May 17, 2021

Ok Charter/Spectrum, it is Time to Cut the Shit!

(The accompanying Excel spreadsheet shows that only 70 Tests Out Of 600 (12%) Reach the Advertised Speed of the Charter/Spectrum Internet Ultra 400mbps Network Connection)

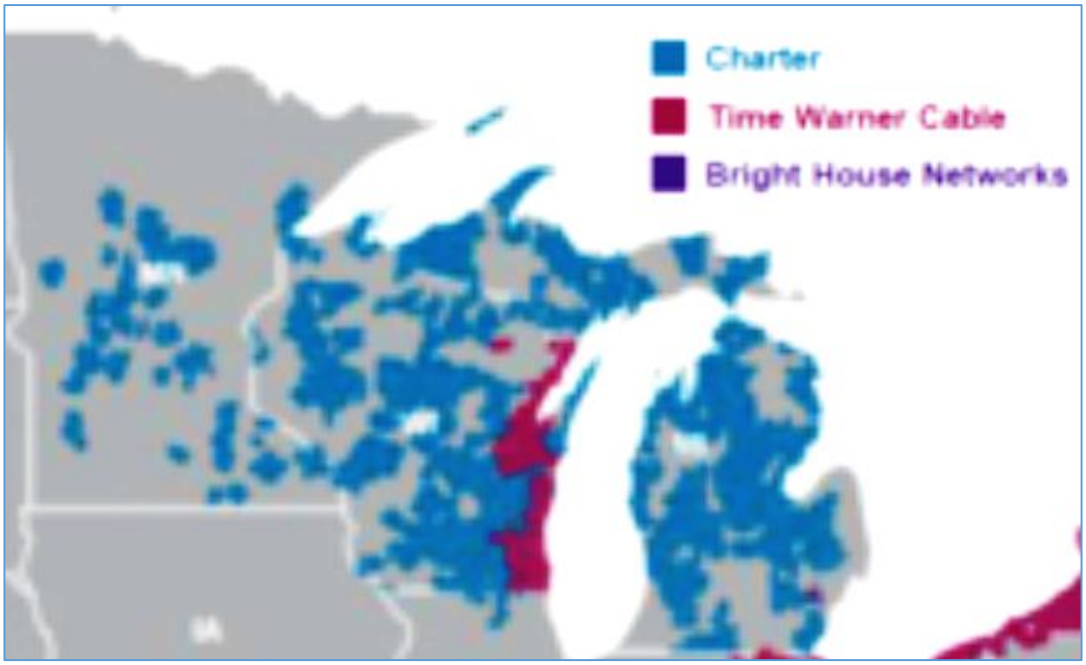
Let us begin here anew with a quote from a well-informed Internet Service Provider or ISP, who has been in business for decades shall we? When surveyed and who when shown a copy of my tracert to Spectrum.com said the following:

"Spectrum currently has two networks in Wisconsin. The old legacy Time Warner Cable, or TWC network and then they have a new Spectrum network for all of the NEW areas in Wisconsin they have built out. **From your geographical location, this new network takes your traffic the long way around the Spectrum Intranet network and through the Charter network to get you to the real Internet."**

As you can see it takes 14 hops to get there.

