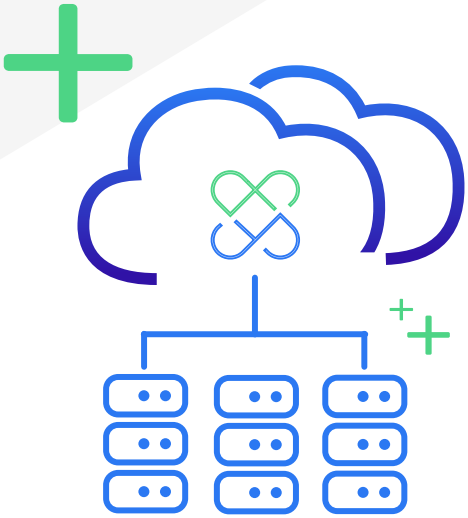
PACKETFABRIC

Cloud Router

THE INDUSTRY'S MOST SCALABLE AND PERFORMANT MULTI-CLOUD CONNECTIVITY



About PacketFabric Cloud Router

The PacketFabric Cloud Router enables private multi-cloud connectivity between cloud service providers. Cloud Router is a distributed virtual routing service, built on the edge, that provides connectivity over PacketFabric's Network-as-a-Service platform.

Cloud Router Benefits

100G ENABLED, PRIVATE, AND SECURE CONNECTIVITY BETWEEN CLOUD PROVIDERS

The PacketFabric Cloud Router provides Layer 2 and Layer 3 connectivity over PacketFabric's Network-as-a-Service platform, allowing customers to completely bypass the public internet with speeds up to 100Gbps via our 50+Tbps global network.

OPTIMIZED, LOW LATENCY SERVICE

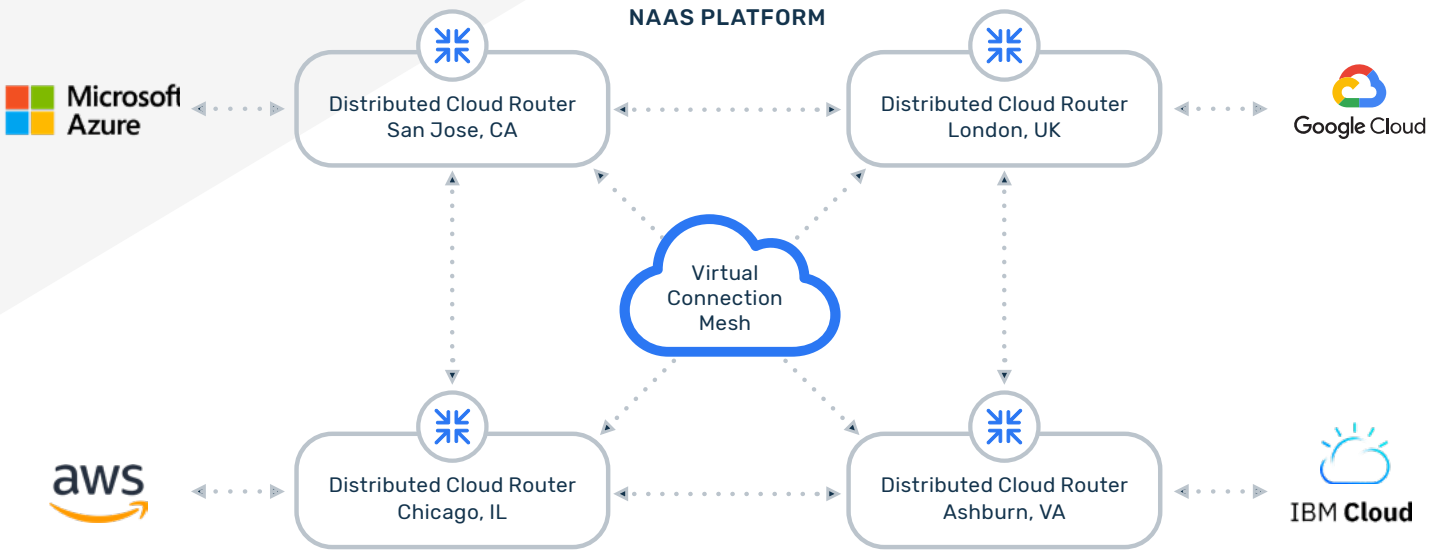
Cloud Router transports data across the best path through the PacketFabric platform. By automatically distributing routing instances, PacketFabric ensures that traffic will never need to take a longer path through a fixed central location. The result is highly optimized cloud-to-cloud data transfers.

