

YANG model for management of Network Tester

- IETF116 Hackathon
- March 25-26, 2023
- Online

The project

Specification:

- * [draft-ietf-bmwg-network-tester-cfg-02](#)

Client side:

- * Test script – rfc2544-benchmark ([Python](#))

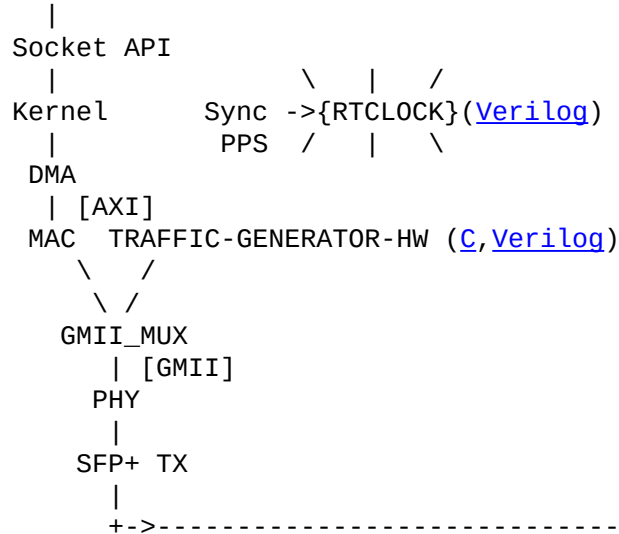
Device side:

- * Software - YANG/NETCONF server instrumentation code ([C](#))
- * Firmware - ([Verilog](#))
- * Hardware – off-the-shelf FPGA module Ultra96 + 6x SFP+ network programmability kit shield ([KiCAD](#), [Walk-through](#))

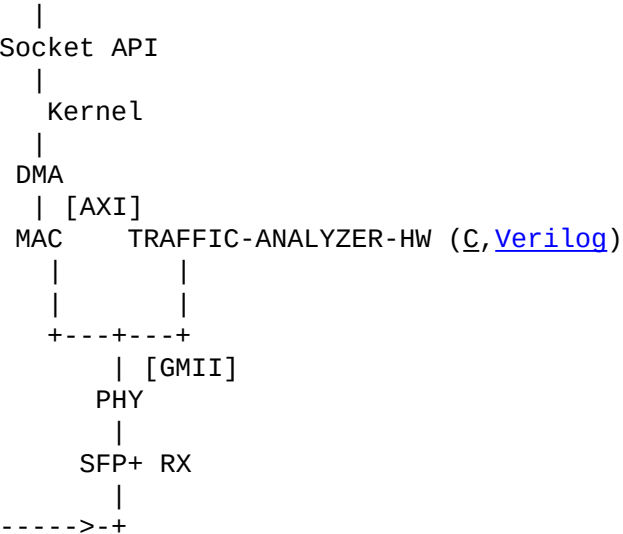
Design and implementation

NETCONF Server (Model ([YANG](#)), Implementation Generator module ([C](#)), Analyzer module ([C](#)))

TRAFFIC-GENERATOR-SW ([C](#))



TRAFFIC-ANALYZER-SW ([C](#))



* - underlined text has links to repositories

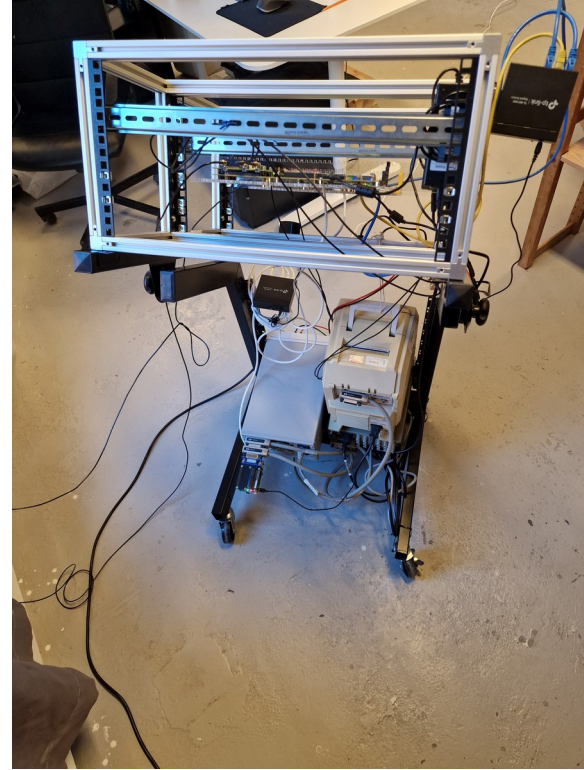
Network testers

```
+-----+
eth0 |               | eth1
+<-|TG  tester0  TA|<-+
|  |               |  |
|  +-----+      |  |
|      +-----+   |  |
+----->| DUT |>-----+
      +-----+
```

