Wired Intelligent Edge (Campus Switching and Routing)

Bring performance and reliability to your network with the Aruba Core, Aggregation, and Access layer switches. Discuss the latest features and functionality of the ArubaOS-Switch and ArubaOS-CX devices, and find ways to improve security across your network to bring together a mobile first solution

Overview And Setup Of VXLAN On Aruba Switches

esupport

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Requirement:

VXLAN:

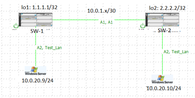
- VXLAN is a Layer 2 encapsulation technology that substitutes the usage of VLAN numbers to label Ethernet broadcast domains with VXLAN numbers.
- VXLAN supports 2^24 Ethernet broadcast domains or VXLAN numbers. (16,777,216)
- A VXLAN number ID is referred to as VNI. There is a one-to-one relationship between an Ethernet broadcast domain and a VNI.
- A single Ethernet broadcast domain can't have more than one VNI.
- VXLAN requires two devices to create and terminate VXLAN tunnels. A device that can create or terminate the VXLAN tunnel is called the VXLAN Tunnel Endpoint (VTEP).

A VTEP performs these two roles:

1. Receive Layer 2 traffic from a source, such as a VM, in an Ethernet broadcast domain, encapsulating it within a VXLAN frame and sending it to the destination
2. VTEP Receive the VXLAN frame, stripping the encapsulation to reveal the encapsulated Ethernet frame, and forwarding the frame toward the destination included in the encapsulated Ethernet frame.

- VXLAN tunnel which carries the encapsulated data is called an overlay network
- The IP physical network that switches and routes the tunnels that make up the overlay is called the underlay network.

Topology:



Devices Used:

2 x 5412R switches : Version - KB.16.08.0001

2 x Servers

Requirement:

The Clients connected to vlan 20 on both the switches need to communicate with each other,the switches are connected through a /30 network between them and no gateway is configured on the Servers.

The overlay network will be Vlan 20 and underlay is the vlan 1

Solution:

Server Ping results from 10.0.20.10:

```
Windows PowerShell
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PS C:\Users\Administrator> ping 10.0.20.9

Pinging 10.0.20.9 with 32 bytes of data:
Reply from 10.0.20.9: bytes=32 time=1ms TTL=128
Reply from 10.0.20.9: bytes=32 time=1ms TTL=128
Reply from 10.0.20.9: bytes=32 time=1ms TTL=128
Reply from 10.0.20.9: bytes=32 time=1ms TTL=128

Ping statistics for 10.0.20.9:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Configuration:

Config steps:

1. Disable v2 modules
2. Enable VXLAN
3. Create a Virtual-network (VNI) and associate a vlan
4. Create a Vxlan tunnel and define source and destination VTEP's
5. Map the tunnel to a overlay network

SW-1:

```
1. no allow-v2-modules
2. vxlan enable
3. virtual-network 300 20 "lll"  (Vlan is 20 and VNI is 300)
4. interface tunnel 1
     tunnel name "left"
     tunnel mode vxlan
     tunnel source 1.1.1.1
     tunnel destination 2.2.2.2
     exit
5. vxlan tunnel 1 overlay-vlan 20
```

```
SW-1(config)# show ip

Internet (IP) Service

  IP Routing : Disabled
  Default Gateway :
  Default TTL      : 64
  Arp Age          : 20
  Domain Suffix    :
  DNS server       :
                                                    Proxy ARP
VLAN            | IP Config  IP Address    Subnet Mask     Std  Local
----------------+ ---------- ------------- --------------- ---- -----
DEFAULT_VLAN    | Manual     10.0.1.1      255.255.255.252 No   No
VLAN20          | Disabled
                  Loopback Interface
Loopback        | IP Config  IP Address    Subnet Mask
----------------+ ---------- ------------- ---------------
lo1             | Manual     1.1.1.1       255.255.255.255
```

```
SW-1(config)# show ip route

                          IP Route Entries
Destination     Gateway         VLAN Type    Sub-Type  Metric   Dist.
--------------- --------------- ---- ------- --------- -------- -----
1.1.1.1/32      lo1             -    connected -       1        0
2.2.2.2/32      10.0.1.2        1    static    -       1        1
10.0.1.0/30     DEFAULT_VLAN    1    connected -       1        0
127.0.0.0/8     reject          -    static    -       0        0
127.0.0.1/32    lo0             -    connected -       1        0
```

SW-2:

```
1. no allow-v2-modules
2. vxlan enable
3. virtual-network 300 20 "lll"
4. interface tunnel 2
     tunnel name "right"
     tunnel mode vxlan
     tunnel source 2.2.2.2
     tunnel destination 1.1.1.1
     exit
5. vxlan tunnel 2 overlay-vlan 20
```

```
SW-2(config)# show ip

Internet (IP) Service

  IP Routing : Disabled

  Default Gateway :
  Default TTL      : 64
  Arp Age          : 20
  Domain Suffix    :
  DNS server       :
                                                    Proxy ARP
VLAN            | IP Config  IP Address    Subnet Mask     Std  Local
----------------+ ---------- ------------- --------------- ---- -----
DEFAULT_VLAN    | Manual     10.0.1.2      255.255.255.252 No   No
VLAN20          | Disabled
                  Loopback Interface
Loopback        | IP Config  IP Address    Subnet Mask
----------------+ ---------- ------------- ---------------
lo2             | Manual     2.2.2.2       255.255.255.255
```

```
SW-2(config)# show ip route

                          IP Route Entries
Destination     Gateway         VLAN Type    Sub-Type  Metric   Dist.
--------------- --------------- ---- ------- --------- -------- -----
1.1.1.1/32      10.0.1.1        1    static    -       1        1
2.2.2.2/32      lo2             -    connected -       1        0
10.0.1.0/30     DEFAULT_VLAN    1    connected -       1        0
127.0.0.0/8     reject          -    static    -       0        0
127.0.0.1/32    lo0             -    connected -       1        0
```

Server 1:

```
Ethernet adapter ZZ_Test Network:

   Connection-specific DNS Suffix  .
   Link-local IPv6 Address . . . . . : fe80::8cd5:177c:48e6:ddc1%13
   IPv4 Address. . . . . . . . . . . : 10.0.20.9
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
```

Server 2:

```
Ethernet adapter ZZ_Test Network:

   Connection-specific DNS Suffix  .
   Link-local IPv6 Address . . . . . : fe80::4480:f068:e9c8:9dc9%13
   IPv4 Address. . . . . . . . . . . : 10.0.20.10
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
```

Verification

SW-1 :

```
SW-1(config)# show vxlan

  VXLAN Tunnel Information

  Status          : Enabled
  UDP Port        : 4789
```

```
SW-1(config)# show interfaces tunnel 1

Tunnel Configuration :

Tunnel          : 251659490
Tunnel Name     : VXLAN_Tunnel01
Tunnel Status   : Enabled
Source Address  : 1.1.1.1
Destination Address  : 2.2.2.2
Mode            : VXLAN Tunnel
TOS             : -1
TTL             : 64
IPv6            : n/a
MTU             : 1450


Current Tunnel Status :

Tunnel State    : Up
Destination Address Route : 2.2.2.2/32
Next Hop IP     : 10.0.1.2
Next Hop Interface     : vlan1
Next Hop IP Link Status : Up
Source Address  : 1.1.1.1
Egress Port     : A1
```

```
SW-1(config)# show interfaces tunnel type vxlan statistics 251659490

  Tunnel Name                   : VXLAN_Tunnel01
  Rx Packets                    : 505
  Tx Packets                    : 87973812
  Rx 5 Minute Weighted Average Rate (Pkts/sec) : 0
  Tx 5 Minute Weighted Average Rate (Pkts/sec) : 0
```

SW-2:

```
SW-2(config)# show vxlan

  VXLAN Tunnel Information

  Status          : Enabled
  UDP Port        : 4789
```

```
SW-2(config)# show interfaces tunnel 2

Tunnel Configuration :

Tunnel          : 251659490
Tunnel Name     : VXLAN_Tunnel01
Tunnel Status   : Enabled
Source Address  : 2.2.2.2
Destination Address  : 1.1.1.1
Mode            : VXLAN Tunnel
TOS             : -1
TTL             : 64
IPv6            : n/a
MTU             : 1450


Current Tunnel Status :

Tunnel State    : Up
Destination Address Route : 1.1.1.1/32
Next Hop IP     : 10.0.1.1
Next Hop Interface     : vlan1
Next Hop IP Link Status : Up
Source Address  : 2.2.2.2
Egress Port     : A1
```

```
SW-2(config)# show interfaces tunnel type vxlan statistics 251659490

  Tunnel Name                   : VXLAN_Tunnel01
  Rx Packets                    : 87973901
  Tx Packets                    : 588
  Rx 5 Minute Weighted Average Rate (Pkts/sec) : 0
  Tx 5 Minute Weighted Average Rate (Pkts/sec) : 0
```

Attachments:

SW-2 config.txt

SW-1 config.txt

Related Entries and Links

No Related Resource entered.