Using ALTO for exposing Time-Variant Routing information

draft-contreras-tvr-alto-exposure-04

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Recap

- Presented at IETF 116, 117, 118 & 119
- It enables an off-path mechanism for exposing scheduled topological changes
  - It can co-exist with on-path solution
  - It offload the processing of changes from the network elements (centralized solution as described in Requirements draft)
- It serves the purpose of exposing scheduled topological changes to Applications/Services so those can become aware of routing variations impacting them
- ALTO allows to expose anticipated and predictable topological changes by leveraging on the standard cost calendar feature, defined in [RFC8896]
Changes from -03 (1/2)

• Added and applicability statement exemplifying the action of a human at NOC according to [I-D.ietf-tvr-schedule-yang]

module: ietf-tvr-node
  +++-rw node-schedule
  +++-rw node-id? "192.168.10.17"
  ...
  +++-rw interface-schedule
    +++-rw interfaces*
      +++-rw name "GigabitEthernet0"
      ...
      +++-rw attribute-schedule
        +++-rw schedules*
          +++-rw schedule-id "0123456789"
          +++-rw (schedule-type)?
          +++:(period)
          ...
          +++-rw period-start "2024-07-08T10:30:00"
          +++-rw time-zone-identifier? "Africa/Dakar"
          +++-rw (period-type)?
          ...
          +++:(duration)
          +++-rw duration? "3600"
          ...
          +++-rw attr-value
          +++-rw available? "false"
Changes from -03 (2/2)

• Gaps identified (so far)
  • [I-D.ietf-tvr-schedule-yang] can require further granularity, as cards (by now, only schedule changes at node and link level).
  • While conflicts are easy to handle by centralized (i.e., off-path) solutions, it can require the definition of arbitration mechanisms for distributed ones.
  • Distributed scheduled changes can require ways of easily reverting proposed changes
  • When using distributed advertisement, the exposure of planned changes to external parties or applications can be a security problem, because the potential accessibility to information beyond the topological changes.

• Implementation status section added
  • Implementation is under development

• Refinement of the compliance of requirements
Next steps

• Collect further feedback from the WG
  • Previously received comments already addressed

• Keep working on the implementation and reporting new gaps, if any
  • For IETF 121 an initial version of the SW should be ready, with the intention of releasing it as open-source

• Ask for WG adoption as off-path solution for TVR
  • Adoption could trigger some work on ALTO for fulfilling all the requirements (e.g., time overlap)
  • An off-path solution could refer to ALTO as example, but being possible to generalize the concept, if convenient