Gmail **John Loop <pccitizen@gmail.com>**

8-1-2020 imonitor newsletter; manual, sample web page, email; customer list

John Loop <jdloop@johnloop.com> Wed, Aug 5, 2020 at 9:48 AM
To: John Loop <jdloop@johnloop.com>

Dear imonitor users, potential users, former users, and interested parties:

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, 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 8-1-2020 ***previous newsletter***
https://johnloop.com/imonitor/newsletter5-1-2020.html

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 biggest news items:

1. I have "generic" versions 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. These do not interfere with the normal raspberry pi distributioon - 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.

2. To further accomodate the "standalone [non managed]" pi, there is a way to use [your] existing gmail account as a relay so you can still get the daily email ***to any email address*** you want. You will need to enable 2FA on the gmail site and get a key, and then fill out management fields in the rpi web page with these gmail credentials [the pi uses your gmail-supplied key, not your gmail passwd!]

3. I added an ability to create a second realtime plot besides the one mentioned in #2 below. This will do a 1 minute blast of 60 pings to your ICMP target and plot it.

4. I am experimenting with ipv6, so you may see occasional glitches in access, etc.

5. I have attached the latest "manual," an image of the web page [available on your local network only], and the email you receive each day.

5. 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 the top link. There is an explanation of the plot on that page.

pi	name	ISP	Loc	Tech	Speed Mbs down/up	eth/wifi
1	John	Spectrum	HerFL	Cable	300/40	both
2	Diana	SpanForkCity	UT	municable	90/90	eth
3	Lucie	Windstream	JpGA	VDSL	40/4	both
4	Joe	Comcast	DenCO	Cable	70/6	both
5	John	Spectrum	HerFL	Cable	300/40	wifi
6	Rick	SvcElectric	NJ	Eth	12/5	eth
7	Phil	ATT	BishGA	VDSL	26/4	both
8	KevL	Comcast	AtlGA	Cable	90/40	eth
9	Mark	Windstream	JpGA	VDSL	26/4	eth
10	Fred	Comcast	EsPkCO	Cable	90/24	eth
11	Mike	Spectrum	StPeteFL	Cable	40/12	eth
12	Phil	Mediacom	PerdAl	cable	26/12	eth
13	Phil	ATT	BishGA	VDSL	26/4	wifi
14	Matt	ATT	AtlGA	Fiber	40/40	eth
15						
20	John	Spectrum	HerFL	cable	300/40	eth
21	Jerry	Spectrum	RichTX	cable	230/12	eth
22	Chly	ATT	DekGA	fiber	300/280	eth
23						
24	Niel	CenturyLink	RolsNC	ADSL	6/.6	eth
25	KenS	Comcast	BldrCO	Cable	300/30	eth
26	Fred	Comcast	BldrCO	Cable	80/4	eth
27	Lou	LongmontMuni	LgMtCO	munifiber	300/280	eth

28	KevB	ATT	PtCtyGA	fiber	30/2	eth	
29	John	Spectrum	HerFL	cable	400/40	wifi	
G3B	John	Spectrum	HerFL			eth	
G3B+	John	Spectrum	HerFl			eth	
GeB+	Fred	Comcast					
100	Scott	SmBB	GrVyCA	WADSL	12/3	eth	

John Loop

Previous newsletter 5-1-2020 summary

1. In addition to the three pings [discussed in the last newsletter], I have added an actual http browse to google.com as a "final" measurement, and I plot this on the same graph. Two browse's [actual linux curl] are performed per hour, signified by the circles on the plots. Only the google index page is loaded, not all the images. See the attached png as an example.