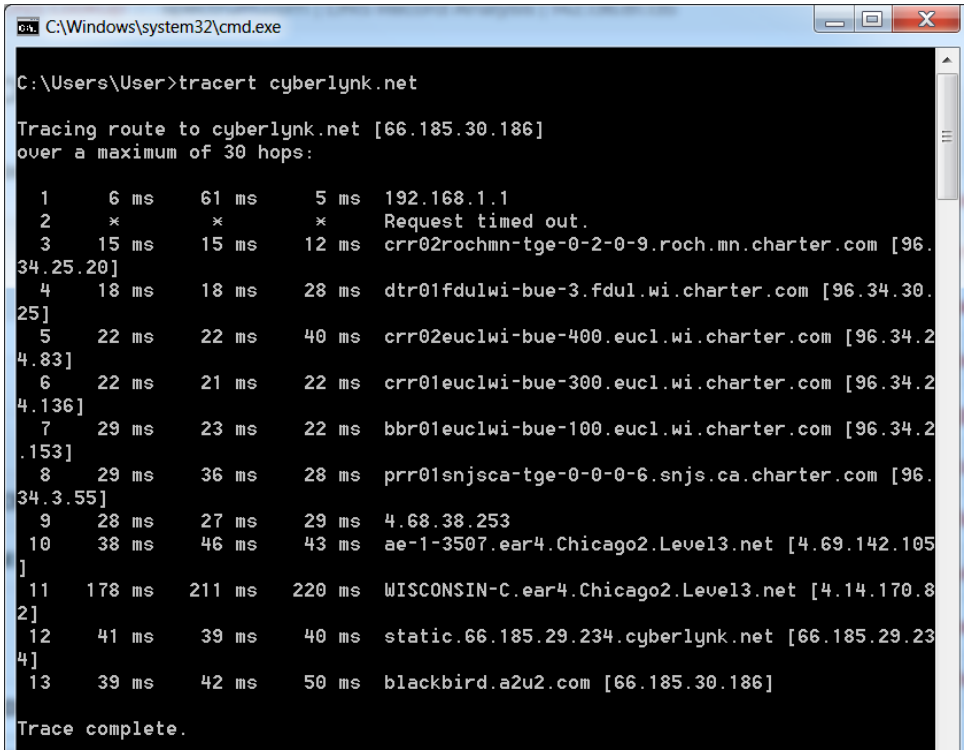
Trace route to spectrum.com 142.136.168.58
96.34.23.212 Fitchburg Wisconsin
96.34.30.25 Wausau Wisconsin
96.34.24.83 Eau Claire Wisconsin
96.34.24.136 Eau Claire Wisconsin
96.34.2.153 Riverside California
96.34.0.7 Ashburn Virginia
96.34.0.9 Ashburn Virginia
66.109.1.18 Chicago Illinois
66.109.6.21 Chicago Heights Illinois
66.109.10.99 San Jose California
66.109.10.93 San Jose California
66.109.6.245 Atlanta Georgia
165.237.51.245 Greenwood Village Colorado
165.237.4.131 San Jose California

Note: Geo locations from https://www.iplocation.net/ip-lookup



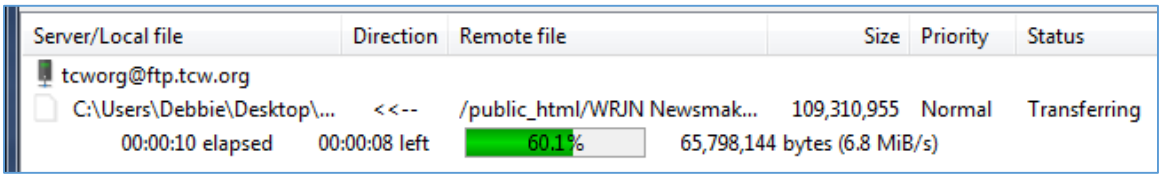
https://www.computerworld.com/article/2926226/charter-time-warner-deal-would-get-tough-regulatory-scrutiny.html

A tracert from my computers to my hosted website for example, goes something like from Two Rivers to Fitchburg, Eau Claire, Wausau, LA, Dallas, Chicago, and then finally to Franklin. This appears to also prove out the above quote.



Or how about another quote from another ISP?

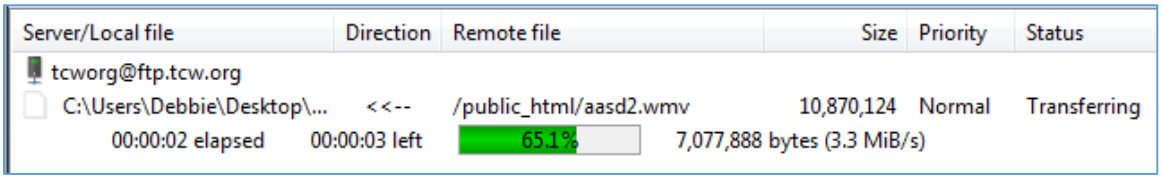
"We have no good way of knowing if traffic is being throttled somewhere or by who. All we have to go off of is from my desk the speeds are 600-900Mbps for FTP transfers and we are not hearing complaints from other customers."



