ONUG Open SDWAN Exchange
OSE API Interworking progress
Building Practical Hybrid-Multi Cloud Infrastructure is ONUG’s Focus

- Open SD-WAN Exchange
- Software-Defined Security Services
- Monitoring and Analytics
The **Open SD-WAN Exchange (OSE)** is an open framework to allow for one vendor SD-WAN solution to federate and communicate with other vendor SD-WAN solutions that utilize different Overlay, Control and Management plane protocols. The “Open SD-WAN Exchange” use cases address marketplace M&A, business partner connectivity, Cloud/Service Provider network connectivity, technology transition and vendor interworking.
Open SDWAN Interworking Model

Client Orchestration Layer

Vendor 1
SD-WAN Manager
SD-WAN Controller

Vendor 2
SD-WAN Manager
SD-WAN Controller

Service Context Exch.
Authentication Exch.

Traffic/Segment Mapping
Authenticated Control Plane

Intradomain Orchestration

Interdomain Orchestration

External Networks

OSE Gateway Elements

External Networks

Site A
Vendor 1
SD-WAN

Site B
Vendor 2
SD-WAN

Traffic/Segment Mapping
Data Plane

N

Nsw
OSE Multiple Area Reference Network

Client Orchestration Layer

- Orchestration
- Infrastructure
- Policy
- Visibility/Analytics

Serving SD-WAN Manager 1
- SD-WAN Manager
- SD-WAN Controller

SD-WAN Transport Network

Vendor 1

Serving SD-WAN Manager 2
- SD-WAN Manager
- SD-WAN Controller

SD-WAN Transport Network

Vendor 2

Serving SD-WAN Manager n
- SD-WAN Manager
- SD-WAN Controller

SD-WAN Transport Network

Vendor n

SD-WAN Client

Transport Area 1

Transport Area 2

Transport Area n
OSE WORK ACTIVITY & TASK FORCES

• Task Forces
  2. Service Chaining – propose requirements and objectives for Open SD-WAN
  4. OSE Hybrid Cloud API - Establish use cases and requirements. OSE requirements for common API services to leading cloud providers.

• Active Specification Work
  1. OSE Architecture Spec – Reference SDWAN Architecture and interface reference points
  2. OSE Path Management – Access network selection service definition
  3. OSE External Gateway Spec – cross-domain reachability and segmentation exchange
  4. Open API Format – API format and service modelling specifications
SD-WAN Work Areas

- APIs for Service Management & Provisioning
  - Access Network (Path) Management Service Definition
  - SDWAN domain peering and interworking
  - OSE Gateway NNI
- Authentication between domains
- Security (Confidentiality/Crypto)
- Segmentation
  - Ensure that traffic is mapped between network segment with same policy intent
- Service Definitions
  - Consistent service behaviors across SD-WANs end-to-end
  - Standard metadata exchange for traffic classifier and service policy
  - Standard namespaces (eg. AppID)
- Service connection / mapping at peering points
  - IPSec and Routing interworking specifications
- Hybrid Cloud Services Access homologation (vPC, SaaS, IaaS)
- Service Chaining across SDWANs
KEY PROGRESS & RESULTS

- **SD-WAN Reference Architecture**
  - First draft of architecture spec published for external review

- **OSE Path Management Service API**
  - First draft API released. Not yet for implementation.
  - External review and improvement
  - Yang Service models for:
    - Predefined and custom SLA definition
    - Flow classification
    - Preferred path selection
KEY PROGRESS & RESULTS

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• OSE Gateway Service API
  - Gateway Service creation, interface configuration
  - Segmentation instance creation, cross-connect
  - Yang-based service models

• Where to find?
  - Github: swood1465
  - Repositories: ONUG-OSE, ONUG-OSE-Docs
OPEN ITEMS

- Service definitions: services available via the API
- Close on outstanding Nsw reference point definitions
  - IPSec definition
  - API for VPN and control plane configuration across Nsw reference point
- API Element/Type definitions and OSE namespace
- API Authentication
OSE HYBRID CLOUD USE-CASES

1. vPC/IaaS – SD-WAN edge inside a vPC
   • Establish an SD-WAN fabric edge in vPC/IaaS facility.
   • Multiple vendor SD-WAN services can be hosted in a single vPC.
   • Common service API definition would be beneficial

2. SD-WAN Integration to Carrier Neutral Facility (CNF)
   • Similar to use case #1
   • Orchestration API definition, NBI interface to CNF services

3. Public Cloud / SaaS – SD-WAN user access SaaS providers (O365, SFDC,..)
   • Access to SaaS applications via Internet or private WAN (MPLS) providers
   • SD-WAN access to SaaS is vendor specific and does not require interoperability
   • Common service definition and behavior required – path selection, security, app assurance, vQoE
OSE HYBRID CLOUD TASK FORCE

**Step 1: Establish use cases and requirements:**
- Building the Hybrid IT Datacenter
- Direct Internet Access i.e. split tunnel (SaaS)
- Direct Cloud access i.e. SD-WAN Edge (IaaS, PaaS, Colo)
- Branch to hybrid DC connection use cases: Any-any SD WAN ; via Relay-site
- Defines types of network services between DCs (SD-WAN or Direct connect/cloud express)
- Define use cases for Colo - SD-WAN Edge connect to colocated services/Apps
- Resiliency requirements

**Step 2: Areas of Work/API definition**
- Translation/Adaptation API to consume CSP VNF orchestration and lifecycle mgmt across multiple CSPs in a common way
  - Control plane services
  - Management/Orchestration services
  - Common set of services? Service homologation?

Create a proposal to define the details we need to work in the areas above
Focus CSPs: AWS, Azure, Google, IBM, Oracle

- Enumerate the DC-side connectivity options (CP/DP) for each CSP
Discussion