

Summary for those of you new to this newsletter:

I am working on a project on Internet [and local network] monitoring, and have a small device [raspberry pi] which I can deploy to perform this service. I have 23 "guinea pigs" deployed. I initially targeted the service to users on the mountain in Jasper GA (windstream ISP), but it is applicable universally, and I have "customers" across the country on Windstream, ATT, Spectrum, Comcast, CenturyLink, and several other ISPs. It spans all access technologies from ADSL, VDSL, WADSL, cable and fiber.

Let me know if you interested. OR.... preferably, you can purchase a raspberry pi 3B or 3B+ and I can share you a microSD image! All you have to do is burn the image [or I can do it for you and send it to you!], insert in the pi and plug it into your network! Nerds might be interested in this alternative. You will get LOTS of info about your network!! Here is a pi you can order:

https://www.amazon.com/gp/product/B07BLRSKBV/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&psc=1

As usual, **I am extremely grateful for the use of your ISP connection to develop this service across many ISPs.** It has been invaluable, and much fun.

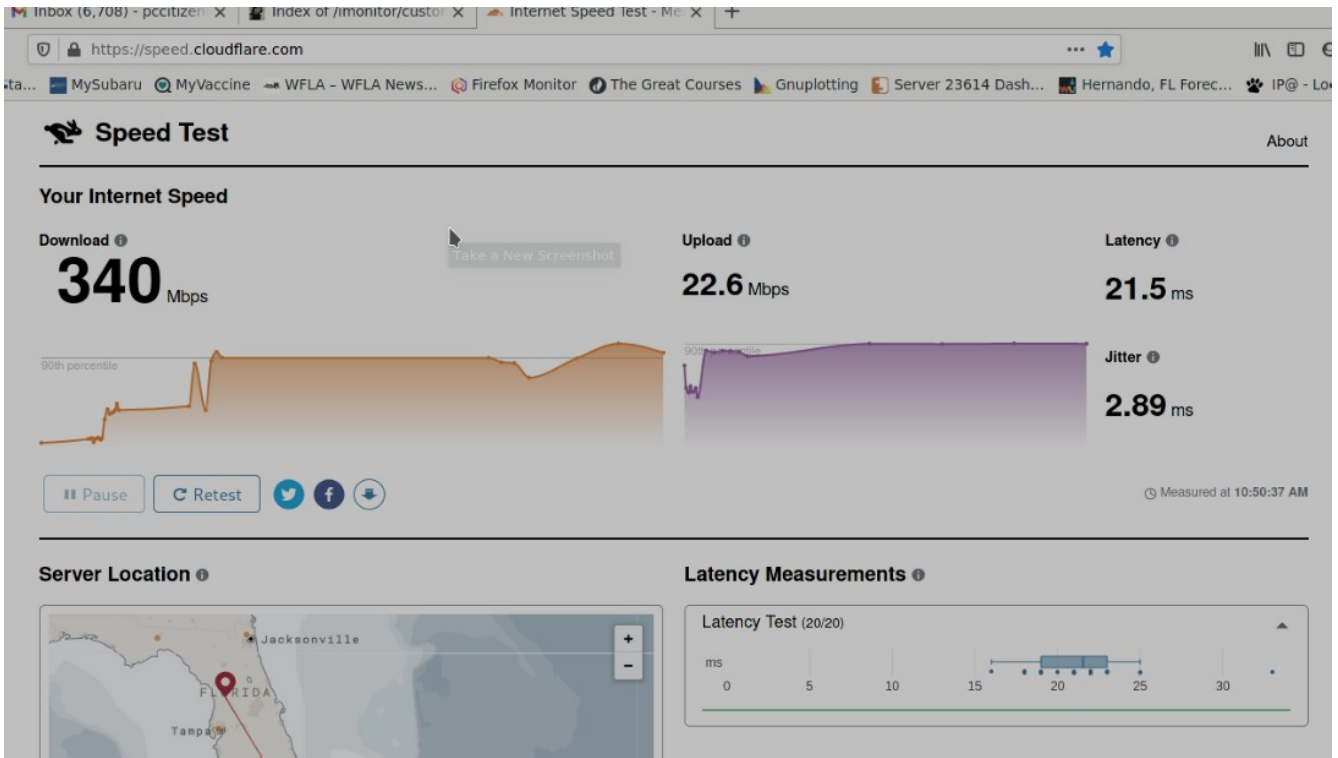
As always, you can refer to the main information page at <https://johnloop.com/imonitor/imonitor.html> There are images of the web site, email, plots, etc.

