



ORACLE



Connectivity to on-premises
Networks

Level 100

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Objectives

After completing this lesson, you should be able to:

- Describe IPsec VPN
- Describe Oracle FastConnect

Connectivity options

Public Internet

- Internet Gateway/ NAT Gateway
- Reserved and Ephemeral IPs
- Internet Data out Pricing (first 10TB free)

VPN

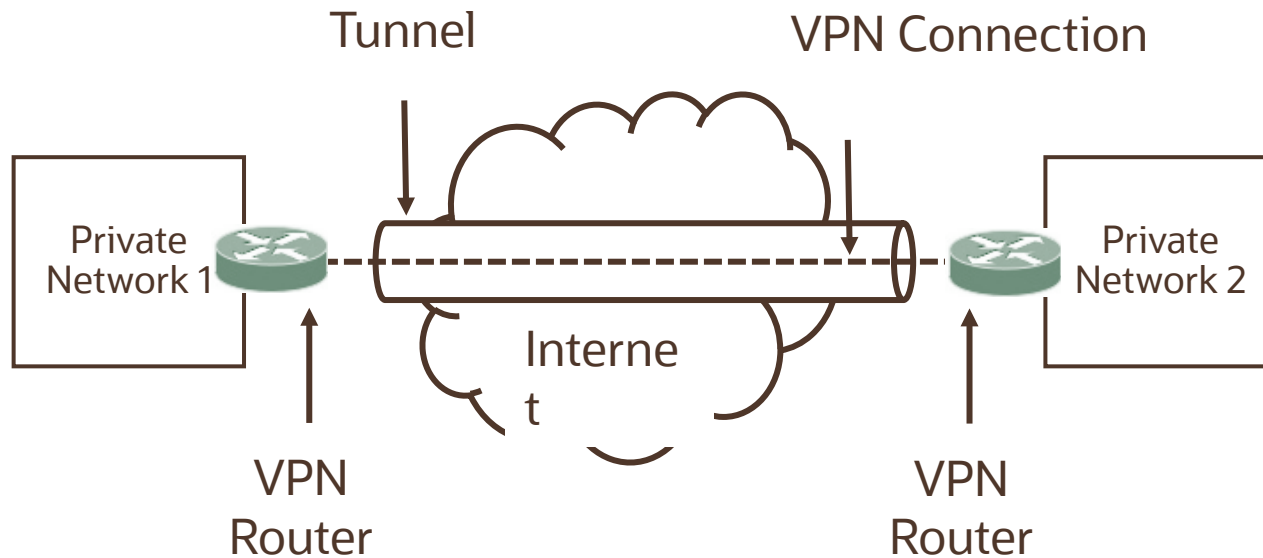
- IPsec authentication and encryption
- Two main options
 - OCI managed VPN Service (free)
 - Software VPN (running on OCI Compute)

FastConnect

- Private Connection
- Separate from the internet
- Consistent network experience
- Port speeds of 1 Gbps and 10 Gbps
- SLA

