TWAMP Light YANG data model
draft-mirsky-ippm-twamp-light-yang-09
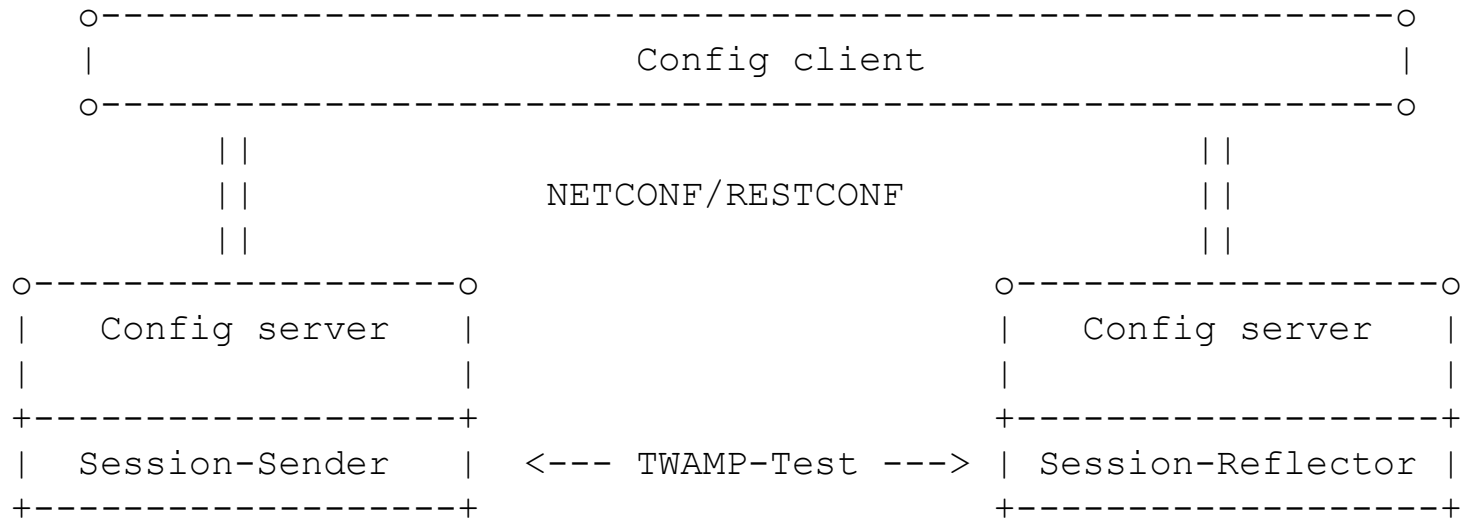
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SDN-based TWAMP-Test

```
o-------------------------------------------------------o
|                    Config client                      |
o-------------------------------------------------------o
        ||                                        ||
        ||              NETCONF/RESTCONF          ||
        ||                                        ||
o-----------------------o              o-----------------------o
|   Config server       |              |   Config server       |
|                       |              |                       |
+-----------------------+              +-----------------------+
| Session-Sender    |  <--- TWAMP-Test ---> | Session-Reflector |
+-----------------------+              +-----------------------+


              TWAMP-Test Reference Model
```

From -07 to -09

- Welcome Xiao Min (ZTE) and Wei S Luo (Ericsson)
- Controls for test session and performance metric calculation
- Packet loss statistics
- Percentile
- DSCP handling mode

Continuous testing mode for Session-Sender

```
leaf number-of-packets {
    type union {
…
            type enumeration {
                    enum forever {
                            description
                            "Indicates that the test session SHALL be run *forever*.";
                    }
            }
    }
    default 10;
    description
    "This value determines if the TWAMP-Test session is bound by number of test packets or not.";
}
```

Then *measurement-interval* defines interval to calculate performance metrics:

```
leaf measurement-interval {
    when "../number-of-packets = 'forever'" {
            description
            "Valid only when the test to run forever, i.e. continuously.";
    }
    type uint32;
    units "seconds";
    default 60;
    description
    "Interval to calculate performance metric when the test mode is 'continuous'.";
}
```

Periodic testing mode for Session-Sender

```
leaf number-of-packets {
    type union {
        type uint32; {
            range 1..4294967294 {
                description
                "The overall number of UDP test packet to be transmitted by the
                sender for this test session";
            }
        }
…
    }
    default 10;
    description
    "This value determines if the TWAMP-Test session is bound by number of test packets or not.";
}
```

Then *repeat*, defines number of test sessions or forever, and *repeat-interval* define how the Session-Sender performs testing. The *session-timeout* defines when the Session-Sender calculates performance metric per each test session.

Packet Loss Statistics

grouping packet-loss-statistics :

- uint32 loss-count - number of lost packets during the test interval;
- percentage loss-ratio - ratio of packets lost to packets sent during the test interval;
- int32 loss-burst-max - maximum number of consecutively lost packets during the test interval;
- int32 loss-burst-min – minimum number of consecutively lost packets during the test interval.

Percentile

```
typedef percentile {
    type decimal64 {
            fraction-digits 2;
    }
    description
    "Percentile is a measure used in statistics
    indicating the value below which a given
    percentage of observations in a group of
    observations fall.";
}
```

To configure percentile reporting use percentile in *grouping twamp-session-percentile* with three leaves (need more creative names) with default values 95, 99, and 99.9 correspondingly.

Percentile values may be reported for latency and jitter:

- round trip
- far-end
- near-end

DSCP Handling Mode

```
typedef session-dscp-mode {
        type enumeration {
                enum copy-received-value {
                        description
                        "Use DSCP value copied from received
        TWAMP test packet of the test session.";
                }
                enum use-configured-value {
                        description
                        "Use DSCP value configured for this test
        session on the Session-Reflector.";
                }
        }
        description
        "DSCP handling mode by Session-Reflector.";
}
```

Next steps

- RFC 7750 – reporting results of DSCP monitoring
- WG adoption