There is a new "quick intro" doc at <https://johnloop.com/imonitor/QuickManual.pdf> [also attached to this email]

Newsletter 2-1-2021

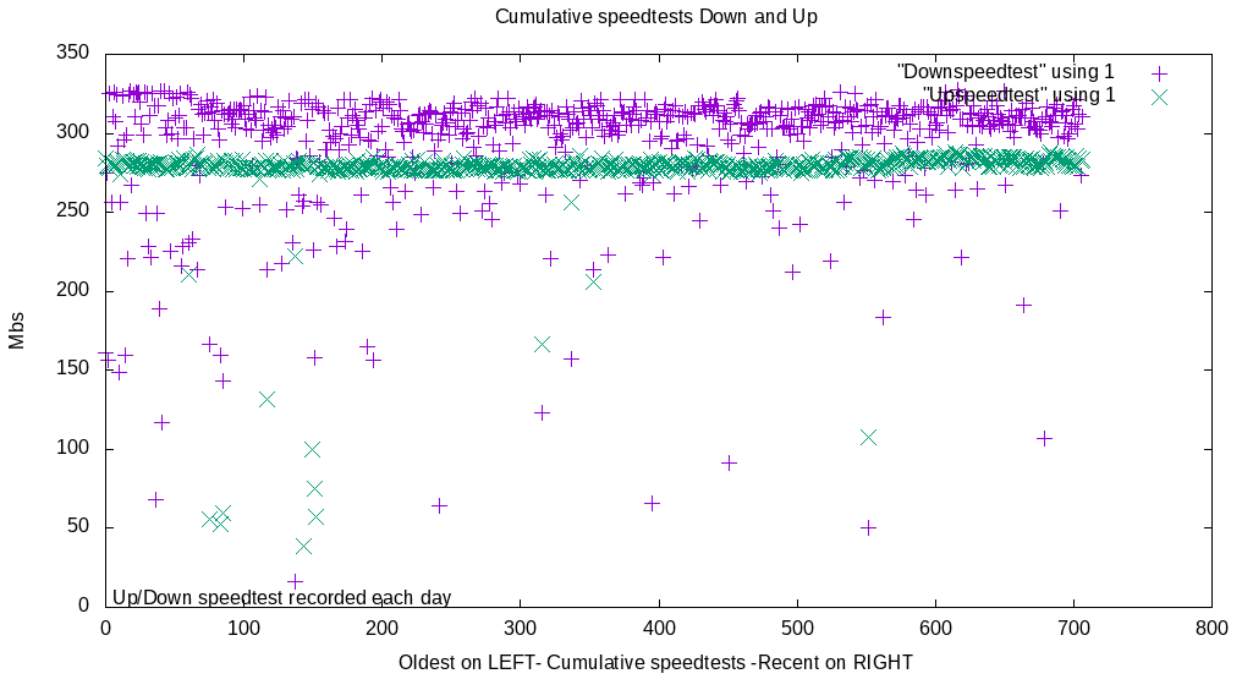
Items of interest the last few months:

1. Imonitorg images posted at <https://imonitorg.sourceforge.io> for 3B and 3B+. These are "generic" and completely standalone -no central server/registration/signin to register/record/report in. All data obtained by your local raspberry pi and presented by its web page.
2. Contact me directly if you want me to do an end-to-end setup and configuration. I will order the rpi and preconfig it for you. Costs about \$100. All you have to do is plug it in and you can browse to the rpi, and also receive daily email status reports.
3. Significant enhancements to the pihole implementation. Raspberry pi pihole is not configured to do ad blocking, but it can. It is used OOB to do DNS monitoring for your selected network devices. You can watch DNS queries -you will be amazed. Need to find a tool to vet these!
4. PLEASE do not be overly concerned about your speedtest results. They can vary WIDELY, **esp if you are on a cable connection with LOTS of people.** My speedtest [speedtest.net cli] regularly show about 50Mbps/20Mbps -Spectrum says I am 400Mbps/40Mbps. Watch the consistency over days and months. A <https://speed.cloudflare.com> shows the huge variability in my connection -cable connection with lots of people:

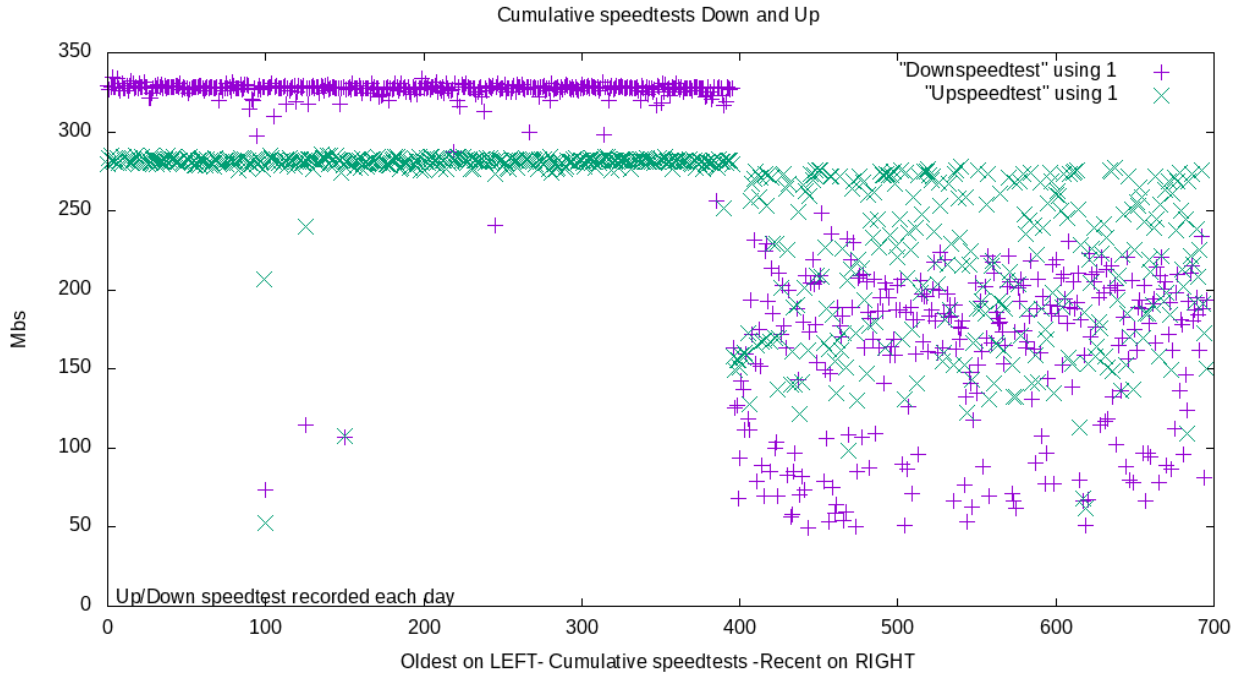


5. Monthly "best and worst" contest.... you can go to <https://johnloop.com/imonitor/customerplots/rtcustomerplots/> to see the entire list.

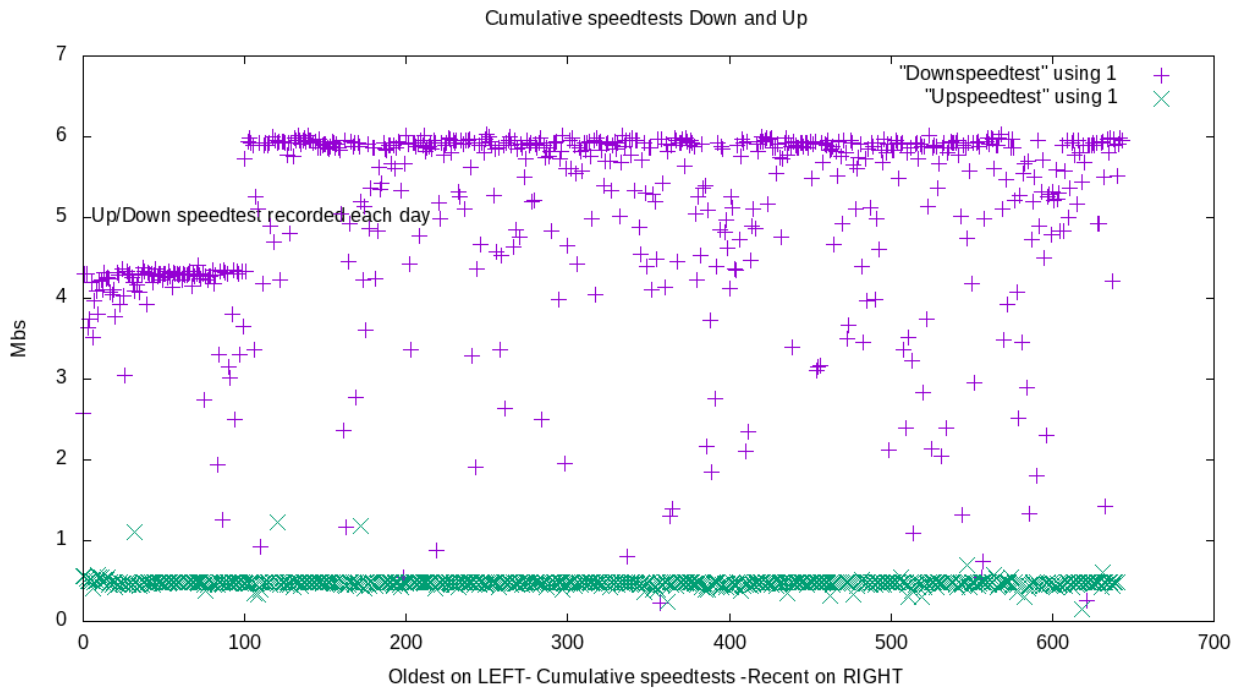
Best Speedtest archive: charley pi22 300Mbps down/260Mbps up Read it and weep!!! This is for $700/2 = 350$ days of usage