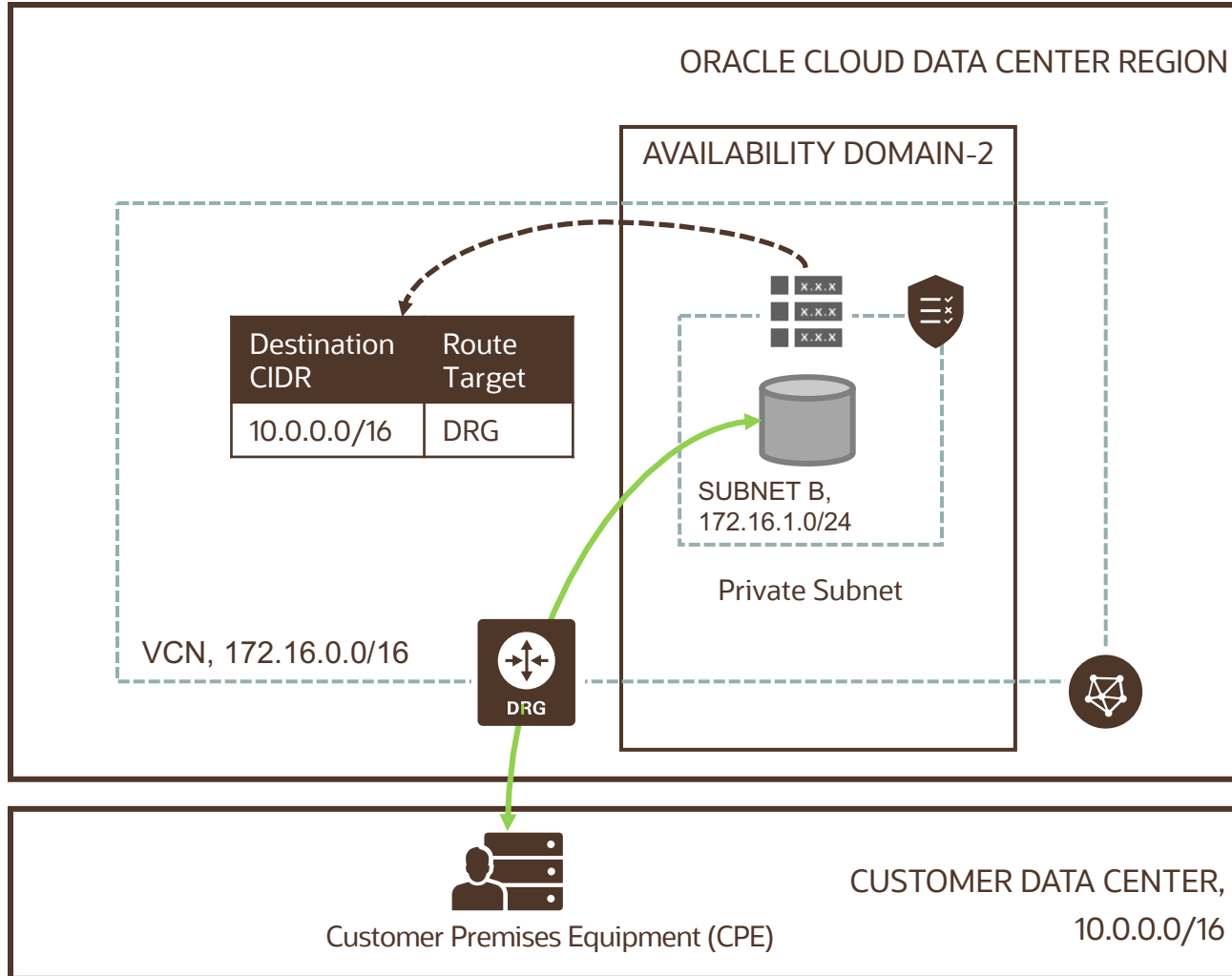
VPN Basics

VPN – using a public network to make end to end connection between two private networks in a secure fashion



- **Tunnel** – a way to deliver packets through the internet to private RFC 1918 addresses
- **Authentication** – provides a mechanism to authenticate who you are
- **Encryption** – packets need to be encrypted, so they cannot be sniffed over the public internet
- **Static routing:** configure a router to send traffic for particular destinations in preconfigured directions
- **Dynamic routing:** use a routing protocol such as BGP to figure out what paths traffic should take