FileZilla 57Mbps

Or maybe one more quote:

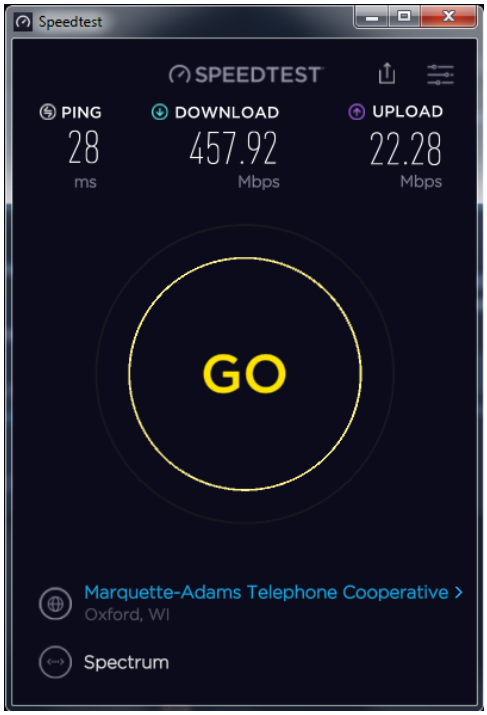
"As for the FTP speeds, there is not much we can do on the uploads/downloads from your location. If there was a problem with the server or our datacenter network or with any of our five Internet connections, we would have thousands of customers complaining about speed issues."



FileZilla 28Mbps

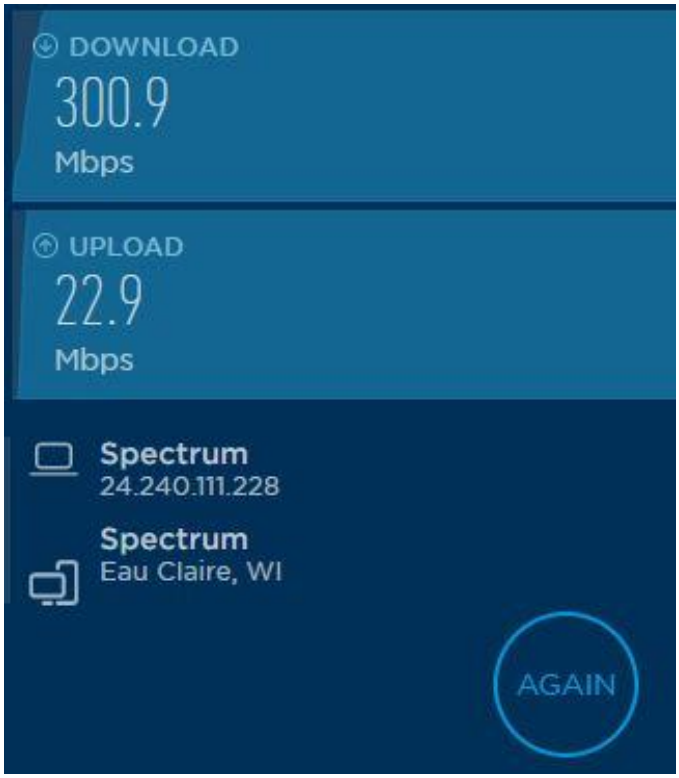
With regard to https connections:

On a wired 1000Mbps Ethernet connection, if you use a misleading speed test and do not venture too far (100 miles) from home:



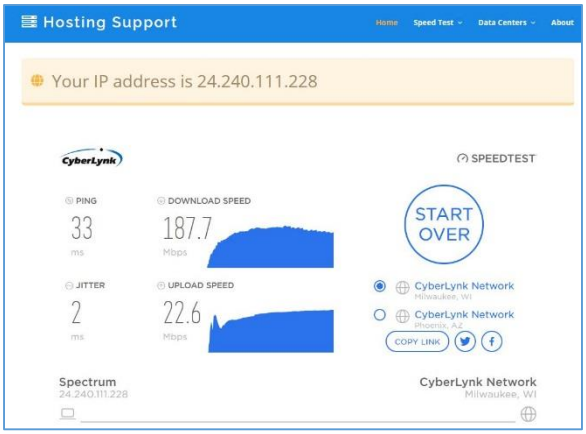
You will get something like this:

If your packets venture out towards the edge (200 miles) of the Spectrum Intranet:



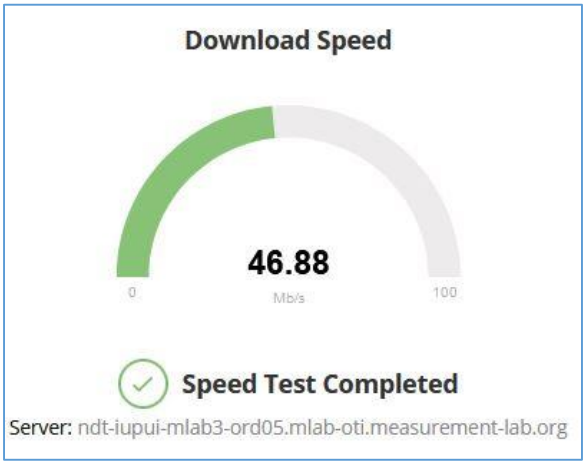
You start to lose your speed.

Then if you ping pong around the Charter/Spectrum Intranet to the actual Internet *going around the horn* as shown in the tracert, and then do a speed test at my Franklin website provider, hostingsupport.io, it shows:



This is gives you more of a "real world" Internet speed test.

Then when your packets were passing through Chicago, and they wanted to stop and test Charter there, you will get something like this:



https://broadbandnow.com/Charter-Communications-speed-test

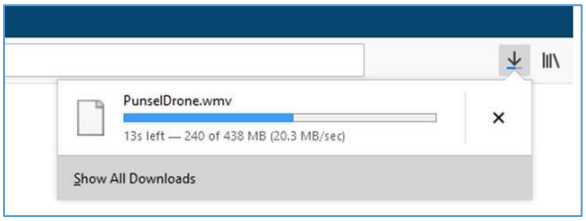
So in the real world of computer Internet users, you may be working with about ten percent of Spectrum's advertised speed. I could not care less about what the Millennial's are doing with their *dumb terminal* phones.

If you recall this all started for me with an upgrade to what I thought was a faster service, because my streaming video would not consistently provide HD quality, and continued with me buying a new router to replace what the technicians called the "stuck" one that I had. Come to find out that neither the service upgrade nor the router improved my speed. It continued with me pounding at Spectrum with emails, stories, lyrics, a song, and data for over two months, five site visits by 8 technicians, currently ending up at the VP level and with a conversation with a Network Engineer.

So your VP offers platitudes like they only say "UP TO" 400Mbps speed, and that I should connect to their modem rather than my router for testing, which is where we started with all of this almost three months ago.

You network engineer can only offer even more platitudes like making sure no one else in our two person senior citizen house is using the Internet while I am testing or downloading. Or offering that if I am getting 160Mbps to my website (less than half of advertised) it is truly remarkable considering that he and I started at 2400bps thirty years ago (6,666,570% increase). I personally think that what really ***is*** remarkable and more useful is my computers going from a 4Mhz to a 4Ghz processor (100,000% increase) in that same time frame. He also tried to distract and appease me by letting me know that his own Comcast 600Mbps service tests out at around 300Mbps at most and he cannot reliably play streaming Disney movies, which need a whopping 6 or so Mbps, during high use times like weekend evenings.

