Contribution by Cogent Communications

On DGCONNECT’s

Public Consultation on specific aspects of Transparency,
Traffic management and Switching in an Open Internet

Question 1

We answer as an Internet network or service provider

Question 2:

Cogent Communications is one of the top three wholesale Tier1 Internet bandwidth provider – We operate a fiber-owned network spanning over 90,000 Km of inter-city fiber miles. Our network is optimized solely to carry IP traffic over Ethernet over DWDM. We are a pure IP transit provider. We are present in all 27 EC countries. We connect to over 4,100 AS’s worldwide which, technically, makes us the most connected network in the world. A fuller description of the company is available on our public website at the following address: www.cogentco.com.

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For the purpose of clarity, we will focus our responses to the IP interconnection market only. We will address organized congestions at the gates of access provider networks. As internet traffic continues to increase, those congestions naturally appear with access providers’ refusal to upgrade port capacity. Since those congestions are deliberately organized, there is no need to mitigate their effects. Removing them is technically easy and cheap, but ensuring that access providers do so will require regulatory intervention.

IP interconnection issues
Interconnection arrangements between networks take the form of transit and peering agreements. They have traditionally been based on the "best effort" principle. Disruptions of interconnection or deterioration of interconnection service quality at the wholesale level could lead to a situation where end-users and content providers cannot reach all destinations on the Internet. IP interconnection is therefore relevant for this consultation.

Question 24:

a) In your view, are there any problems regarding IP interconnection arrangements (between network operators, ISPs, transit providers and/or content providers) that could have an impact on the quality of the best effort Internet?

Yes

Please explain your response.

IP interconnections provide Access Providers with the first opportunity to deteriorate the best effort internet. Virtually all access providers are using transit purchases to satisfy the connectivity requests emanating from their end-users, and are buying enough capacity (i.e., there are no congestions) to accommodate those.

However, a select group of incumbents, who all have their own “transit” operations, are relying on peering arrangements instead: France Telecom, Deutsche Telekom, Telefonica and Telia. They are all using the same three mechanisms described below to deteriorate internet traffic at the wholesale IP level.

1. **Offering remote connection points** – In this situation, local traffic needs to exit the country’s territory (on the transit operator network) to be delivered to the remote location IP interconnection points before travelling back (on the access provider own or chosen “transit” network) to the end-user’s country. This is the well known “trombone” effect. It increases latency and as a result a) deteriorates the quality of the service perceived by the end user and b) shields the incumbent’s domestic business from international transit price declines.

    Tromboning prevents international transit operators from competing for the local content providers’ national traffic. Local content providers are thus pushed to connect directly to the incumbent operator in order to benefit from lower latency / higher quality at a higher price.

    There are multiple examples of this practice. Telefonica refuses to peer in Spain. Telia refuses to peer in Sweden. FT and DTAG respectively have less than 12% and 20% of their overall peering capacity with Cogent in France and Germany.

2. **Organizing congestion on the IP interconnections** – As internet traffic continues to grow, the simple refusal to upgrade port capacity leads to congestions and packet losses.

    Access provider traffic is structurally asymmetric, so end-users suffer from erratic slow download speeds and buffering. Without technical knowledge, they naturally associate this lack of performance to the visited sites and are pushed to switch surfing habits as a result.
The visited sites suffer from an inability to gain popularity and acceptance. Content providers (local and international) are thus pushed to either deal directly with incumbents, at a higher price, or to select a different transit provider, which maybe more expensive but does not suffer from the same congestion.

In the end, competition in the content market is distorted by ISP’s behavior at the wholesale level. ISP have an added incentive to constrict overall wholesale connectivity, if that ISP is also offering a product (on-net) that competes with those available on the internet (off-net).

a. Transit - In theory, this organized congestion can be achieved simply by any ISP deciding not to purchase enough transit capacity to satisfy their end-users download requests. As mentioned above, this is generally not the case in practice.

