
epsilon
a kt company
Peering
vs. Transit
A COMPREHENSIVE GUIDE

Whether you operate as an Internet Service Provider (ISP), a content publisher, or a gaming provider, a crucial question arises as you steer and guide the growth of your network: **When is the right time to consider utilising peering as opposed to transit services?**

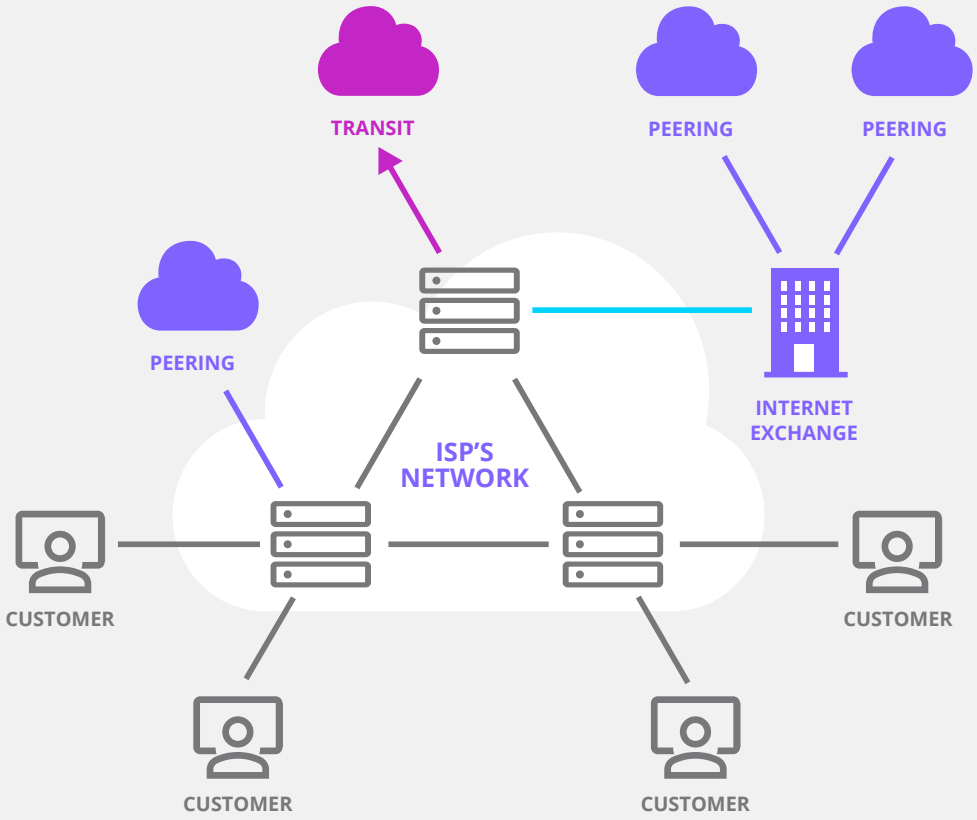
Traditionally, the default choice for connecting to the internet has been to procure IP Transit. However, a growing number of providers are recognising the advantages of peering. This approach not only minimises latency but also enhances network quality, reduces operational costs, and facilitates broader internet coverage.