Dynamic Routing Gateway



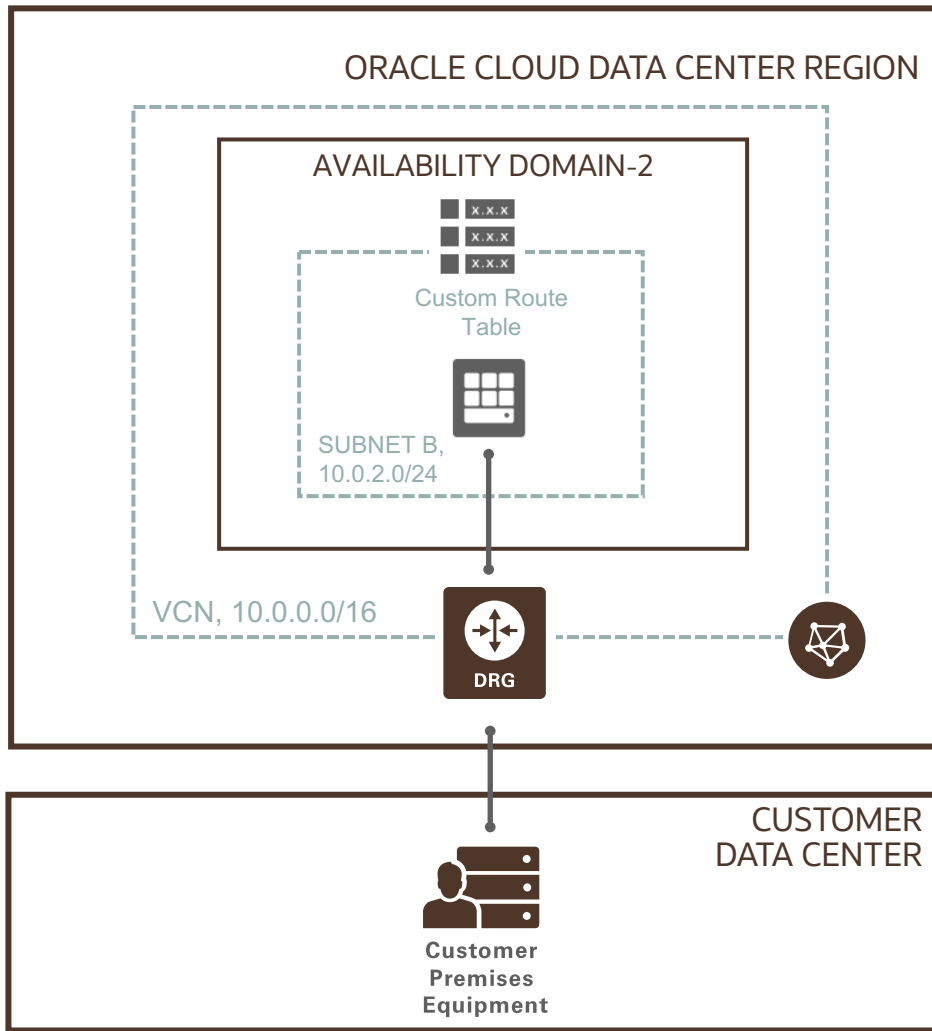
A virtual router that provides a path for private traffic between your VCN and destinations other than the internet

You can use it to establish a connection with your on-premises network via IPsec VPN or FastConnect (private, dedicated connectivity)

After attaching a DRG, you must add a route for the DRG in the VCN's route table to enable traffic flow