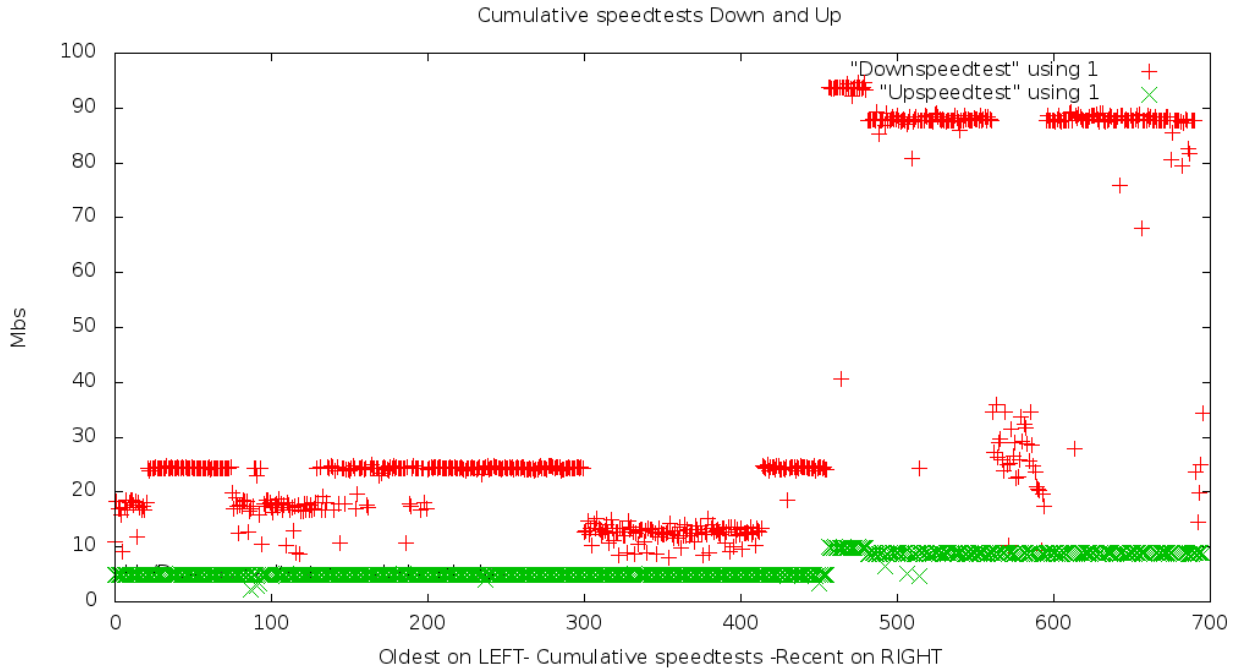
Tho Lou looks great, except something happened about 5 months ago... [2 tests/day ~300 tests]



