

DYN RESEARCH REPORT: A Baker's Dozen 2015 Edition



Dyn Research Report: A Baker's Dozen, 2015 Edition

As is our annual tradition, this blog provides a year-end review of how the Internet providers at the top of our [Internet Intelligence – Transit](#) global rankings fared over the previous year. The structure and performance of the Internet remains a huge blind spot for most enterprises, even those critically dependent on it for business operations. Whether it's the [next 3 billion people coming online](#), [poor performance due to suboptimal routing](#), impaired connectivity due to [natural disasters or sabotage](#), [slow DNS performance](#), [routing leaks](#), or security breaches of a trust-based Internet infrastructure, Dyn provides critical insight into the structure and performance of the Internet, both real-time and historical, via its [Internet Intelligence](#) product suite. More importantly, our services help our customers make the changes necessary to [optimize Internet availability, reliability, and reach](#) in a very dynamic environment.

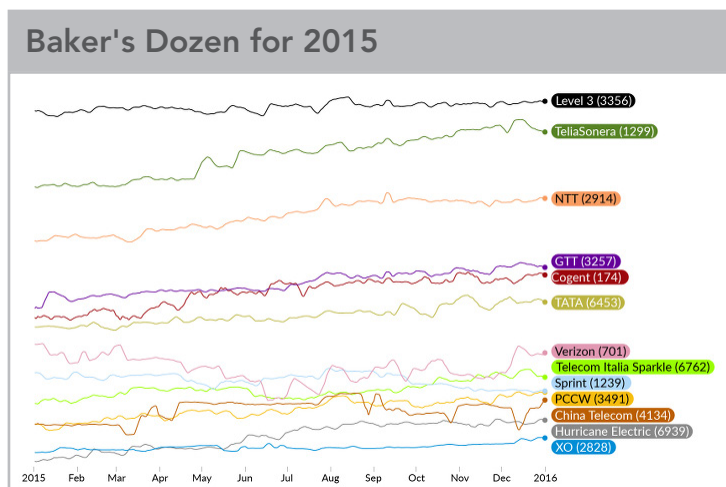
Back in [2008](#), we chose to look at the 13 providers that spent at least some time in the Top Ten that year, hence the name "[Baker's Dozen](#)". We repeated that exercise in [2009](#), [2010](#), [2011](#), [2012](#), [2013](#), and [2014](#). During the past 8 years, I've written each of these blogs and fully expected to have written my last entry on this topic, largely because these rankings cover such a very small slice of our data and we have many more interesting things to talk about relative to both Internet performance and security. So I thought I'd let this topic quietly fade away, but the requests for a 2015 edition have become too voluminous to ignore, although I make no promises about 2016! As in the past, I'll focus on global IPv4 rankings, given the lack of IPv6 adoption at the Internet's edge, where most IP space is allocated. Anyone wishing to explore our IPv6 rankings or further investigate our IPv4 rankings should subscribe to our [Internet Intelligence – Transit](#) product. This application provides full details of every AS on the global Internet, overall and by market, along with news events of interest concerning changes in transit and customer wins and losses.

Without further ado, then, let's highlight a few of the trends and changes we observed in 2015 relative to the top global Internet providers.

And the Winners are...

The above graph shows our global scores for the Baker's Dozen over the past year. As always, the absolute scores (computed from the [quantity of transited IP space](#)) are not meaningful in this context, so we omit the scale. At this high level, we see more or less steady growth for all of the players and some seemingly minor jockeying for position throughout 2015. However, our final annual rankings are anything but predictable, as 2015 saw some significant changes.

The biggest story of 2015 was the meteoric ascent of TeliaSonera (#2) as it challenged Level 3 for the #1 global ranking, a position Level 3 has held without interruption since the end of 2008. TeliaSonera actually surpassed Level 3 briefly in 2016 and is a fraction of a percent below them as of this writing, an achievement we never could have imagined. 2015 also saw very solid gains from NTT (#3), PCCW (#10) and Hurricane Electric (#12), while Verizon (#7) and Sprint (#9) continued their



multi-year decline. As we'll see below, in just 8 years, 5 of the original 13 Baker's Dozen have either ceased to exist as independent entities or have lost enough market share to eliminate them from this list of top-tier players.

To make more sense of the tangled graphic above and this year's changes, we'll divide up the players into three tiers and zoom in on each in turn.