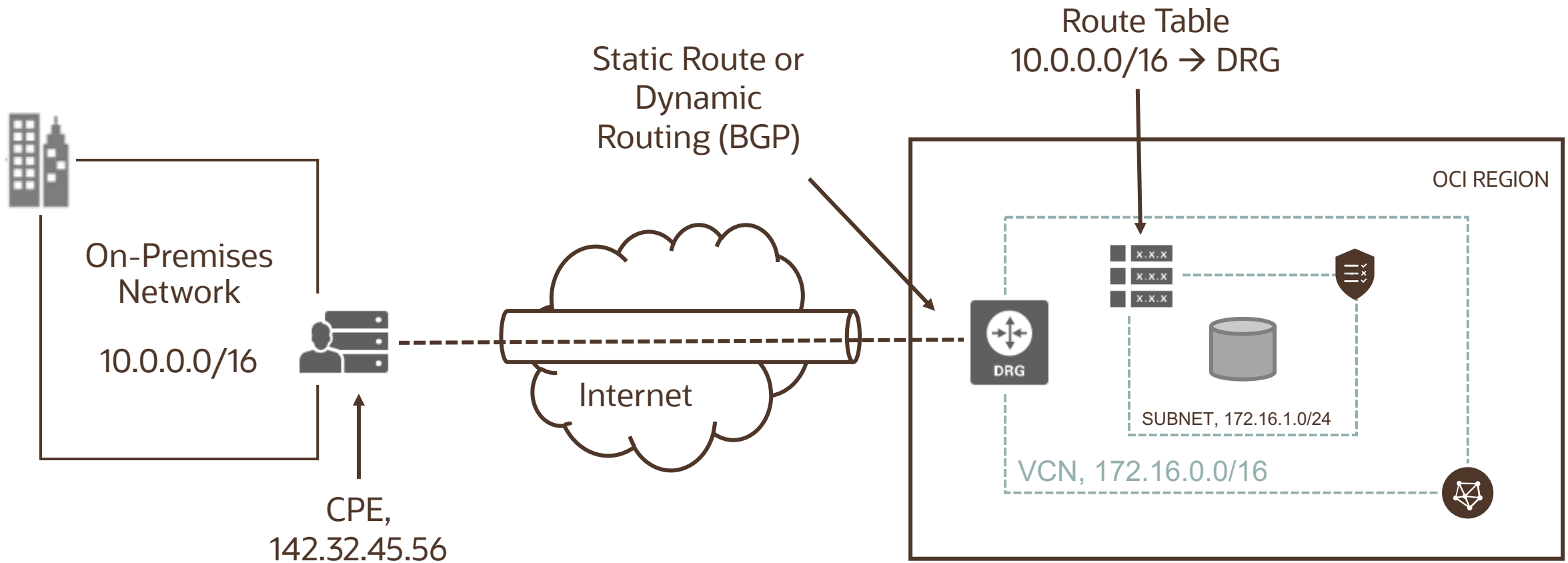
DRG is a standalone object. You must attach it to a VCN. VCN and DRG have a 1:1 relationship

VPN Connect (IPSec)



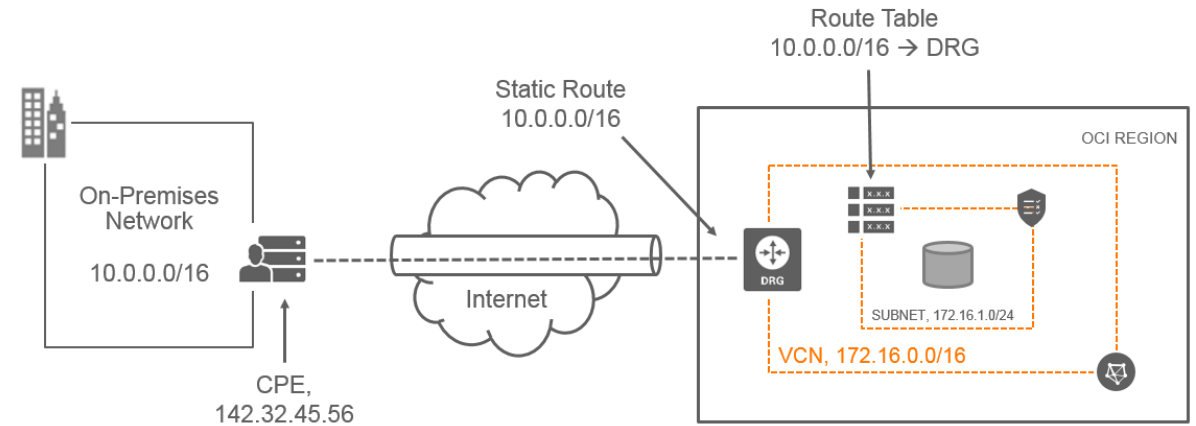
- VPN Connect is a managed VPN service which securely connects on-premises network to OCI VCN through an **IPSec VPN connection**
- VPN Connect ensures secure remote connectivity via industry standard IPSec encryption
- Bandwidth is dependent on the customer's access to the Internet and general Internet congestion (Typically less than 250 Mbps – but your mileage may vary)
- **VPN Connect is offered for free**
- Customer Proof of Concepts usually start as a VPN and then morph into FastConnect designs
- OCI provisions redundant VPN tunnels located on physically and logically isolate tunnel endpoints