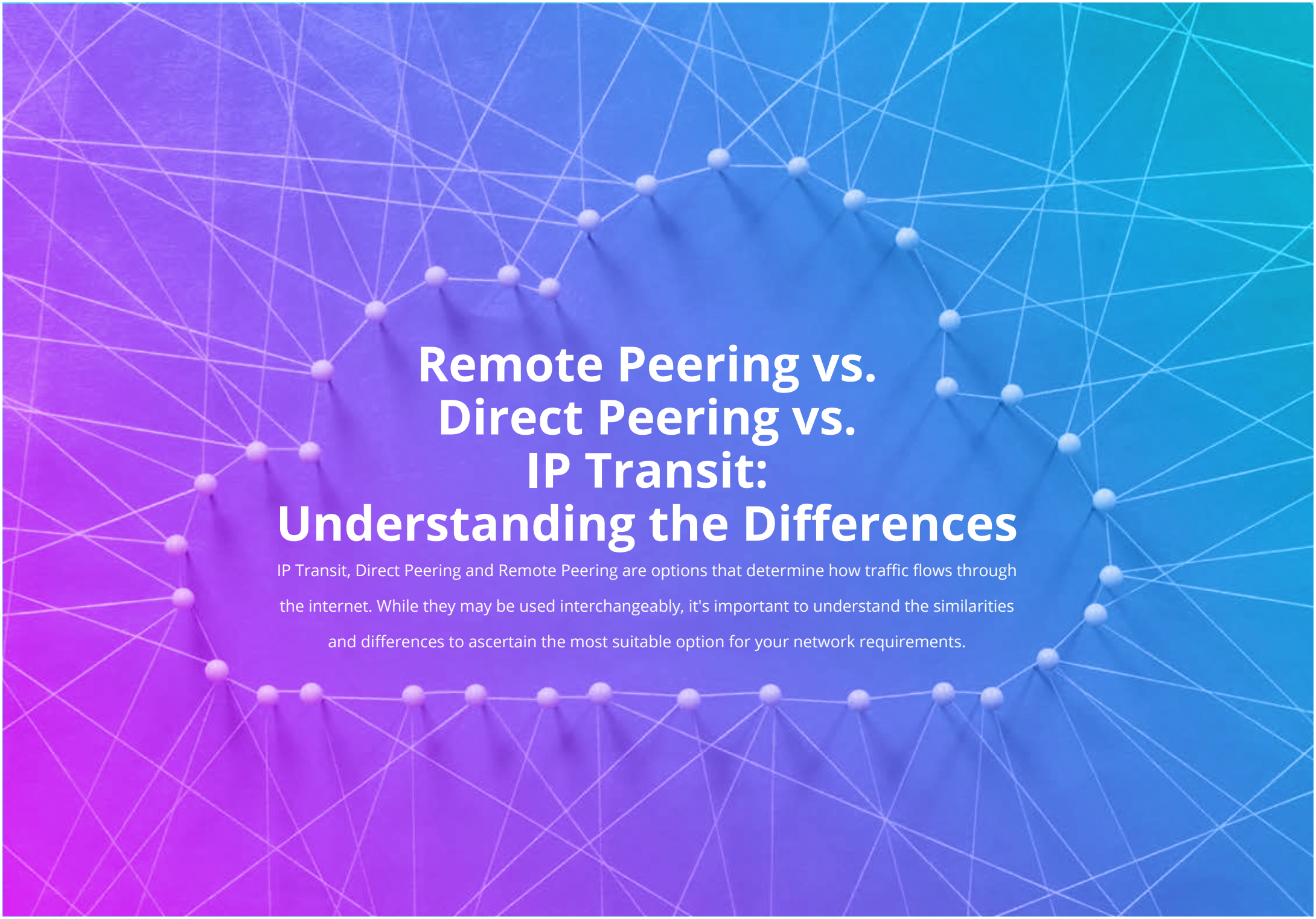
In this guide, discover how peering, particularly Remote Peering, can enable organisations to deliver exceptional digital experiences while maintaining cost savings regardless of their geographical location.

Network of Networks

The Internet is a network of networks, and the effectiveness of its services hinges on the way these networks interconnect. There are various ways these networks interconnect and exchange traffic on the Internet. Here are three common approaches:

1. **IP Transit** – Connecting to the broader internet through an upstream provider
2. **Direct Peering** – Establishing dedicated and private interconnections directly between two or more networks
3. **Remote Peering** – Peering remotely at an Internet Exchange Point (IXP), enabling members to interconnect with one another





Remote Peering vs. Direct Peering vs. IP Transit: Understanding the Differences

IP Transit, Direct Peering and Remote Peering are options that determine how traffic flows through the internet. While they may be used interchangeably, it's important to understand the similarities and differences to ascertain the most suitable option for your network requirements.

IP Transit vs. Peering

The main difference between Peering and IP Transit lies in their connectivity method, cost structure, and level of control.

	Access	Traffic Exchanges	Cost Model	Latency and Network Quality	Security	Network Control
Peering	Direct interconnection between specific networks for exchanging traffic, without using the public internet Bandwidth is uncontended	Peer through an Internet Exchange Point (IXP) where multiple networks connect to exchange traffic	Networks exchange traffic freely (settlement-free) for mutual benefits	Direct connection to specific peering networks often results in better performance and security due to shorter path lengths and queuing delays	Direct connection between the agreed networks reduces the risk of data sniffing and internet-based exploits, limiting exposure to potential security threats	Connecting directly to the agreed peering network allows more control over traffic
IP Transit IP Transit	Involves connecting to multiple networks, eventually reaching the global internet Bandwidth is contended	ISP acts as a middleman, carrying traffic from customers' networks to the rest of the internet. All traffic, regardless of destination, is sent through the ISP network	Paid service allowing a network to connect to other networks through an upstream provider	Relies on multiple networks and transit agreements, leading to potential latency and performance degradation	Routing traffic through multiple networks may increase vulnerability to attacks and surveillance	Reliance on multiple networks and agreements to access the broader internet offers lesser control over performance

Direct Peering vs. Remote Peering

While there are multiple advantages of Peering over Transit, businesses also need to understand there are differences between Direct Peering and Remote Peering. The key difference lies in the required (or unnecessary) infrastructure at the Internet Exchange Points (IXPs).

