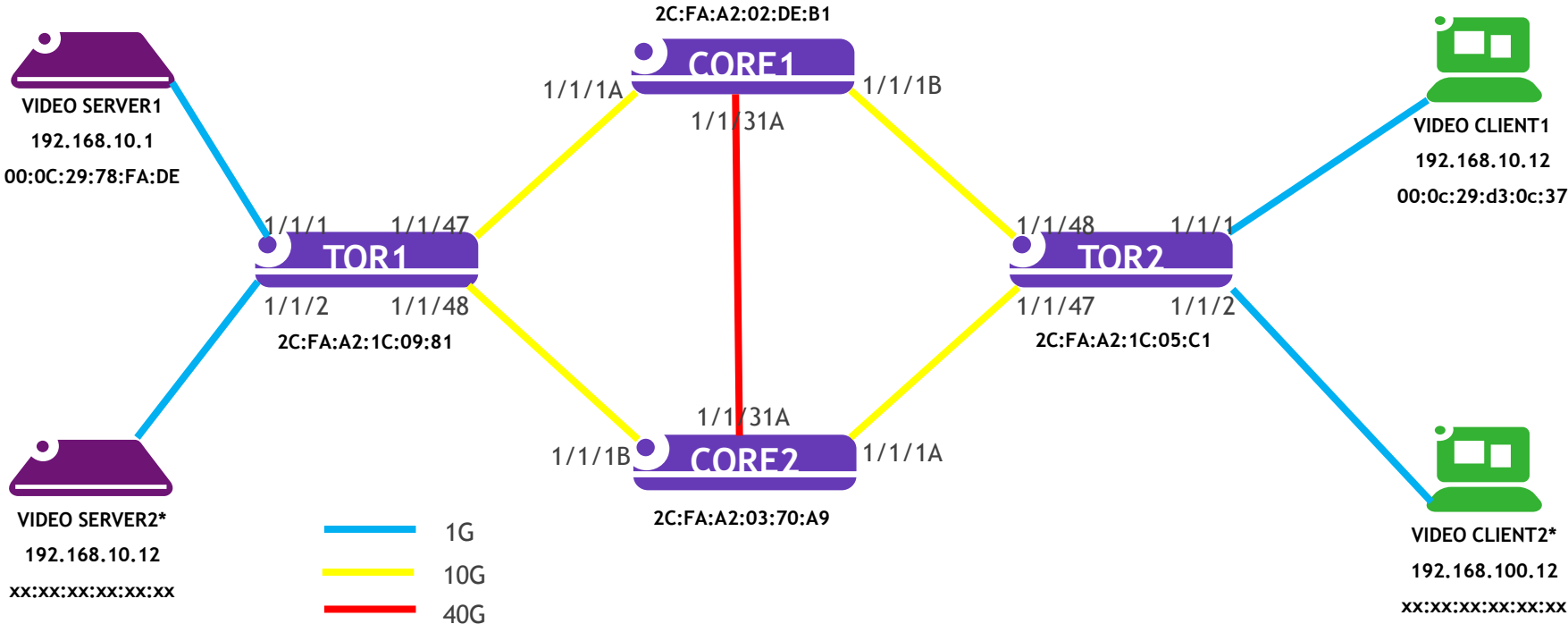




Shortest Path Bridging Remote LAB

January 2017

Lab Setup Topology



*: Currently not connected

Lab Setup

Addresses, Ports, Services

MAC	IP	VLAN	NAME	STREAM	SWITCH	INTERFACE	SERVICE	ISID	BVLAN	ECT
00:0C:29:78:FA:DE	192.168.10.1	1001	VideoServer1	Bunny	TOR1	1/1/1	1	1001	4001	1
00:0c:29:d3:0c:37	192.168.10.12	1001	VideoClient1		TOR2	1/1/1	1	1002	4002	2