VPN Connect (IPSec) - Workflow



VPN Connect workflow

1. Create a Virtual Cloud Network (VCN)
2. Create a Dynamic Routing Gateway (DRG)
3. Attach DRG to your VCN
4. Update VCN Router to route traffic to DRG
5. Create a CPE Object and add on-premises router Public IP address
6. From DRG, Create an IPsec Connection between CPE and DRG and provide a Static Route or use BGP routing
7. Configure on-premises CPE Router



FastConnect

FastConnect provides a dedicated and private connection with higher bandwidth options, and a more reliable and consistent networking experience when compared to internet-based connections

- Connect to OCI directly or via pre-integrated Network Partners
- Port speeds of 1 Gbps and 10 Gbps increments
- Extend remote datacenters into Oracle (“**Private peering**”) or connect to Public resources (“**Public peering**”)
- No charges for inbound/outbound data transfer
- Uses BGP protocol

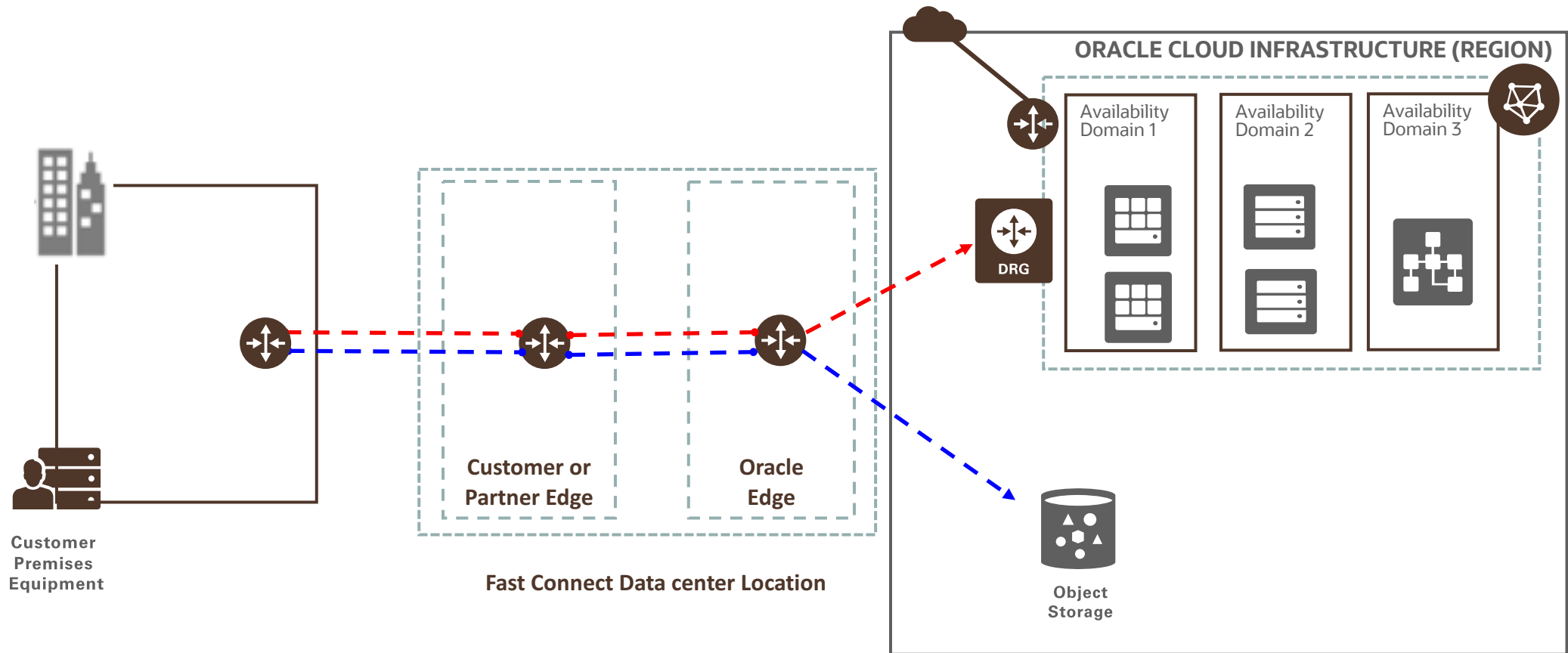
Virtual Circuit

- Virtual circuit - isolated network path that runs over one or more physical network connections to provide a single, logical connection between customer's edge router and their DRG
- Each virtual circuit is made up of information shared between the customer, Oracle, and a provider
- Possible to have multiple virtual circuits to isolate traffic from different parts of organization (e.g. one virtual circuit for 10.0.1.0/24; another for 172.16.0.0/16), or to provide redundancy
- FastConnect uses BGP to exchange routing information

FastConnect Use Scenarios

- Private Peering
 - Extension of the on premise network to the OCI VCN
 - Communication across connection with private IP addresses
- Public Peering
 - To access public OCI services such as Object storage, OCI Console or APIs over dedicated FastConnect connection
 - Doesn't use DRG

FastConnect Use Cases



— Public Peering
— Private Peering



FastConnect Connectivity Providers



<https://www.oracle.com/cloud/networking/fastconnect-providers.html>

