Zero Retries 111 Re: Don Rotolo and TARPN

Tadd Torborg Aug 11, 2023 at 22:14

To: Steve N8GNJ Stroh

Steve,
  Data Repeaters work well in several ways but they are certainly not a panacea, even given the limitations of bandwidth that TARPN (and Don) talk about.

Repeater throughput is subject to temporary collapse when multiple stations operate it at a time, using incorrect operational parameters. This temporary collapse is inevitable if the repeater becomes popular, unless the operational parameters are mandated to be automated, i.e. backoff-and-retry. Collisions are much more likely when there are stations operating with incorrect slot-time or too-high ppersist based on the number of stations waiting to transmit. The 'channel', which is the repeater path, is limited to some fraction of the bit-rate of the channel, so if there are N number of stations sending traffic through the channel, there necessarily is a division of available rate, and the quotient is variable based on the number of simultaneous stations, and the quotient also includes a waste factor driven by the backoff/ppersist/slottime mechanism. Necessarily the quotient will almost always be less than would be available with dedicated links. A dedicate link, much like a 10baseT ethernet network, is immune to collisions when loaded, and unlikely to be unintentionally jammed, a repeater is susceptible to such problems. "Very few collisions" is not a formula for realizing how devastating collisions are on the channel. Zero collisions is a very nice result.
So there is no free lunch here. These are not killer bugs in the idea at all, just points to keep in mind.

Where-as the TARPN plan calls for all stations to build simplex links as a training tool to building even MORE simplex links, repeaters include an educational divide, where the repeater becomes a legacy piece of the local operation but can only be managed/repaired/owned/copied by a select few people who have access to the site, and experience building and maintaining the repeater. This is also not a killer bug, but it could be a problem if your goal is some kind of egalitarian education. TARPN is attempting to create educational opportunities which are imposed on participants by the selected architecture. Be careful that a repeater doesn't create uneducated users who solve only one problem (how to set up to use the repeater) and feel they don't need to master other elements of building a network.

Where-as the frequency, polarization, bit-rate, and FEC selections may be reconfigured on a dedicated link with only two cooperating stations, such manipulation on a repeater would require all participants to both cooperate and work with some level of synchronized effort.

TARPN definitely is NOT advocating for having multiple stations on a simplex frequency. We re-use frequencies but only two on a frequency within range of any other stations.

You said: *It's hard* to put up a directional antenna and find a partner to connect to who's willing to put up a port (modem + radio + antenna) *solely to communicate with you*. It may be, but it's even harder to get somebody to put up a repeater for packet when there are no operators around to use it. Networks and repeaters are much easier to build when there are dozens of people in simplex range to operate. But getting started when there are no people in simplex range to operate, is more the point these days. Many of the links in NCPACKET, for instance, are using attic home-brew antennas and crappy radios. If we did have a repeater, we'd have a real problem with people using radios with a real long RX detect cycle. But in a dedicated link environment, the 2 stations on the link make the choices.

Regarding N2IRZ contradicting hisself. The TARPN plan does not forbid moving data from other networks into and out of a TARPN. TARPN requires that all data that goes in or out must be cut-and-pasted by a ham. That's very different than mandating typing-it-in. It is typical in a world where all the hams have Internet and TARPN that the material that is not hand generated is sent via Internet, bypassing the TARPN. This would certainly be less true if the Internet were unavailable and there was a need. So in peace-time, most data in the NCPACKET TARPN is typed in or machine generated by the computers that are directly wired into the network. We have a Multiple User Dungeon and several single-player games on the network, for instance. We have also had some automated information gathering for network performance analysis. You can also connect manually to any node in the network

(this is G8BPQ remember) and request both BPQ32-standard diagnostics, and some stuff we've come up with on our own.

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?
TADD:KA2DEW-2} CHAT BBS HOST TRR LINUX TCHAT TINFO LINKTEST CONNECT BYE INFO NODES
PORTS ROUTES USERS MHEARD
tinfo
Connected to TINFO
TARPN vbullseye159
lat/lon coordinates: 35.8897, -78.6798
TARPN Updates URL:   http://tarpn.net/bullseye2021
Linux UPTIME:        01:11:31 up 9 days,  4:51,  4 users,  load average: 0.35,
0.24, 0.19
Node started:        Wed  2 Aug 20 22 44 EDT 2023  Node background Service is
(AUTO)
Raspberry PI Reset:  2023-08-02 20:20:20
TARPN HOME:          is running              TARPN HOME is set to START
TARPN-HOME build-utc:Mar 29 14:15
TARPN-HOME install:  Thu 30 Mar 00:37:49 EDT 2023
Rasberry PI Hardware:type 4 B 2GB made in UK
OS version:          Raspbian GNU/Linux 11 (bullseye)
Ethernet MAC:        dc:a6:32:52:b7:d0   CPU temp=48.7'C   SDcard=1680015014
TARPN Installed:     Mar 28 10:50
UpdateApps Last run: NEVER

Date  Time Port AsnNghbr FWver  Board Switch  Baud Modu  FEC   TXD
08-12 00:58 p1  KA2DEW-3   3.24  A3    0011  >4800 GFSK  IL2P<  100
08-12 01:10 p2  K3PMH-2    3.24  A4r1  0011  >4800 GFSK  IL2P<  46
08-12 01:07 p3  NC4FG-2    4.13  A4r1  0011  >4800 GFSK  IL2P<  100
08-12 01:05 p4  K4RGN-2    3.24  A4r1  0001  >9600 GFSK  IL2P<  40
08-12 01:10 p5  WO2S-2     3.24  A3    0001  >9600 GFSK  IL2P<  20
08-12 01:10 p6  N3LTV-2    3.24  A3    0001  >9600 GFSK  IL2P<  43

Undervoltage Events found in Log file = 0
My IP address is 10.0.0.200 fd96:c474:c41e:4bef:4154:4fac:d7b4:73f2
Router info:default via 10.0.0.1 dev eth0 proto dhcp src 10.0.0.200 metric 202

Returned to Node TADD:KA2DEW-2
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We use Email on the NCPACKET TARPN all the time. It just isn't Internet email. We have our own. There are actually email servers/clients built into the TARPN installation in the form of LINMAIL and TARPN-HOME. But don't expect it to get to the Internet or back from the Internet automatically. We don't do that. We also do bulletins and file transfers. G8BPQ lets us do quite a bit of that. Any system we replace G8BPQ with must also have these capabilities.

I think you have more differences with what you are guessing about TARPN than what you are reading on the TARPN pages. Check us out. Our webpage is TARPN.net or TARPN.com or TARPN.org Please comment or question what you read, to me directly if you please. I am not even an amateur author (much less a professional like you and Don!). I only write to individual audiences when it is called for and I'm well known to be lousy at it. My only professions are microprocessor firmware development and proprietary protocol and system specification.

Tadd

cc N2IRZ

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Raleigh NC FM05pv

North Carolina ham-radio chatRoom Network:
https://ncpacket.net/north_carolina_packet_radio_network.html
Packet networking over ham radio: https://tarpn.net/t/packet_radio_networking.html

Local Raleigh ham radio info: http://torborg.com/a