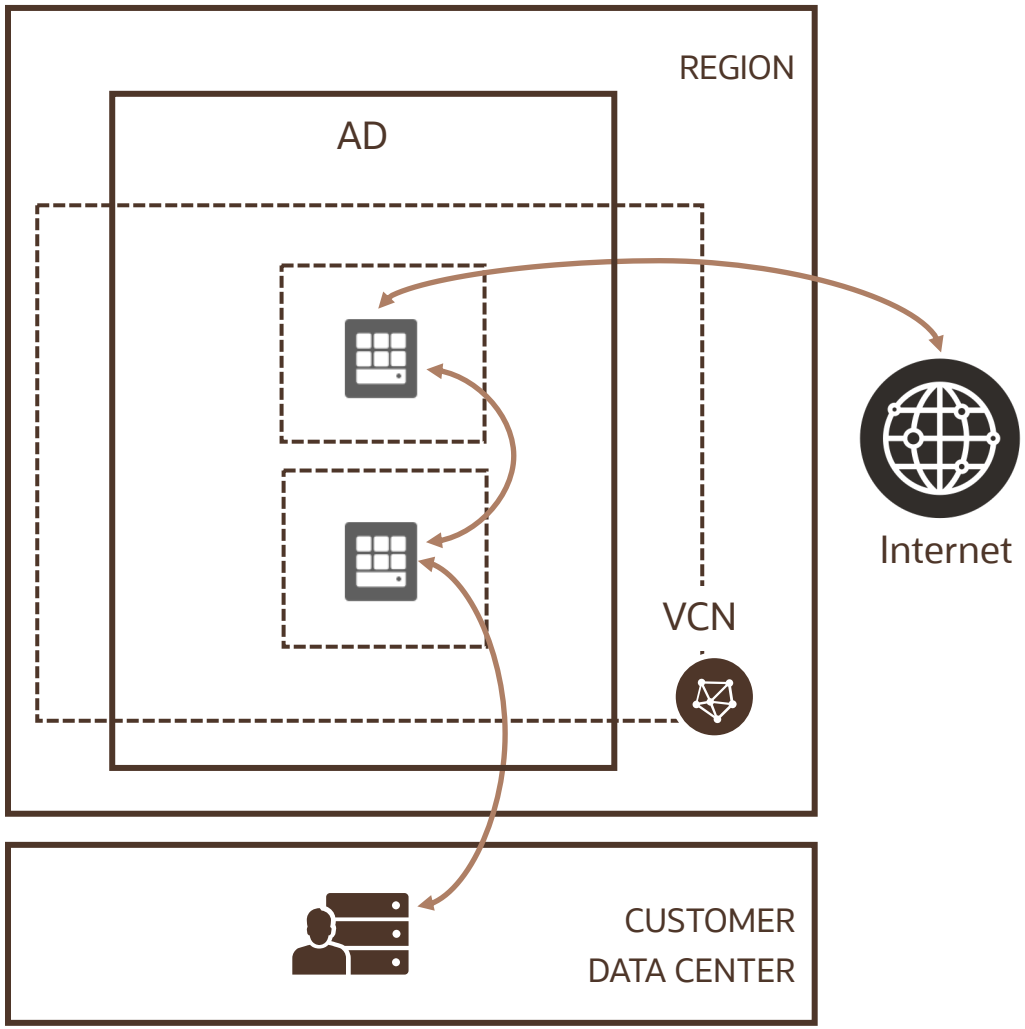
Agenda

- Virtual Cloud Network
- Gateways
- Peering
- VCN Security
- Load Balancer

Virtual Cloud Network (VCN)