Topology Verification

CORE1

-> show lldp remote-system

Remote LLDP nearest-bridge Agents on Local Port 1/1/1A:

```
Chassis 2c:fa:a2:1c:09:81, Port 1047:
Remote ID           = 4,
Chassis Subtype     = 4 (MAC Address),
Port Subtype        = 7 (Locally assigned),
Port Description     = (null),
System Name         = (null),
System Description  = (null),
Capabilities Supported = Bridge Router,
Capabilities Enabled = Bridge Router
```

Remote LLDP nearest-bridge Agents on Local Port 1/1/1B:

```
Chassis 2c:fa:a2:1c:05:c1, Port 1048:
Remote ID           = 7,
Chassis Subtype     = 4 (MAC Address),
Port Subtype        = 7 (Locally assigned),
Port Description     = (null),
System Name         = (null),
System Description  = (null),
Capabilities Supported = Bridge Router,
Capabilities Enabled = Bridge Router
```

Remote LLDP nearest-bridge Agents on Local Port 1/1/31A:

```
Chassis 2c:fa:a2:03:70:a9, Port 1121:
Remote ID           = 1,
Chassis Subtype     = 4 (MAC Address),
Port Subtype        = 7 (Locally assigned),
Port Description     = (null),
System Name         = (null),
System Description  = (null),
Capabilities Supported = Bridge Router,
Capabilities Enabled = Bridge Router
```

CORE2

-> show lldp remote-system

Remote LLDP nearest-bridge Agents on Local Port 1/1/1A:

```
Chassis 2c:fa:a2:1c:05:c1, Port 1047:
Remote ID           = 19,
Chassis Subtype     = 4 (MAC Address),
Port Subtype        = 7 (Locally assigned),
Port Description     = (null),
System Name         = (null),
System Description  = (null),
Capabilities Supported = Bridge Router,
Capabilities Enabled = Bridge Router
```

Remote LLDP nearest-bridge Agents on Local Port 1/1/1B:

```
Chassis 2c:fa:a2:1c:09:81, Port 1048:
Remote ID           = 16,
Chassis Subtype     = 4 (MAC Address),
Port Subtype        = 7 (Locally assigned),
Port Description     = (null),
System Name         = (null),
System Description  = (null),
Capabilities Supported = Bridge Router,
Capabilities Enabled = Bridge Router
```

Remote LLDP nearest-bridge Agents on Local Port 1/1/31A:

```
Chassis 2c:fa:a2:02:de:b1, Port 1121:
Remote ID           = 13,
Chassis Subtype     = 4 (MAC Address),
Port Subtype        = 7 (Locally assigned),
Port Description     = (null),
System Name         = (null),
System Description  = (null),
Capabilities Supported = Bridge Router,
Capabilities Enabled = Bridge Router
```

SPB Backbone Configuration

CORE1	CORE2
<pre>system name CORE1 spb bvlan 4001-4002 spb isis bvlan 4001 ect-id 1 spb isis bvlan 4002 ect-id 2 spb isis control-bvlan 4001 spb isis interface port 1/1/31A spb isis interface port 1/1/1A-1B spb isis admin-state enable</pre>	<pre>system name CORE2 spb bvlan 4001-4002 spb isis bvlan 4001 ect-id 1 spb isis bvlan 4002 ect-id 2 spb isis control-bvlan 4001 spb isis interface port 1/1/31A spb isis interface port 1/1/1A-1B spb isis admin-state enable</pre>
TOR1	TOR2
<pre>system name TOR1 spb bvlan 4001-4002 spb isis bvlan 4001 ect-id 1 spb isis bvlan 4002 ect-id 2 spb isis control-bvlan 4001 spb isis interface port 1/1/47-48 spb isis admin-state enable</pre>	<pre>system name TOR1 spb bvlan 4001-4002 spb isis bvlan 4001 ect-id 1 spb isis bvlan 4002 ect-id 2 spb isis control-bvlan 4001 spb isis interface port 1/1/47-48 spb isis admin-state enable</pre>

