###### FAT PW Configuration

***Objective:*** Objective of this section is to provide a breakdown of step by step configuration on each node that needs to be performed to enable FAT PW feature.

* LAG configuration
* Forwarding domain, flow points configuration
* IP interfaces configuration
* IGP such as ISIS or OSPF configuration (we are using ISIS L1 for our test purpose)
* LDP & MPLS configuration
* Targeted LDP and pseudo wire configuration
* FAT capability enable within pseudo wire context
* L2VPN service creation, associating it to attachment circuit & pseudowire
* Attachment circuit creation to transmit CE traffic over L2VPN infrastructure

***Procedure:***

***5170-0037 (PE1) Node:***

config

**# LAG Configuration**

oc-if:interfaces interface PE1-P1-LAG config name PE1-P1-LAG cn- if:type lag

oc-if:interfaces interface PE1-P1-LAG config agg agg-admin-mode agg-mode-lacp

oc-if:interfaces interface PE1-P1-LAG config agg member-ports 17 oc-if:interfaces interface PE1-P1-LAG config agg member-ports 18 exit

exit exit exit exit

oc-if:interfaces interface PE1-P1-LAG config agg member-ports 18 exit

exit

exit exit exit

**# NNI Port Classifier**

classifiers classifier vlan101 filter-entry vtag-stack vtags 1 vlan-id 101

**# FD**

fds fd fat-pw-fd mode vpls

**# FP**

fps

fp fat-pw-fp

fd-name fat-pw-fd logical-port PE1-P1-LAG stats-collection on

classifier-list-precedence 7 classifier-list vlan101

mtu-size 9216

egress-l2-transform push-vid-101 vlan-stack 1

push-tpid tpid-8100 push-vid 101

exit exit exit exit

**# IP Interfaces**

oc-if:interfaces interface PE1-P1-LAG-intr config name PE1-P1-LAG- intr cn-if:type ip admin-status true mtu 1500 underlay-binding config fd fat-pw-fd

oc-if:interfaces interface PE1-P1-LAG-intr ipv4 addresses address

11.11.11.1 config ip 11.11.11.1 prefix-length 24

oc-if:interfaces interface lb1 config name lb1 cn-if:type loopback

oc-if:interfaces interface lb1 ipv4 addresses address 37.37.37.1 config ip 37.37.37.1 prefix-length 32

**# ISIS Config**

isis instance 100 net 49.BBBB.0370.3703.7001.00 isis instance 100 level-type level-1

isis instance 100 interfaces interface lb1 exit

exit

interfaces interface PE1-P1-LAG-intr

exit exit exit exit

**# ISIS Interfaces**

isis instance 100 interfaces interface PE1-P1-LAG-intr level-type level-1

isis instance 100 interfaces interface lb1 level-type level-1

**# LDP**

ldp instance default lsr-id 37.37.37.1

ldp instance default interfaces interface lb1 enable-ipv4 true

ldp instance default interfaces interface PE1-P1-LAG-intr enable- ipv4 true

**# MPLS Label Switching**

mpls interfaces interface lb1 label-switching true

mpls interfaces interface PE1-P1-LAG-intr label-switching true

**# Targeted LDP for PW**

ldp instance default target-ldp peers 39.39.39.1 exit

exit exit exit

**# VPWS Dynamic PW**

pseudowires

pseudowire pe1\_pe2\_spoke\_pw1 mode spoke

pw-loadbalance fat-pw fat-capability tx-rx configured-pw

pw-id 1

peer-ip 39.39.39.1 exit

exit exit

**# UNI Port**

# Classifier

classifiers classifier vlan102 filter-entry vtag-stack vtags 1 vlan-id 102

**# FD**

fds fd AC\_UNI\_FD1 mode vpws

**# FP**

fps

fp AC\_UNI\_FP1 stats-collection on fd-name AC\_UNI\_FD1 logical-port 10

mtu-size 2000

cos-to-frame-map default-c2f frame-to-cos-map default-f2c classifier-list-precedence 102 classifier-list vlan102

