

# **TWAMP Data Model (YANG for TWAMP)**

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**[draft-cmzrjp-ippm-twamp-yang-oo](#)**

# Motivation:

## Why Now?

- Large Scale Measurements
- Network Virtualization
- Multi-vendor management harmonization

## Why YANG?

- YANG modeling language represents a very popular choice for configuration and management.

# YANG + NETCONF/RESTCONF

## meet RFC 5357

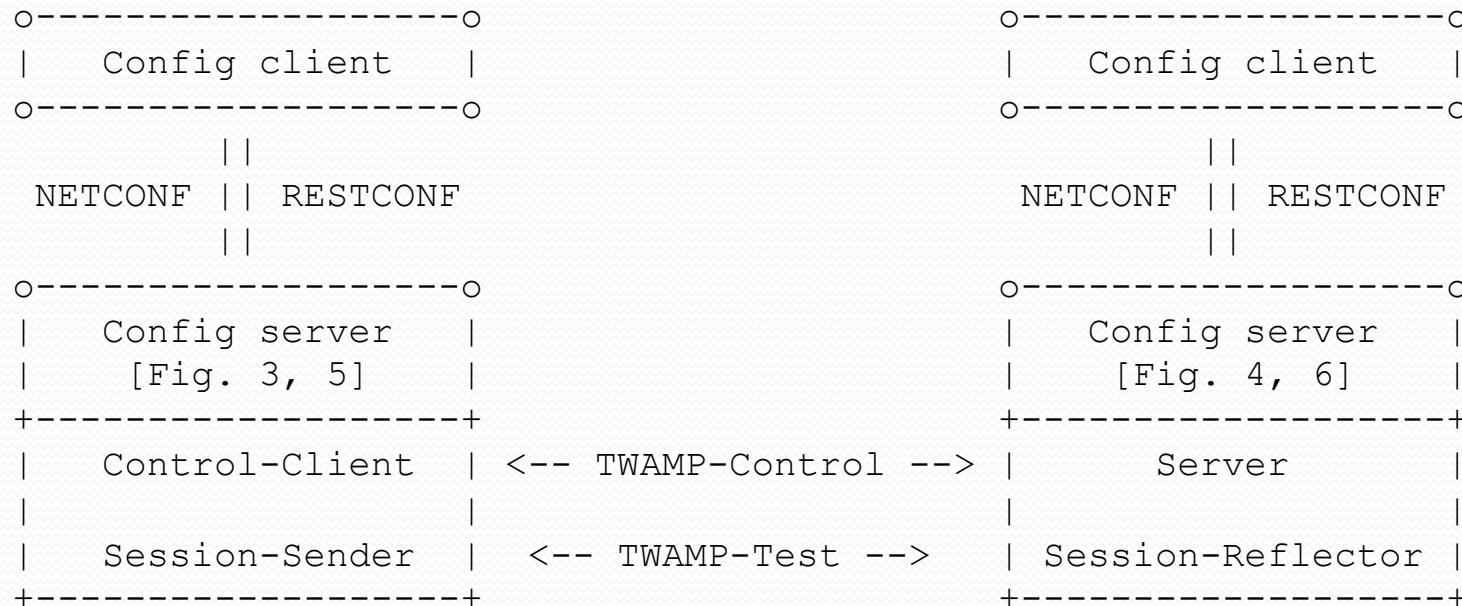


Figure 2: Simplified TWAMP model and protocols

# Summary

- What's the challenge?
  - Identify the groupings or functions
  - Determine the hierarchy of the groupings/functions
  - Identify the parameters, some are in the RFCs
- One Module
  - Four main Containers:
    - Control-Client, Server, Session-Sender, and Session-Reflector
  - Many Parameters

# UML Classes for Control-Client

if-feature: controlClient

**C** <<container>>  
twampClient

clientAdminState : boolean {mandatory}

1...N

L

<<list>>  
modePreferenceChain

priority : uint16 {key}  
mode : enumeration : {unauthenticated,authenticated,encrypted,} {unique}

L

<<list>>  
keyChain

keyId : string {length = 1..80} {key}  
secretKey : string

0...N

L

<<list>>  
twampClientCtrlConnection

- ctrlConnectionName : string {key}  
clientIp : inet:ip-address  
serverIp : inet:ip-address {Config : true}  
serverTcpPort : inet:port-number

dscp : inet:dscp

keyId : string {length = 1..80}

dkLen : uint32

clientTcpPort : inet:port-number {Config : false}

serverStartTime : uint64 {Config : false}

ctrlConnectionState : enumeration : {active,idle,} {Config : false}

selectedMode : enumeration : {unauthenticated,authenticated,encrypted,} {Config : false}

token : string {length = 1..64} {Config : false}

clientIv : string {length = 1..16} {Config : false}

# UML Classes for Control-Client

When (repeatInterval):  
repeat='true'

0...N

L << /list>>  
twampClientCtrlConnection

0...N

L << /list>>  
twampSessionRequest

- o testSessionName : string {key}
- senderIp : inet:ip-address
- senderUdpPort : inet:port-number
- reflectorIp : inet:ip-address
- reflectorUdpPort : inet:port-number
- timeout : uint64
- paddingLength : uint32 [64..1500]
- startTime : uint64
- repeat : boolean
- repeatInterval : uint32
- pmIndex : uint16
- testSessionState : enumeration : {ok, failed, internalError, ...} {Config : false}
- sid : string {Config : false}

Connection to  
Performance Metrics  
Registry

# Tree view

```
module: twamp 0
++rw twamp
  +-rw twampClient {controlClient?}
    | +-rw clientAdminState boolean
    | +-rw modePreferenceChain* [priority]
      | | +-rw priority     uint16
      | | +-rw mode?        enumeration
    | +-rw keyChain* [keyId]
      | | +-rw keyId       string
    | | +-rw secretKey?   string
    +-rw twampClientCtrlConnection* [ctrlConnectionName]
      +-rw ctrlConnectionName   string
      +-rw clientIp?          inet:ip-address
      +-rw serverIp?          inet:ip-address
      +-rw serverTcpPort?     inet:port-number
      +-rw dscp?               inet:dscp
      +-rw keyId?              string
      +-rw dkLen?              uint32
      +-ro clientTcpPort?     inet:port-number
      +-ro serverStartTime?   uint64
      +-ro ctrlConnectionState? enumeration
      +-ro selectedMode?      enumeration
      +-ro token?              string
      +-ro clientIv?           string
      +-rw twampSessionRequest* [testSessionName]
        +-rw testSessionName   string
        +-rw senderIp?         inet:ip-address
        +-rw senderUdpPort?    inet:port-number
        +-rw reflectorIp?      inet:ip-address
        +-rw reflectorUdpPort?  inet:port-number
        +-rw timeout?          uint64
        +-rw paddingLength?    uint32
        +-rw startTime?         uint64
        +-rw repeat?            boolean
        +-rw repeatInterval?   uint32
        +-rw pmIndex?           uint16
        +-ro testSessionState?  enumeration
        +-ro sid?               string
```

# Next steps

- Seek Reviewers from the TWAMP community
- Eventually, WG adoption
- Comments?