CLOUD NATIVE WITH NO HARDWARE REQUIREMENTS

PacketFabric Cloud Routers do not require a physical interface or cross connect into the PacketFabric platform, meaning that you do not need on-premises equipment in a colocation facility.

COMPLETE CONTROL AND TRANSPARENCY

PacketFabric Cloud Router enables customers to control traffic between different cloud providers, as well as different regions on the same cloud provider. Cloud Router services can be ordered and managed automatically using our RESTful API, or Terraform provider.



How It Works

The PacketFabric Cloud Router creates a single routing domain for any two or more independent connections to cloud providers. It does not require a physical connection or infrastructure. There is no need to own or maintain any equipment, to wait for physical infrastructure deployment, or to hairpin data transfer through existing infrastructure.

You can use PacketFabric's Cloud Router to connect multiple regions of a single cloud service provider, connect multiple cloud service providers in the same region, or connect multiple cloud service providers in different regions.

PacketFabric's Cloud Router is a distributed service that consists of multiple virtual router instances on the PacketFabric network. Each router instance is created as necessary for optimal routing and scaling.

When a customer adds a cloud provider to the routing domain, PacketFabric creates a Cloud Router instance immediately adjacent to that provider. From there, PacketFabric provisions a Layer 2 virtual connection between the distributed Cloud Router instance and the cloud provider's egress port, over which a BGP session is established.

Each Cloud Router is then connected via Layer 3 mesh over the PacketFabric platform to every other Cloud Router instance in its routing domain.

The service demarcation points are at the egress ports attached to the cloud provider. The physical connection between the PacketFabric egress port and the cloud service provider is shared among multiple PacketFabric customers. However, each customer's service is secured within its own private Layer 2 connection.

Use Cases

CLOUD-TO-CLOUD DATA TRANSFER

DISASTER RECOVERY

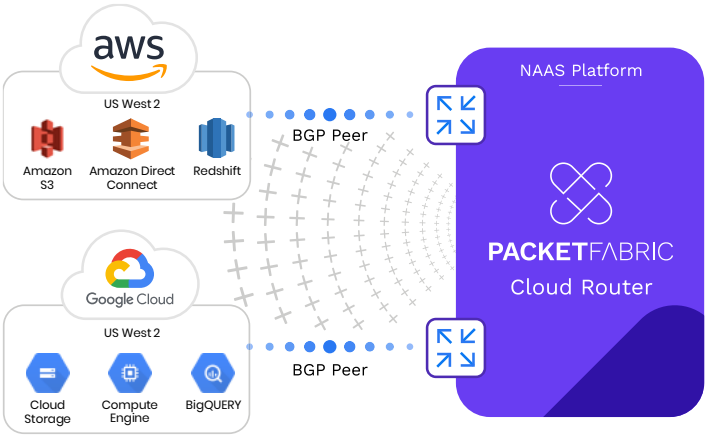
DISTRIBUTED CLOUD APPLICATIONS

MANAGED LAYER 3 CONNECTIVITY

Disaster Recovery

SCENARIO: The customer relies on multiple cloud providers for automated data backup and recovery, and requires reliable connectivity to recover mission critical data.

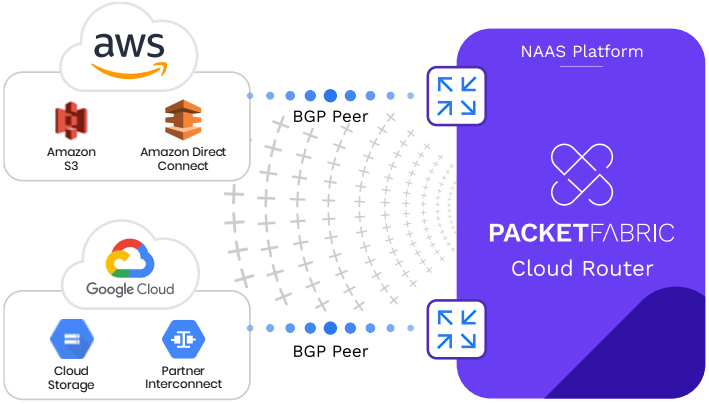
SOLUTION: PacketFabric's Cloud Router provides secure, cost-effective connectivity to multiple cloud providers, for fast and reliable multi-cloud



Cloud-to-Cloud Data Transfer

SCENARIO: The customer needs to transfer data from one cloud provider to another. This is common in multi-cloud architecture, or when a customer needs to rebalance their portfolio of cloud-based services to mitigate financial and technical risk, or to consolidate services with a single provider.