IPsec VPN and FastConnect

	IPsec VPN	FastConnect
Use case	Dev/test and small scale production workloads	Enterprise-class and mission critical workloads, Oracle Apps, Backup, DR
Supported Services	All OCI Services within VCN	All OCI Services within VCN
Typical bandwidth	Typically < 250 Mbps aggregate	Higher bandwidth; increments of 1 Gbps, and 10 Gbps ports
Protocols	IPsec	BGP
Routing	Static Routing, Dynamic Routing	Dynamic Routing
Connection Resiliency	active-active	active-active
Encryption	Yes, by default	No * (can be achieved using virtual firewall)
Pricing	Free for the managed service	<ul style="list-style-type: none">• Billable port hours• No data transfer charge between ADs
SLA	No SLA	99.9% Availability SLA



Connectivity Demo

VPN and FastConnect Pricing

- No hourly or monthly VPN connection charge for IPsec VPN, but data transfer rates (below) apply

	Metric	Pay as You Go	Monthly Flex
Outbound Data Transfer - First 10 TB / Month	GB/month	Free	Free
Outbound Data Transfer - Over 10 TB / Month	GB/Month	\$0.0085	\$0.0085
Inbound Data Transfer	GB/Month	Free	Free

- Fast Connect pricing

	Metric	Pay as You Go	Monthly Flex
FastConnect 1 Gbps – Metered	Port-hours	\$.2125	\$.2125
FastConnect 10 Gbps - Metered	Port-hours	\$1.2750	\$1.2750

Port-hours are billed once the connection between the FastConnect Service router and your router is established, or 30 days after you ordered the port, whichever comes first. Port charges will continue to be billed anytime the FastConnect Service port is provisioned.

<https://www.oracle.com/cloud/networking/fastconnect.html#pricing>

Oracle Cloud always free tier:

oracle.com/cloud/free/

OCI training and certification:

<https://www.oracle.com/cloud/iaas/training/>

<https://www.oracle.com/cloud/iaas/training/certification.html>

education.oracle.com/oracle-certification-path/pFamily_647

OCI hands-on labs:

ocitraining.qcloudable.com/provider/oracle

Oracle learning library videos on YouTube:

youtube.com/user/OracleLearning