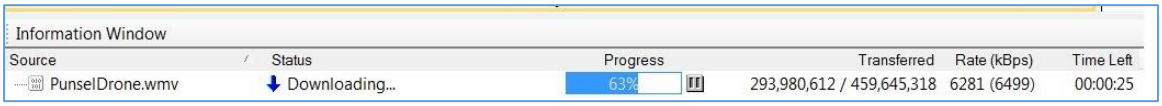
So the message given here is be grateful for what you have, it could be worse, and we will cut your monthly price in half to reflect the half our promise you are actually getting. This pretty much confirms that my data is correct.



Firefox 88.0 HTTPS 162.4Mbps

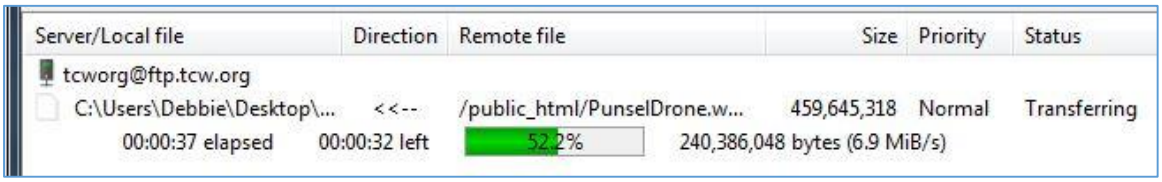
For the sake of fairness, here are some examples of some contradictory quotes from other ISP's:
Answer One: "you're not rate limited etc….any speed issues are on your end (sorry)"
Answer Two: "We have software on the hosting servers so one customer cannot use up all of the resources and hurt other customers."

Answer One: "I'm sorry, but you're just not going to see the same speeds from the web server that you'll see from the speed test. The web server is not optimized for downloading files of the size of your movie as that's not the typical use case for clients." "If there was a problem with the server or our network we would have thousands of customers complaining about speed issues."



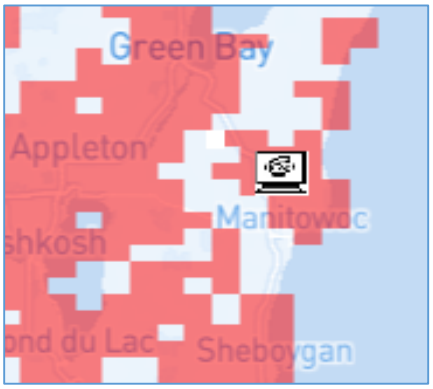
WS_FTP 6.5Mbps

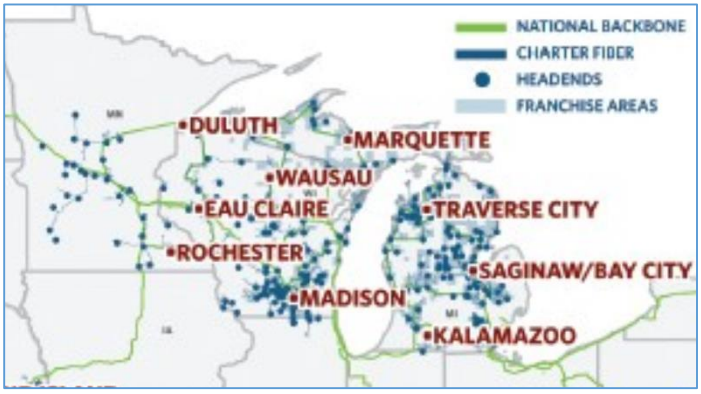
Answer Two: "All we have to go off of is from my desk the speeds are 600-900Mbps for FTP uploads/downloads and we are not hearing complaints from other customers."



FTP FileZilla 58Mbp

Your VP says that Spectrum cannot control my speed ON the Internet, and I agree, but you CAN via your routing arrangements control my speed TO the Internet.
After all, I am not paying you for super-fast access 100 miles west to Oxford or even 200 miles west to Eau Claire. I have no business to those places. What I am paying for is super-fast access to my website 100 miles south to Franklin/Milwaukee and TO the Global Internet 200 miles south at the Chicago IXP, neither of which I currently have. Nor do I have direct access 100 miles south to the Milwaukee IXP, 150 miles southwest to the Madison IXP, or 300 miles northwest to the Minneapolis IXP.