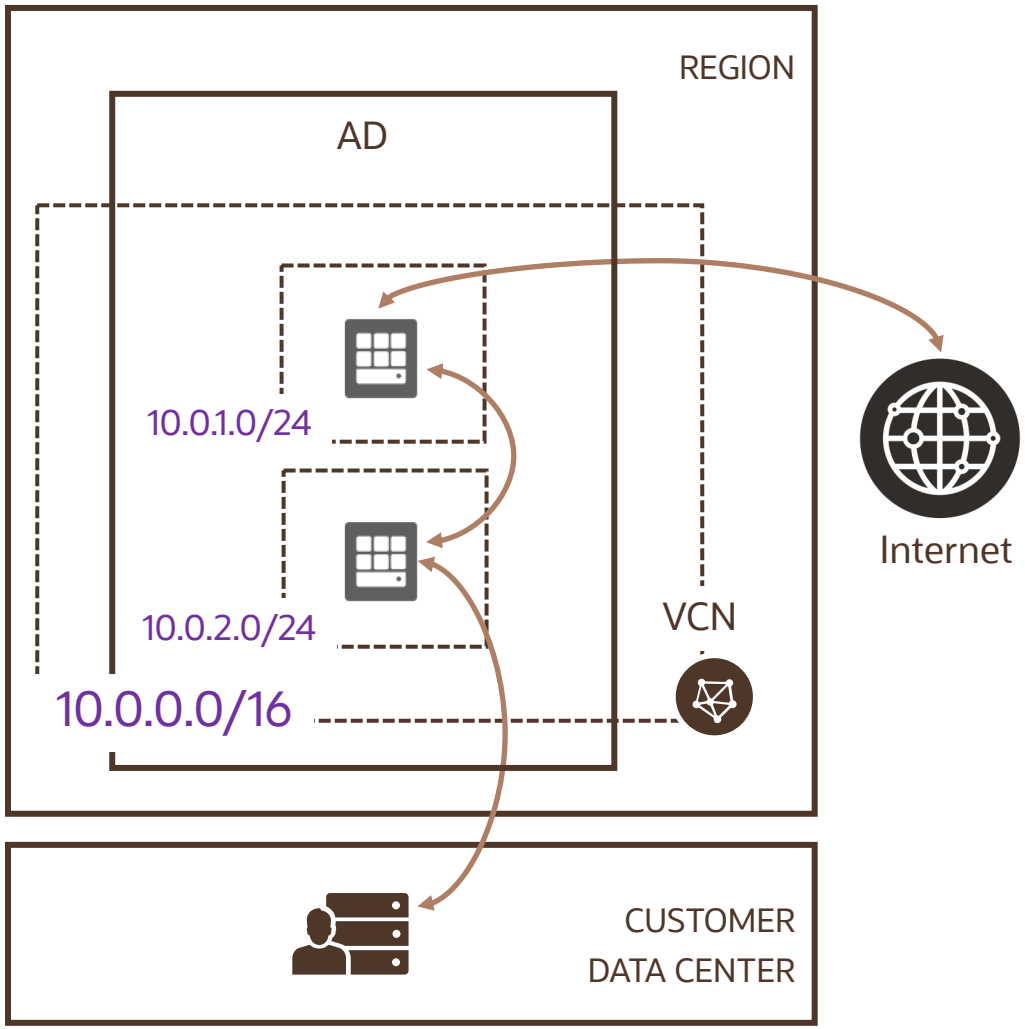
Software defined private network that you set up in Oracle Cloud Infrastructure

Enables Oracle Cloud Infrastructure resources such as compute instances to securely communicate with Internet, other instances or on-premises data centers