CAN BE COMPLETELY AUTOMATED WITH IFAB FOR 0-TOUCH DEPLOYMENT AND SELF-HEALING

Backbone Verification

CORE1

-> show spb isis interface

SPB ISIS Interfaces:

Interface	Level	CircID	Oper state	Admin state	Link state	Hello Metric	Hello Intvl	Hello Mult
1/1/1A	L1	1	UP	UP	UP	10 9	3	3
1/1/1B	L1	2	UP	UP	UP	10 9	3	3
1/1/31A	L1	3	UP	UP	UP	10 9	3	3

Interfaces : 3

-> show spb isis bvlans

SPB ISIS BVLANS:

BVLAN	ECT-algorithm	Services In Use	Num mapped	Tandem ISIDS	Root Bridge Multicast (Name : MAC Address)
4001	00-80-c2-01	NO	NO	0	SGMODE
4002	00-80-c2-02	NO	NO	0	SGMODE

BVLANS: 2

Backbone Verification (cont.)

CORE1

-> show spb isis adjacency

SPB ISIS Adjacency:

System

(Name : SystemId) Type State Hold Interface

-----+-----+-----+-----					
(Name : SystemId)	Type	State	Hold	Interface	
TOR1 : 2cfa.a21c.0981	L1	UP	20	1/1/1A	
TOR2 : 2cfa.a21c.05c1	L1	UP	19	1/1/1B	
CORE2 : 2cfa.a203.70a9	L1	UP	19	1/1/31A	

Adjacencies : 3

-> show spb isis nodes

SPB ISIS Nodes:

System Name System Id SourceID BridgePriority

-----+-----+-----			
System Name	System Id	SourceID	BridgePriority
CORE1	2cfa.a202.deb1	0x2deb1	32768 (0x8000)
CORE2	2cfa.a203.70a9	0x370a9	32768 (0x8000)
TOR2	2cfa.a21c.05c1	0xc05c1	32768 (0x8000)
TOR1	2cfa.a21c.0981	0xc0981	32768 (0x8000)

Total SPB Nodes : 4

SPB Service Configuration

Only on Edge Switches

CORE1	CORE2
NA	NA
TOR1	TOR2
service access port 1/1/1-2 service 1 spb isid 1001 bvlan 4001 stats enable service 2 spb isid 1002 bvlan 4002 stats enable service 1 sap port 1/1/1:1001 service 2 sap port 1/1/2:1002	service access port 1/1/1-2 service 1 spb isid 1001 bvlan 4001 stats enable service 2 spb isid 1002 bvlan 4002 stats enable service 1 sap port 1/1/1:1001 service 2 sap port 1/1/2:1002

CAN BE AUTOMATICALLY AND DYNAMICALLY CONFIGURED FOR 0-TOUCH PROVISIONING & MOVEMENT

Service Verification

TOR1

-> show spb isis services

Legend: * indicates locally configured ISID

SPB ISIS Services Info:

ISID	BVLAN	System (Name : BMAC)	MCAST(T/R)
* 1001	4001	TOR2 : 2c:fa:a2:1c:05:c1	
* 1001	4001	TOR1 : 2c:fa:a2:1c:09:81	
* 1002	4002	TOR2 : 2c:fa:a2:1c:05:c1	
* 1002	4002	TOR1 : 2c:fa:a2:1c:09:81	

ISIDs: 4

-> show service spb

Legend: * denotes a dynamic object

SPB Service Info

SystemId : 2cfa.a21c.0981, SrcId : 0xc0981, SystemName : (none)

ServiceId	Adm	Oper	SAP	Bind	MCast	Count	Count	Isid	BVlan	Mode	(T/R)
1	Up	Up	Y	1	1	1001	4001	Headend			(0/0)
2	Up	Up	Y	1	1	1002	4002	Headend			(0/0)

