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-supext-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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