Lives in an Oracle Cloud Infrastructure region

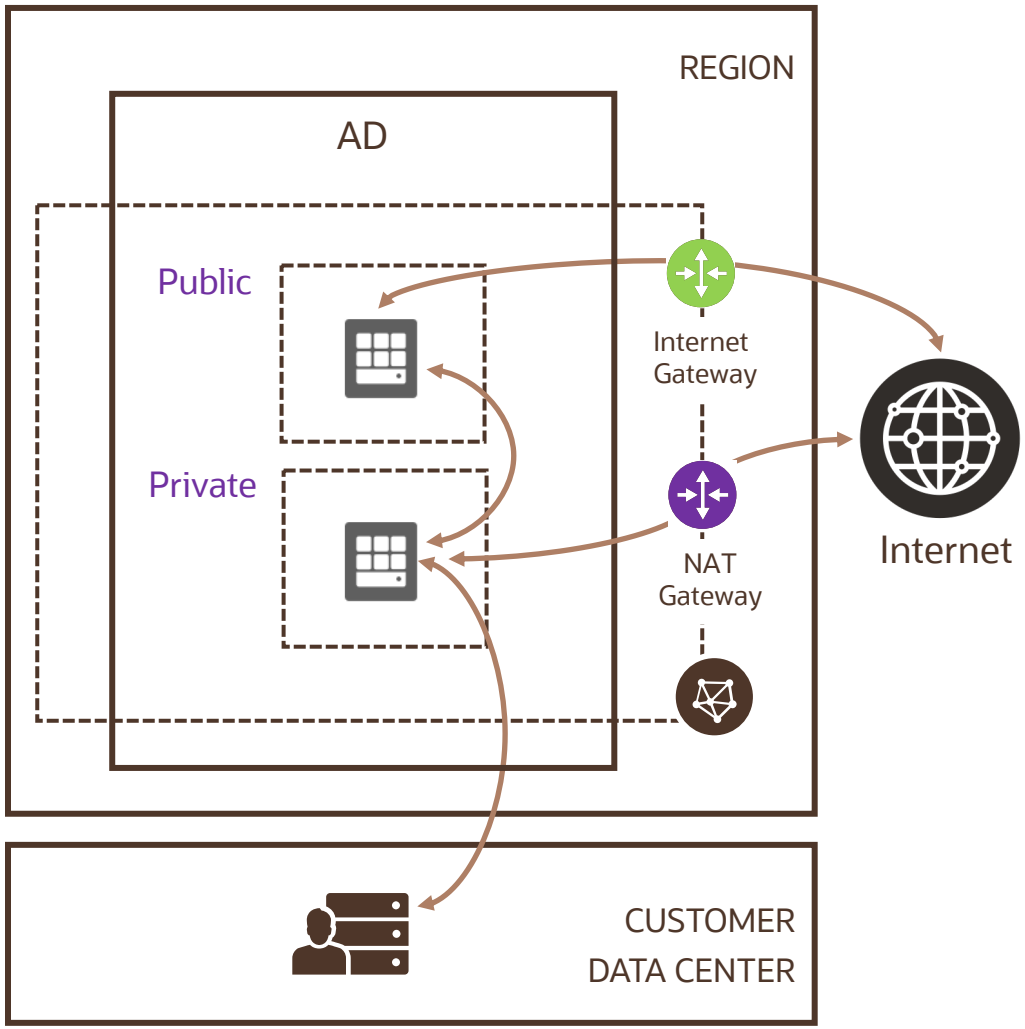
Highly Available, Scalable and Secure

VCN address space



- Address space is a range of IP address that you assign to a VCN E.g., 10.0.0.0/16
  - Range: 10.0.0.0 – 10.0.255.255
- Every resource that is connected to this VCN will get its own unique private IP address
  - Server 1 : 10.0.1.2
  - Server 2: 10.0.2.2
- Subnets let you divide the VCN into one or more sub networks
  - E.g., 10.0.0.0/16 – 10.0.1.0/24, 10.0.2.0/24..
  - Compute instances are placed in subnets
  - Subnets can be isolated and secured

