Briefing of the recent SD-WAN and Network to Cloud DCs initiatives in IETF

Linda.Dunbar@Huawei.com
IETF 104 March 2019
Application-based traffic steering

- Different routing policies are implemented for different applications, ensuring excellent service experience of enterprise applications.

- Access the cloud locally: local breakout, improving cloud access experience for enterprises

Bird’s Eye View of SDWAN
**SD-WAN: Peer the onion**

**Homogeneous SD-WAN:**
- Edge encrypting all sensitive traffic to other edge nodes, regardless if the underlay is private or public.
- Typical deployment scenarios:
  - A small branch office connecting to its HQ offices via Internet.
  - A store in a shopping mall needs to securely connect to its Apps in Cloud DC via Internet.

**SD-WAN over Hybrid Networks**
- Key difference from Homogeneous SD-WAN:
  - Traffic over Private VPN networks (e.g. MPLS) can go natively without encryption to achieve better performance, and traffic over internet are carried by IPsec tunnels.
- User specified policy governs a flow:
  - only going over private network without encryption (for better performance),
  - going over any networks as long as its packets are encrypted when go over public networks, or
  - not needing encryption at all.
Three different Tiers of SD-WAN Control Plane

1. End Node Registration:
   SD-WAN node’s private address and WAN Ports/Addresses registration to the SD-WAN Controller.
   It is for informing the SD-WAN controller and potential peers of the underlay networks to which the CPE is connected.

2. Controller facilitated IPsec SA association establishment among WAN Ports

3. Attached routes distribution using BGP RR:
   - EVPN
   - IPVPN
   - Or something else
Activities in IETF

- **Routing Area:**
  - RTGwg:
    Problem Statement & Gap Analysis for SD-WAN Overlay Control Plane
  - IDR WG
    draft-dunbar-idr-sdwan-port-safi-00
  - BESS WG:
    draft-sajassi-bess-secure-evpn-01
    draft-rosen-bess-secure-l3vpn-00

- **Security Area**
  - I2NSF WG:
    SDN controller managed IPsec keys: draft-ietf-i2nsf-sdn-ipsec-flow-protection-03
  - IPsecme WG:
    draft-carrel-ipsecme-controller-ike-01

- **Ops Area:**
  - Opsawg:
Questions?

Linda.Dunbar@Huawei.com