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

draft-contreras-opsawg-scheduling-oam-tests

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Introduction

- OAM testing is an essential part of network operations and management
- However, scheduling tests can be challenging, especially in complex networks.
- This proposed solution offers a way to simplify the scheduling process and improve the reliability of OAM testing.

- This work will 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

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

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

• This is an initial work
• Feedback on the proposal to see if there is interest in the WG.