YANG Data Model for Configuration Scheduling

draft-liu-netmod-yang-schedule-03

Github: https://github.com/ietf-mpls-yang/te/blob/master/ietf-schedule.yang

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Introduction

- A YANG model to specify configuration scheduling.
- When schedules are specified on a data object, the object is configured or removed based on the schedules.
Applications

- TE topology model in TEAS working group
- Resource scheduling in PCE (Path Computation Element)
- I2RS controller
- DTN (Delay/Disruption Tolerant Networking)
- Operator expressed interest during IETF97
Changes

- Security aspects
- Datastore validation
- Schedule expansion and execution
- Interactions with locks
- Interactions with authorization mechanism
- Time synchronization aspects
Model Structure

module: ietf-schedule
  +-rw configuration-schedules
    +-rw target* [object]
      +-rw object            yang:xpath1.0
    +-rw operation?  operation
    +-rw data-value?   anydata
  +-rw schedules
    |  +-rw schedule* [schedule-id]
    |    +-rw schedule-id            uint32
    |    +-rw inclusive-exclusive?   enumeration
    |    +-rw start?                 yang:date-and-time
    |    +-rw schedule-duration?     string
    |    +-rw repeat-interval?       string
  +-ro state
    |  +-ro future-executions
    |    +-ro execution* [start]
    |      +-ro start        yang:date-and-time
    |      +-ro duration?    string
    |      +-ro operation?   operation
    +---n execution
      +---- operation    operation
      +---- datetime?    yang:date-and-time
      +---- results?     anydata
Usage Example 1

```xml
<configuration-schedules>
  <target xmlns:ex="urn:example">
    <object>/ex:te-links</object>
    <operation>configure</operation>
    <data-value>
      <te-link>
        <id>link-1</id>
        <enabled>true</enabled>
      </te-link>
    </data-value>
    <schedules>
      <schedule>01
        <schedule-id>11</schedule-id>
        <start>2016-09-12T23:20:50.52Z</start>
        <schedule-duration>P1D</schedule-duration>
        <repeat-interval>R5/P1W</repeat-interval>
      </schedule>
    </schedules>
  </target>
</configuration-schedules>

link-1 is configured weekly for 5 1-day periods, starting from 2016-09-12T23:20:50.52Z.
Usage Example 2

module: example
    +--rw te-links
        +--rw te-link* [id]
            +--rw id string
            +--rw enabled? boolean

<configuration-schedules>
    <target xmlns:ex="urn:example">
        <object>
            /ex:te-links/ex:te-link[ex:link-id='link-1']/ex:enabled
        </object>
        <operation>set</operation>
        <data-value>true</data-value>
        <schedules>
            <schedule>
                <schedule-id>11</schedule-id>
                <start>2016-09-12T23:20:50.52Z</start>
                <schedule-duration>P1D</schedule-duration>
                <repeat-interval>R5/P1W</repeat-interval>
            </schedule>
        </schedules>
    </target>
</configuration-schedules>

link-1 is enabled weekly for 5 1-day periods, starting from 2016-09-12T23:20:50.52Z.
Next Steps

- Solicit comments
- WG consensus