Communication to Internet

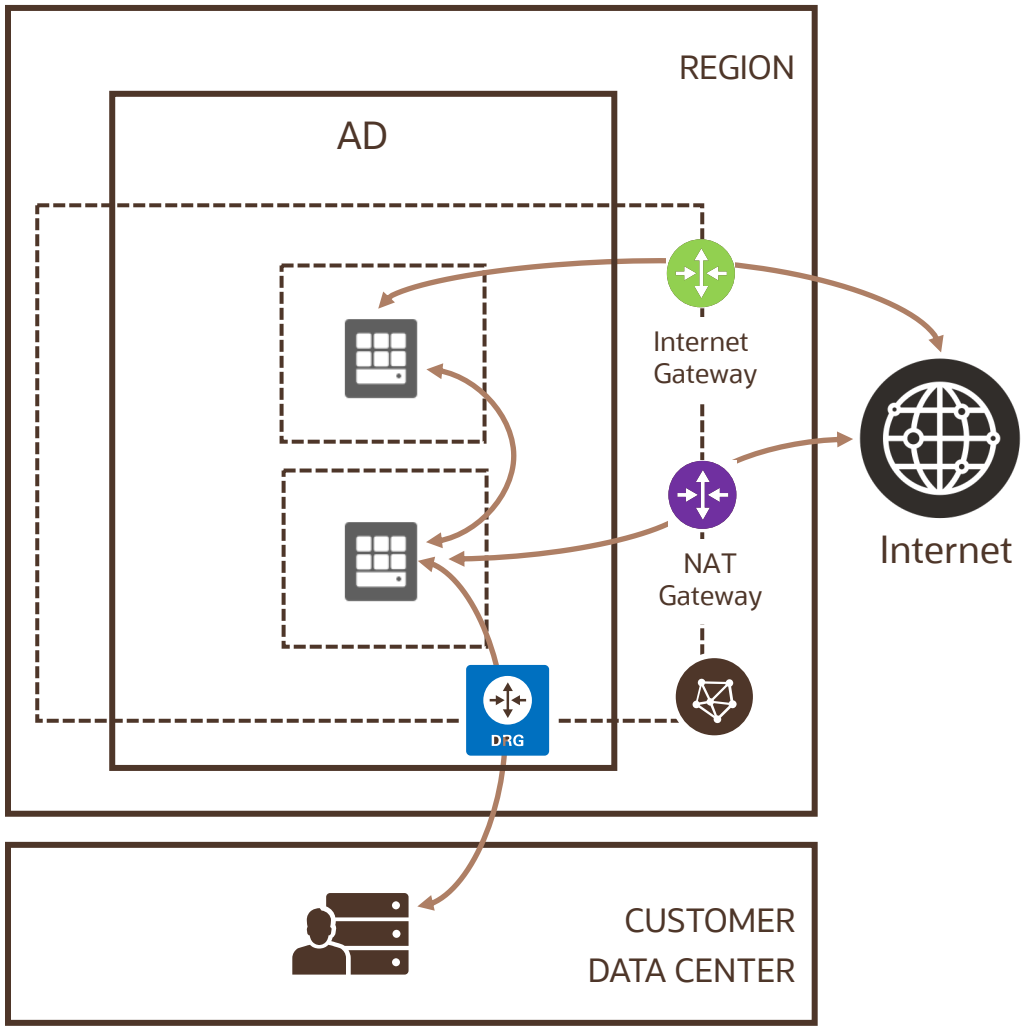


Internet gateway provides a path for network traffic between your VCN and the internet

NAT Gateway enables outbound connections to the internet, but blocks inbound connections initiated from the internet

Use case: updates, patches)