exit exit

**# L2VPN**

l2vpn-services l2vpn L1

forwarding-domain AC\_UNI\_FD1 pseudowire pe1\_pe2\_spoke\_pw1 service-type vlan

signaling-type ldp mtu 1500

exit exit

**#REMOVE L2vpn services (this config is shared for reference only if end user wants to remove L2VPN)**

config t

no l2vpn-services no pseudowires

no ldp instance default target-ldp peers 4.4.4.4

***5170-0038 (P1) Node:***

**#P1:**

**# LAG Configuration**

config

oc-if:interfaces interface PE1-P1-LAG config name PE1-P1-LAG cn-if:type lag

oc-if:interfaces interface PE1-P1-LAG config agg agg-admin-mode agg-mode- lacp

oc-if:interfaces interface PE1-P1-LAG config agg member-ports 17 oc-if:interfaces interface PE1-P1-LAG config agg member-ports 18 exit

exit exit exit

oc-if:interfaces interface PE1-P1-LAG config agg member-ports 18

exit exit exit exit exit

**# NNI Port Classifier**

classifiers classifier vlan101 filter-entry vtag-stack vtags 1 vlan-id 101

**# FD**

fds fd fat-pw-fd mode vpls

**# FP**

fps

fp fat-pw-fp

fd-name fat-pw-fd logical-port PE1-P1-LAG stats-collection on

classifier-list-precedence 7 classifier-list vlan101

mtu-size 9216

egress-l2-transform push-vid-101 vlan-stack 1

push-tpid tpid-8100 push-vid 101

exit exit exit exit

**# IP Interfaces**

oc-if:interfaces interface PE1-P1-LAG-intr config name PE1-P1-LAG-intr cn- if:type ip admin-status true mtu 1500 underlay-binding config fd fat-pw- fd

oc-if:interfaces interface PE1-P1-LAG-intr ipv4 addresses address

11.11.11.2 config ip 11.11.11.2 prefix-length 24

oc-if:interfaces interface lb1 config name lb1 cn-if:type loopback

oc-if:interfaces interface lb1 ipv4 addresses address 38.38.38.1 config ip 38.38.38.1 prefix-length 32

**#P1 to PE2 config part # LAG Configuration** config

oc-if:interfaces interface P1-PE2-LAG config name P1-PE2-LAG cn-if:type lag

oc-if:interfaces interface P1-PE2-LAG config agg agg-admin-mode agg-mode- lacp

oc-if:interfaces interface P1-PE2-LAG config agg member-ports 37 oc-if:interfaces interface P1-PE2-LAG config agg member-ports 38 exit

exit exit exit exit

**# NNI Port Classifier**

classifiers classifier vlan90 filter-entry vtag-stack vtags 1 vlan-id 90

**# FD**

fds fd fat-pw-fd-2 mode vpls

**# FP**

fps

fp fat-pw-fp-2

fd-name fat-pw-fd-2 logical-port P1-PE2-LAG stats-collection on

classifier-list-precedence 7 classifier-list vlan90

mtu-size 9216

egress-l2-transform push-vid-90 vlan-stack 1

push-tpid tpid-8100 push-vid 90

exit exit exit exit

**# IP Interfaces**

oc-if:interfaces interface P1-PE2-LAG-intr config name P1-PE2-LAG-intr cn- if:type ip admin-status true mtu 1500 underlay-binding config fd fat-pw- fd-2

oc-if:interfaces interface P1-PE2-LAG-intr ipv4 addresses address

10.10.11.1 config ip 10.10.11.1 prefix-length 24

**# ISIS Config**

isis instance 100 net 49.BBBB.0380.3803.8001.00 isis instance 100 level-type level-1

isis instance 100 interfaces interface lb1 exit

exit

interfaces interface PE1-P1-LAG-intr

exit exit exit

interfaces interface P1-PE2-LAG-intr exit

exit exit exit

**# ISIS Interfaces**

isis instance 100 interfaces interface PE1-P1-LAG-intr level-type level-1 isis instance 100 interfaces interface P1-PE2-LAG-intr level-type level-1 isis instance 100 interfaces interface lb1 level-type level-1

**# LDP**

ldp instance default lsr-id 38.38.38.1

ldp instance default interfaces interface lb1 enable-ipv4 true

ldp instance default interfaces interface PE1-P1-LAG-intr enable-ipv4 true ldp instance default interfaces interface P1-PE2-LAG-intr enable-ipv4 true

