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

draft-contreras-opsawg-scheduling-oam-tests-00

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OPSAWG WG, Yokohama, March 2023
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 pursues to offer a way to simplify the scheduling process and improve the reliability of OAM testing
Motivation and objective

• To create data models enabling execution of network diagnosis procedures, creating sequence of unitary tests
  • Either on-demand or scheduled

• Define a YANG data model for network diagnosis on-demand using Operations, Administration, and Maintenance (OAM) tests
• Define both 'oam-unitary-test' and 'oam-test-sequence' for that purpose
Sequence of unitary tests

• 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
  • After the detection of a problem in the network, a sequence of OAM tests are performed to find the root cause for the detected issue.

• Birth certificate
  • Define sequences of tests for birth certificate procedures

• Proactive supervision
  • Sequence of OAM can be run periodically at regular intervals depending on the specific SLA requirements and the network operator procedures.

• Performance-based Path Routing
  • Triggering of OAM test sequence to allow obtaining metrics (e.g. delay, loss) which can be used in the PCE algorithms.
Further ideas

Lists

List of unitary tests

Unitary test >>

List of tests sequences

<< schedule

<< (unitary test, repetitions)

<< Sequence 1

<< Sequence 2
Conclusion and future work

• This is an initial work
• Comments from the WG would be extremely valuable
• Checking if there is interest in the WG to continue this work.