Communication to on-premises

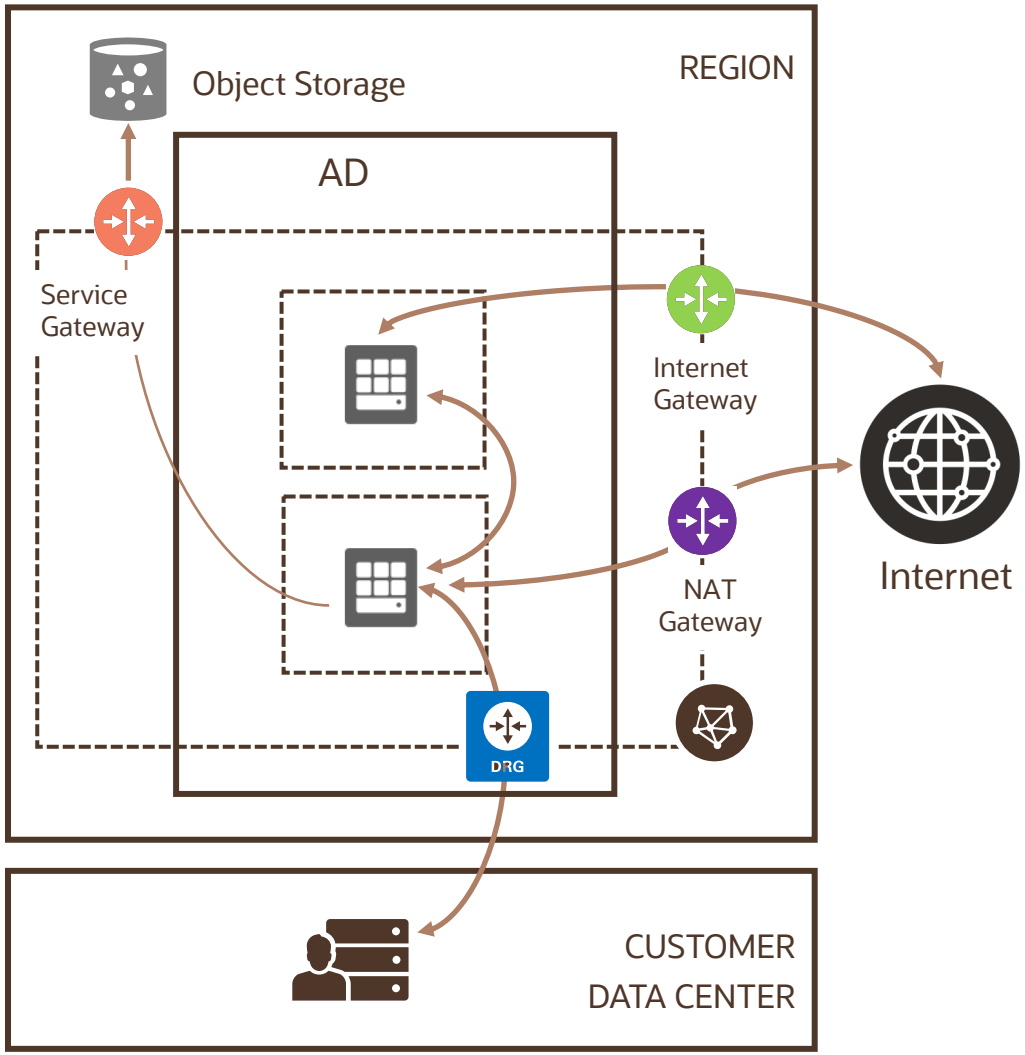


DRG is a virtual router that provides a path for private traffic between your VCN and destinations other than the internet

You can use it to establish a connection with your on-premises network via

- IPsec VPN
- FastConnect (private, dedicated connectivity)

