A YANG Data Model for SD-WAN service delivery

draft-sun-opsawg-sdwan-service-model-04

Qiong Sun, China Telecom
Bo Wu(Presenting), Qin Wu, Huawei
Charles Eckel, Cisco
What is SD-WAN service model

• SD-WAN service is a connectivity service offered by a service provider network to provide connectivity across different customer sites using one of more underlay networks
• A service providers can use this model to dynamically create, modify, and manage SD-WAN service components
Changes since -02 (IETF 104)

- New co-author: Charles Eckel
- MEF SD-WAN project alignment
  - Added MEF-related references and terminology comparisons, MEF 70 Draft (R1) (SD-WAN Service Attributes and Services) has published
  - Made editorial changes to the entire draft to better align with the MEF SD-WAN project and improve readability
  - Highlight SD-WAN application based policy service, because SD-WAN has application-based multipath selection features
- draft-wood-rtgwg-sdwan-ose-yang (YANG Data Model for SD-WAN OSE service delivery) comparisons
Issue: OSE model difference

- SD-WAN service model: high-level interface to the customer, upon user’s request, service orchestrator can add a new site, VPN or application policy in real time.
- OSE service model: The assumptions of the orchestrator function are different. The responsibility for SD-WAN infrastructure service configuration lies entirely within the domain SDWAN manager. The OSE draft defines OSE Gateway service and inter-domain path service.
Open discussion

1. MEF SD-WAN project coordination approach

2. draft-wood-rtgwg-sdwan-ose-yang-01 coordination approach
   - Align terminology of the two drafts
   - Use the Grouping statement on the model component to allow reuse, such as site, vpn, application policy grouping
Next Steps

• Seeking WG adoption
• Solicit more comments
  – Your comments and suggestions are welcome!
The service orchestrator of a service provider can request, configure, and manage “vpn-service” and “sites”.

```
module: ietf-sdwan-svc
  +--rw sdwan-svc
  +--rw vpn-services
    |  +--rw vpn-service* [vpn-id]
    |      +--rw vpn-id       svc-id
    |      +--rw topology?    identityref
    ...
    +--rw endpoints* [endpoint-id]
    |      +--rw endpoint-id   svc-id
    |      +--rw site-role?    identityref
    |      +--rw site-attachment
    |      |  +--rw site-id? -> /sdwan-svc/sites/site/site-id
    |      +--rw endpoint-policy-map
    |      |      +--rw app-group-policy* [app-group-id]
    |      |      |      +--rw app-group-id     leafref
    |      |      |      +--rw policy-id?     leafref
    |      |      +--rw app-policy* [app-id]
    |      |      |      +--rw app-id       leafref
    |      |      |      +--rw policy-id?     leafref
    ...
    +--rw sites
      +--rw site* [site-id]
      |      +--rw site-id   svc-id
      |      +--rw device* [name]
      |      |      +--rw name   string
      |      |      +--rw type?  identityref
      +--rw wan-access* [name]
      |      +--rw name     string
      |      +--rw bandwidth
      |      |      +--rw input-bandwidth?  uint64
      |      +--rw output-bandwidth?  uint64
    ...
```
SD-WAN application based policy service components

- The service orchestrator of a service provider can request, configure, and manage application policies
- The assumption is one service provider domain

```
+-------------------+-----------------+
|                   | Link & Path     |
| Traffic Classifier| Policy          |
+-------------------+-----------------+
```

---rw application* [app-id]
  +--rw app-id  svc-id
  +--rw ac* [name] (application flow criteria)
    +--rw name string
    +--rw (match-type)?
      +--:(match-flow)
      |  +--rw match-flow
      |  |  +--rw ethertype? uint16
      |  |  +--rw cvlan? uint8
      |  |  +--rw ipv4-src-prefix? inet:ipv4-prefix
      |  |  +--rw ipv4-dst-prefix? inet:ipv4-prefix
      |  |  +--rw l4-src-port? inet:port-number
      |  |  +--rw l4-dst-port? inet:port-number
      |  |  +--rw ipv6-src-prefix? inet:ipv6-prefix
      |  |  +--rw ipv6-dst-prefix? inet:ipv6-prefix
      |  |  +--rw protocol-field? union
      +--:(match-application)
      |  +--rw match-application? identityref

---rw policy* [policy-id]
  +--rw policy-id  svc-id
  +--rw policy-package
    +--rw encryption? enumeration
    +--rw public-private? enumeration
    +--rw local-breakout? boolean
    +--rw billing-method? enumeration
    +--rw backup-path? enumeration
    +--rw bandwidth
      +--rw commit? uint32
      +--rw max? uint32
SD-WAN OSE path service

- OSE model needs to ensure consistent policy across domains

mode: automatic, preferred, lowest-cost

service-type: commodity, wireless, private

path-selection-mode: drop, underlay, overlay