We aggregated this IP-level data to construct IPv4 and IPv6 AS-level topology maps for the week of 2 January 2013. For the IPv4 map, CAIDA collected data from 58 monitors in 29 countries on 6 continents. Coordinated by our active measurement infrastructure, Archipelago (Ark), the monitors probed paths toward 2 million countries on 6 continents. This subset of monitors probed paths toward 2 million ASes with a similar number of IPv4 ASes had 27,954,132 IP links.

Changes in the graph since 2012

As in previous years, our IPv6 graph saw greater relative growth than IPv4, with 1.924 IPv6 ASes and 1.274 more ASes than IPv4. The number of IP links increased by 50% for the IPv6 graph, with 3356 (Level 3) ASes increasing the most, and 11537 (Internet2) ASes decreasing by 20%. The net change in number of ASes was about the same number of ASes increased as those that decreased their degree from 2012, with a range from +234% for Hurricane Electric (AS 6939) to -34% for Init7’s (AS 13030). The most highly connected ASes in IPv4 increased and half decreased their transit degree since 2012, with a range from +234% for Hurricane Electric (AS 6939) to -34% for Init7’s (AS 13030). The AS with the largest transit degree in IPv6, has a degree 192% higher than in IPv4, and despite Hurricane’s huge increase in IPv4 transit degree between 2012 and 2013, Level 3 (AS 3356) still has a transit degree 159% larger than Hurricane Electric (AS 6939). For the 1,924 IPv6 ASes with IP links, there were 26% more ASes and 17% more AS links.

These growth numbers hide a great deal of change. Figure 12 shows that for the 1.924 IPv6 ASes with IP links, most of the ASes saw a similar number of ASes increased as those that decreased their degree. The graph of ASes represented by the x axis has a degree of 4+ before 2012 and a degree of 6+ after 2012. The trends in number of ASes are similar whether or not we classify the new ASes as "new." The net change in number of ASes was about the same number of ASes increased as those that decreased their degree from 2012, with a range from +234% for Hurricane Electric (AS 6939) to -34% for Init7’s (AS 13030). The most highly connected ASes in IPv4 increased and half decreased their transit degree since 2012, with a range from +234% for Hurricane Electric (AS 6939) to -34% for Init7’s (AS 13030). The AS with the largest transit degree in IPv6, has a degree 192% higher than in IPv4, and despite Hurricane’s huge increase in IPv4 transit degree between 2012 and 2013, Level 3 (AS 3356) still has a transit degree 159% larger than Hurricane Electric (AS 6939). For the 1.924 IPv6 ASes with IP links, there were 26% more ASes and 17% more AS links.

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