I appear to be on a bit of a red island here, and I am not sure where the portage to the backbone is.
https://broadbandnow.com/Charter-Communications telecomramblings.com

Internet Transit

Since the Internet is a network of networks, to be connected to the Internet, any entity must attach itself to another entity that is already connected to the Internet. This is usually accomplished by purchasing a service called "Internet Transit." Internet Transit is the business relationship whereby an Internet Service Provider or ISP, sells access to the global Internet. Internet Transit is often a large component of the cost of operating an Internet service.

Think of the vast U.S. interconnected highway systems of Interstate, State, County, and Town roads that connect cities large and small across the United States. That complexity is similar to the information highway that makes up the backbone of the Internet (Interstate), except that instead of the government owning all of it, many entities do and are left to sort out all of the rules of these connections. These entities are called Internet service providers or ISP's.

This type of multi-faceted shared system means negotiation is key. These ISPs organize themselves into Tiers. Each tier corresponds to the level of IP Network Access.

The U.S. Internet Region Tier 1 ISPs

1. AT&T
2. Verizon
3. Sprint (Softbank Broadband)
4. Century Link (Qwest)
5. Level 3 (Global Crossing)
6. NTT/Verio

Upper Midwest six Tier 1 ISP's (1 of 8 US interconnect regions)

A Tier 2 network is an Internet service provider that engages in the practice of peering with other networks, but which also purchases IP transit to reach some portion of the Internet. Tier 2 providers are the most common Internet service providers, as it is much easier to purchase transit from a Tier 1 network than to peer with them and attempt to become a Tier 1 carrier.

Tier-2 Carriers include:

- Comcast
- Cox Communications
- CTS Telecom
- Charter Communications

Tier 3 is used to describe networks who solely purchase IP transit from other networks to reach the Internet.

Wisconsin Tier-3 carriers include:

- Cyberlynk
- Frontier Communications DSL/fiber (leased Verizon and AT&T lines)
- TDS Telecom DSL/fiber (leased AT&T lines)
- HierComm Networks, LLC (wireless broadband)
- Netwurx (wireless broadband)

When you hear people talk about net neutrality, this is why. Tier-3 carriers are usually last mile providers, meaning they connect consumers to the Internet without a network of their own, servicing only the connection leading into your home or office. Content providers have little control over this part. As such, tier 3 ISP networks can be artificial congested, poorly maintained, or throttled.

Peering Agreements

Peering provides a more direct traffic path between the parties while reducing the load on these expensive transit services. Since peering is a nontransitive relationship, Internet Peering is not a perfect substitute for Internet Transit.

Internet Transit is a service that provides access to the global Internet, while Internet Peering simply provides a more direct path for a subset of the traffic.

Internet Peering is typically settlement-free, with each side deriving about the same value from the reciprocal arrangement. If either party perceives that the benefit derived from peering is asymmetric, one party or the other may deny peering or suggest an alternative paid arrangement.

If the cost of exchanging traffic in peering relationships is less than the cost of sending that traffic through a transit service, then peering can be a financially rational decision. Peering makes sense when it is cheaper to send traffic to peers than though a transit provider. *This is also, where the quality of the service provided (QOS) could degrade due to cost concerns and prioritization of convenience over performance.*

Transit usually provides a more circuitous path than peering – a path through potentially many networks. It is not uncommon to find more than 30 router hops from eyeballs to content.