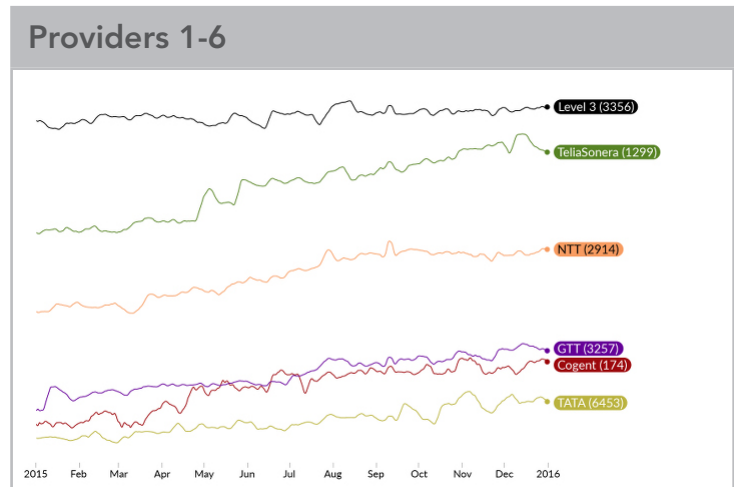
The Top of the Heap

Level 3 (AS3356) completed their acquisition of Global Crossing (AS3549) back in October of 2011. Over the intervening years, we continued to show them as separate entities, since their networks had not yet been fully merged. As Level 3 has integrated Global Crossing's old network into AS3356, Level 3's score by this AS-oriented metric has risen, as if it were acquiring new customers. If Global Crossing had remained an independent entity, it would have been #12 in 2014. At the time of this writing, it has fallen to #15 and, as predicted last year, has now disappeared entirely from our Baker's Dozen report. Despite the

relatively flat appearance of its score during 2015, Level 3's growth did increase by almost 10% relative to our metric, with big gains in transited prefixes from PCCW (AS3491) and its wide range of customers including China Mobile, Vietnam's Viettel, and Orange Egypt (Mobinil), formerly LINKdotNET. Level 3's score was hurt by the loss of customers such as Global Cloud Xchange (AS15412), a subsidiary of Reliance Communications, Taiwan's Digital United (AS4780), Turk Telekom (AS9121), and others. Turk Telekom moved away from Level 3 to NTT.

When we first wrote about the Level 3 merger with Global Crossing in early 2011, we called the new entity a "global colossus" and, as recently as last year, we said that "Level 3 probably has the #1 spot locked up for some time". But after a two-year tear by TeliaSonera (AS1299), the rising company closed out 2015 within striking range of the top spot. In fact, in early 2016, Level 3 and TeliaSonera have traded the #1 spot several times, with TeliaSonera just a fraction of a percent below Level 3 as of this writing. At this rate, TeliaSonera could easily exit the year as the undisputed #1 global Internet transit provider, a turn of events that seemed almost unimaginable back in 2011 when we stated that "the next five global providers would have to merge to rival the new Level 3's score!" TeliaSonera's gains were impressive and wide ranging with increases in transited prefixes from China Mobile (AS58453), South Korea's SK Broadband (AS9318, formerly Hanaro), Bell Canada (AS577) and Brazil's Oi (AS7738, formerly Telemar) to name just a few.

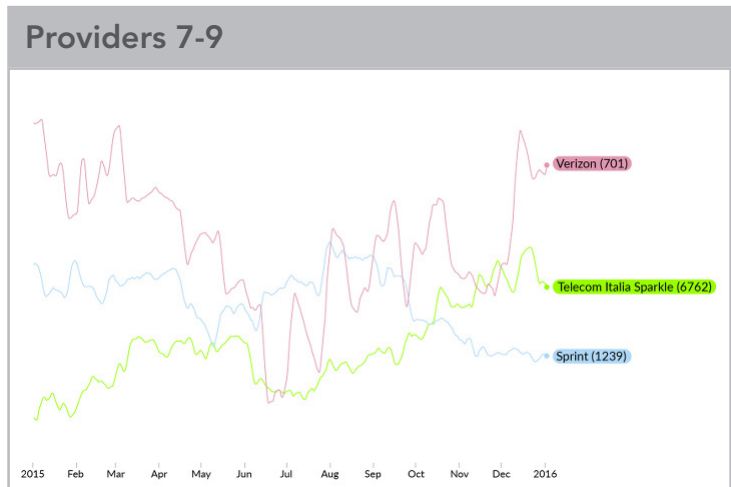
While early 2014 saw TeliaSonera and NTT (AS2914) battling it out for the #2 spot, NTT's growth, while very impressive, failed to keep up with TeliaSonera, leaving NTT the undisputed #3 by a wide margin from both those above and below it in the rankings. At the end of 2014, the providers in the next 3 spots after NTT were virtually indistinguishable, but 2015 saw this group begin to separate a bit. After steady gains all year, GTT and Cogent ended the year at #4 and #5 (respectively), but Cogent moved into the #4 position with a comfortable lead over GTT in early 2016. Tata (AS6543) experienced steady growth throughout the year, including a big win in transited prefixes from Canada's Telus (AS852), and ended the year ranked #6 globally.



