

StreamingMediaBlog.com - The business behind the technology of online video.



Dan Rayburn: EVP StreamingMedia.com, Principal Analyst, [Frost & Sullivan](#) | 917-523-4562 | [Email](#) |

Subscribe   

Here's How The Comcast & Netflix Deal Is Structured, With Data & Numbers

Dan Rayburn | Thursday February 27, 2014 | 12:14 PM | [73 Comments](#)

Like Tweet  Share

There's been a lot of speculation involving the business and technical details surrounding the recent deal between Comcast and Netflix and plenty of wrong numbers and information being used. I thought it would be helpful to detail what's really taking place behind the scenes, highlight some important publicly available data in the market, talk about the deal size, and debunk quite a few myths that people are spouting as facts. It's time we cut through a lot of the misconceptions of the deal, from both a business and technical level, and focus on what's really happening. This is a long post, but if you really want to know what's happening, I've tried to make it really detailed. [My first post on the deal can be found here: [Inside The Netflix/Comcast Deal and What The Media Is Getting Very Wrong](#)]

From a technical level, Netflix has their own servers that are sitting inside third-party colocation facilities in multiple locations. To connect Netflix's servers to ISPs, Netflix buys [transit](#) from multiple providers, which then connect their networks to the ISPs. Netflix pays the transit providers for those connections and with that, gets a certain level of capacity from the transit provider. While Cogent is one of the companies Netflix is buying transit from, they are not the only one. Netflix buys transit from multiple companies, including Cogent, Level 3, Tata, XO, Telia, and NTT, with Cogent and Level 3 being the primary providers. Transit providers like Cogent then connect their networks to ISPs like Comcast in what's called peering. This is where a lot of the confusion starts as many are under the impression that ISPs like Comcast are suppose to allow any transit provider to push an unlimited amount of traffic into their network without any compensation. This isn't a Comcast specific policy, but rather one that is standard for all ISPs.

ISPs have something called a peering policy (comcast.com/peering), which are rules that govern how networks connect with one another and exchange traffic. ISPs like Comcast will allow transit providers like Cogent to connect to their network, for free, in what's called settlement-free peering. However, once the transit provider sends more traffic to the ISP than they are allowed to, per the ISP's peering policy, the transit provider pays the ISP for more capacity to get additional traffic into their network. Remember, Netflix is the one paying Cogent and Cogent is selling Netflix on the principle that it can get all of Netflix's traffic into an ISP like Comcast. As a result, Cogent has to take all the necessary business steps to make sure Cogent has enough capacity to pass Netflix's traffic on from Cogent's network to Comcast. But Cogent isn't doing that.

The reason for the poor quality streaming is that Cogent refuses to pay Comcast to add more capacity, even though Cogent is taking Netflix's money for the service. Cogent is charging Netflix for a service it can't deliver. Some are arguing that Comcast should be the one to pay to upgrade that connection with Cogent since Comcast charges consumers to get access to the Internet and is double dipping by charging both the consumer and the content owner. In reality, they aren't. Netflix does not need to go direct to Comcast and pay them anything, they chose to because they could not get the level of service they were paying Cogent for directly. Netflix has also decided it makes more business sense for them to build their own CDN instead of relying 100% on third party CDNs (cdnlist.com) like they used to.

You will notice that when Netflix was using third party CDN providers Akamai, Level 3 and Limelight for 100% of their video delivery, there were no quality issues. Just look at their speed ratings from 2012. The reason for this is that those CDNs already have their servers connected to ISPs like Comcast and have put in place all the necessary links, both free and paid, to guarantee, via an SLA, that they can deliver Netflix's video. So for all the people who say that Comcast forced Netflix into paying or is strong arming them, that is not true. Netflix has multiple options in the market for delivering good quality video, but Netflix chose to build their own CDN and change their delivery strategy because they want to have more control over it and save money. [Netflix's streaming quality is based on business decisions](#), that's it.

In a little known, but public fact, anyone who is on Comcast and using Apple TV to stream Netflix wasn't having quality problems. The reason for this is that Netflix is using Level 3 and Limelight to stream their content specifically to the Apple TV device. What this shows is that Netflix is the one that decides and controls how they get their content to each device and whether they do it via their own servers or a third party. Netflix decides which third party CDNs to use and when Netflix uses their own CDN, they decide whom to buy transit from, with what capacity, in what locations and how many connections they buy, from the transit provider. Netflix is the one in control of this, not Comcast or any ISP.