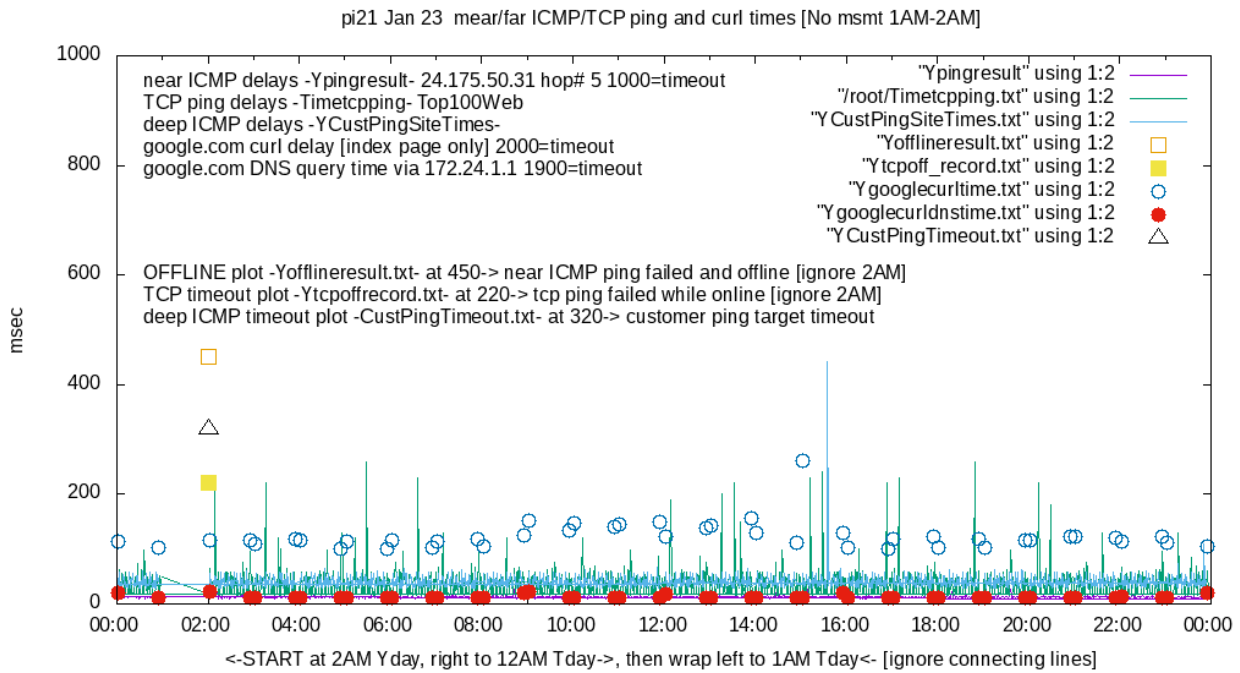
Worst Speedtest archive: Niel pi24 6Mbs down/.6Mbs up Weep!! This is for 700/2 =350 days of usage



Weirdest Speedtest archive: Rick upgrade [downgrades?]? This is for 700/2 =350 days of usage

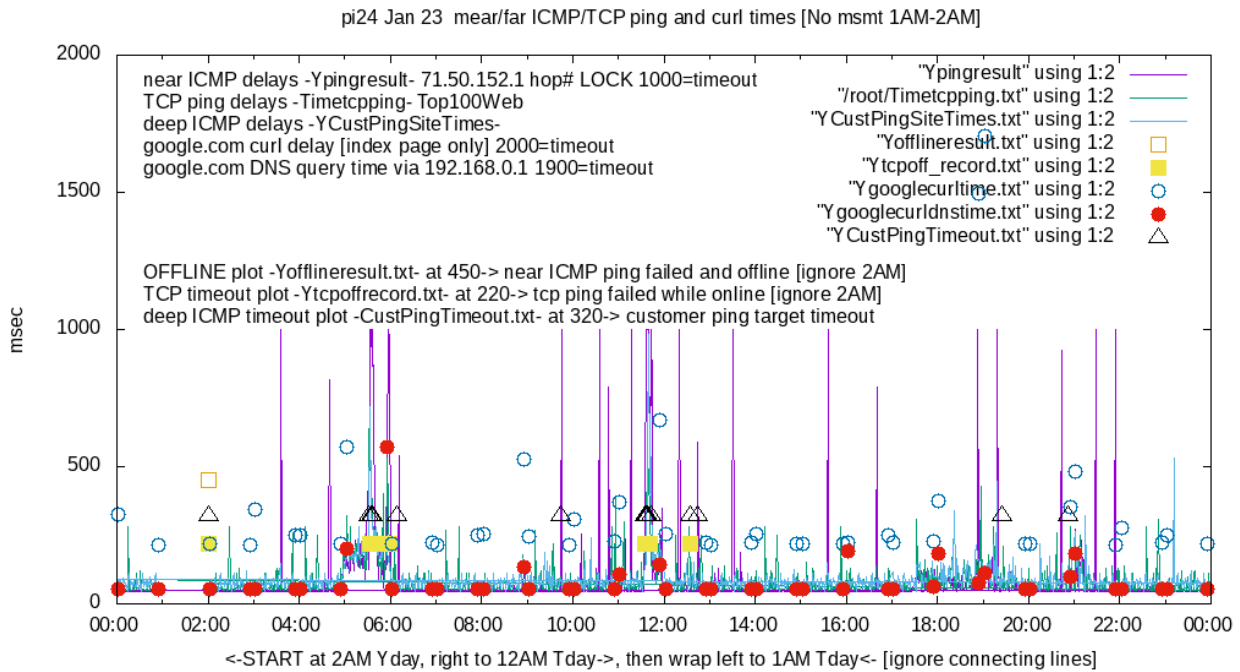


Best Combined plot for 1-24-2021: Jerry pi21 Low ping delays, NO timeouts ->This is for a single day



