Smart filters for Push Updates – Problem Statement
draft-clemm-netmod-push-smart-filters-01

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Recap

- YANG-Push filters allow clients to select which nodes to subscribe to

- Many monitoring applications are based on observing values
  - "Is utilization above 90%?"; "Has critical range been reached?"

- However, filtering based on values currently not covered in YANG-Push
  - Do not stretch implementation complexity
  - To be truly useful, frequently also state may be required
    - Example TCAs: update once when breached, once when cleared
  - On-change update semantics: object created/deleted vs object in/out of range

- Smart filters addresses this gap
  - Transition from update notifications to simple events
  - Send update only if object's value may require attention
  - Basis for many Service Assurance applications
  - Required for network automation: one source of events for Event-Conditions-Actions rules

Updates

- Draft has been lying "dormant" for some time
  - Logical extension and "next step" for YANG-Push
  - Need to get basic YANG-Push drafts out first
  - Given WGLCs are near conclusion, time to revive
- -01 defines the first set of filters:
  - Value filters: compare objects against a threshold value using an operator (ge, le, gt, lt, eq)
  - Push update includes object if value matches the comparison
  - Do not confuse with true threshold alerts (no state, no "clear", no counter-threshold)

Smart + stateful filters

complexity (vertical arrow, pointing down)

- Filter based on values
  - Match filters
  - Comparators
- Stateful filters
  - Threshold Crossings
  - Recent High Water Marks
  - Object in/out of filter
  - Other
- Aggregates over time
- Aggregates across objects
  - Full RMONification + Expression-MIBification
- Additional condition checks (out of scope)
  - Bryskin-netconf-automation-framework

Simple filter extensions
Updated on-change update semantics:
    Semantics of object omission/inclusion
    "on-change" ⇔ "on-change w/ filter"
       This update

Addl. stateful filter config: threshold, hysteresis threshold, time horizon
Separate notifications – designated TCA, HWA
TBD

Next steps

- Grow supported filter types
  - Add stateful filters
    - Threshold crossing / clearing with state
    - High-water / low-water marks
- Assess interest of the working group to define a solution for this problem
  - There was significant interest in the past
  - Given YANG-Push readiness, it may be time to take this up
  - WG adoption call once other drafts are in IESG?

Thank you!