Communication to public OCI services

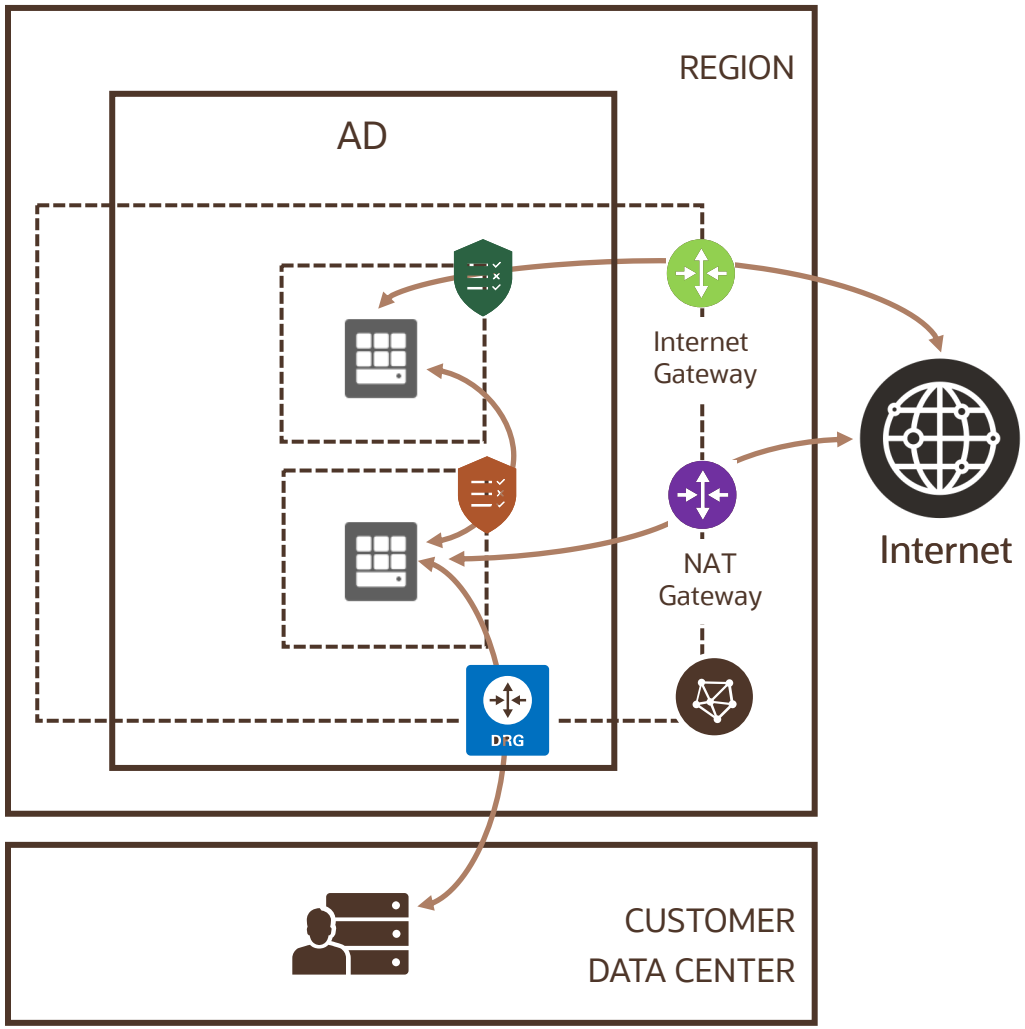


Service gateway lets resources in VCN access public Oracle Cloud Infrastructure services such as Object Storage, but without using an internet or NAT gateway

Any traffic from VCN that is destined for one of the supported Oracle Cloud Infrastructure public services uses the instance's private IP address for routing, travels over Oracle Cloud Infrastructure network fabric, and never traverses the internet.

Use case: back up DB Systems in VCN to Object Storage)