A Muddled Middle

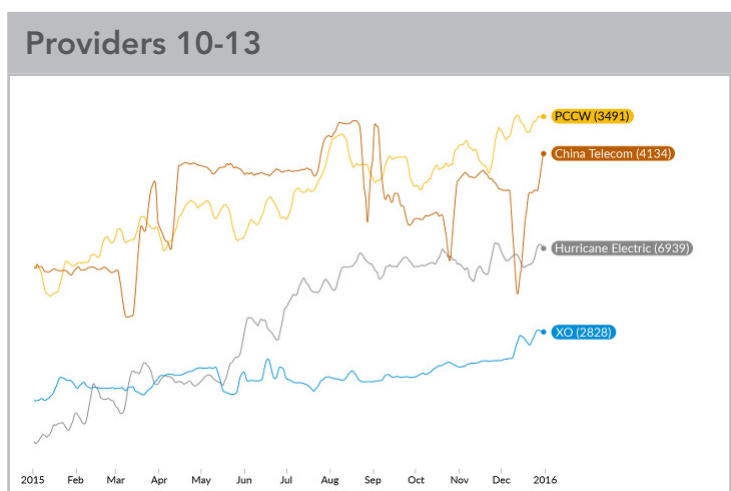
Verizon (AS701) started 2015 ranked #7 globally, only to dive bomb to #9 by mid-year and then climb back to #7 as 2015 came to a close. Some big customer losses included Time Warner (AS4323), which moved exclusively to Level 3, Korea Telecom (AS4766), China Mobile (AS58453) and Russia's Vimpelcom (AS3216). These losses were partially offset by increases in transit prefixes from SK Broadband, Road Runner (AS7843), Brazil's Embratel (AS4230), and China Unicom (AS4837).

Sprint started the year ranked #8, only to fall to #9 by year end. Throughout the year, it saw major reductions in transit prefixes from Taiwan's Chunghwa Telecom (AS9680) and Telstra Global (AS4637) to name a few. The losses for Sprint only continued into 2016, as their ranking now stands at #10. Telecom Italia Sparkle (AS6762) was the one relatively consistent performer in this group, moving up one spot during the year to #8. Major gains in transited prefixes came from Bharti Airtel (AS9498), Brazil's Tim Celular S.A. (AS26615), Hibernia (AS5580) and Pacnet (AS10026), while significant transit losses came from the CAT Telecom (AS4651, formerly Communications Authority of Thailand) and India's BSNL (AS9829).



Third Fiddle

The two consistent performers in this group were PCCW Global (AS3491) and Hurricane Electric (AS6939), exhibiting consistent and steady growth throughout 2015. PCCW, ending the year at #10, saw gains in transited prefixes from South Korea's Enterprise Networks (AS9848), South America's Uninet (AS28513), China Mobile (AS58453) and many others. Hurricane Electric (AS6939), moving up one spot to #12, saw gains in transit from Japan's Softbank (AS17676), Cox Communications (AS22773), Charter Communications (AS20115), Venezuela's GlobeNet (AS52320) and a wide range of other customers.



As we noted [last year](#), China Telecom's erratic rankings are due to the sometimes odd, incestuous routing it maintains with local competitors. In 2015, many of the huge swings in China Telecom's score were due to substantial changes in transited prefixes from competitor China Unicom. An increase in transited prefixes from China Educational and Research Network (AS4538) accounted for much of China Telecom's end-of-year surge. China Telecom is also looking abroad and [targeting the Brazilian and South African markets](#). The laggard in our third tier was XO, losing one spot to finish the year at #13. XO saw modest increases in transited prefixes from both Columbus Networks USA (AS23520) and ITC Deltacom (AS6983). XO's extensive footprint in the highly developed US market might account for its slower growth relative to its rivals. In early 2016, [Verizon announced it was buying XO's fiber network](#).

Conclusions

A lot has changed in the Internet transit market over the last eight years. Back in 2008, our rankings were dominated by traditional US carriers, many of which have exited the Baker's Dozen entirely or dropped significantly in their global rankings. In the early years of this blog, we talked about AT&T (AS7018), now ranked #21, Qwest (AS209), now CenturyLink and ranked #14, and Savvis (AS3561), owned by CenturyLink since 2011, but with an AS that is still ranked #34. Also during this time, Sprint fell from #1 to #10 and Verizon has tumbled from #3 to #7. Two bright spots for US carriers have been the rise of Cogent from the bottom of the Baker's Dozen to the #4 spot today and the dominance of Level 3, ranked #1 for years but now seriously threatened by TeliaSonera.

Other notable changes over this time period include the acquisition of Global Crossing by Level 3, as mentioned earlier. And we saw Tiscali's global network, #10 back in 2008, end up in the hands of GTT, vaulting GTT into our Baker's Dozen. Whew! That's an amazing amount of change in a short period of time in the upper rungs of a mature industry. But it is no longer the Western world, where the Internet is a ubiquitous commodity, that's driving the Internet's growth. Rather the battle for global Internet dominance will continue to play out in the underserved markets, such as Asia, South America and now Africa.

While providers like to advertise their annual Dyn ranking, these metrics are of little value if your ISP delivers poor performance to your target market. Tools like Dyn's Internet Intelligence – Transit show you who the players are in any given market, while Dyn's Internet Intelligence and Network keep an eye on their performance (and those of cloud and CDN providers) and the security of your own Internet assets. Because at the end of the day, reaching your customers effectively on the Internet is all about performance.

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