However, it is hard for a single transit operator to monitor. Traffic levels can be observed easily on any individual port but overall traffic levels can be manipulated by access providers through specific route announcements, i.e., announcing some prefixes to one operator and the other prefixes to other operators. A complete picture of overall traffic levels and possible overall congestions can therefore only be obtained by NRA’s from the Access Provider by aggregating traffic and capacity levels across all transit operators.

Regulators should clearly state that “internet access” (the product sold to consumers) means not only “reaching” the websites of their choice (i.e., the sending of download requests), but also “receiving” from those websites, the content requested by the end-user. Failure to allow both traffic directions to flow easily would constitute a Net Neutrality violation.

Transparency can be an effective weapon to inform consumers, and allow them to potentially switch ISP rather than visited sites, but as noted above, this would require that Regulators include the state of wholesale connectivity levels in the areas to be monitored and that Access Providers report those details to the NRA’s.

b. Peering - Practically though, congestions are organized by a select group of incumbents which all have an internal “transit” division that exclusively carries their access business traffic. Rather than buying transit themselves (i.e., being a Tier2 transit provider like their actual size would dictate¹), these transit divisions claim to be Tier1s and rely exclusively on peering to connect to the Internet.

Congestions on those peering ports are then organized through a dual refusal to 1) upgrade peering capacity without payment, arguing of traffic ratio imbalances and simultaneously to 2) prevent their prefixes from being reachable through alternative transit routes. This requires more explanations

- Ratios – Each end-user determines, by its own surfing behavior, its own ratio of incoming/outgoing traffic. Access Providers’ ratios of incoming/outgoing traffic is no more that the aggregation of those individual behaviors. Traffic between Access Providers and the rest of the internet is structurally asymmetric.

¹ Please refer to annex 1 for a fuller description of these Tier1s actual size.
It is worth noting that, with the exception of the select group of incumbents, all access providers rely on transit to satisfy their end-users traffic and that there is no argument of inbound/outbound ratios under that method of traffic delivery. In fact, even within each of those incumbents’ organizations, there are no ratio arguments between their internal access and internal transit divisions.

Additionally, Access providers, like any network, are in complete control of where to send their outgoing traffic. They can therefore easily show an infinite ratio with one provider (by sending zero traffic in its direction) and a more balanced ratio with another (by sending all their traffic to it).

Arguing of ratio imbalances between operators of different kinds (Access Providers and Transit operators, or Access Providers and Content Providers) makes no sense at all because this traffic is structurally imbalanced. Ratio arguments are therefore specific to the Transit world.

- **Bitmile Parity** – Ratio arguments only have sense between operators of the same kind. Within the transit world, ratios are part of a broader bitmile parity discussion, which aims at balancing network loads. The localization of the peering points is in fact the single most important criteria in this calculation. Between transit operators, bitmile and ratio arguments have a pro-competitive impact on the price of international bandwidth. There are three natural responses to a difficult ratio situation between transit operators.
  
  - Going through another transit operator - Because clients (content and access) are generally multi-homed, they can be reached by more than one transit provider, and the easiest way to relieve outgoing ratio with a specific transit operator is to route traffic to another. This option is unfortunately not available to circumvent the incumbents’ transit operations as their access divisions are deliberately kept captive.
  
  - Any transit network strives to balance its client push/pull traffic as well as its peering traffic. Any network with a majority of content (or access) traffic, and a high outgoing (or incoming) ratio to its peers as a result, will specifically target Access (or content) Provider clients. Clients, access or content, can be gained by price driven commercial initiatives. This option is unfortunately not available to circumvent the incumbents’ transit operations as their access divisions are deliberately kept captive.
  
  - If this is not enough, transit operators will discuss the application of “cold potato” routing (Multiple Exit Discriminator) to balance network loads. This will not change the ratio itself, but will balance network load impact. This option has been offered many times to the select group of incumbents, but was never accepted, even though it would have completely relieved their transit network of any traffic load.