As a result, this also shoots down all the arguments where people are saying that this deal is bad because streaming services that aren't as big as Netflix won't be able to cut the same direct deal with Comcast. Why would they? They don't need to connect directly to Comcast as they don't have enough traffic for it to make sense and haven't built out their own CDN. All they have to do is use a third party CDN provider to be able to get their content to the ISP with excellent quality, guaranteed with an SLA by the CDN. Nearly every single content owner today outside of Netflix, Google, Microsoft, Yahoo, AOL, Amazon and a few others all use third party CDNs for video delivery. Pick any major broadcaster, sports league, Hulu etc. they all use third party CDNs as they are cheap and back up their service with a guarantee. It works really well.

Now that Netflix has a deal direct with Comcast, here's how it will work. Netflix's servers that are sitting in third party data centers connect to Comcast's network, which is also in the building, via a cross connect that Netflix buys from the co-lo facility provider. While I have heard people say that Netflix will need thousands of physical interconnects into Comcast's network, that's not accurate. Comcast has a total of 18 national locations (public info) and Netflix and Comcast will initially connect in about 10 of those locations to start. Out of those 10 locations, Netflix will need 300+ 10GigE ports. Netflix gets a guaranteed level of service from Comcast but as the two companies have announced, Netflix does not get any prioritization in the last mile. This is also where many are getting confused. Some are saying that Netflix is now getting "guaranteed delivery through the last mile", but that's not true. That would be paid prioritization, which Comcast cannot do and does not offer.

Moving on to the deal size, I've seen all kinds of crazy numbers put out there, with many saying Netflix will spend \$25M-\$50M a year with Comcast. Some even reported that Comcast was asking Netflix to pay \$400M, based on a report put out by Wedbush Securities, which I will get to in a moment. While I do have a lot of sources and am privy to a lot of details others aren't, there is plenty of public and easily accessible data that

allows you to get a good estimate on the size of this deal and debunk the numbers being reported. For starters, no one has reported how much traffic Netflix is actually sending into Comcast's network and you need to know that before you can discuss the size of the deal. Without doing that math first, any dollar signs attached to this deal are pure guesses.

In 2012, Comcast said they were carrying 4 Tbps of traffic and with the current Internet growth rates, one could easily extrapolate that Comcast's network is now at 8 Tbps. Based on Sandvine's data that says Netflix account for 1/3 of traffic, Netflix would need about 3 Tbps of capacity from Comcast today, with that number growing. The way these deals are priced is on a per Mbps sustained model, also known as 95/5 or 95th percentile. Wedbush Securities put out a report that ran numbers based on a per GB delivered model, not per Mbps sustained, saying "Comcast likely sought as much as \$0.01/GB transmitted".

They then estimated that each of Netflix's 33M U.S. subscribers consume 100 GB of data per month and came up with a total of 3.3B GB of data delivery per month, saying "Netflix would be required to pay approximately \$400M per year." While Wedbush's numbers are wrong and aren't using the per Mbps sustained model, the number they gave out was for all of Netflix's delivery, across all ISPs, not just Comcast's. However, the media didn't read it right and went with the idea that Comcast was asking Netflix for \$400M, which is sloppy reporting. Once one media outlet said it, many never second guessed the number and started re-quoting it. In the end, Wedbush said they "estimate that Comcast will charge Netflix between \$25M-\$50M annually", which still isn't right and they provide no methodology of how they came up with that range. I provide methodology below to show it's not accurate.

What no one seems to have noticed is that Comcast has previously stated that less than .1% of their total revenue came from these kind of commercial interconnect relationships in 2013. That means that for all of last year, Comcast got paid between \$30M-\$60M, which included all of the similar deals they have with Google, AOL and others. So the idea that Netflix would be larger than all of those deals combined, makes no sense. If you want to get a sense, not an exact number, but an idea of what Netflix is paying use transit pricing.

I laugh when I see all of these "save the internet" people saying these deals are bad as they are clouded in secrecy and no one knows what's really taking place. When we know how much traffic Netflix has and we know the average going rate of transit, both public numbers, you can estimate what Netflix's cost is. That said, keep in mind a few things. Transit pricing is higher than what Netflix pays Comcast as wholesale is cheaper than transit. Also, Netflix is not the "average" customer and their contract clearly has to have a lot of variables in it, with lots of sliding scale pricing, and different ways to measure it, since the volume of their traffic increases so quickly.