**# MPLS Label Switching**

mpls interfaces interface lb1 label-switching true

mpls interfaces interface PE1-P1-LAG-intr label-switching true mpls interfaces interface P1-PE2-LAG-intr label-switching true

***5170-0039 (PE2) Node:***

**# LAG Configuration**

config

oc-if:interfaces interface P1-PE2-LAG config name P1-PE2-LAG cn-if:type lag

oc-if:interfaces interface P1-PE2-LAG config agg agg-admin-mode agg-mode- lacp

oc-if:interfaces interface P1-PE2-LAG config agg member-ports 17 oc-if:interfaces interface P1-PE2-LAG config agg member-ports 18 exit

exit exit exit exit

**# NNI Port Classifier**

classifiers classifier vlan90 filter-entry vtag-stack vtags 1 vlan-id 90

**# FD**

fds fd fat-pw-fd-2 mode vpls

**# FP**

fps

fp fat-pw-fp-2

fd-name fat-pw-fd-2 logical-port P1-PE2-LAG stats-collection on

classifier-list-precedence 7 classifier-list vlan90

mtu-size 9216

egress-l2-transform push-vid-90 vlan-stack 1

push-tpid tpid-8100 push-vid 90

exit exit exit exit

**# IP Interfaces**

oc-if:interfaces interface P1-PE2-LAG-intr config name P1-PE2-LAG-intr cn- if:type ip admin-status true mtu 1500 underlay-binding config fd fat-pw- fd-2

oc-if:interfaces interface P1-PE2-LAG-intr ipv4 addresses address

10.10.11.2 config ip 10.10.11.2 prefix-length 24

oc-if:interfaces interface lb1 config name lb1 cn-if:type loopback

oc-if:interfaces interface lb1 ipv4 addresses address 39.39.39.1 config ip 39.39.39.1 prefix-length 32

**# ISIS Config**

isis instance 100 net 49.BBBB.0390.3903.9001.00 isis instance 100 level-type level-1

isis instance 100 interfaces interface lb1 exit

exit

interfaces interface P1-PE2-LAG-intr exit

exit exit exit

**# ISIS Interfaces**

isis instance 100 interfaces interface P1-PE2-LAG-intr level-type level-1 isis instance 100 interfaces interface lb1 level-type level-1

**# LDP**

ldp instance default lsr-id 39.39.39.1

ldp instance default interfaces interface lb1 enable-ipv4 true

ldp instance default interfaces interface P1-PE2-LAG-intr enable-ipv4 true

**# MPLS Label Switching**

mpls interfaces interface lb1 label-switching true

mpls interfaces interface P1-PE2-LAG-intr label-switching true

**# Targeted LDP for PW**

ldp instance default target-ldp peers 37.37.37.1

exit exit exit exit

**# VPWS Dynamic PW**

pseudowires

pseudowire pe1\_pe2\_spoke\_pw1 mode spoke

pw-loadbalance fat-pw fat-capability tx-rx configured-pw

pw-id 1

peer-ip 37.37.37.1 exit

exit exit

**# UNI Port**

**# Classifier**

classifiers classifier vlan103 filter-entry vtag-stack vtags 1 vlan-id 103

**# FD**

fds fd AC\_UNI\_FD1 mode vpws

**# FP**

fps

fp AC\_UNI\_FP1 stats-collection on fd-name AC\_UNI\_FD1 logical-port 10

mtu-size 2000

cos-to-frame-map default-c2f frame-to-cos-map default-f2c classifier-list-precedence 103 classifier-list vlan103

exit exit

**# L2VPN Service**

l2vpn-services l2vpn L1

forwarding-domain AC\_UNI\_FD1 pseudowire pe1\_pe2\_spoke\_pw1 service-type vlan

signaling-type ldp mtu 1500

exit exit

**#REMOVE L2vpn services (this config is shared for reference only if end user wants to remove L2VPN)**

config t

no l2vpn-services no pseudowires

no ldp instance default target-ldp peers 4.4.4.4

Test Case Results:

Passed: Yes No Verified by Date/Time Comments