Those three pro-competitive responses are only possible because of one underlying fact: transit networks are all avoidable. The transit market is probably the best example of actual infrastructure / network based competition. When it comes to the
select group of incumbents, none of those natural competitive options are available because their deliberate strategy is to make their transit network unavoidable as it simply becomes an extension of their access operations.

3. **Withholding route propagation.** Technically, peering is the shortest and best quality route between two networks’ respective clients. To maximize transit revenue from those clients and maximize their clients’ satisfaction, both networks will want to maximize this traffic and will therefore dimension the peering interconnections accordingly. Within that context, it is acceptable for an access provider to use “communities”\(^2\) and prevent its routes from being propagated to its other transit providers (if they have one).

However, the use of those communities, in conjunction with congestions on the peering interconnections, leads to the suppression of alternative paths and the ability to exert uncompetitive commercial pressures on the direct “one-to-one” peering relationship.

Incumbent access operators are captive to their internal transit operations. Those transit operations are claiming to be Tier1’s. Yet, even when they were buying transit in the past\(^3\) and even if they continue to buy “limited transit” now, they prevent their access prefixes to be propagated through those transit providers.

\(b\) Are there any specific issues related to the vertical integration of ISPs and transit providers?

Yes

*Please explain your response.*

**A quick preliminary detour through actual facts is necessary.** Before we explain the specific issues related to this vertical integration, we believe it necessary to point to reader to Annex 1 to this contribution. It highlights the vast differences in sizes and level of connectedness between the “real” Tier1s, which have a proper “bone fide” transit business, and the “fake” Tier1s, which only claim to have that status for other purposes and whose transit operations would never qualify as such on their own merits.

Incumbents’ transit operations do not operate at arms’ length from their access businesses.

As standalone businesses, they would barely qualify as Tier2’s.\(^4\) By standing on the shoulders of their access business and leveraging their natural monopoly position they claim a “Tier1” provider status.

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\(^2\) Communities is a special BGP setting that identifies specific networks to which prefixes cannot be propagated. The client (access provider) can ask its transit provider to propagate all its prefixes to the whole of the internet, with the exception of specific networks. They would only do that if they already have direct relationship with the excluded network so as to ensure that all traffic from that network would flow over this direct connection.

\(^3\) Telefonica was until recently buying transit from Level3, FT continues to buy limited transit from Verizon but neither of them were or are now announcing their prefixes to Cogent.

\(^4\) Please refer to Annex 1 for a fuller description of these transit operations actual sizes.
Competition in the transit market is heavily distorted as a result, but, in their eyes, this is only collateral damage as it allows them to become gate-keepers to their subscribers and discriminate in favor of their own on-net service offerings and distort competition in the much more important content market.

A. **Is the Transit market attractive in itself?**

Transit and Access are two very different economic segments. They operate at very different levels in the internet value chain and fill in very different needs.

**Access** is a natural monopoly, providers “control” their end-users and retail prices are stable. Access networks are unavoidable and end-users are naturally single homed. Access total addressable market is counted in multiple billions of Euros. Because their traffic pattern is entirely determined by their end-users surfing behaviors, which tend to ‘download from’ a lot more than ‘upload to’ the internet, their traffic pattern is structurally asymmetric.

**Transit** is very competitive. Bandwidth is a commodity and prices are declining steadily. Transit networks are all avoidable. Clients are typically multi homed; because transit provides multiple paths to reach each and every destination on the internet, clients can change providers at any time and decide independently based on price. Transit total addressable market does not exceed $1Bn. Transit operators have an economic incentive to balance traffic between Content and Access clients, and will lower prices / target clients to achieve this goal.

Given the differences between the two markets, one wonders why those incumbents would ever want to vertically integrate into a market that is so small and so much less attractive than theirs.