Worst Combined plot for 1-24-2021: Niel pi24 This is actually a pretty good day for Niel :) ->This is for a single day

Charley 1-24-2021



Summary of "really neat" things you can do with imonitor:

1. Compare your performance with 23 others across the country using: <https://johnloop.com/imonitor/customerplots/customerplots.html> -> this includes delay performance, archived delay performance, and archived speedtest performance
2. Plot your accumulated performance for the day using: [http://\[Your-RPI-address\]/#snapshots](http://[Your-RPI-address]/#snapshots) ->click the "PLOTIT" button. Image shown here:

Network performance snapshots [refresh page for latest]:

Mon Jan 25 2021 09:55:51 GMT-0500 (Eastern Standard Time)

Rpi Default path to Internet is via [Ethernet is "eth0" Wifi is "wlan0"]

NOTE: Ethernet is best as default, but wifi *as an additional* path is also supported.
 NOTE: Tests are performed to the Internet over the Default path, and to the wifi gateway if wifi enabled.
 NOTE: This allows testing your in-house wifi, and to the Internet, whether via ethernet or wifi.

Quick Overall Measurements:

The near/deep ICMP and TCP ping delay plots : Yesterday:

----->last plot:

----->60 pings/min; last blast:

Yesterday TCP ping delay avg

Yesterday deep ICMP ping delay avg to Customer ping sites:
 -these are best performance indicators along with the speedtest, TCP & ICMP ping delay archives:

3. Monitor DNS activity [of a host] on your network using: [http://\[Your-RPI-address\]/#dnslogs](http://[Your-RPI-address]/#dnslogs) ->updated every 5 minutes. For example, here is a listing of DNS replies to my main PC. The actual file is 3000 lines, about 4 replies/sec over a day of active online of about 3 hrs, or several dozen per sec while active:

```

unique_pihole_replyIPJan19.txt      2021-Jan-20 23:00:01 140.1K  text/plain
unique_pihole_replyIPJan20.txt      2021-Jan-21 23:00:01 200.0K  text/plain
unique_pihole_replyIPJan21.txt      2021-Jan-22 23:00:01 130.4K  text/plain
unique_pihole_replyIPJan22.txt      2021-Jan-22 23:58:01 14.4K   text/plain
unique_pihole_replyIPJan23.txt      2021-Jan-23 23:58:01 14.0K   text/plain

```

lighttpd/1.4.45

Yesterday DNS unique replies [starting at Yday 12AM->Tday 12AM]

1.0.0.1 is one.one.one.one	1.0.0.1
1.1.1.1 is one.one.one.one	1.1.1.1
192.168.254.254 is HG6Box	192.168.254.254
192.168.254.59 is raspberrypi5	192.168.254.59
192.168.254.77 is raspberrypi1	192.168.254.77
192.168.254.78 is raspberrypi	192.168.254.78
192.168.254.79 is raspberrypi	192.168.254.79
2606:4700:4700::1001 is one.one.one.one	2606:4700:4700::1001
2606:4700:4700::1111 is one.one.one.one	2606:4700:4700::1111
2.fedora.pool.ntp.org is 108.61.73.243	2.fedora.pool.ntp.org
2.fedora.pool.ntp.org is 128.10.252.6	4castwidgets.intelliweather.net
2.fedora.pool.ntp.org is 209.51.161.238	a1887.dscq.akamai.net
2.fedora.pool.ntp.org is 2600:3c00::e:d0bb	api.accounts.firefox.com

- Investigate yesterday DNS activity [of a host] on your network using: [http://\[Your-RPI-address\]/#Ydnslogs](http://[Your-RPI-address]/#Ydnslogs)
- Compare delay/speedtest performance over last month/last year using plot archives using: [http://\[Your-RPI-address\]/#counts/etc](http://[Your-RPI-address]/#counts/etc). Here is the page in the web page. Each link is a plot for that day. You can click/go back/click to compare days:

Shodan Scan [Internal scan must be enabled above] [[Shodan scan here](#)]

Current month plot archive Plot is calculated at 1AM for day BEFORE date on file.
 Wifi (wpingresult), ICMP (pingresult), TCP (TCPPingtime), BOTH (Both TCP/ICMP), Temp (deg F) [scroll down]
 "previous" will have previous plots - one year of archives
 Browser "Back arrow" to go back to list of plots.