2. There is now a capability to generate a realtime plot, like the daily email plot [representing "yesterday"], representing 2AM->current time. Go to the rpi web page [linked in your email], OK the popup, then click on "data snapshots" and then click on the "PLOTIT." You will get a new webpage with a link to the realtime plot. It will take a minute to generate. There is a sample attached, showing snapshot taken at 10:50AM. Notice the date at the top, and the current time on the right of the plot. The attached shows a sustained offline time [my power and Internet were off]. Notice how nice a facility this is for tracking online/offline behavior. The orange squares/bar [top] is the actual offline [close to a 1 minute resolution]; the yellow squares/bar show occasional tcp failures as well as those during offline. You need to ignore the connecting lines [gnuplot is asked to plot "lines" and not "dots"]. Your rpi and your modem/router should be on a UPC to monitor all these interruptions, and the ethernet [or wifi] left connected.

3. I will be adapting the scripts for a pi4. So there will be images for a pi 3B/3B+ and pi4. ***These will run standalone without any connection to my server at all.*** All you need to do is burn an image to a microSD and plug it into the raspberry pi. You can then point your browser to the raspberry pi [find its IP in your router] and have available all the network stats. I hope to have these images available by 6-1. I can also burn a microSD image and just send it to you if you have a raspberry pi you can dedicate to this. With no connection to my server of course, there will be no daily emails or alerts, and no updates. These are "generic" pi images with my added scripts.

4. I will continue the program with my 23 guinea pigs for the immediate future. These will continue to receive the daily emails and alerts.

5. The daily 3 plots [combined plot, archive delay plot, and speedtest archive] from the guinea pigs will be available here ***https://www.johnloop.com/imonitor/customerplots/customerplots.html***

6. I have decided NOT to develop an app for the Android [or the iphone]. There is really no advantage to this; you can always browse to the rpi page from the phone.

7. I will also NOT be developing a "pkg" distribution. There are hundreds of modifications to the raspian image, so an image distro is best. As mentioned, I will be working on these over the next month.

8. How to interpret the daily/on-call plots [look at attached png for reference].

There are 3 main LINE plots: The ping delays of a close router [pingresult], the TCP delays of top 100 web sites [Timetcpping], and the ping delays of a far-away router [CustPingSites]. These are the three colored lines. The close ping delays and the TCP delays are every minute for 23 hours [2AM till next 1AM], the far-away ping delays are about 20 minutes in the middle of the hour [there are straight lines connecting these]. Typically, the close ping delays should be less than the TCP delays and be fairly constant; the TCP delays will vary widely, normally between 20-100msec. The TCP delays will typically be to the nearest Content Distribution Network (CDN) which host most of the major web sites. The far ping delays may be the longest, since they are the ping targets of the other customers.

The fourth plot is the points that represent the twice hourly fetch of www.google.com. This will typically have the longest delay. DNS name resolution will have to be performed for this, and for the TCP delays. The ping delays do not need a DNS name resolution.

The fifth and sixth "plot" is actually an overlay on the plots which will represent offline times experienced, and TCP timeouts experienced, but still on-line. These will appear as bars when there are extended periods of offline state, or multiple TCP ping failures. These are plotted at the 250 and 220 msec delay times.

9. Assumptions used in developing these scripts.

Since the pi does not have a realtime clock, it is not possible to know the "correct" time with certainty -only when an Internet connection is established can the "correct" time be acquired via the ntp service. For this reason, the scripts only compute valid times once the rpi acquires an Internet connection, via an ethernet or a wifi connection to the local router. If this connection is "interrupted" the scripts can only "estimate" times, based on a clock that will gradually lose correct time. When booting, the clock may be totally incorrect [depending on length of time the pi was powered off]. The "alerts" sometimes report incorrect/repeated times due to these clock/power inconsistencies. Thus, it is assumed that the pi is powered at all times and has an active ethernet or wifi connection. For the best performance, the pi -and your modem/router- should be connected to a small UPS to bridge glitches and short power outages.

10. I will have an email announcing the general imonitor, called an "imonitorg." Just order a raspberry pi and ask for an image.

---

3 attachments

QuickManual.pdf
149K

RaspBerryPiWWW.pdf
623K

SampleEmail.txt
6K