

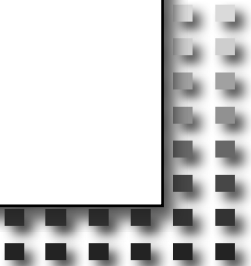


IETF Hackathon

IETF 118

4–5 November 2023

Prague, Czech Republic



Hackathon Plan

- Do a plugfest with BIER in ISIS or OSPF and do some packet transport with some music...
 - <https://datatracker.ietf.org/doc/html/rfc8296>
 - <https://datatracker.ietf.org/doc/html/draft-ietf-bier-pim-signaling-12>

What got done

- Freerouter is used to broadcast BIER packets since it became an RFC and it got dataplanes during the gn4-3 then gn5-1
 - pre-calculate / node the out-if-list to comply with the asic requirements without inter-packet knowledge
 - <https://github.com/rare-freertr/freeRtr/tree/master/misc/p4lang>
 - <https://github.com/rare-freertr/freeRtr/tree/master/misc/p4bf>
 - <https://github.com/rare-freertr/freeRtr/tree/master/misc/native>

What got done

```
mc36@noti: ~ x noti x mc [mc36@noti]:/nfs/o... x sid x mc [mc36@safe]:/data... x mc36@safe:/data/img/a x mc36@nass:/nfs/own/... x
sid#show lldp neighbor | include pwe
2023-11-03 16:00:04.597
pwether1 re0 et-0/0/9 null null
pwether2 re0 et-0/0/26 null null

sid#show ipv4 isis 2 database 2
2023-11-03 16:00:07.336
lspid sequence flags len time
1234.1234.0002.00-00 00000007 apo 60 00:14:44
1234.1234.0003.00-00 00000007 apo 60 00:14:42
1234.1234.1234.00-00 00000016 apo 258 00:15:32

sid#show ipv4 isis 3 database 2
2023-11-03 16:00:10.352
lspid sequence flags len time
1234.1234.0002.00-00 00000007 apo 60 00:14:39
1234.1234.0003.00-00 00000007 apo 60 00:14:41
1234.1234.1234.00-00 00000016 apo 258 00:15:29

sid#show ipv4 bier v2
2023-11-03 16:00:13.982
prefix index base oldbase size
2.2.2.2/32 3 16 767142 3-256
2.2.2.123/32 123 16 16 3-256

sid#show ipv4 bier v3
2023-11-03 16:00:15.164
prefix index base oldbase size
2.2.2.2/32 2 16 1000924 3-256
2.2.2.123/32 123 16 16 3-256

sid#
```

What we learned

- The breakthrough was the fact the team decided to use a common api so now we have 6 independent competing dataplanes capable of tossing the packets;
- Sw-only, intel tofino1,2,3 up to 12tbps/asic, ebpf/xdp to the lowend openwrts, dpdk/libpcap based standalone, and openvswitch also can join the stack because of that was the gn2-x achievement during the gts “practice” deliverable and since then the api/exporter is there to instruct the whiteboxes to toss the packets...

Wrap Up

Simon Leinen @ swit.ch

“mc36” @ freertr.org

Jeffrey Zhaohui Zhang @ juniper.net

Find below is a pre-recorded video showing off what pim in bier can do to you as a content distribution / broadcaster / network:

<https://files.fm/f/2eanhgkxm>

How its connected (streams 0-24) to a ~500 ebgp worldwide “darknet”; <https://dn42.dev/howto/multicast>

How you can connect anytime: <http://portable.freertr.org/>