

## Test suite [13926801](#): EWA role - Interop - SwanAgent

### Test cases (26)

---

Test case [7281954](#): Interop - SwanAgent - Test MPLS TE FIB fallback to RSVP/SR (RWA/ICR)

#### PROPERTIES

Test Case Id:	7281954
Assigned To:	Rishikesh Adusumilli
State:	Closed

#### STEPS

#	Action	Expected value	Attachments
1	TBA		

Test case [7303928](#): Interop - SwanAgent - Tunnel Probing

#### PROPERTIES

Test Case Id:	7303928
Assigned To:	Rishikesh Adusumilli
State:	Closed

#### STEPS

#	Action	Expected value	Attachments
1	Program a FIB with at least 2-3 single hop tunnels. Check tunnel state. It should be set to "UP" Probe time/transmit interval should be 300ms (can vary depending on agent config) Take tunnel down by flapping a port. Check status of the tunnel. It should be flapped to "down" Flap the port again. Tunnel should come back up.		
2	Juniper: 1. program a fib. 2. Check the programmed bfd sessions. 3. BFD sessions should be up. Transmit interval = 0.300s 4. Bring a bfd session down by shutting the port on either end (icr/ser) 5. The bfd session should go down 6. program a fib having a next hop on that interface. It should be programmed with state 'down'. 7. unshut/enable the port again. The BFD session should come up. Transmit interval set to 0.300s		
3			

Test case [7305535](#): [SWAN] Interop - SwanAgent - Install/Uninstall

#### PROPERTIES

Test Case Id:	7305535
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Install current production version of SwanAgent Upgrade to new version of SwanAgent Run the above a few times to ensure no errors observed during upgrade/downgrade.	Clean SwanAgent upgrade.	
2			

Test case [7305541](#): [SWAN] Interop - SwanAgent - Upgrade/Downgrade SwanAgent

**PROPERTIES**

Test Case Id:	7305541
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	To be added		

Test case [7305579](#): Interop - SwanAgent - Traffic test

**PROPERTIES**

Test Case Id:	7305579
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	a IPv4 Run traceroute to trace the packet path. Observe the labelson the packet. EXP bit : 1 for scavenger 0 for default Packet should be transmitted end to end.	Correct labels observed throughout the path. BSID label should be on top of stack and NodeSID on bottom of the stack. EXP bit set to 0 and 1 for default and scavenger respectively	
2	b IPv6 Run traceroute to trace the packet path. Observe the labelson the packet. EXP bit : 1 for scavenger 0 for default Packet should be transmitted end to end.	Correct labels observed throughout the path. BSID label should be on top of stack and NodeSID on bottom of the stack. EXP bit set to 0 and 1 for default and scavenger respectively	
3			

Test case [7305582](#): Interop - SwanAgent - WCMP and partial tunnel failover

**PROPERTIES**

Test Case Id:	7305582
Assigned To:	Rishikesh Adusumilli
State:	Closed

**SUMMARY**

Objective: To verify the correct traffic routing when all tunnels are up, when Scavenger tunnels or Default tunnels are down, and when partial tunnels are down in NHG, using WCMP.

**STEPS**

#	Action	Expected value	Attachments
1	Preconditions: The network is configured with WCMP nexthop groups consisting of Default and Scavenger tunnels. All tunnels are initially up and functional.		
2	All tunnels up: Expected Result: Traffic should be WCMP'd over all the tunnels based on configured weights. One example of WCMP tunnels is a default nexthop group with two tunnels, one with a weight of 20 and another with 12.	Send traffic over the network and verify that it is distributed over all available tunnels based on their configured weights. Verify that entropy is approximately similar across 32 entries of a NHG.	
3	Default tunnels down: a. Bring down the nexthop interface of the Default tunnel (shut down all the default nexthop interfaces if there are multiple tunnels) Expected Result: Default tunnel should be torn down and traffic should switch to Scavenger tunnels Action: Send traffic over the network and verify that it is routed through the Scavenger tunnels. b. Bring down a transit interface (or program a surgical FIB that removes a transit label) Expected Result: Agent should probe the tunnel down (since the probes fail) and you should see same behavior as in step a. Traffic should take Scavenger tunnels. Action: Send traffic over the network and verify that it is routed through the Scavenger tunnels.		
4	Scavenger tunnels down: a. Bring down the nexthop interface of the Scavenger tunnel Expected Result: Traffic should take Default tunnels Action: Send traffic over the network and verify that it is routed through the Default tunnels. b. Bring down a transit interface Expected Result: Traffic should take Default tunnels. Action: Send traffic over the network and verify that it is routed through the Default tunnels.		
5	Partial tunnels down in NHG: Expected Result: Traffic should hash onto surviving tunnels of the NHG based on their configured weights. Action: Bring down one of the tunnels in the NHG and send traffic over the network. Verify that the traffic is routed through the remaining tunnels of the NHG based on their configured weights.		
6	Postconditions: All tunnels are brought back up and functional. Network traffic is back to its normal operation.		