The transit market is not attractive in itself. ISPs are not seeking to become bona fide transit operators. They seek to become “Tier1” operators because it is strategically important in the pursuit of their other goals.

B. **Why becoming a Tier1 operator is strategically critical for ISPs.**

Transit constitutes the “keystone” of the internet because it delivers route multiplicity and global connectivity with a single connection. Bandwidth is a commodity and prices are declining constantly because clients can switch providers without worrying about losing overall reach. In other words, clients can make purchase decision independently from each other without compromising overall internet access.

By opposition, Peering is a one-to-one relationship between two networks that only provides connectivity limited to their respective clients. When one becomes a Tier1 and relies exclusively on peering to obtain global connectivity, peering provides route singularity and route singularity provides leverage.

The incumbents’ access divisions are then made captive to the transit operation by forcing them to exclusively buy transit internally. The “fake Tier1s” can then take their end-users as hostages.

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5 Cogent generates around $150Mn from its wholesale transit business and believe it accounts for 15% of the overall market.
They submit their peers to blackmail: either suffer degraded connectivity on the peering ports (through congestion, i.e., packet losses, and remote locations, i.e., increased latency) or agree to the payment of an access tax (under the pretense of ratio arguments). Because their access businesses are captive, the fake Tier1s can arbitrarily show a balanced ratio with one peer (and agree to capacity increase as a result) or show a heavily unbalanced ratio with another peer (and refuse all capacity increases as a result). Some transit providers have already caved in to those payment demands.

Content providers cannot suffer those QoS degradation for fear of losing consumer acceptance and popularity and are therefore forced to either change transit providers (in favor of those that have caved in) or to pay for access and connect directly to the “fake tier1” at higher than competitive price. Price is no longer the determinant factor is choosing a transit operator.

Technically of course, content clients of a specific transit operator can only use that operator to reach a specific access provider’s end user if that transit operator is a peer of that network. In other words, clients’ choices of transit providers become dependent on each other and the ISP creates a series of vertical silos of connectivity to itself.

Et Voila! The magic trick has been performed. The internet has disappeared! For those sitting in the audience (the end-users), control of the network operator (the incumbent) has been restored over the application layer. End-users are gently and steadily pushed to using the incumbents’ own applications or those that this incumbent has vetted through special distribution deals. The price level for those deals can be set arbitrarily by the incumbent, as there is no competitive mechanism to keep it in check. Consumers now live in a beautiful walled garden.

C. The Holy Grail -

By separating Network and Application layers, the internet takes away from network operators the leverage they enjoyed in offering their traditional voice application products. Diversification, innovation and vertical integration into applications and services are all natural reactions to their declining revenue line.

ISPs, as they evolve, attempt to shield their new applications and services ventures from external competition. By forcing price or QoS differentiation at the gates of their network, they award themselves a structural competitive advantage in favor their own service offerings. Consumers choice is skewed towards “on-net” services (developed internally by the ISP) or towards those with which the ISP strikes exclusive distribution deals.

Paradoxically, large content providers, because they are a “must have” product for end users, can easily pay the tax or negotiate mutually attractive deals with Incumbents. The net result is reinforcement and consolidation of the large content providers (the so called “Internet Giants”) market positions. The big losers in this battle are the smaller (and potentially more

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6 It appeared very clearly that some other Tier1 providers are paying for a simple 10G wave cross-connect to FT within Paris a price equivalent to at least twice the amount charged for a normal worldwide IP transit service.
innovative) content companies as well as the end-users who will face both higher prices and a reduced choice of available content.

For incumbents, the financial rewards are enormous. They are easy to calculate. Multiply the number of end-users by the monthly price of the additional services to derive the “total addressable market”. For example, a €5 per month increase in ARPU for a 10Mn subscriber base amounts to €50Mn revenue a month or €600Mn a year. This number, of course, does not include the additional revenue that can be obtained through other advertising and commercial deals.