So with those caveats, some of the lowest transit pricing I have seen, [which I have previously published here](#), is around \$.50 per Mbps. If Netflix needs 3 Tbps of capacity from Comcast to start, that would cost Netflix \$1.5M per month. But, and this is a big one, Netflix isn't the average customer. Their price will be special and they have a multi-year contract and a lot of variables. So to get a "rough estimate" of what this deal costs Netflix, simply pick whatever per Mbps price you want and multiply it times 3 Tbps. Some will pick a higher number, some lower. If you pick a number a bit lower than \$0.50, this deal would cost Netflix about \$12M per year. But run the numbers yourself using whatever variable you want, now that I have outlined how much capacity Netflix needs.

I have seen people suggest that Comcast will pull a bait-and-switch on Netflix and raise rates or not deliver good quality video now that they have them locked in a contract. That's a lame argument as Netflix isn't a bunch of dummies, they are anything but. It's the whole reason why Netflix signed a multi-year deal and, this is really important to note, Netflix is getting an install SLA, packet loss SLA and latency SLA from Comcast,

which guarantees quality. This is very different from what Netflix was getting from Cogent because Comcast is providing fully dedicated capacity, unlike sending it through someone like Cogent where those connections are potentially over-subscribed if a transit provider over-sells their capacity, which Cogent has a history of doing.

To date, Cogent has had peering disputes with AOL, Teleglobe, France Telecom, Level 3, TeliaSonera, Sprint-Nextel and Verizon. I find it interesting no one in the press mentioned how Cogent always seems to be the one major transit provider who continues to have disputes with so many other network providers, year after year.

A few weeks ago there were all these viral Internet reports of Comcast throttling Netflix content, supposedly backed-up by experiments where somebody would stream Netflix at home on Comcast and get a lower bitrate. Then they'd run that same stream through a VPN (which connects to a different ISP) and get a different and better bit-rate and stream quality. It was the smoking gun gotcha for a lot of folks and 100% sure-fire proof of throttling to some, even though Netflix's own CEO publicly denied ISPs were throttling. What was happening in the VPN experiment backs-up my earlier points that Netflix was making these networking and performance decisions based on ISP and other factors.

Also, let's play out what might have happened if Comcast gave Cogent all the capacity it wanted for free. Does that mean Netflix would work well into perpetuity and everyone would be happy? No. Netflix switches providers quite frequently. What if Netflix then moved traffic to NTT and Telia, we'd be back where we started, as those providers would then need all the capacity they wanted on Comcast. What if Netflix started making other traffic shifts to extract greater concessions from ISPs and transit vendors? Fortunately we're now past that with this Netflix and Comcast deal, but instead of seeing the benefit here to Netflix's customers, the picture is clouded with far-fetched negatives. The winner in the whole deal is you and me, the consumer. We get better quality video and Netflix gets a cheaper cost over time to deliver the stream to us, which keeps them from having to raise the price of our subscription to give us better quality.

Now all of this aside, I get that many people don't think the proposed Comcast and TWC cable merger is good for consumers, that cable TV providers raise their rates every year and that Net Neutrality is something that needs to be watched. Those are all valid concerns to debate. However, don't use the deal between Netflix and Comcast as ammunition in those arguments as it's not relevant. If you have further questions about the deal, put them in the comments section and I will try to answer them if I can. I know this is a touchy subject for many, but be professional. Lively debates are welcomed but comments that use foul language will be removed. Also for those that have asked, I do not have Comcast as my ISP, I have Verizon FiOS as I live in the NYC area.

Filed in [Content Delivery](#) | [Permalink](#) | [73 Comments](#)

Related Posts

- [Inside The Netflix/Comcast Deal and What The Media Is Getting Very Wrong](#)
- [Netflix's Streaming Quality Is Based On Business Decisions by Netflix & ISPs, Not Net Neutrality](#)
- [Netflix's Recent CDN Deal With Level 3 Is Not An Indication Of New Pricing Declines](#)
- [How Transit Works, What It Costs & Why It's So Important](#)
- [Comcast Says Their Dispute With Level 3 Is "Not About Online Video" – Yeah Right](#)

[« Roku Has Shipped Nearly 8 Million Devices, Average User Streams 13 Hours Per Week](#)
[Tuesday Webinar: Streaming the Olympics, A Case Study In Moving Media Processing To The Cloud »](#)

73 Comments [StreamingMediaBlog.com](#)

 Login ▾