Test case [7305594](#): Interop - SwanAgent - Scale Test

**PROPERTIES**

Test Case Id:	7305594
Assigned To:	Rishikesh Adusumilli

State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	Program FIB with up to 1000 steering routes. Check time take to program the FIB Check for BGP resolved routes		
2			

Test case [7305597](#): Interop - SwanAgent - HA scenarios - Process/Agent/RE restart

**PROPERTIES**

Test Case Id: 7305597  
Assigned To: Rishikesh Adusumilli  
State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	NOTE: Platform specific scenarios to be specified by vendor.		
2	a SwanAgent Crash the SwanAgent Agent should restart automatically Check for errors during agent restart Check for SWAN routes programmed before crash Check probing state Push new FIB Check probing state.	SwanAgent process restarts automatically. SwanAgent process comes up without any errors. The routes persist No traffic loss observed Probing stops. Probing restarts when Agent receives route update from controller	
3	b Routing process Restart routing SwanAgent restarts Capture duration for which routes persist Capture traffic state Program FIB Check probing	Traffic loss - How much ?? FIB persists until ISIS/RSVP routes take over - duration? SwanAgent process restarts Probing starts after reprogramming FIB	
4	c RE switchover Cause RE switchover to happen Check SwanAgent process Capture traffic loss and duration Program FIB Capture new state and routes	SwanAgent process should run on the now active RE Traffic loss duration ?? Probing starts after programming FIB	

Test case [8610026](#): [SWAN] Interop - SwanAgent - Communication with Swan Controller

**PROPERTIES**

Test Case Id: 8610026  
Assigned To: Rishikesh Adusumilli  
State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	Reach agent endpoints using "curl" to simulate controller connection. Eg "curl http://<deviceIP>:10000/version" Look for "HTTP 200 OK" response with expected endpoint response.	Endpoint Expected result /version Current agent version /instance/1/flowtable/summary Last programmed flowtable/FIB sequence /instance/1/tunnels Tunnels in csv format /instance/1/flowtable T his endpoint is used for programming FIB	

Test case [8610072](#): [SWAN] Interop - SwanAgent - FIB program

**PROPERTIES**

Test Case Id:	8610072
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Program a FIB using "curl". Negative cases to test: Missing/Incorrect device name Missing/Incorrect forwarding table name Missing/Incorrect NextHop Interface label range outside the current SWAN / BSID range Program a valid FIB and verify no errors returned.	FIB programmed successfully using curl for a valid FIB. Look for expected routes to appear after a FIB is programmed. For all negative cases, FIB programming returns error.	

Test case [8610086](#): Interop - SwanAgent - Tunnel Failure & traffic failover

**PROPERTIES**

Test Case Id:	8610086
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	a WCMP + Partial tunnel failover Ensure at least 4 OWR are connected to RWA. Program a FIB with different weights for each tunnel. Capture output for programmed links. w1 w2 w3 w4 Pass traffic to see distribution between these links. Check counters for traffic for each label/link Take down 1 tunnel. Capture the new weights w1 w2 w3 Check for traffic distribution Repeat 5 through 7 for one more tunnel. Bring tunnels up one by one and capture change in weight and traffic distribution	No significant traffic loss observed. WCMP works as expected. New weight = old weight/new sum of weights	
2	b All tunnel fails Program a FIB and ensure all single hop tunnels are in "UP" state. Start the traffic Take down all the tunnels. Observe the traffic	When all tunnels go down, traffic switched to RSVP/ISIS. No traffic loss observed. After tunnels come up, traffic switches back to SWAN routes.	
3			

Test case [8610301](#): [SWAN] Interop - SwanAgent - Fib Churn

**PROPERTIES**

Test Case Id:	8610301
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Generate FIB with various sizes. Varying from empty FIB to Max number of routes. Program FIBs in succession (30s minimum gap) with different route variation Capture traffic stats Capture any errors during FIB programming Look for deadlock situation	FIBs should be programmed fine No deadlock situation observed SwanAgent functioning as expected	
2			

Test case [8610319](#): [SWAN] Interop - SwanAgent - Syslog to Kusto

**PROPERTIES**

Test Case Id:	8610319
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Ensure logs from SwanAgent are going to device syslogs, which can be ported to Kusto.		