Total Services: 2

CORE1

-> show spb isis services

Legend: * indicates locally configured ISID

SPB ISIS Services Info:

ISID	BVLAN	System (Name : BMAC)	MCAST(T/R)
1001	4001	TOR2 : 2c:fa:a2:1c:05:c1	
1001	4001	TOR1 : 2c:fa:a2:1c:09:81	
1002	4002	TOR2 : 2c:fa:a2:1c:05:c1	
1002	4002	TOR1 : 2c:fa:a2:1c:09:81	

ISIDs: 4

Will only show info on a BEB, not a BCB

-> show service spb

Legend: * denotes a dynamic object

SPB Service Info

SystemId : 2cfa.a202.deb1, SrcId : 0x2deb1, SystemName : (none)

ServiceId	Adm	Oper	SAP	Bind	MCast	Count	Count	Isid	BVlan	Mode	(T/R)
Total Services: 0											

Total Services: 0

Detailed Service Information

TOR1

-> show service spb 1

SPB Service Detailed Info

```
Service Id      : 1,           Description      : ,
ISID           : 1001,        BVlan          : 4001,
Multicast-Mode : Headend,    Tx/Rx Bits     : 0/0,
Admin Status   : Up,         Oper Status    : Up,
Stats Status   : Yes,        Vlan Translation : No,
Service Type   : SPB,        Allocation Type : Static,
MTU            : 9194,        Def Mesh VC Id : 1,
SAP Count      : 1,          SDP Bind Count : 1,
RemoveIngressTag : No,
Ingress Pkts   : 3282222,     Ingress Bytes  : 347979618,
Egress Pkts    : 3282142,     Egress Bytes   : 360954096,
Mgmt Change    : 02/23/2017 06:43:24, Status Change  : 02/23/2017 06:43:24
```

-> show service spb 2

SPB Service Detailed Info

```
Service Id      : 2,           Description      : ,
ISID           : 1002,        BVlan          : 4002,
Multicast-Mode : Headend,    Tx/Rx Bits     : 0/0,
Admin Status   : Up,         Oper Status    : Up,
Stats Status   : Yes,        Vlan Translation : No,
Service Type   : SPB,        Allocation Type : Static,
MTU            : 9194,        Def Mesh VC Id : 2,
SAP Count      : 1,          SDP Bind Count : 1,
RemoveIngressTag : No,
Ingress Pkts   : 0,          Ingress Bytes  : 0,
Egress Pkts    : 0,          Egress Bytes   : 0,
Mgmt Change    : 02/18/2017 09:35:29, Status Change  : 02/18/2017 09:35:29
```

Service Status Verification

TOR1

-> show spb isis services

Legend: * indicates locally configured ISID

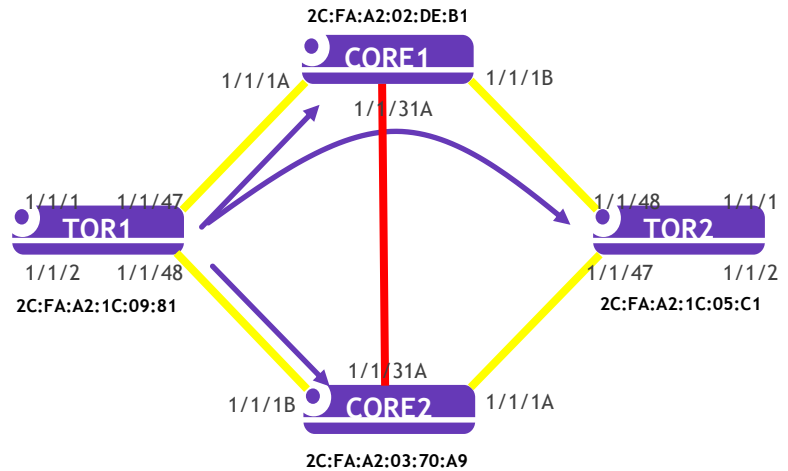
SPB ISIS Services Info:

	ISID	BVLAN	System (Name : BMAC)	MCAST(T/R)
*	1001	4001	TOR2	: 2c:fa:a2:1c:05:c1
*	1001	4001	TOR1	: 2c:fa:a2:1c:09:81
*	1002	4002	TOR2	: 2c:fa:a2:1c:05:c1
*	1002	4002	TOR1	: 2c:fa:a2:1c:09:81

ISIDs: 4

Path Verification

BVLAN 4001



TOR1

-> show spb isis spf bvlan 4001

SPB ISIS Path Table:

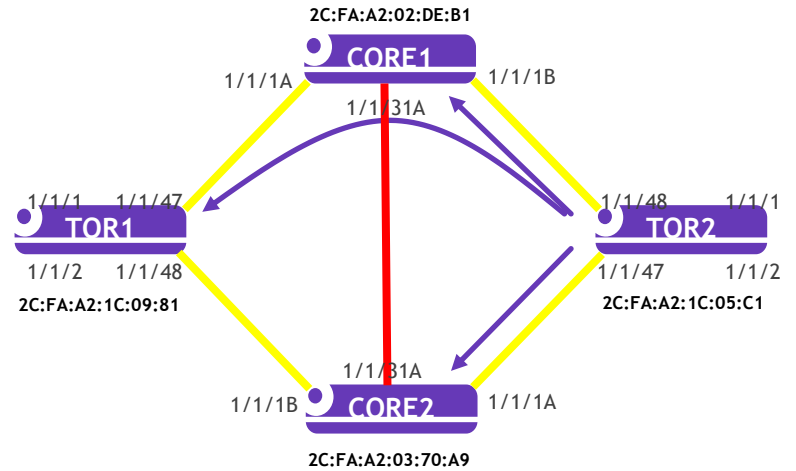
Destination (Name : BMAC)	Outbound Interface	Next Hop (Name : BMAC)	SPB Metric	Num Hops
CORE1	: 2c:fa:a2:02:de:b1	1/1/47 CORE1	: 2c:fa:a2:02:de:b1	10 1
CORE2	: 2c:fa:a2:03:70:a9	1/1/48 CORE2	: 2c:fa:a2:03:70:a9	10 1
TOR2	: 2c:fa:a2:1c:05:c1	1/1/47 CORE1	: 2c:fa:a2:02:de:b1	20 2

SPF Path count: 3

EVERY NODE BUILDS A TREE WITH SHORTEST PATH TO EVERY OTHER NODE

Path Verification

BVLAN 4001 (cont.)



TOR2

-> show spb isis spf bvlan 4001

SPB ISIS Path Table:

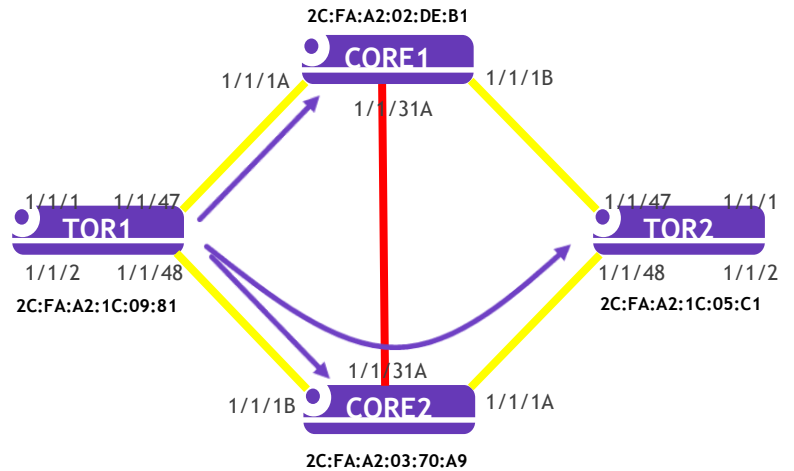
Destination (Name : BMAC)	Outbound Interface	Next Hop (Name : BMAC)	SPB Metric	Num Hops
CORE1	: 2c:fa:a2:02:de:b1	1/1/48 CORE1	: 2c:fa:a2:02:de:b1	10 1
CORE2	: 2c:fa:a2:03:70:a9	1/1/47 CORE2	: 2c:fa:a2:03:70:a9	10 1
TOR1	: 2c:fa:a2:1c:09:81	1/1/48 CORE1	: 2c:fa:a2:02:de:b1	20 2