	Point of Presence (PoP) Requirement	Hardware Requirements	Port and Cross-connect Setup	Vendor Management
Remote Peering	Businesses can connect to IXPs without being physically present, as connections are made through the Remote Peering provider. The business' ASN will be shown at the IXP	Remote Peering does not necessitate the deployment of physical hardware at the IXP, making it quicker and more straightforward to establish peering connections	Businesses can access multiple IXPs using a single interconnection port. This setup requires just one cross-connect to the service port for interconnections across various IXPs	Businesses are relieved from the complexities of managing multiple IXPs relationships. Often, the Remote Peering provider offers end-to-end SLAs and a single contract
Direct Peering	Businesses need to have a physical PoP at the IXP	Businesses need to invest in hardware installation, pay for colocation and utility fees at each IXP, as well as ongoing maintenance charges	Traditional Direct Peering requires a separate physical port and cross-connect for each IXP the network wishes to peer with	Traditional Peering requires businesses to manage individual IXPs, which often come with different SLAs and membership requirements

The Shift Towards Remote Peering

Traditionally, smaller local or regional network providers, broadband providers, or content providers have relied on purchasing transit. However, it's clear that many have now shifted a significant portion of their network to peering, while utilising IP Transit for gateway access to the broader internet or geographically isolated networks.

Peering, particularly Remote Peering, offers numerous advantages, notably reducing latency, improving network experience, expanding coverage, and reducing network expenses.

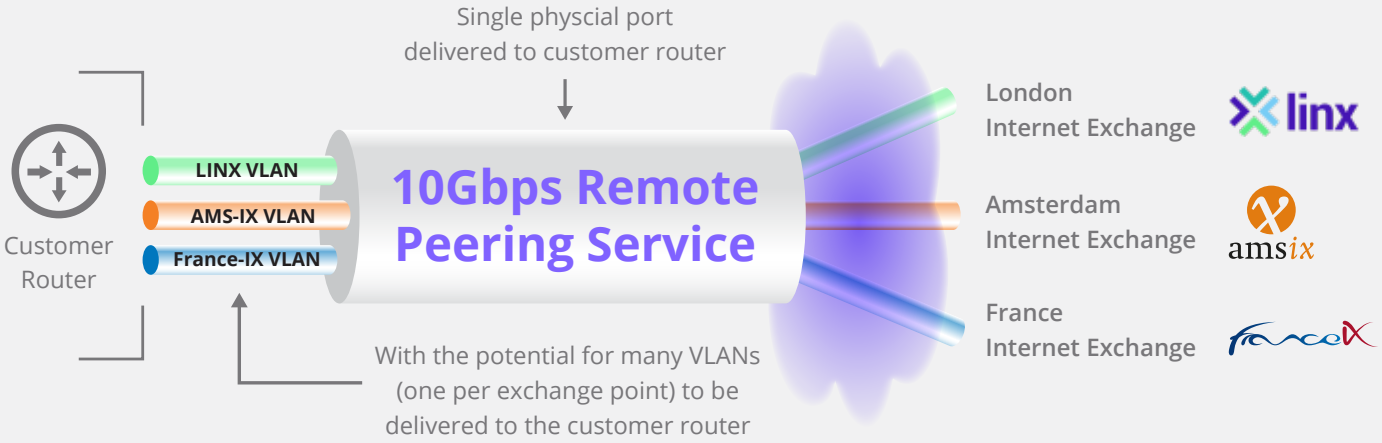
Epsilon's Remote Peering

Epsilon’s Remote Peering solution enables businesses to connect directly and securely to world-leading IXs via Epsilon’s robust infrastructure and PoPs, eliminating the need for physical presence at the IXP.

Members with an active port from Epsilon can allocate a portion of the port’s capacity to define a Virtual Local Area Network (VLAN) for peering with IX members remotely.

The Remote Peering services are powered by dedicated Layer 2 connectivity between businesses and the IX, and is available on-demand via Epsilon’s Network as a Service platform, Infiny.

Example of a single-interface Port with multiple VLANs to different IXs



Benefits of Epsilon's Remote Peering

- **One Port, Unlimited Reach**
- **Peer with 18+ IXPs**
- **140+ On-ramp locations**
- **Access to 11,000+ Members**

1 Greater Reach

While IP Transit provides access to the global internet and can be easily scaled by adjusting agreements with upstream providers, it often comes with poorer network performance and higher costs compared to peering. Peering, on the other hand, connects to specific networks but can be expanded with Remote Peering providers that have a large ecosystem of peering partners globally.

Epsilon, one of the largest Remote Peering Providers, currently peers with over 18 leading IXs worldwide, offering a presence in Europe, Latin America, the Middle East, Africa, and Asia.

With just one single interconnection port, businesses can remotely peer with AMS-IX, LINX, SGIX, DE-CIX, or any of Epsilon's ecosystem of IX partners to expand their global reach. To date, we have 140+ IX on-ramps located globally and peering communities of over 11,000 members, including online gaming sites, payment providers, content providers, and more.

