

TPG GROUP PEERING GUIDELINES

SEPTEMBER 2018

Background

The TPG Group comprises a number of networks each having discrete Autonomous Systems (AS) including, as at the date of these guidelines, the following principal networks:

- TPG Internet: AS7545
- iiNet/Internode: AS4739
- AAPT Limited: AS2764
(each a “Network”)

The iiNet and TPG Internet Networks are used to supply internet services directly to end users on a retail basis. The AAPT Network is predominantly used to supply wholesale products and services to businesses who acquire those products and services for the facilitation of end-user internet services. These products and services include:

- internet access (across a range of different access types including on-net and NBN)
- IP Transit
- Colocation and
- hosting.

Further information about AAPT products and services can be found at www.aapt.com.au.

Purpose of this Document

From time to time, the TPG Group receives requests for bi-lateral interconnection arrangements such as those that are referred to as:

- IP Peering
- Sender Keep All (SKA) peering
- Settlement-free interconnection

(“Peering Arrangements”)

Such Peering Arrangements are similar to our IP Transit service in that IP traffic is exchanged over one or more interconnection points except that Peering Arrangements involve sharing access to only a peer’s own network and customers (direct and downstream), but not to any other peers or transit services. Otherwise, the difference between Peering Arrangements and IP Transit is generally commercial in nature, in that Peering Arrangements are achieved when parties believe that there are operational and network benefits that are *mutually* derived from the interconnection arrangement and therefore different commercial terms should apply.

Peering Arrangements have costs associated with them; they are not costless and TPG could not enter into Peering Arrangements with every network that requested one. As such, TPG must give careful consideration to requests for a

Peering Arrangement. It should be understood that there is no simple rule or set of rules for determining that a Peering Arrangement will be accepted by TPG.

However, this document outlines the principles on which TPG bases its decisions about whether or not to enter into a Peering Arrangement and is written to assist potential peers in formulating their requests to TPG for a Peering Arrangement.

Mutually Beneficial

The overarching consideration is whether or not there are roughly equivalent network or operational benefits that each party will mutually derive by entering into a Peering Arrangement.

Metrics to quantify such benefits are difficult to be prescriptive about and may be different as between different parties. For example, Peering Arrangements with international networks or content distributors may provide benefits to TPG and such international networks that do not fit within the considerations outlined below.

Applications to TPG for a Peering Arrangement should provide submissions and evidence concerning at least each of the following subjects. This does not preclude a potential applicant from addressing other matters that they believe may lead to conclusion that there are equivalent scale mutual benefits that would be derived from a Peering Arrangement with them.

Backbone Network

Each party to a Peering Arrangement should have a network that is approximately equivalent in scale. As at the date of these Guidelines, prospective peers should note that TPG has a geographically dispersed network with nodes for the purposes of direct traffic interconnection in Sydney, Melbourne, Brisbane, Canberra Adelaide, Perth, Hobart and Darwin.

The respective networks must also have available backhaul capacity from the node to its main POPs (where access to overseas content is obtained) ensuring that traffic exchanged via the interconnection point can be carried through its national backbone network efficiently.

Each network of a party to a Peering Arrangement should operate a fully redundant and diverse path network, capable of handling a simultaneous single-node outages in each network without significantly affecting the performance of the traffic being exchanged.

Interconnection Capacity

Each party to a Peering Arrangement should have networks that can establish interconnection at a capacity to justify the entering into of a Peering Arrangement. As at the date of these Guidelines, TPG considers that a minimum interconnection of 10Gbps in each of Sydney, Melbourne, Brisbane, Canberra, Adelaide, Perth and 1Gbps in Hobart and Darwin would justify consideration of a Peering Arrangement.

Traffic Quantity

It is expected that the volume of traffic passing between parties to a Peering Arrangement will be of sufficient scale to warrant the entering into of a Peering Arrangement. As at the date of these guidelines, TPG considers that the minimum amount of traffic that will pass between the networks across each interconnection point should be at least 25% of that interconnection point's capacity.

Traffic Ratio

TPG considers that the ratio of traffic passing between parties to a Peering Arrangement should be approximately balanced. There is no firm rule that TPG will use when considering traffic ratios since traffic profiles change over time and can be engineered or affected by the particular arrangements of a network. For example, TPG considers that when measuring a ratio of traffic, large volume data that is being supplied from a small number of customers (e.g., a content distribution network) may not necessarily be indicative of an equivalent traffic ratio that should lead to a Peering Arrangement.

However, in general terms, the quantity of data being sent and received by each party to a peering arrangement should, in aggregate, be within 20% of each other.

Operational Requirements

It will be a term of each Peering Arrangement that each interconnection network of a party must set "next hop" to be itself, the advertising router of the network. Each Internet Network will propagate such routes to its transit customers with its own router as next hop.

Each Internet Network shall implement "shortest exit routing" and advertise routes consistent with that policy, unless both Internet Networks mutually agree otherwise based on special circumstances.

Each Internet Network will restrict its advertisements to non-transit routes originating within the geographic region for which peering is established and will not propagate the received route announcements outside such region.

Each Internet Network must be responsive to unsolicited email and network abuse complaints, as well as routing and security issues, providing a knowledgeable technician within a two-hour period after notice.

The two Internet Networks must enter into a Mutual Non-Disclosure Agreement and an Interconnection Agreement prior to entering into discussions about a Peering Arrangement.

Guidelines Status

TPG will continue to monitor the development of the Internet and traffic conditions and may make changes to these Guidelines from time to time. TPG reserves the right to modify these Guidelines at any time, but TPG will give notice to any party which TPG knows is in the process of applying for a Peering

Arrangement with TPG. Any contractual rights shall arise out of a bilateral interconnection agreement, not these Guidelines. Applicants should expect that most peering agreements with the TPG Group will be entered into with AAPT Limited.

All requests for a Peering Arrangement should be submitted to TPG via e-mail at peering@tpgtelecom.com.au. An Internet Network may submit a request for interconnection no more than once per calendar year.