SPF Path count: 3

SYMMETRY BY DESIGN, KEY FOR OAM

Path Verification

BVLAN 4002



TOR1

-> show spb isis spf bvlan 4002

SPB ISIS Path Table:

Destination (Name : BMAC)	Outbound Interface	Next Hop (Name : BMAC)	SPB Metric	Num Hops
CORE1	: 2c:fa:a2:02:de:b1	1/1/47 CORE1	: 2c:fa:a2:02:de:b1	10 1
CORE2	: 2c:fa:a2:03:70:a9	1/1/48 CORE2	: 2c:fa:a2:03:70:a9	10 1
TOR2	: 2c:fa:a2:1c:05:c1	1/1/48 CORE2	: 2c:fa:a2:03:70:a9	20 2

SPF Path count: 3

ECT LOAD SHARING: SERVICES MAPPED TO DIFFERENT BVLANS WILL USE DIFFERENT EQUAL-COST TREES

OAM Configuration

SPB Backbone Domain

CORE 1

```
ethoam domain ALE format string level 3
ethoam domain ALE mhf default
ethoam domain ALE id-permission chassisid
ethoam association BVLAN4001 format string domain ALE
ethoam association BVLAN4001 domain ALE primary-vlan 4001
ethoam association BVLAN4001 domain ALE mhf default
ethoam association BVLAN4001 domain ALE id-permission chassisid
ethoam association BVLAN4001 domain ALE ccm-interval interval1s
ethoam association BVLAN4001 domain ALE endpoint-list 21-24
ethoam endpoint 21 domain ALE association BVLAN4001 direction up port virtual primary-vlan 4001
ethoam endpoint 21 domain ALE association BVLAN4001 admin-state enable
ethoam endpoint 21 domain ALE association BVLAN4001 priority 5
ethoam endpoint 21 domain ALE association BVLAN4001 lowest-defect-priority all-defect
ethoam association BVLAN4002 format string domain ALE
ethoam association BVLAN4002 domain ALE primary-vlan 4002
ethoam association BVLAN4002 domain ALE mhf default
ethoam association BVLAN4002 domain ALE endpoint-list 31-34
ethoam endpoint 31 domain ALE association BVLAN4002 direction up port virtual primary-vlan 4002
ethoam endpoint 31 domain ALE association BVLAN4002 admin-state enable
ethoam endpoint 31 domain ALE association BVLAN4002 priority 5
ethoam endpoint 31 domain ALE association BVLAN4002 lowest-defect-priority all-defect
```

OAM Configuration

SPB Backbone Domain

CORE 2

```
ethoam domain ALE format string level 3
ethoam domain ALE mhf default
ethoam domain ALE id-permission chassisid
ethoam association BVLAN4001 format string domain ALE
ethoam association BVLAN4001 domain ALE primary-vlan 4001
ethoam association BVLAN4001 domain ALE mhf default
ethoam association BVLAN4001 domain ALE id-permission chassisid
ethoam association BVLAN4001 domain ALE ccm-interval interval1s
ethoam association BVLAN4001 domain ALE endpoint-list 21-24
ethoam endpoint 22 domain ALE association BVLAN4001 direction up port virtual primary-vlan 4001
ethoam endpoint 22 domain ALE association BVLAN4001 admin-state enable
ethoam endpoint 22 domain ALE association BVLAN4001 priority 5
ethoam endpoint 22 domain ALE association BVLAN4001 lowest-defect-priority all-defect
ethoam association BVLAN4002 format string domain ALE
ethoam association BVLAN4002 domain ALE primary-vlan 4002
ethoam association BVLAN4002 domain ALE mhf default
ethoam association BVLAN4002 domain ALE endpoint-list 31-34
ethoam endpoint 32 domain ALE association BVLAN4002 direction up port virtual primary-vlan 4002
ethoam endpoint 32 domain ALE association BVLAN4002 admin-state enable
ethoam endpoint 32 domain ALE association BVLAN4002 priority 5
ethoam endpoint 32 domain ALE association BVLAN4002 lowest-defect-priority all-defect
```