By comparison, the costs of buying transit are lower by a factor of at least 50 times. Arcep estimates\(^7\) that the cost of providing transit amount to approximately €0.10 per month per subscriber –This leads to an estimation of €12Mn a year for our typical 10Mn subscriber incumbent ISP. Cogent believes those numbers are too high and we conservatively estimate that a 10Mn subscriber access provider would pay no more than €6-8Mn\(^8\) a year to satisfy all its customers’ internet connectivity needs.

As mentioned above, competition distortion in the transit market is only necessary collateral damage. Transit is a strategic battle ground only because success in the content area cannot be guaranteed without off-net / on-net discrimination. The financial rewards of this strategy far outweigh the risk of regulatory intervention.


\(^{8}\) 100Kbps per subscriber multiplied by 10Mn subscribers equals to 1,000Gbps. At current market prices, of €0.50/meg, this would amount to €500,000 per month or €6Mn per year.
**Question 25**

Direct peering, Content Delivery Networks (CDN) or Quality of Service Interconnection (between ISPs and content providers) are being developed to propose an enhanced quality of service for content providers and end users.

*a) What role can they play in reducing the risk of network congestion?*

One first needs to determine where those supposed network congestions are located.

One thing is for sure: **there are no congestions on the transit portion of the internet**. Proper Transit providers have plenty of peering capacity between themselves and are constantly upgrading them to accommodate overall traffic increases. Any transit provider suffering from structural congestions on its own network would quickly disappear into oblivion.

Bandwidth is plentiful and every transit provider adds capacity (i.e., 10G waves) in the normal course of business. Technical improvements (40G and 100G waves) continue to make bandwidth ever more plentiful, with ever decreasing marginal production costs. Those benefits are transferred to clients as transit prices continue to decline year over year.

> **Congestions only exist at the gates of the “fake Tier1” providers, where scarcity is organized deliberately.**

*b) What opportunities and threats do they constitute for:*

(i) ISPs,
(ii) content providers,
(iii) transit providers and
(iv) end users?

Direct peering, QoS direct interconnections, CDN and transit, all fulfill the same economic need: delivering the traffic requested by the end user. Competition between them needs to be maintained. All those methods are “singular”, one-to-one, relationships with one exception. Transit stands alone as the only method of delivery that offers universal or global connectivity.

> **For competition to work anywhere there has to be the choice of at least one alternative option. Transit is the only alternative to all the other methods of traffic distribution. Maintaining a level playing field between those various methods depends solely on the health of the transit market.**

If conditions imposed unilaterally on the singular methods of distribution by one specific ISP are judged unacceptable, the counterparty (content of access provider) needs to have an alternative. Transit is the only competitive alternative that allows other methods’ prices to remain in check.

Transit is truly the “keystone” of the internet, not only from a technical standpoint (global connectivity) but also from a commercial standpoint (price competition). The failure of the transit market to operate properly is therefore the source of many threats to all parties.
• Content providers can face abusive price demands from ISP to terminate the traffic requested by their end users. For small content providers, this can be the difference between life and death of the company. Faced with the need to connect directly with the ISP they can also be refused access if their applications or services compete with internally developed content, or with those of another party with which the ISP would have struck a preferential distribution agreement.9

• Other access providers can be forced by the incumbent to pay for peering, despite the fact that the exchanged traffic would naturally be symmetrical.10

• Transit providers are only mere intermediaries, but lack of appropriate connectivity with those incumbent can simply prevents them from signing other clients that require this connectivity to be uncongested, or force those clients to limit the traffic sent to Cogent to all destinations other than those notorious “hot spots”.

• Ultimately, end-users will suffer from QoS difference between the various sites they visit. Their surfing habits will gravitate towards the better perceived quality sites and those will invariably be offered or vetted by their ISP. Rather than suffering from slow download speeds, buffering and packet losses for external websites, many will chose to pay a small premium (arpu increase) to enjoy a faster and better “surfing” experience. After all, it is easier to switch websites than access providers. In the end, consumers will pay a higher price for a more limited choice.