2

Improved Network Performance And Security

Peering typically offers superior performance, characterised by smaller propagation delays and reduced queueing delays compared to transit paths, thanks to fewer IP hops. Although Peering involves strategic connections with specific networks, businesses can also peer with multiple peering networks, ensuring network redundancy.

With Epsilon's large ecosystem of IX partners, businesses have the flexibility to establish peering connections at strategic locations, reducing the distance data packets need to travel between peering partners, resulting in lower latency. In addition, network administrators have greater control over traffic routing, bypassing intermediate networks and congestion points.

To ensure even greater speed, security and reliability, Epsilon's Remote Peering is underpinned by its own high-performance global network and backed by industry-leading SLAs.

- **Reduce Latency**
- **Improve Security**
- **Better Control over Quality of Service**
- **Contended Bandwidth**

- **One Contract**
- **Fast Onboarding**
- **Provision On-demand**
- **Self-service Provisioning**

3 Operational Simplicity

Remote Peering offers simplicity as IP networks join an IX and establish a peering policy, leaving autonomous systems to handle the rest, eliminating the need to individually create and manage connections with numerous other networks present at the exchange.

At Epsilon, we take simplicity to a new level with our hassle-free end-to-end solution for IX memberships, connectivity, and peering, all covered by one simple contract.

What sets us apart is our capability to empower businesses with the freedom to self-provision, scale, and monitor peering and connectivity services instantly through our award-winning, user-friendly Network-as-a-Service (NaaS) administration portal.

4 Reduced Costs

Remote Peering offers significant cost savings compared to Direct Peering and IP Transit, making it an attractive option for networks seeking to expand their peering relationships across multiple IXPs.

Compared to IP Transit, it eliminates bill shock and the fees associated with maintaining agreements with multiple providers.

Compared to Direct Peering, it eliminates the need for initial investments, including colocation and hardware costs, and ongoing expenses such as colocation power usage.

In the following pages, we present a few examples to illustrate this further.

- **No Physical Interconnection Fee**
- **No Colocation Expenses**
- **No Hardware Deployment Cost**
- **Lower Ongoing Operational Costs**
- **No Bill Shock**