OAM Configuration

SPB Backbone Domain

TOR 1

```
ethoam domain ALE format string level 3
ethoam domain ALE mhf default
ethoam domain ALE id-permission chassisid
ethoam association BVLAN4001 format string domain ALE
ethoam association BVLAN4001 domain ALE primary-vlan 4001
ethoam association BVLAN4001 domain ALE mhf default
ethoam association BVLAN4001 domain ALE id-permission chassisid
ethoam association BVLAN4001 domain ALE ccm-interval interval1s
ethoam association BVLAN4001 domain ALE endpoint-list 21-24
ethoam endpoint 23 domain ALE association BVLAN4001 direction up port virtual primary-vlan 4001
ethoam endpoint 23 domain ALE association BVLAN4001 admin-state enable
ethoam endpoint 23 domain ALE association BVLAN4001 priority 5
ethoam endpoint 23 domain ALE association BVLAN4001 lowest-defect-priority all-defect
ethoam association BVLAN4002 format string domain ALE
ethoam association BVLAN4002 domain ALE primary-vlan 4002
ethoam association BVLAN4002 domain ALE mhf default
ethoam association BVLAN4002 domain ALE endpoint-list 31-34
ethoam endpoint 33 domain ALE association BVLAN4002 direction up port virtual primary-vlan 4002
ethoam endpoint 33 domain ALE association BVLAN4002 admin-state enable
ethoam endpoint 33 domain ALE association BVLAN4002 priority 5
ethoam endpoint 33 domain ALE association BVLAN4002 lowest-defect-priority all-defect
```

OAM Configuration

SPB Backbone Domain

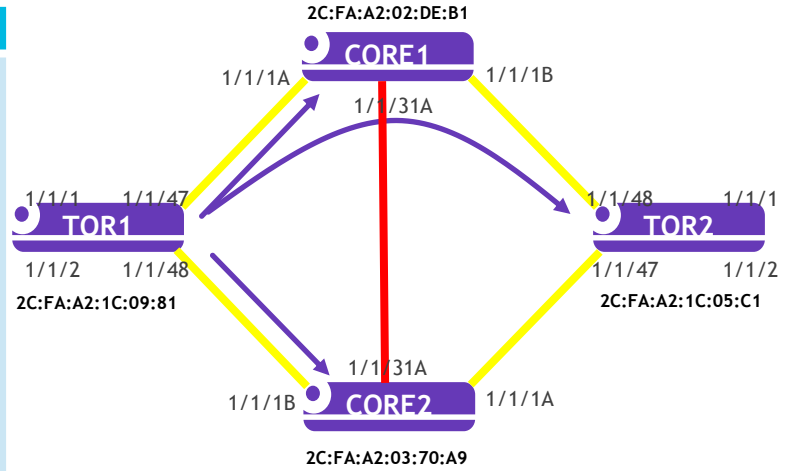
TOR 2

```
ethoam domain ALE format string level 3
ethoam domain ALE mhf default
ethoam domain ALE id-permission chassisid
ethoam association BVLAN4001 format string domain ALE
ethoam association BVLAN4001 domain ALE primary-vlan 4001
ethoam association BVLAN4001 domain ALE mhf default
ethoam association BVLAN4001 domain ALE id-permission chassisid
ethoam association BVLAN4001 domain ALE ccm-interval interval1s
ethoam association BVLAN4001 domain ALE endpoint-list 21-24
ethoam endpoint 24 domain ALE association BVLAN4001 direction up port virtual primary-vlan 4001
ethoam endpoint 24 domain ALE association BVLAN4001 admin-state enable
ethoam endpoint 24 domain ALE association BVLAN4001 priority 5
ethoam endpoint 24 domain ALE association BVLAN4001 lowest-defect-priority all-defect
ethoam association BVLAN4002 format string domain ALE
ethoam association BVLAN4002 domain ALE primary-vlan 4002
ethoam association BVLAN4002 domain ALE mhf default
ethoam association BVLAN4002 domain ALE endpoint-list 31-34
ethoam endpoint 34 domain ALE association BVLAN4002 direction up port virtual primary-vlan 4002
ethoam endpoint 34 domain ALE association BVLAN4002 admin-state enable
ethoam endpoint 34 domain ALE association BVLAN4002 priority 5
ethoam endpoint 34 domain ALE association BVLAN4002 lowest-defect-priority all-defect
```