SOLUTION: With PacketFabric's Cloud Router, data transfer between cloud providers is quick, painless, and cost-effective. Transfer can be scheduled on the customer's timeline.



Cloud Router Requirements, Features, and Technical Specifications

REQUIREMENTS

- A PacketFabric account
- At least two cloud environments. These can be with different cloud providers and/or the same cloud provider.
- You cannot use your own IPs for Google or IBM Cloud.

PRODUCT FEATURES AND TECHNICAL SPECIFICATIONS

Supported cloud connections:

- AWS Direct Connect (Hosted)
- Google Cloud Partner Interconnect (Hosted)
- Azure ExpressRoute
- IBM Direct Link
- Oracle Cloud

Note: You can connect your existing PacketFabric port to a Cloud Router instance. This allows you to use the PacketFabric platform to access your Cloud Router traffic directly from your on-premises environment.

Cloud on-ramp locations:

MARKET	AMAZON	GOOGLE	AZURE	IBM	ORACLE
ATLANTA	✓	✓			
CHICAGO	✓	✓	✓		
DALLAS	✓	✓	✓	✓	
DENVER	✓	✓	✓		
LAS VEGAS			✓		
LOS ANGELES	✓	✓			
MIAMI	✓	✓			
NEW YORK	✓	✓			
NORTHERN VA	✓	✓	✓	✓	✓
PHOENIX	✓				✓
PORTLAND	✓				
SALT LAKE CITY		✓			
SAN JOSE/SAN FRANCISCO	✓	✓	✓	✓	✓

Capacity per connection

- The capacities available depend on what the cloud provider allows. Generally, you can create the following connections:

50 Mbps	300 Mbps	1 Gbps	5 Gbps
100 Mbps	400 Mbps	2 Gbps	10 Gbps
200 Mbps	500 Mbps		

IP Prefixes per connection

- 1000 in / 1000 out

Route prioritization

- ASN prepend (incoming prefix list)
- MED (incoming prefix list)
- Local preference (outgoing prefix list)

Routing

- BGP

IP Addresses

- IPv4 private addresses

ASN

- PacketFabric public ASN 4556
- 2-byte private ASNs 64512 to 65534

FAQ

Do I need to set up a cross connect to PacketFabric?

No. You do not need a physical port or a data center presence to use Cloud Router services.

Can I connect my on-premises network to the cloud router?

Yes. If you aren't already connected, you will need to provision an access port in an available location and set up a cross connect to the PacketFabric network.

If you already have an access port, you can use that to connect your on-premises network to the Cloud Router.

Is Q-in-Q supported?

Yes. Q-in-Q tunneling is currently supported for Microsoft Azure.

Do you provide public IPs?

Not at this time, but support is planned in future development.

Can I use my own public IPs for the router peering? What about my own public ASN?

You cannot use your own public ASN.

For an AWS public virtual interface, you can use your own public IPs. When you provision your connection, PacketFabric sends AWS an automated email to confirm that you are authorized to use our public ASN with your public IPs. All public virtual interfaces require up to 72 hours approval by AWS.

You cannot use your own IPs for Google or IBM. Microsoft public peering is not supported at this time.

Can I use my own private IPs?

This largely depends on the cloud service provider.

For router peer IPs:

- AWS allows you to optionally input your own IP addresses.
- Microsoft Azure requires you to provide your own.
- For Google Cloud and IBM Cloud, the IP addresses are generated on your behalf and cannot be edited.

When advertising VPC subnets, you can set your own prefixes (up to 1000 in and 1000 out).

Is IPv6 supported?

Not at this time, but support is planned in future development.

How long does provisioning take?

Provisioning can take up to 10 minutes, largely dependent on the cloud partner, with minor dependencies on the number of prefixes you advertise.

Additional configuration takes a few more minutes depending on how many prefixes you need to add.

How many connections can I have per Cloud Router?

There is no set limit on connections.

Can a virtual circuit be ordered from a Cloud Router to anywhere in the PacketFabric network?

Yes, a virtual circuit can be ordered to anywhere in the PacketFabric network where the customer owns a port.

Will my data traverse the public internet?

No, all traffic stays within PacketFabric's private, secure network.

Useful Links and Resources

- PacketFabric Cloud Router
- PacketFabric Portal
- PacketFabric locations
- Contact PacketFabric
- Documentation
- PacketFabric Resource Center

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