A YANG Data Model for Network Diagnosis by scheduling sequences of OAM tests

draft-contreras-opsawg-scheduling-oam-tests

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OPSAWG, Prague, November 2023
Introduction

• OAM testing is an essential part of network operations and management

• However, scheduling tests can be challenging, especially in complex networks.

• This document proposes a way to simplify the scheduling process and improve the reliability of OAM testing.

• This work aims to reuse existing work like [RFC8531], [RFC8532] and, [RFC8533], which defined YANG models for OAM technologies.
Terminology

• Following terms are used for the representation of this data model.
  
  • **OAM unitary test**: it is a set of parameters that define a type of OAM test to be invoked.
    
    • As an example, it includes the type test, configuration parameters, and target results.
  
  • **OAM test sequence**: it is a set of OAM unitary tests that are run based on a set of time constraints, number of repetitions, order, and reporting outputs.
Use cases

• **Troubleshooting.** OAM tests are used for troubleshooting network issues by testing specific components of the network and looking for anomalies or issues.

• **Birth certificate.** The birth certificate process is a set of OAM tests that validate that all relevant parameters are correct for a specific network service, ensuring that it is functioning correctly and meets the requirements defined by the operator.

• **Proactive supervision** involves running periodic OAM tests on service components to identify and resolve issues before they impact the customer or end user, ensuring SLAs are met.

• **Performance-based Path Routing** uses Path Computation Elements (PCEs) and OAM techniques to compute the optimal path for a particular service, taking into account its constraints and requirements, to optimize network performance, reduce congestion, and improve the overall user experience.
YANG model details – unitary test

module: ietf-oam-unitary-test
  +--rw oam-unitary-test
    +--rw name?                       string
    +--rw (test-type)
    +--rw period-of-time
      ... from ietf-schedule
    +--rw recurrence
      ... from ietf-schedule
    +--rw unitary-test-status?         enumeration

• Name: Unique name for the test
• test-type: Choose the type of test. They are imported from other RFCs
• Period from ietf-schedule
• Recurrence from ietf-schedule
• Unitary-test-status status of the test
YANG model details – test sequence

module: ietf-oam-test-sequence
  +--rw oam-test-sequence
    +--rw test-sequence* [name]
      +--rw name string
      +--rw test-ref* [name]
        |  +--rw name string
        |  +--rw (test-type)
        |  +--rw numexecutions? uint32
        +--rw period-of-time
          … from ietf-schedule
    +--rw recurrence
      … from ietf-schedule
    +--ro test-sequence-status? enumeration

• Name: Unique name for the test sequence
• test-ref: List to reference to an ietf-oam-unitary-tests.
  • Name: Reference to an ietf-oam-unitary-test name
  • Numexecutions: Number of times the test sequence should be executed.
• Period from ietf-schedule
• Recurrence from ietf-schedule
• test-sequence-status status of the test sequence
Conclusion and future work

• Collect feedback from the WG and check if there is interest on this activity within the WG

• Prepare new version for IETF 119