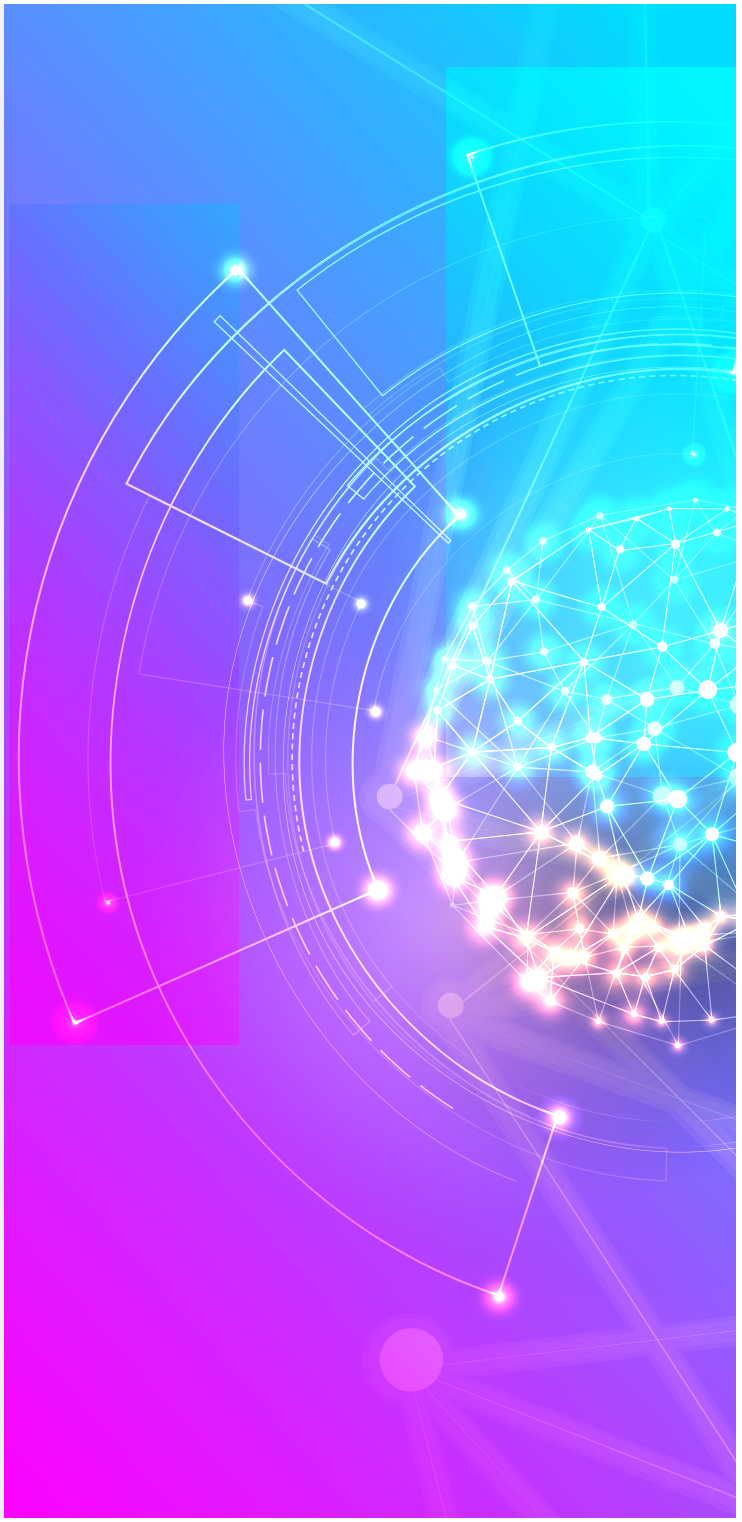
Knowing the Cost Structure

Before delving into cost comparisons, it's essential to first understand the different cost structures of each solution.

Pricing for IP Transit is typically based on $/Mbps usage. Many transit providers offer tiered pricing, where the cost depends on the amount of bandwidth used. When usage exceeds the allotted bandwidth for the current tier, it automatically shifts to the next tier, which usually incurs a higher premium price per Mbps. This often results in bill shock, especially when bandwidth usage is unpredictable.

On the other hand, Direct Peering requires investment in colocation, equipment, and peering costs at each IX. Remote Peering eliminates such investment and is only charged on a fixed Remote Peering fee regardless of usage.

ISPs, content providers, and hosting providers must assess their end users' traffic usage, locations, and the significance of reliable bandwidth before determining which solution(s) to implement.

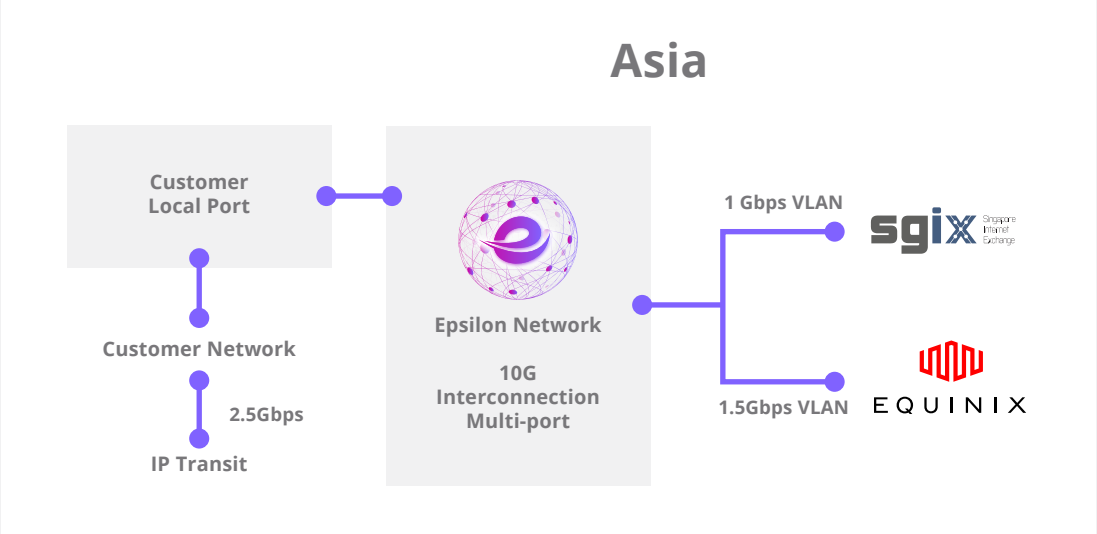


Remote Peering vs. IP Transit

Scenario 1

An ISP primarily serving end users located in a few key countries within Asia.

Cost comparison lies between relying entirely on IP Transit for all end users, versus allocating 50% of the traffic to Remote Peering in Asia and the remaining 50% to IP Transit for the rest of the world.