Cogent believes there is some support among regulators for the competitive landscape described above. Indeed, DGCONNECT has stressed in the past that peering and transit need to be substitutable or interchangeable. Similarly, BEREC has stressed that transit was also needed as the default option, and Arcep underlined, during the same forum, that transit was the “keystone” of the internet. Yet, those broad policy statements have failed to trickle down to the actionable level.14

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9 As examples, we would only point to distribution agreements struck by FT with Deezer or Dailymotion or by DTAG with Spotify.
10 Cogent believe this is the case for instance in Poland between Netia and TPSA.
11 Cogent has submitted a whole book of those complaints from existing clients in support of his case against FT in front of the French competition authority, and continues to turn away clients on a regular basis for the same reason.
12 The Polish case and presentation by R. Krueger at the BEREC IP-interconnection forum in Brussels on June 20th 2012 (page 4 and 5)
14 In the Polish case, for instance, INFOSOC assumed that transit was substitutable to peering, when any short investigation in the facts would have revealed that it was not.
c) Are there any barriers of a regulatory, technical or business nature that prevents market players other than ISPs from playing a more important role in reducing the risk of network congestion?

YES -

Please explain and describe possible solutions to such issues.

The single most important barrier is a regulatory one: Art 5 of the Access Directive is unclear and in need of clarification by DGCONNECT.

Art 5 clearly lays an obligation to provide end-to-end connectivity on the shoulders of operators which control end-users. It must be placed and interpreted in the broader context of Art.8 FD and Rec. 8 AD, which support innovation, competition and the maximum benefits to end-users.

BEREC recently noted that: “However, under certain circumstances conflicts may arise when one party denies a plea for interconnection and thus would be able to take customers hostage…In these cases NRAs may have to take action in order to promote and defend fair competition, investment, innovation and consumer welfare in the sense of Art 8 FD and may decide to impose obligations to interconnect.”

In internet language, this end-to-end connectivity obligation translates into the obligation for access providers to propagate (or to ensure that their transit provider propagates) their prefixes to the entire internet so that their end-users can send and receive the requested traffic in a non-distorted and neutral manner.

Art 5 was written to facilitate retail competition from competitive access providers and ensure that no access network could prevent its users from communicating freely with those users that belonged to other networks. Under the voice CPNP system, call termination charges are paid to the receiving network. It is crucial to remember that under this old system, consumers are either taken away from incumbents by competitive providers or traffic is clearly caused by the calling party. Regulators have since fought a constant battle to bring those payments down in line with incremental costs rather than being set at arbitrary, anticompetitive levels.

With IP Interconnections, no competitor is trying to take the end-user away from the incumbent and internet traffic (upload and download) is always caused by the end-user himself. More importantly the internet is based on the Bill and Keep payment mechanism. BAK is the foundation of route propagation and transit. In fact, the generalization of an internet traffic termination charge would simply destroy route propagation and kill the internet as we know it.

We believe regulators understand that the application of an access charge to internet traffic would have disastrous consequences for competition in the content, transit and access market, as well as for innovation and the future of internet in Europe. Yet, despite the broad regulatory framework of pro-competition, user choice and the promotion of innovation, NRA’s have been “boxed in” by the

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15 BEREC BoR (12)33 – An assessment of IP-Interconnection in the context of Net Neutrality – page 44 -
The unfortunate classification of interconnection as a “specific type of access”\(^{16}\) and unable or unwilling to use Art5 actively to force incumbents to comply with net neutrality principles\(^{17}\).