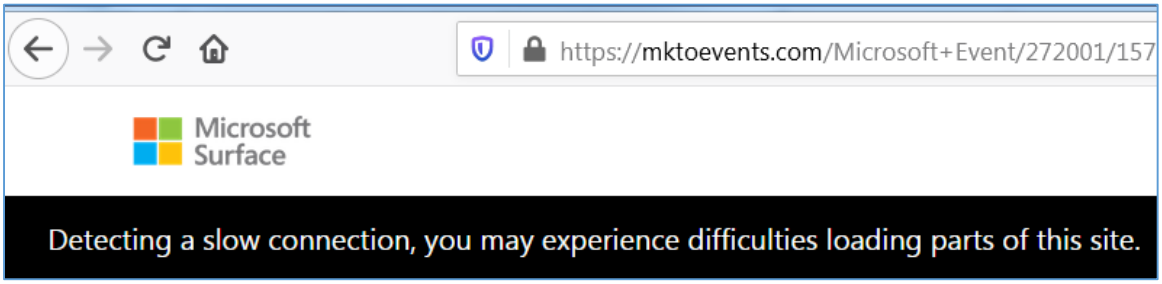
However, the primary motivation for these ISPs is to own the home market and not make it easy for other ISP's to build in to their home market and compete with them.

The cost of peering at an IXP usually involves: Transport fees (unmetered) for getting the traffic to the exchange point (IXP), Colocation fees, Equipment expenses plus the Peering port fees on the exchange point shared fabric.

References: *The 2014 Internet Peering Playbook: Connecting to the Core of the Internet © 2014 by William B. Norton and published by DrPeering Press*

https://www.ctstelecom.com/the-three-tiers-of-isps-what-they-mean-why-theyre-important/

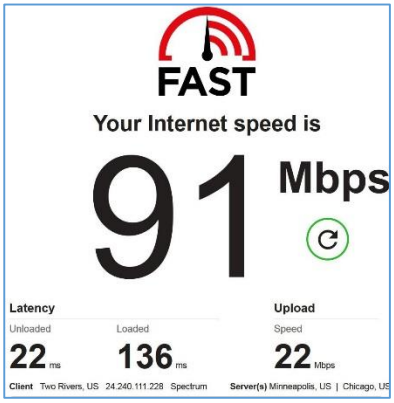
https://drpeering.net/FAQ/Who-are-the-Tier-1-ISPs.php



This is not something I like to see too often, but this is my real world.

I continue to get video and audio stuttering on Amazon Prime Video that uses 15.2Mbps in Best video quality mode.

And this from Netflix:



I just want Spectrum to get me from their Tier 2 Intranet to the Intestate/Internet backbone where the speed limit of my vehicle/packets is 75Mph or in this case 400Mbps. Imagine our highway system being setup where the further you get from home the lower the speed limit drops. This is what I and an unknown number of NE Wisconsin Spectrum customers have now.

If I connect to one of the Spectrum **Intranet** *beauty contest* speed test sites, I can get a speed reading of 459Mbps. If I then turn on a software VPN and go to the same site via a VPN server residing on the **Chicago Internet backbone***, I get a reading of 129Mbps. This is speed drop is not fully a result of the VPN encryption overhead, nor the speed or bandwidth of the VPN server, but is mostly related (see spreadsheet data) to connecting to this test site via the Internet rather than the Spectrum *Intranet*.

***** 212.102.59.224 DataCamp Limited, https://datacamp.co.uk/,with a 30Tbps plus Global Network.

C:\Users\User>tracert 212.102.59.224
Tracing route over a maximum of 30 hops:

1	16 ms	16 ms	16 ms	192.168.1.1
2	*	*	*	Request timed out.
3	24 ms	24 ms	25 ms	096-034-023-212.biz.spectrum.com [96.34.23.212]
4	28 ms	27 ms	28 ms	dtr01fdulwi-bue-3.fdul.wi.charter.com [96.34.30.25]
5	32 ms	33 ms	32 ms	crr02euclwi-bue-400.eucl.wi.charter.com [96.34.24.83]
6	40 ms	41 ms	41 ms	096-034-022-143.biz.spectrum.com [96.34.22.143]
7	44 ms	43 ms	40 ms	crr02stcdmn-tge-0-1-0-7.stcd.mn.charter.com [96.34.26.36]
8	47 ms	46 ms	46 ms	bbr02slidla-tge-0-1-0-6.slid.la.charter.com [96.34.1.188]
9	62 ms	63 ms	62 ms	bbr02chcgil-bue-1.chcg.il.charter.com [96.34.1.149]
10	57 ms	57 ms	57 ms	bbr02chcgil-bue-5.chcg.il.charter.com [96.34.3.123]
11	56 ms	56 ms	57 ms	charter-chi.cdn77.com [84.17.32.134]
12	55 ms	55 ms	55 ms	unassigned.cdn77.com [185.229.188.48]
13	56 ms	58 ms	56 ms	unassigned.cdn77.com [185.229.188.87]
14	60 ms	65 ms	63 ms	unn-212-102-59-224.cdn77.com [212.102.59.224]

Trace complete.
I do not know how or where I get to the Internet backbone, so I cannot do a speed test to that point.

What this means in real life terms is that I get poor download and upload speeds to my web hosting site, to the Internet in general, and I cannot decently run a VPN. This is because I do not really have an Internet backbone connection, but rather a Spectrum Intranet connect that eventually meanders around and connects to the Internet somewhere and somehow. This also means me not being able to consistently stream HD movies from Netflix and Prime Video.

So in the end, Internet access is not about Spectrum Internet Ultra's speed to a *beauty contest* test site. It is really about how much of the Internet bandwidth Spectrum will allow me to have access to. They are the gatekeepers who determine how much bandwidth (and perhaps content) of this now truly public utility, I am allowed to access. This seems to be directly at odds with the way our public utilities governed by the PSC generally operate.

So "Up to 400Mbps" can now join the list of other infamous disclaimers:
"Some settling of contents may occur during shipment."
"Your mileage may vary."
"Objects in the mirror may be closer than they appear."
"Terms and conditions are subject to change without notice."
"Allow 4 to 6 weeks for delivery."
"Your system administrator may have disabled some of the program's options."
And the all-time favorite: "batteries not included."


Everything Is Broken.mp3

PS. I think Bob Dylan summed it up pretty well.

PPS. Oh, and now you are helping to break it…for your profits.

By David McCabe The New York Times
May 6, 2021Updated 1:58 p.m. ET
Internet service providers funded an effort that yielded millions of fake comments supporting the Federal Communications Commission's repeal of so-called net neutrality rules in 2017, the New York attorney general said on Thursday.
Internet providers, working through a group called Broadband for America, spent $4.2 million on the project, the attorney general said. The effort generated roughly nine million comments to the agency and letters to Congress backing the rollback, almost all of which were signed by people who had never agreed to the use of their names on such comments, according to the investigation. Some of the names had instead been obtained earlier, in other marketing efforts, and were then used to submit comments, officials said. The agency approved the repeal in late 2017.
Broadband for America's members include some of America's most prominent internet providers, like AT&T, Comcast and ***Charter****, as well as several trade groups representing the industry.*
Broadband for America, AT&T, Charter, and Comcast did not immediately respond to requests for comment.

https://www.nytimes.com/2021/05/06/technology/internet-providers-fake-comments-net-neutrality-new-york.html?link_id=5&can_id=fc43a50924502a3e547a3ad5d166f0f6&source=email-breaking-big-cables-fraudulent-comments-2&email_referrer=email_1167660&email_subject=fraud

PPS. This is as tone deaf, unethical, and immoral as Bezos building new twin yachts, while most people suffer because of the pandemic and unbridled capitalism. At the going rate of $50k per mile, this pay raise alone would bring fiber to my house and to 600 other people. It is funny how shareholder return on investment is a concern when investing in rural broadband, but not when it comes to CEO pay.

Charter CEO Tom Rutledge's Pay Rises to $38.8 Million in 2020

The exec's compensation at the U.S. cable and Internet giant rose sharply from $8.74 million in 2019.

https://www.hollywoodreporter.com/business/business-news/charter-ceo-tom-rutledges-pay-rises-to-38-8-million-in-2020-4146926/