The visualization represents a macroscopic snapshot of IPv4 and IPv6 Internet topology samples captured in January 2009. The plotting method illustrates both the extensive geographical scope as well as the interconnectivity of nodes participating in the global Internet routing system.

For the IPv4 map, CAIDA collected data from 33 monitors located on continents around the world. To represent our autonomous measurement infrastructure, Arigrapy, we monitored BGP prefixes to determine the AS for an IP address associated with each prefix. For IPv6, we used the BGP routing table provided by Route Views. For the IPv4 graph, we used the IP routing table collected by RIPE NCC.

We aggregate IP level data to construct IPv4 and IPv6 Internet connectivity graphs at the Autonomous System (AS) level. Each AS approximately corresponds to an Internet Service Provider (ISP). We map each observed IP address to the AS level. Each AS corresponds to an Internet Service Provider (ISP). We map each observed IP address to the AS level. Each AS is an autonomous system, a set of Internet routing prefixes that operate under a common routing policy.

The degree of an AS is the number of network ASes that we observed accepting our probe traffic as a left AS. The link color reflects outdegree value, from lowest (blue) to highest (yellow). Toward the center of the graph, we have manually labeled some of the highest-profile ASes with their associated ISPs.

To determine the maximum outdegree of an AS, we used the IPv4 BGP table from Route Views to find the use of advertised IPv4 prefixes for each AS. We subdivided prefixes into the smallest prefixes that Digital Envoy's NetAcuity4 mapped to a single geographical coordinate from the weighted average (by number of IP addresses) of all such subdivided prefixes. NetAcuity currently only supports IPv4 mapping. For the IPv4-derived locations for ASes in the AS-core graph of January 2008, we observed a westward shift in the number of overlapping nodes (hundreds). In the case of the IPv6 graph, which shows the graph edge, it better visualizes the ASes at the edge. We refined our node placement algorithm to spread out overlapping nodes. This modification avoids the position of ISP TelstraClear due to its increased presence (per NetAcuity's mapping) in Australia.

The IPv6 graph edge shows an increased position of TelstraClear due to its increased presence (per NetAcuity's mapping) in Australia. The AS-core graph of January 2008, we observed a westward shift in the number of overlapping nodes (hundreds). In the case of the IPv6 graph, which shows the graph edge, it better visualizes the ASes at the edge. We refined our node placement algorithm to spread out overlapping nodes. This modification avoids the position of ISP TelstraClear due to its increased presence (per NetAcuity's mapping) in Australia.

Calculating AS coordinates as described above results in a large number of overlapping nodes (hundreds). In the case of the IPv6 graph, which shows the graph edge, it better visualizes the ASes at the edge. We refined our node placement algorithm to spread out overlapping nodes. This modification avoids the position of ISP TelstraClear due to its increased presence (per NetAcuity's mapping) in Australia.