	Bandwidth in Asia	Bandwidth in the Rest of the World	Total Cost Per Year
Remote Peering in Asia and IP Transit in the Rest of the World	2.5Gbps VLAN, 10G Port: $215/mth	2.5Gbps IP transit: $1,125/mth	**$16,080**
IP Transit	5Gbps at $0.45/Mbps: $2,250/mth		**$27,000**

Total Savings

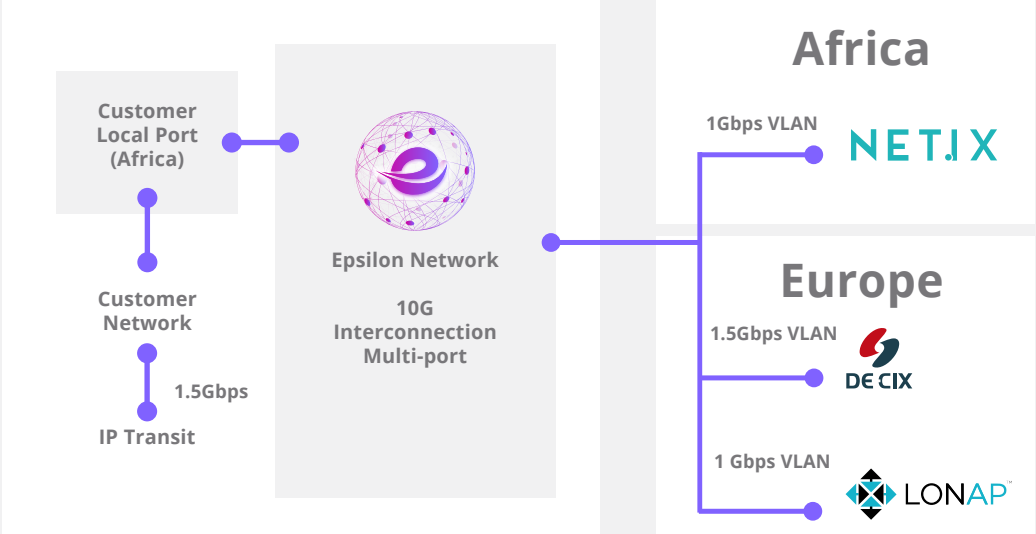
40%

Remote Peering vs. IP Transit

Scenario 2

An ISP serving end users worldwide, primarily in the Europe and Africa, with the rest scattered across Asia.

Cost comparison lies between relying entirely on IP Transit for all end users, versus using Remote Peering for 70% of the traffic in Europe and Africa and the remaining 30% on IP Transit for the rest of the world.



	Bandwidth in Europe	Bandwidth in Africa	Bandwidth in the Rest of the World	Total Cost Per Year
Remote Peering in Europe and Africa and IP Transit in the Rest of the World	2.5Gbps VLAN, 10G Port including DCI: $9,401/mth	1Gbps VLAN, 10G Port: $303/mth	1.5Gbps IP transit: $12,825/mth	**$270,348**
IP Transit	5Gbps transit at $8.55/Mbps: $42,750/mth			**$513,000**

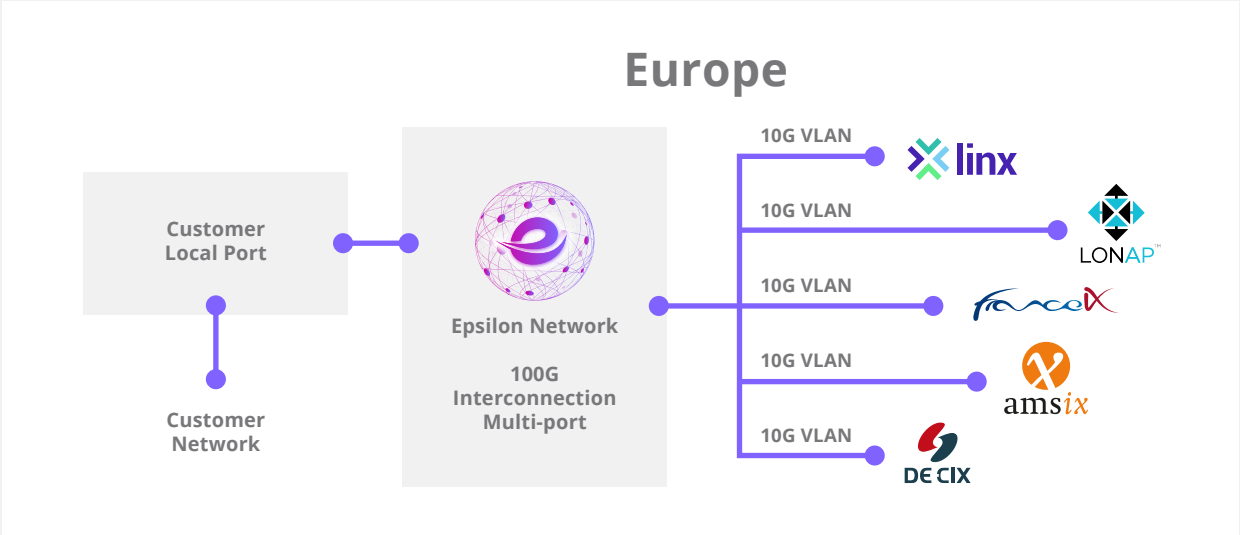
Total Savings

47%

Remote Peering vs. Direct Peering

Scenario 3

Customer consolidated its Direct Peering services with 5 IXs within Europe into Epsilon's Remote Peering service with a 100G interconnection port.



