YANG model for finite state machine

draft-sambo-netmod-yang-fsm-04

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Objective

- YANG model for finite state machine (FSM) to increase programmability of network elements
- Some examples:
    - Pre-instruct devices on reconfigurations based on current network state
    - Custom data probing in network telemetry applications based on network state
    - Monitoring of packet loss and delay through a network clustering approach based QoS state

YANG model for FSM

```
module: finite-state-machine
   +--rw current-state?   leafref
   +--rw states
      +--rw state [id]
         +--rw id            state-id-type
         +--rw description?  string
         +--rw transitions
            +--rw transition [name type]
               +--rw name           string
               +--rw type           transition-type
               +--rw description?   string
               +--rw filters
               |  +--rw filter [filter-id]
               |     +--rw filter-id    yp:filter-id
               +--rw actions
                  +--rw action [id]
                     +--rw id            transition-id-type
                     +--rw type          enumeration
                     +--rw conditional
                     |  +--rw statement    string
                     |  +--rw true
                     |  |  +--rw execute
                     |  |  +--rw next-action?   transition-id-type
                     |  |  +--rw next-state?    leafref
                     |  +--rw false
                     |     +--rw execute
                     |     +--rw next-action?   transition-id-type
                     |     +--rw next-state?    leafref
                     +--rw simple
                        +--rw execute
                        +--rw next-action?   transition-id-type
                        +--rw next-state?    leafref
```

e.g., state [0]= 'normal operation'

e.g., BER increase

To put a threshold on the BER: e.g., BER>TH

e.g., change modulation format

an <rpc> is called

Relation with other drafts

- This draft originally proposed in opsawg – draft-sambo-opsawg-ccamp-supa-ext-yang-fsm-00 – June 27 2017
- Moved in netmod: draft-sambo-netmod-yang-fsm-00, October 30 2017
- Now version 4

- Other draft: draft-bryskin-netconf-automation-yang-00, February 21 2018
  - Now version 3 expiring in December 2018
  - YANG model for Events, Conditions, Actions
  - To manipulate network auto-control

- Some similarities

- Possibilities:
  1. Is draft-bryskin-netconf-automation-yang-03 going to be updated?
  2. Identify differences of the objectives and possibilities of the two approaches
  3. Find a way to merge them

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