BOTHpingtimeJan10.png	2021-Jan-10 00:58:28	28.1K	image/png
BOTHpingtimeJan11.png	2021-Jan-11 00:58:29	27.4K	image/png
BOTHpingtimeJan12.png	2021-Jan-12 00:58:28	27.8K	image/png
BOTHpingtimeJan13.png	2021-Jan-13 00:58:30	27.6K	image/png
BOTHpingtimeJan14.png	2021-Jan-14 00:58:42	25.0K	image/png
BOTHpingtimeJan15.png	2021-Jan-15 00:58:28	27.8K	image/png
BOTHpingtimeJan16.png	2021-Jan-16 00:58:28	27.9K	image/png
BOTHpingtimeJan17.png	2021-Jan-17 00:58:29	27.6K	image/png
BOTHpingtimeJan18.png	2021-Jan-18 00:58:29	27.9K	image/png
BOTHpingtimeJan19.png	2021-Jan-19 00:58:28	27.7K	image/png
BOTHpingtimeJan20.png	2021-Jan-20 00:58:28	27.6K	image/png
BOTHpingtimeJan21.png	2021-Jan-21 00:58:29	27.7K	image/png
BOTHpingtimeJan22.png	2021-Jan-22 00:58:28	27.3K	image/png
BOTHpingtimeJan23.png	2021-Jan-23 00:58:28	28.2K	image/png
BOTHpingtimeJan24.png	2021-Jan-24 00:58:29	27.6K	image/png
BOTHpingtimeJan25.png	2021-Jan-25 00:58:14	27.5K	image/png
FahrenheitTemp1Jan02.png	2021-Jan-02 00:58:26	9.9K	image/png
FahrenheitTemp1Jan03.png	2021-Jan-03 00:58:25	11.6K	image/png
FahrenheitTemp1Jan04.png	2021-Jan-04 00:58:25	10.9K	image/png
FahrenheitTemp1Jan05.png	2021-Jan-05 00:58:25	12.4K	image/png
FahrenheitTemp1Jan06.png	2021-Jan-06 00:58:25	12.7K	image/png
FahrenheitTemp1Jan07.png	2021-Jan-07 00:58:26	12.8K	image/png

Current month mail/shodan/port scan archives Scan at ~4AM on hosts determined at 7PM previous day.

- Daily email status reports, or if you are a generic rpi, via gmail relay [you need 2FA setup].
- Current "guinea pig" list. I am sincerely grateful for letting me develop this gadget on your ISP!!!

Sheet1

RPI	Ver	ISP	Name	Location	Tech	SVC DL/UL	Avg tcp ping ms	iface
1	pi3B	Spectrum	John	Hernando FL	cable	400/20		eth
2	pi3B	SpanForkCity	Diana	SLC Utah	muni cable	94/94		eth
3	pi3B	Windstream	Lucy	Jasper GA	VDSL	40/4		eth/wifi
4	pi3B	Comcast	Joey	Denver CO	cable	70/6		eth
5	pi3B	Spectrum	John	Hernando FL	cable	400/20		wifi
6	pi3B	ServiceElectric	Rick	Pittstown NJ	cable	24/4.5		eth
7	pi3B	ATTUverse	PhilBishop	Bishop GA	VDSL	25/4		eth/wifi
8	pi3B	Comcast	KevinL	Atlanta GA	cable	80/11		eth/wifi
9	pi3B	Windstream	MarkG	Jasper GA	ADSL	26/1.4		eth
10	pi3B	TDS	Fred	EP CO	cable	21/2		eth
11	pi3B	Spectrum	MikeH	StPete FL	cable	34/10		wifi
12	pi3B	MediaCom	PhilPerdido	Perdido FL	cable	24/12		eth/wifi
13	pi3B	ATTUverse	PhilBishop	Bishop GA	VDSL	25/4		eth
14	pi3B	ATTfiber	MattAtl	Atlanta GA	fiber	95/95		eth
100	pi3B	SmarterBBand	Scott	Grass Valley CA	WADSL			eth
20	pi3B+	Spectrum	John	Hernando FL	cable	400/20		eth
21	pi3B+	Spectrum	Jerry	Richardson TX	cable	220/12		eth
22	pi3B+	ATTfiber	Charley	Decatur GA	fiber	250/50		eth
23	pi3B+	ATTUverse	KenF	Frisco,TX	VDSL	50/5		
24	pi3B+	CenturyLink	Niel	Rolesville NC (Rale	ADSL	6/5		eth
25	pi3B+	Comcast	KenS	Erie CO (Boulder)	cable	300/30		eth
26	pi3B+	Comcast	Fred	Boulder CO	cable	85/6		eth
27	pi3B+	Longmont	Lou	Longmont CO	muni fiber	320/180		eth/wifi
28	pi3B+	ATTfiber	KevinB	PtreeCity GA	fiber	7.6/1.3		eth
29	pi3B+	Rise BB	TomF	N CO	WADSL	22/5		eth
30	pi3B+	ATTUverse	BobP	NorthIllinois	VDSL	40/10		eth
78G	pi3B	Spectrum	John	Hernando FL	cable	400/20		
79G	pi3B+	Spectrum	John	Hernando FL	cable	400/20		

Page 1

Previous Newsletter 11-1-2020 [previous newsletter https://johnloop.com/imonitor/newsletter11-1-2020.pdf](https://johnloop.com/imonitor/newsletter11-1-2020.pdf)

I continue to do "end of project" tasks, while continuing to add tweaks. Not sure this project will ever actually end :) Too much fun!