Test case [8610330](#): [SWAN] Interop - SwanAgent - RWA transit

**PROPERTIES**

Test Case Id:	8610330
Assigned To:	Rishikesh Adusumilli

State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	A. FIB program Program a FIB with transit routes Check for any errors during programming Check routes programmed	FIB programmed without any error. Routes appear between 34000 - 99999 labels	
2	B. FIB merge with Steering route FIB Program FIB using both endpoints. (/flowtable for transit and /instance/1/flowtable for steering routes) Check for routes programmed Check logs for any errors	FIB should be programmed and merged for both endpoints Steering routes and transit routes co-exist No errors observed.	
3	C. Traffic test Program FIB using both endpoints. (/flowtable for transit and /instance/1/flowtable for steering routes) Check for routes programmed Check logs for any errors Pass traffic such that the DUT is a transit device. Check counters per labels for traffic flowing Check with traceroute also.	FIB should be programmed and merged for both endpoints Steering routes and transit routes co-exist No errors observed. Counters only increase for transit traffic. Check for ipv4 and ipv6	
4	D. Controller Communication Reach agent endpoints using "curl" to simulate controller connection. Eg "curl http://<deviceIP>:10000/tunnels" Look for "HTTP 200 OK" response with expected endpoint response.	Endpoint Expected result /version Current agent version /flowtable/summary Last programmed flowtable/FIB sequence /tunnels Tunnels in csv format /flowtable This endpoint is used for programming FIB	

Test case [9055235](#): [SWAN] Interop - SwanAgent - SWAN Agent Prefix Scale test (Cisco)

**PROPERTIES**

Test Case Id: 9055235  
Assigned To: Rishikesh Adusumilli  
State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	For OWR - Test the prefix scale for steering routes - program the max V4 and V6 steering routes. This is with a fully loaded IGP RIB/FIB.		
2	Verify required number routes can be programmed along with full scale FIB/RIB.		
3	Verify SwanAgent, ApCaCertAgent and IOS is still working as expected at max numbers.		
4	Validate how long the SWAN Agent is taking to program the FIB (should not be more than 1 minute)		

Test case [9055285](#): Interop - SwanAgent - Include IGP-like metric for Anycast/Internet Edge nearest region selection (Cisco RWA)

**PROPERTIES**

Test Case Id: 9055285

Assigned To: Rishikesh Adusumilli  
State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	Generate a three-region topology where there is a /32 (IPv4) or /128 (IPv6) anycast address advertised by two of the regions.		
2	Verify that BGP in the third region sees both of the advertisements from the other two regions.		
3	Verify that BGP selects the SWAN TE steering route that has the smallest path metric.		

Test case [9058511](#): Interop - SwanAgent - High NHG churn by the SWAN agent to mimic production environment

**PROPERTIES**

Test Case Id: 9058511  
Assigned To: Rishikesh Adusumilli  
State: Closed

**STEPS**

#	Action	Expected value	Attachments
1	This testcase is created to simulate frequent NHG/tunnel churn in Starlab, that production devices may witness, and observe any unexpected behavior.		
2	For Juniper & Cisco ICR/RWA - NHGs are not used in JunOS/Cisco. Test case still applies . Frequent reprogramming of entire set of routes from controllers, that may include change in attributes like WCMP weights or metric for some or all routes		
3			

Test case [5481914](#): [SWAN] Interop - Swan Agent - Keepalive Agent

**PROPERTIES**

Test Case Id: 5481914  
Assigned To: Rishikesh Adusumilli  
State: Closed



**STEPS**

#	Action	Expected value	Attachments
1	Keepalive agent is part of the switch agent, ensure it's installed properly.		
2	Configure tunnels and make sure FIB has a working tunnel installed.		
3	Send a HTTP get to get status of the tunnels http://:10001/tunnels - Success.		
4	Bring down an interface in the middle of the path in the topology, keepalive agent should detect the failure.		
5	Restore the link and make sure all tunnels get restored.		
6	Send a HTTP get to get status of the tunnels http://:10001/tunnels - Failure.		
7	Install incorrect FIB entry where the next-hop is pointing to wrong egress interface or address, verify tunnel status.		
8	Scale - bring down multiple interfaces in the setup - verify all tunnels through those interfaces go down and restored with links restored.		
9	Validate and make sure no negative impact on the resources of the boxes.		
10		Success: HTTP Code:200, ResponseContent: CSV with test tunnel entry. For the test tunnel entry, verify that enabled, alive and probing response fields are set to 1. (CSV fields:name,vlanid,egressipv4,enabled,alive,probing,unacked,last_rtt_ms,tot_switch_not_alive) Failure: HTTP Code:200, ResponseContent: CSV with test tunnel entry. For the test tunnel entry, verify enabled and probing fields are set to 1 while alive is set to 0. (CSV fields: name,vlanid,egressipv4,enabled,alive,probing,unacked,last_rtt_ms,tot_switch_not_alive)	