	Number of Port(s)	Number of Cross-connect(s)	Colocation and Hardware	Total Cost Per Year
Remote Peering	1 x 100G	1	✕	**$103,476**
Direct Peering	5 x 10G	5	Colo at 5 IXs	**$171,420**

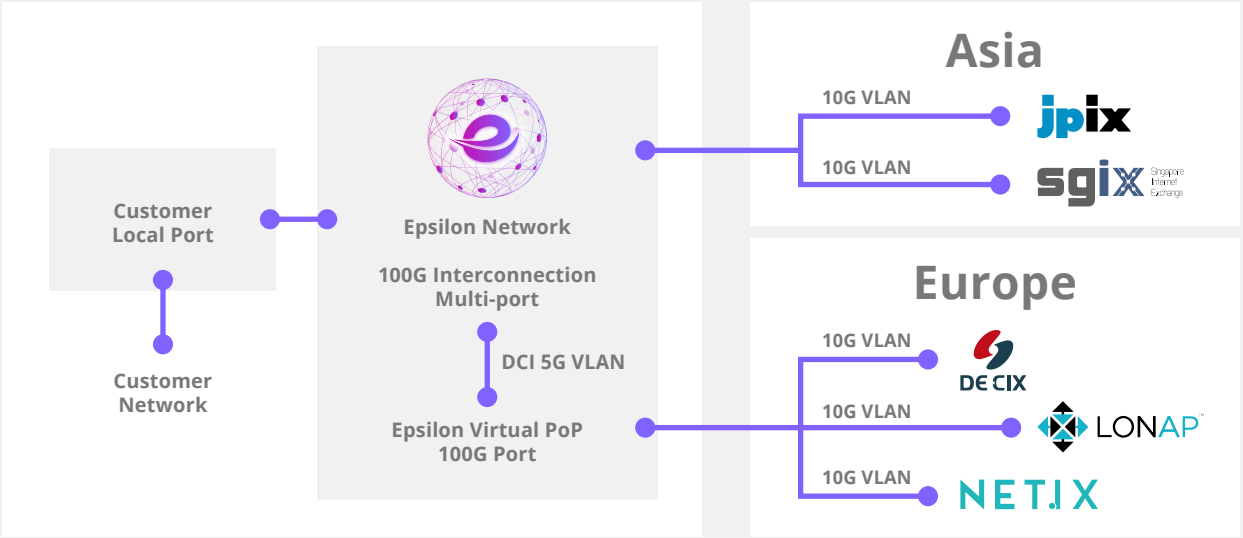
Total Savings

40%

Remote Peering vs. Direct Peering

Scenario 4

Customer consolidated its Direct Peering with 5 IXs (2 local IXs in Asia and 3 in Europe) into Epsilon's Remote Peering 100G interconnection port service, and a Data Centre Interconnect (DCI) between Asia and Europe.