The **SPECIFIC** news items:

1. The combined plot [via daily email or via "plotit" on webpage] has been enhanced to show [far away -deep- ICMP] ping timeouts, thus giving three different indications of problems --tcp SYN timeouts, [near end] ICMP timeouts, [far away] ICMP timeouts. An "offline" plot point is thus plotted above these if simultaneous near ICMP and TCP timeouts are experienced. I have attached an example plot [2nd att] which shows a hard outage at Niel's place as Hurricane Zeta went thru 10-29. Notice the how the service got progressively worse from about 11AM until offline "declared" about 15:00. Notice the DNS queries to the router were still working [Niel never lost power].
2. Besides the graphical "plotit" to do the "till now" plot [via the rpi web page], there is a cmd line option "callROOTcreateRTplot.sh <VERTICALSCALE>".
3. "pihole" continues to amaze me in showing the **flood** of DNS activity generated by a network. Just point your DNS server to your rpi, and be amazed. There is no effect on your network [other than to show you the DNS queries]. You will have to turn off DOH in FFOX and Chrome to see browser activity. Otherwise you can separate it out! The daily email has a link to it and info.
4. I am soliciting comments/request and information for going forward with the pi4B implementation. Please comment if you can. Do you think this is worthwhile? Anything "network-wise" that would be good to monitor?

The **GENERAL** news items:

1. I have "generic" versions of the rpi which do not require a management channel [absolutely no contact with me]. If you have a raspberry pi3B or 3B+ I can share these to you and you can burn an image and you are up and running [or I can send you one]. These do not interfere with the normal raspberry pi distribution - it is all there. Just don't mess with the existing scripts [or reburn the image if you break it]. The pi will check in once a month to see if there is a new version -and this will be indicated on the rpi web page [management section]. I will also continue to offer "managed" versions to allow coupling to the development. I can share either of these to you on googledrive if you ask.

Please pass this news to anyone who might appreciate a passive, standalone "Internet monitoring tool," i.e. no subscriptions, web sites

2. microSD vs SSD -worries about microSD longevity, boot from USB SSD. pi4B will support USB boot from SSD. I have made many small changes to the scripts to minimize the "flogging" that the OS and scripts give the microSD, hopefully prolonging its life. MicroSD cards are really intended for static storage - camera images e.g. and not for running an OS which requires continuous writing.
3. mgmt versions -there are 3 ways to operate the rpi imonitor
 - a. fully managed [STANDALONE=OFF]: I have access to your rpi and manage all updates; daily email possible
 - b. partial managed [STANDALONE=ON]: I do not have access to your rpi; customer does updates; daily email possible
 - c. fully independent [generic "imonitorg"]: no access by me to your pi, or you to my server; daily email possible via gmail relay; updates via new microSD

image

--you are the one who controls the STANDALONE setting.

4. I have attached the latest "manual [1st att]," an image of the web page [3rd att][available on your local network only], and the email you receive each day [4th att] if you deploy the rpi on your network.
5. The daily summary plot [which looks like att 2, except for 24 hrs], which is perhaps the quickest way to gauge your Internet connection. Explanations for this plot are here: <https://johnloop.com/customerplots/customerplots.html> Other plots are available via the web page, including archives of speedtests, ping delays, offline times, etc. etc.
6. pi4B: I will begin implementing the imonitor on the pi4. I hope to do a few changes here
 - a. provide the option to copy the microSD to a USB drive and boot from that.
 - b. investigate adding "Princeton IOT inspector" software to monitor IOT.
7. I encourage you to check out pihole on the rpi. This allows you to monitor all DNS activity from [selected] devices on your network. There is a link in the daily email.
8. Here is the latest on all the raspberry pi's participating in this trial. "G3B, G3B+" are the generics -unmanaged. You can see the daily plots of the managed pis by going to <https://johnloop.com/imonitor/customerplots/> and selecting to the top link. There is an explanation of the plot on that page.

--
<https://johnloop.com>
<https://imonitorg.sourceforge.io>

--
<https://johnloop.com>
<https://imonitorg.sourceforge.io>

Attachments:

overview.pdf	66.7 KB
QuickManual.pdf	13.0 KB