This purpose of this document is to help enterprises looking at enabling IPv6 connectivity to Internet by providing the requirements and questions to discuss with their service provider.

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Enterprise Requirements for IPv6 service

The requirements include:

1. IPv4 / IPv6 Dual Stack connections (data communication) across the contracted circuit
2. IPv4 / IPv6 Service level Agreements (SLA's) equal to existing contracted SLA's for the contracted circuit.
3. IPv4 / IPv6 circuit bandwidth, latency, packet loss, and jitter specifications equal to existing contracted circuit
4. IPv6 routing of Provider Independent (PI) address space equal to existing routing across the contracted circuit.

The certification will involve carriers responding to the following questions for each contracted circuit:

Circuits

1. Are all components of the circuit IPv6 enabled? Yes / No (Mandatory response required)
2. If yes, does the circuit support dual stacks operation of IPv6 and IPv4? (Yes / No)
3. If no, please list components of circuit with the following conditions:
4. List of circuit components that are not IPv6 enabled, but are IPv6 ready. Please include road map with dates when components will be IPv6 enabled.
5. List of circuit components that are not IPv6 enabled, and are not IPv6 ready. Please include plan with dates when these components will be IPv6 ready and when they will be IPv6 enabled.
6. Can the circuit that services the existing IPv4 connection be converted to dual-stack without the physical changes ?
7. If the your IPv6 ready or IPv6 enabled circuits will have different Service Levels as compared to a IPv4 only circuit, please provide more details:
8. Please provide details if your IPv6 ready or IPv6 enabled circuits will not be able to route Provider Independent address space that is equal to existing routing across the contracted circuit.
9. Can IPv4 and IPv6 connectivity be delivered to a customer via a 802.1q tagged interface, with a separate VLAN for IPv4 and IPv6 communications?
10. If you use VRFs to provide a service, is the IPv4 and IPv6 using the same VRF or different ones ?

Prefixes

1. Do you support and publish the full IPv6 BGP Routing Table? If not what portion of the BGP Routing Table do you support? Are full IPv6 global routes available to end customers?
2. Do you host and provide the access to a ?looking glass? IPv6 BGP router, for the troubleshooting purposes ?
3. Do you accept and announce /48 blocks?

4. What is the smallest prefix you accept
5. What is the smallest prefix your upstream providers accept from you? Are there any restrictions on prefix advertisements?
6. What percentage of your IPv4 peers to you currently peer with for IPv6? Are you partitioned from any other major networks? (i.e. lacking global reachability to other major networks) Reference http://en.wikipedia.org/wiki/Comparison_of_IPv6_support_by_major_transit_providers) ? Will the provider disclose its list of IPv6 peerings, indicating which IPv6 peerings are native and which are tunneled?
7. Does the provider have a policy in place regarding deployment of tunnels on its backbone network or with peerings? In other words, is there any IPv6 tunneling on the provider's backbone network, and if peerings with other providers currently exist which are tunneled, does/will the provider have a policy in place which will mandate peerings with providers be native? What MTU restrictions or standards are in place for any tunnels?

Services

1. Is global public IPv6 multicast connectivity available, and if so, via native BGP peering?
2. Are the Qos Policies (queuing/discard) applicable to both ipv4 and ipv6 traffic identical ? If not, please elaborate on differences.
3. Does the provider offer DNS services which support IPv6 forward and reverse registrations?
4. Are the DNS servers available via IPv6 transport?
5. do you provide IPv6 web hosting
6. do you have an IPv6 looking glass
7. do you post IPv6 performance metrics on your web site?

Feedback

Please send your feedback about the content of this document to ayourtch @t cisco dot com.