The Commission must resolve this dilemma. It must state clearly that Art 5’s general obligation to provide end to end connectivity applies to internet traffic in both directions. To ensure that Transit is always an option and is truly substitutable to peering, as is the Commission’s stated objective, it should mandate that end-to-end connectivity at the IP Interconnection level has three characteristics:

1. **IP interconnections between access and transit providers must be uncongested.** Traffic to/from end users must be able to flow unencumbered over the IP interconnections, whether they are transit or peering. Regulators should make it clear that “internet access”, the product sold to consumers, covers the ability for end-users to send and receive all the traffic they request from the visited websites.

   Anything less than free flowing traffic in both directions would constitute a violation of net neutrality, generate QoS discrimination between off-net and on-net services and push off-net content providers to other methods of delivering traffic. This would then distort competition in the transit v/s peering v/s direct connection v/s CDN market.

2. **IP interconnections between access and transit providers must be local.** Specifically, any integrated access/transit provider cannot force local traffic to trombone before reaching the end user. The resulting latency increase would constitute service QoS discrimination and distortion of competition in favor of the incumbent’s local transit business.

3. **Access network have to ensure that their prefixes are propagated to the entire internet and not withheld artificially.** This really is the internet’s safety valve. It ensures that alternative transit routes to reach end users are always available.

   a. When an access provider peers with a transit provider and also buys transit from another\(^ {18}\), its prefixes must be visible through that other transit provider. If the peering ports ever become congested (a violation of condition 1 above), traffic can then be re-routed through the alternative transit provider without generating any suffering for the end-user. The access provider will then have a financial incentive to upgrade the congested peering capacity.

   b. It also solves the situation that keeps access businesses captive to their internal transit operations and prevents the leveraging of a dominant position from one market into another. It automatically restores proper competition in the transit market.

Indeed, if a “real” Tier1 transit provider should decide that a smaller “fake Tier1” transit network does not meet its settlement-free peering conditions, the access network single homed behind the fake Tier1 will have an obligation to ensure that its

\(^{16}\) According to Art 2 of Access Directive, which was not modified in 2009.

\(^{17}\) In the dispute of Cogent v/s DTAG, BNetzA acted effectively as an arbitrator and, as relationships improved with DTAG, did not have to settle the point of principle. In the dispute of Cogent v/s FT, Arcep avoided the issue altogether and encouraged Cogent to turn to the competition authority instead.

\(^{18}\) This is the situation with Telefonica which, until recently, bought transit from Level3 and with FT, which buys from Verizon.
Prefixes are propagated to the entire internet by other means, either by establishing peering ports itself or by buying transit directly from another operator or by putting pressure on the fake Tier1 to buy transit itself.

There is one additional alternative that the Commission should consider:

**The separation of local network access from access to the global internet.**

Since Access Providers are all getting their global connectivity from transit wholesale providers anyway, it would make sense to simply by-pass their local internet offers. Similar to the previous separation between local and long distance telephony, local access providers would be allowed to offer a national product, but not an international one.

End users would then have the choice of multiple global IP upstream providers running on top of their local access network subscriptions. Consumers can then enjoy the benefits of open and well informed high quality offers, at little to no switching costs since there would be no need to change their retail ISP. Just as the internet content creation has been permitted by the separation of network and applications layers, its logic should be applied to the last mile access providers.

Much work has already been done, specifically in Working Group 3 of Commissioner Kroes’ internet industry consultation in 2011, to show that separation was possible in the retail sector. Access networks should be neutral and open to all forms of internet connectivity offers. In this business model, the last mile provider should offer network connectivity only at the hardware level and users’ subscription cover only the costs of providing the last mile network access. This would be a regulated monopoly under NRAs’ control, with no permission to provide internet access or any other additional services.

Numerous participants have testified that such access network monopolies will enjoy easy access to financial markets and that the roll-out of the European Digital Agenda will be greatly enhanced as a result.