VCN Security



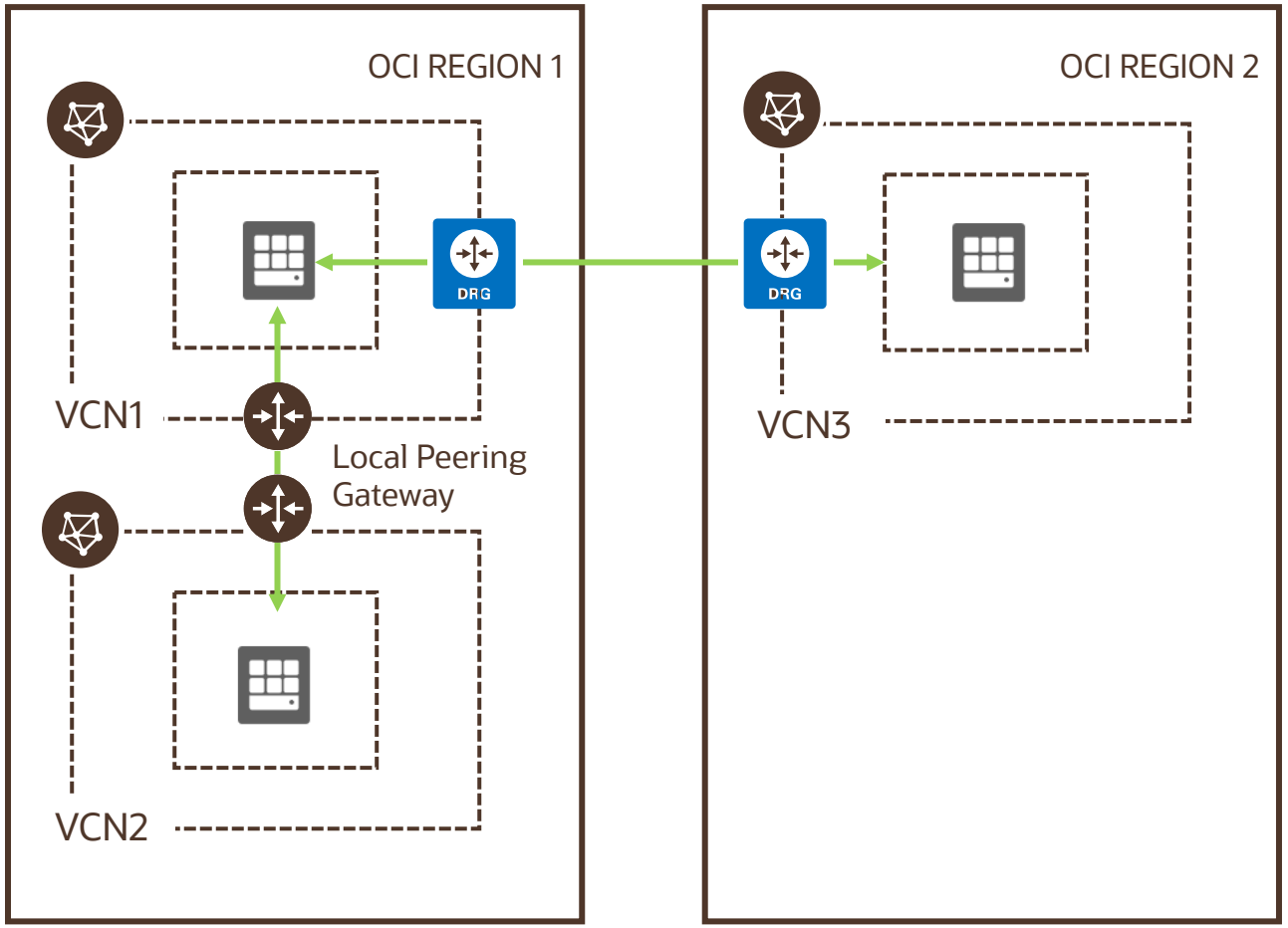
A common set of firewall rules associated with a subnet and applied to all instances launched inside the subnet

- Security list consists of rules that specify the types of traffic allowed in and out of the subnet
- Security list apply to a given instance whether it's talking with another instance in the VCN or a host outside the VCN
- Stateful or stateless

	Direction	CIDR	Protocol	Source Port	Dest Port
Stateful	Ingress	0.0.0.0/0	TCP	All	80
Stateful	Egress	10.0.2.0/24	TCP	All	1521

- Network Security Group consists of set of rules that apply only to a set of VNICs of your choice

Communication to other VCNs: Peering



VCN peering is the process of connecting multiple VCNs

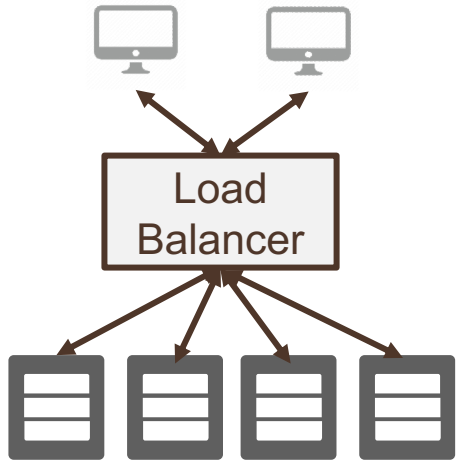
Local VCN Peering is the process of connecting two VCNs in the same region so that their resources can communicate using private IP addresses

Remote VCN Peering is the process of connecting two VCNs in different regions so that their resources can communicate using private IP addresses

Load Balancer

A load balancer sits between the clients and the backends performs tasks such as:

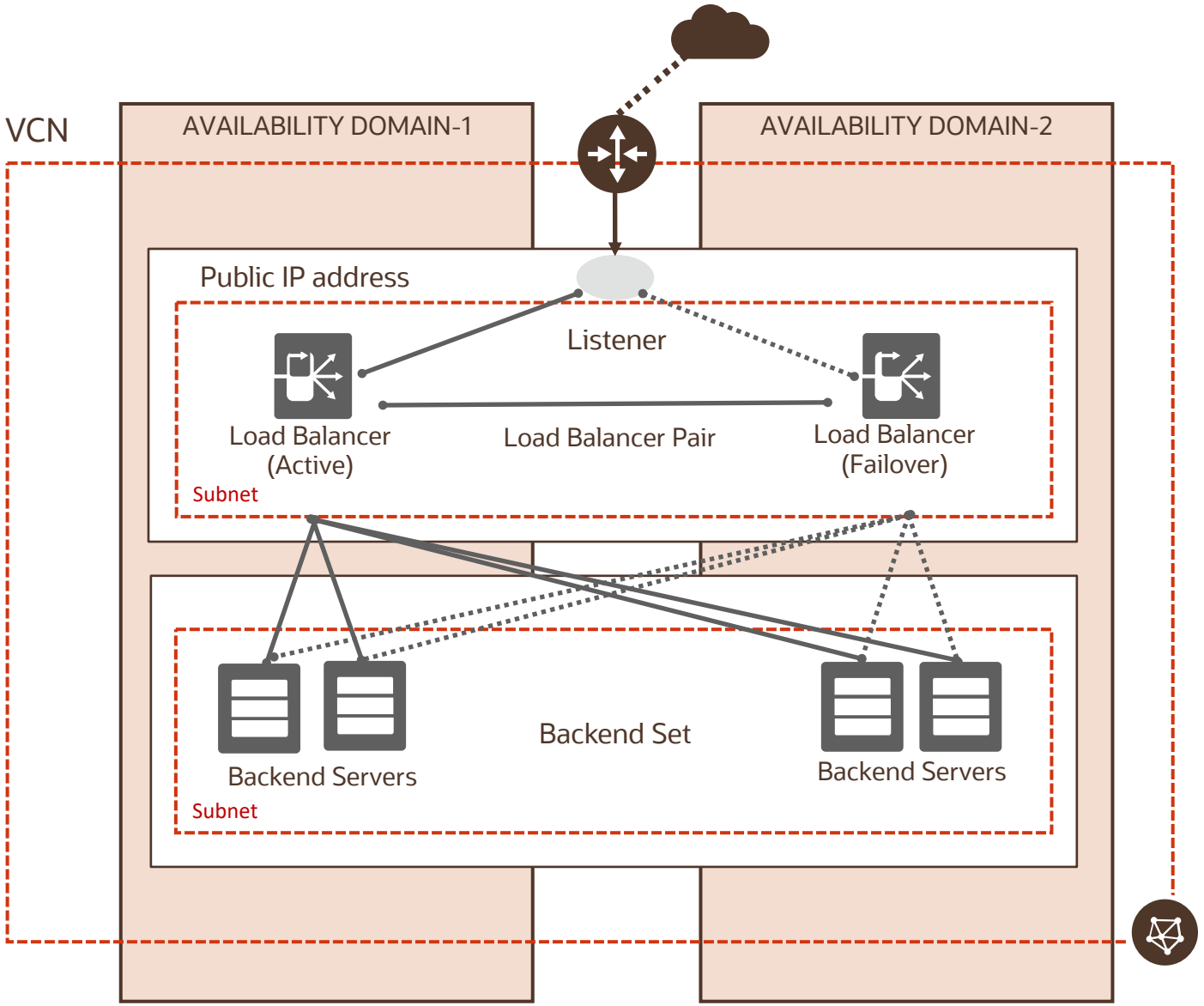
- **Service Discovery**: What backends are available? How should LB talk to them?
- **Health Check**: What backends are currently healthy to accept requests?
- **Algorithm**: What algorithm should be used to balance individual requests across the healthy backends?



Load Balancer benefits

- **Fault tolerance and HA**: using health check + LB algorithms, a LB can effectively route around a bad or overloaded backend
- **Scale**: LB maximizes throughput, minimizes response time, and avoids overload of any single resource
- **Naming abstraction**: name resolution can be delegated to the LB; backends don't need public IP addresses

Public Load Balancer



Summary

- Virtual Cloud Network
- Gateways
- Peering
- VCN Security
- Load Balancer

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Thank you