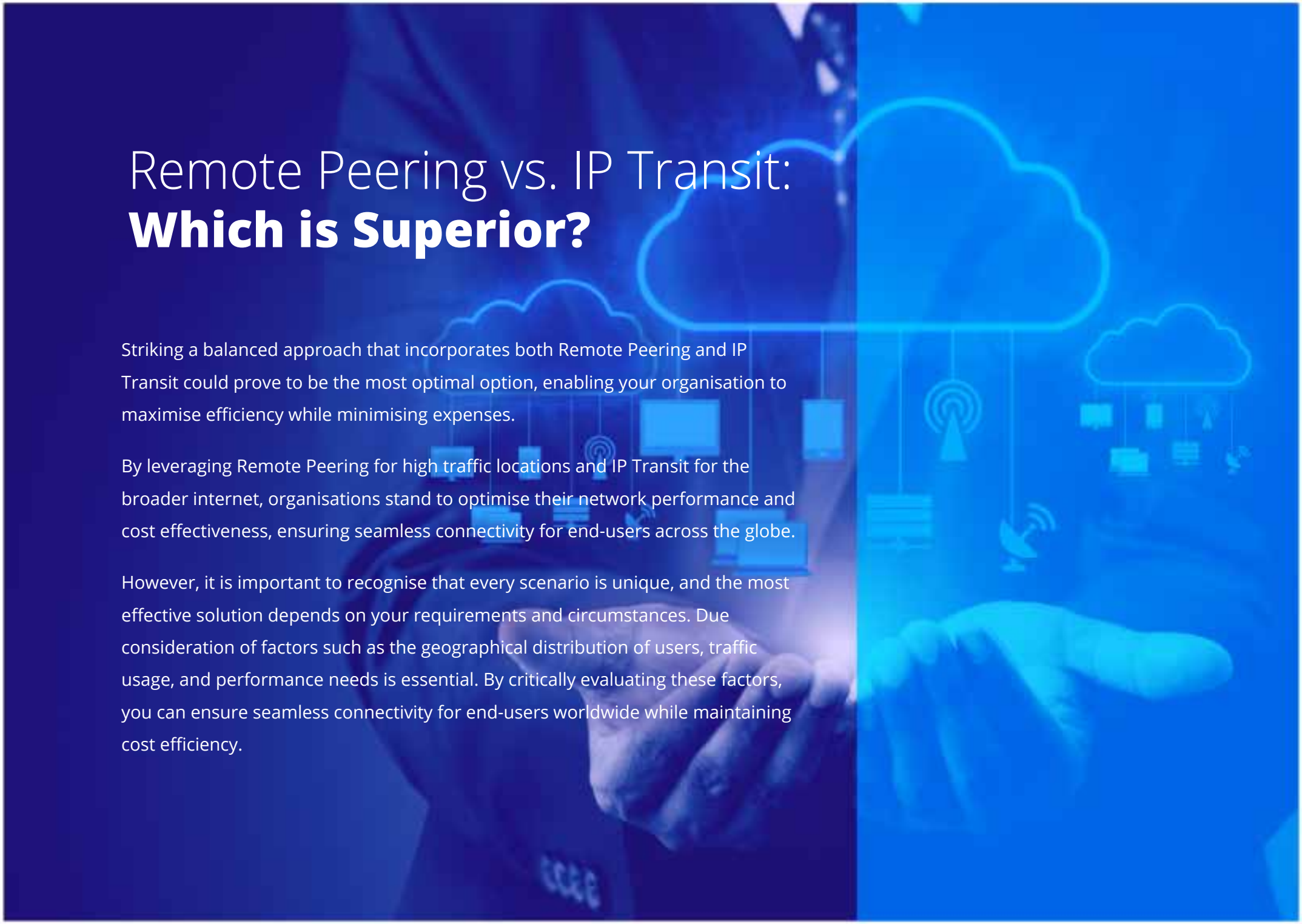


	Number of Port(s)	Number of Cross-connect(s)	Colocation and Hardware	Data Centre Interconnect	Total Cost Per Year
Remote Peering	1 x 100G	1	✕	1	**$148,176**
Direct Peering	5 x 10G	5	Colo at 5 IXs*	✕	**$171,420**

Total Savings

14%

* The above cost excludes Remote Hands for on-site maintenance in Europe and access to the IXs



Remote Peering vs. IP Transit: **Which is Superior?**

Striking a balanced approach that incorporates both Remote Peering and IP Transit could prove to be the most optimal option, enabling your organisation to maximise efficiency while minimising expenses.

By leveraging Remote Peering for high traffic locations and IP Transit for the broader internet, organisations stand to optimise their network performance and cost effectiveness, ensuring seamless connectivity for end-users across the globe.

However, it is important to recognise that every scenario is unique, and the most effective solution depends on your requirements and circumstances. Due consideration of factors such as the geographical distribution of users, traffic usage, and performance needs is essential. By critically evaluating these factors, you can ensure seamless connectivity for end-users worldwide while maintaining cost efficiency.

Effortlessly expand your global presence with your peering partner of choice. Epsilon's Remote Peering gives you on-demand access to:

18+
Major Internet Exchanges

11,000+
Community Members across Internet Exchanges

140+
Global Internet Exchange On-ramp Locations

Scalable Bandwidth of up to
100 Gbps

End-to-end
SLAs

amsix · Any² Exchange · BBIX · DE-CIX · EQUINIX · France-IX · JPIX · JEDIX · KINX · linx · LONAP · MASS IX · NAPAFRICA · NYIIX · NETIX · NLIX · sgix · UAE-IX

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Interconnecting Your World:
20 Years of Peering Experience

Epsilon Telecommunications is a leading global software-defined network provider that provides a comprehensive suite of end-to-end connectivity and communication solutions, including remote peering, to some of the world's largest carriers and businesses.

With Infiny, our award-winning Network as a Service (NaaS) platform, we enable seamless on-demand peering at internet exchange points. Combined with a high-performance and far-reaching global network that spans across Europe, the Middle East, the United States, and Asia, achieve complete agility and reach, truly interconnecting your digital world.

Ready to discuss Remote Peering ?

Talk To An Expert →

SINGAPORE (HQ)

New Tech Park,
151 Lorong Chuan
#06-01A
Singapore 556741

LONDON

Telephone House
69-77 Paul Street
EC2A 4NW,
United Kingdom

SOFIA

Business Center Rubix
8 Dimitar Mollov Str.
1750 Sofia, Bulgaria