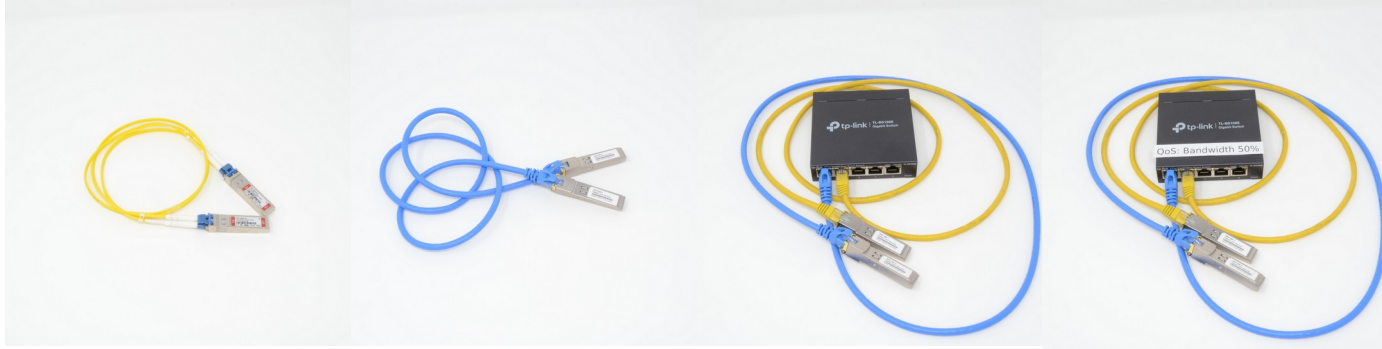
```
+-----+
eth0 |               | eth1
+<-|TG  tester0    |x
|  |               |  |
|  +-----+      |  |
+-----+
| DUT |
+-----+
|  +-----+      |
|  |               |
+>|TA  tester1    |
|  |               |
+-----+
```



Mobile lab



Results



- * DUT0 (optical SFP modules + 1 m. fiber) - [report](#), [verbose-log](#)
- * DUT1 (copper 1000BASE-T modules + 1 m. Ethernet cable) - [report](#), [verbose-log](#)
- * DUT2 (low cost Ethernet bridge TL-SG105E wo QoS - 100% bandwidth) - [report](#), [verbose-log](#)
- * DUT3 (low cost Ethernet bridge TL-SG105E w QoS - 50% bandwidth) - [report](#), [verbose-log](#)

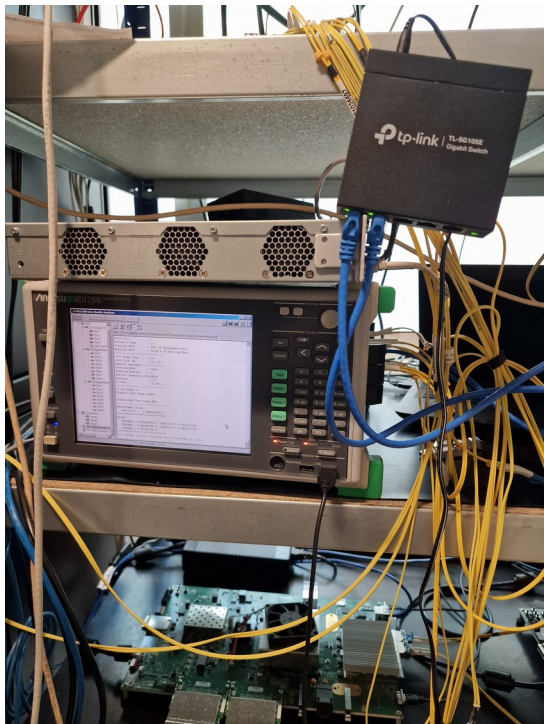
Validation of results

Validated results for DUT3 (low cost Ethernet bridge TL-SG105E w QoS - 50% bandwidth) against results for same DUT3 tested with commercial tester:

- * [reference](#) (anritsu-md1230b-log.txt)
- * [result](#)

Summary:

- * 997024 (67%) vs. 1000000 (67.2%)
- * 6668 ns vs. 24440.4 nanoseconds (24 ns is the actual maximum delay. None is wrong.)
- * Frame loss 32%,25%,15%,3% vs 32%,24%,15%,3%
- * 1682 back-to-back frames vs. 1679
- * System recovery 0.000491 sec vs. N/A



The End