Independently of their hardware connections, users will then be free to choose Internet providers directly. Alternative providers can all compete for their business as switching becomes extremely easy. Only then can Regulators be assured that users will benefit from bandwidth’s rapid price declines and from the absence of conflict of interest generated by “the need to finance the network”. Incumbents will face a clear choice of either becoming a true application, content or service competitor or a basic, entirely neutral network operator. While this solution might sound revolutionary, it actually is not. Other regulators have already travelled this route, by separating creation from distribution in the areas of water, energy or electricity.
**Question 26:** (all respondents)

a) Do you consider that intervention by public authorities is necessary at this stage?

Yes

If so, what would be the appropriate level of such intervention?

As mentioned above, the Commission should urgently clarify the meaning of Art5 AD and state clearly that IP interconnections are different from those targeted in pre-internet times.

**Question 27:**

b) If you have made use, please explain under which circumstances. If you have not made use, please explain whether you consider that these dispute resolution powers would be an appropriate tool for such Internet traffic management disputes?

**Cogent v/s DTAG:** Cogent brought its case against DTAG in front of the BNetzA in 2009 – BNetzA acted effectively as mediator between the two parties and, as relationships improved, did not have to reach a formal ruling on the matter of Art 5. However, as traffic continues to increase, the situation with DTAG deteriorated again. DTAG is now asking for extortionate payments\(^{19}\) to upgrade peering capacity and terminate traffic on its national network.

**Cogent v/s FT:** Cogent initially contacted Arcep in 2010 to discuss a similar peering situation with France Telecom. Rather than taking the case and having to decide on Art 5, Arcep encouraged Cogent to bring its case in front of the French Autorite de la Concurrence (ADLC). Cogent formally complained to ADLC in April 2011, and ADLC issued its judgment in Sept 2012.

ADLC’s decision is based on the acceptance that, as a Tier1 operator, Open Transit (FT’s “fake” Tier1 division) is entitled to apply an arbitrary ratio to its incoming/outgoing traffic. Yet, its decision validates a situation where Open Transit is forced to operate at a loss on the traffic received from its peers (for free) and delivered to Orange (against payment to Orange). Leaving aside the European distortions created by treating Orange differently from FT’s other access businesses (Spain, Poland), the decision confirms Cogent’s assertion that Open Transit does not operate independently, as a ‘bona fide’ standalone business or at arms’ length from other FT operations. ADLC’s decision therefore destroys the very argument that its decision is based upon.

Cogent will appeal ADLC’s decision in front of the Cour d’Appel de Paris.

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\(^{19}\) To the tune of €1/meg per 10G port of capacity. Since ports never carry actual traffic at full capacity, and a fill rate of 60% is considered prudent, this would amount to over €1.67/meg of actual traffic. As a point of reference, similar size worldwide IP transit contracts can be negotiated down to well below €1/meg.
Annex 1

An Overview of Tier1 different levels of Connectedness

<table>
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<tr>
<th>Summary</th>
<th>AS Connected</th>
<th>Subsidiaries</th>
<th>Content Providers / CDN / Hosters</th>
<th>Local Customers</th>
<th>Tier-1 Peers</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td>France Telecom</td>
<td>166</td>
<td>38</td>
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</table>

AS Connected          Total number of AS connected to the operator
Subsidiaries          AS of a subsidiary of the operator
Content Providers / CDN / Hosters AS of major global / regional content providers, CDN operators or web hosters
Local Customers        AS of local businesses forced into a relationship with operator to offer adequate quality of service to their clients. Note that this number does not include those that connect locally to the national access AS of the same group.
Tier-1 Peers           AS of transit-free networks with which operator peers to enable its own transit-free status
Rest                   AS of other types of customers / peers of operator

<table>
<thead>
<tr>
<th>Tier-1</th>
<th>ASN</th>
<th>AS Connected</th>
<th>Comments</th>
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<td>Level 3 (inc Global X)</td>
<td>AS3356 + AS3549</td>
<td>5199</td>
<td>Transit</td>
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<td>AS7018</td>
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<td>AS209 + AS3561</td>
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20 Source: Renesys Market Intelligence – 15th October 2012