

## Frequently Asked Questions

### Telia Carrier's Internet solution

- answers provided by Jorg Dekker, IP and Security Product Manager at Telia Carrier

#### **Q: Where are Telia Carrier's Points of Presence located?**

**A:** Telia Carrier has over 320 PoPs globally in 120 cities and 35 countries with a very strong presence in Europe and North America, but also in Asia. We are in most of the prime suspect carrier colocation sites – and we are also in the middle of rolling out many more metro POPs. Those are all our 'on-net' locations, but we can also make use of our connection partners to extend to other locations via NNI or dedicated local tails.

The POP maps are available for download at [www.teliacARRIER.com](http://www.teliacARRIER.com).

#### **Q: How much bandwidth can Telia Carrier hand off?**

**A:** Telia Carrier can offer 1G services. For some enterprise locations with CPE, we can even go down to FE 100Mb, if needed. For IP Transit, 10G and 100G ports are the standard.

Telia Carrier can even offer 400G ports in many locations, as many as 50 at the moment.

We pride ourselves on serving some of the world's biggest content companies, CDN's and eyeball networks, while still being just as able and willing to connect small local enterprises or independent ISPs.

#### **Q: You refer to Telia Carrier as "the world's largest ISP." What do you mean by that?**

**A:** Measuring the size of a provider of an Internet backbone is always hard and quite subjective, based on different parameters, like number of POPs, directly connected ASNs, prefixes announced, traffic carried etc. The claim to be the number 1 Internet backbone was based on a measurement service known as Renesys (previously known as Dyn). This was acquired by Oracle, but sadly has now been discontinued.

Of other public measures that are presented on the market, CAIDA AS-ranking is probably the most well-known, using publicly available BGP data. Although we are ranked as number 2 by some measures, we are more than proud that we are still in the top and we made it there through 100%organic growth.

#### **Q: What are the benefits, compared to another IP / DIA providers, of a Tier 1?**

**A:** Being a Tier 1 essentially means we do not have any upstream providers, i.e., we don't buy Internet access from anyone else. Networks connected to us are either customers or peers and we operate our own global backbone, designed for scale and resilience.

We don't only own the IP layer, but also the underlying fibre and DWDM layers. This means we can control and upgrade the network as needed. For example, we were able to handle significant traffic growth extremely quickly during the COVID pandemic. With this control we can also stand by our industry leading SLAs.

#### **Company information**

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Besides that, we were one of the first with new technologies such as RPKI OV or rolling out 400G interfaces, but also a continuously [awarded company](#) for a great customer care.

### Q: Why is Telia Carrier's latency better than that of the competition's?

A: Telia Carrier's fibre ownership is a mix of fully-owned, long-term IRU fibre and some long-term leases. Our approach is to always look for new and unique routes. We are not in the ultra-low-latency market, but rather looking for short unique routes that give us and our Wavelength customers diversity from the typical bulk routes.

This strategy allows us to build our resilient IP backbone on top and ensure that under modelled failure, we not only have the capacity to reroute the traffic, but also to keep any incremental RTD to a minimum.

### Q: Could you explain the difference between IP Transit, Dedicated Internet Access (DIA), and IP Connect?

A: Historically we have primarily been a wholesale provider, so those are our biggest products:

- [IP Transit](#) – Telia Carrier's flagship product
  - Full access to the whole Internet with BGP giving you a full routing table
  - Users must have an ASN number and use BGP
  - Typically used by those with connections to multiple ISP's with need to have a control over their routing, like Service Providers, Content and Cloud Providers
- [IP Connect](#) – Telia Carrier's product name, not industry-wide term
  - Provides the same full access to the Internet, but no need to run BGP
  - Simple statically, or rather default, routed connectivity
  - "Bring your own IP Addresses" – and we can originate them as AS1299 – provide your table to authorise us to do so (via RIR Route Objects and RPKI ROAs)
  - Typical use-case is webhosting, content delivery or large enterprises
- [DIA](#) - a known product name across the industry
  - Aimed more for Enterprise, but similar to IP Connect (there is a significant over-lap between these products)
  - Main use-case is enterprise connectivity, perfect for SD-WAN underlay, for example, as it is backed by our great SLA

### Q: Pricing models – please explain the options and the differences

A: Telia Carrier has flexible pricing options. Our charging is directly based on usage, i.e., there is a \$/Mb rate applied to your measured monthly usage.

1. Looking at the 3 most common options, which count for more than 95% of our billing arrangements:
  - a. Burstable / Pure usage



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- Zero commit – monthly charge is based on the 95<sup>th</sup> percentile usage
  - b. Around 75% of our IP billing is based on CDR and burst
    - CDR is Committed Data Rate. This is the customer's minimum usage commitment and billed at the agreed rate. This is not a cap; customers can burst over this usage
    - Usage is still measured and any usage over the CDR is billed as 'burst'
  - c. Flat port – as the name suggests; you're invoiced a fixed MRC for the port regardless of how much you actually use
2. There are a few other options such as Volume or Term Commits. Account managers with the support of our pricing desk team are able to assist further

### **Q: I need an IP address; can Telia Carrier provide it?**

**A:** Yes. IPv4 space is limited, and as an LIR we have a responsibility to use and allocate these finite resources efficiently. On the wholesale side, the requirement to provide IPs hasn't been that pressing, but we are seeing customers require this now. We can provide PA space; this is Provider Aggregate-able. That means this is really purely for use with Telia Carrier Services and these IP addresses should not be seen behind other ASNs. They remain assigned to Telia Carrier. /29 - /24 with justification and there is a charge for this.

### **Q: In addition to IP Transit, I want to have proper AS number and IPs range, can Telia Carrier help us with that?**

**A:** We can help with obtaining an ASN, if needed, and also as a Sponsoring LIR, we can help with the application for IPv6 space.

### **Q: Could Telia Carrier provide us a BGP service on my behalf if I do not have an AS number or do not want to manage an AS number?**

**A:** This is not a service we offer, unfortunately. Managing an ASN and BGP does require technical expertise and time. If this is not something you are able to do inhouse, then our non-BGP services are available.

### **Q: If I have two IP Connect services with Telia Carrier, am I able to manage them using a BGP session from my side?**

**A:** Yes. IP Connect itself is a non-BGP product, meaning we don't use BGP to control routing to and from the Internet. However, we can use BGP, and a Private ASN for local failover. This works in both a single and dual CPE set up. We have plenty of options for redundancy and backup links. The immediate options will vary between locations, so best is to engage directly an account manager and solutions engineer.



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**Q: What are Telia Carrier's peering agreements per region with your AS1299?**

**A:** We peer with around 27 key peers and maintain great working relationships through our dedicated Global Peering Managers. Globally, we have over 37 Tb of installed peering capacity. As you'd expect, most of this is fairly evenly split between Europe and North America. Best way to see who we are connected to in each region is to look at our [BGP Communities](#) page on [www.teliacARRIER.com](http://www.teliacARRIER.com).

**Q: Does Telia Carrier have peering agreements in Asia with regional providers?**

**A:** Telia Carrier has some agreements, and we are always looking to improve our local connectivity. We have made great progress and hope to continue to improve there.

**Q: Does Telia Carrier have a dedicated AS number in Asia or in US?**

**A:** No. Telia Carrier has a single global ASN, and that is AS1299.