Test case [12908105](#): Interop - SwanAgent - Traffic test v6 routes over v4 tunnels

**PROPERTIES**

Test Case Id:	12908105
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Program routes with v6 traffic going over v4		
2	Run traceroute to trace the packet path		
3	Observe the labels on the packet		
4	EXP bit : 1 for scavenger 0 for default		
5	Packet should be transmitted end to end.		
6	Packets should be taking v4 tunnels		

Test case [12908110](#): [SWAN] Interop - SwanAgent - No resource leaks

**PROPERTIES**

Test Case Id:	12908110
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1			
2			

Test case [12908147](#): [SWAN] Interop - SwanAgent - Reach agent over MGMT vrf as back up

**PROPERTIES**

Test Case Id:	12908147
Assigned To:	Rishikesh Adusumilli
State:	Closed

Test case [12908148](#): Interop - SwanAgent - DDoS attack survival for agent on port 10001 and 42000

**PROPERTIES**

Test Case Id:	12908148
Assigned To:	Rishikesh Adusumilli
State:	Design

Test case [13111333](#): [SWAN] Interop - SwanAgent - Upgrade OS Image

**PROPERTIES**

Test Case Id:	13111333
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Start with current OS image in production	Clean OS upgrade.	
2	Upgrade to new OS image		
3	Look for issues during upgrade with SwanAgent	SwanAgent comes up and runs as expected.	

Test case [18184158](#): Asymmetric learning of Internet IPs

**PROPERTIES**

Test Case Id:	18184158
Assigned To:	Rishikesh Adusumilli
State:	Design

**STEPS**

#	Action	Expected value	Attachments
1	Advertise IP1 from only one of the IPR/IER connected to EWA		
2	When all IER<>EWA links are UP	TE packet should reach the anycast group of EWA and forwards to IER advertising IP1.	
3	When one of the IER<>EWA link is down/BGP down	TE packet should reach the anycast group of EWA, resolves IBGP route towards other available EWA using the cross link	
4	SR bounce back using EWA-OWR links - When one of the IER<> EWA links are down and cross link between EWA is also down	TE packet should reach the anycast group of EWA, resolves IBGP route towards other available EWA using IGP towards OWR links.	

Test case [25519580](#): [UHP] Interop - Anycast SID and ultimate steering in outersolver

**PROPERTIES**

Test Case Id:	25519580
Assigned To:	Rishikesh Adusumilli
State:	Closed

**STEPS**

#	Action	Expected value	Attachments
1	Enable anycast SID with P-flag on all EWA devices in site for OneWAN Edge TE		
2	Enable ultimate steering to true in outer solver. Default value is set to false.		
3	Configure tunnels and make sure FIB has a working tunnel installed.		
4	When all EWA in the same site have anycast SID configured and outer solver has UltimateSteering enabled. Ensure tunnels are terminating on the EWA.		
5	When all EWA in the same site do not have anycast SID configured but outer solver has UltimateSteering enabled. Ensure tunnels are terminating on the OWR.		
6	When all EWA in the same site have anycast SID configured but outer solver does not have UltimateSteering enabled. Ensure tunnels are terminating on the OWR.		
7	Success:  - Tunnels should be terminating on the EWA.  - Penultimate hop must not pop the Prefix-SID before delivering the packet to the EWA device that advertised the Prefix-SID.		

Test case [25520042](#): [UHP] Interop - SwanAgent - Traffic test

**PROPERTIES**

Test Case Id:	25520042
Assigned To:	Rishikesh Adusumilli
State:	Closed

STEPS

#	Action	Expected value	Attachments
1	a IPv4 Run traceroute to trace the packet path. Observe the labelson the packet. EXP bit : 1 for scavenger 0 for default Packet should be transmitted end to end.	Correct labels observed throughout the path. BSID label should be on top of stack and same PrefixSID on bottom of the stack for all EWA devices. EXP bit set to 0 and 1 for default and scavenger respectively	
2	b IPv6 Run traceroute to trace the packet path. Observe the labelson the packet. EXP bit : 1 for scavenger 0 for default Packet should be transmitted end to end.	Correct labels observed throughout the path. BSID label should be on top of stack and same PrefixSID on bottom of the stack for all EWA devices. EXP bit set to 0 and 1 for default and scavenger respectively	
3			

---