Path Verification - Now Through OAM

BVLAN 4001

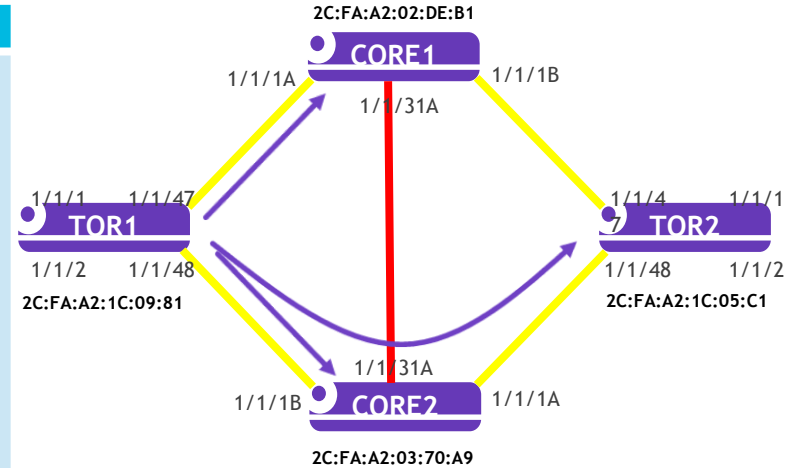
TOR1	(cont.)
<p>-> ethoam linktrace target-macaddress 2c:fa:a2:1c:05:c1 source-endpoint 23 domain ALE association BVLAN4001</p> <p>Transaction Id:1395235129</p> <p>-> show ethoam linktrace-reply domain ALE association BVLAN4001 endpoint 23 tran-id 1395235129</p> <p>LTM operation successful. Target is reachable.</p> <p>Ttl : 63, LTM Forwarded : yes, Terminal MEP : no, Last Egress Identifier : 00:00:2C:FA:A2:1C:09:81, Next Egress Identifier : 00:00:2C:FA:A2:02:DE:B1, Relay Action : RLY_FDB, Chassis ID Subtype : NONE, Chassis ID : none, Ingress Action : ING_OK, Ingress Mac : 2C:FA:A2:02:DE:B8, Ingress Port ID Subtype : LOCALLY_ASSIGNED, Ingress Port ID : 1/1/1A, Egress Action : EGR_OK, Egress Mac : 2C:FA:A2:02:DE:B9, Egress Port ID Subtype : LOCALLY_ASSIGNED, Egress Port ID : 1/1/1B</p>	<p>Ttl : 62, LTM Forwarded : yes, Terminal MEP : no, Last Egress Identifier : 00:00:2C:FA:A2:1C:09:81, Next Egress Identifier : 00:00:2C:FA:A2:02:DE:B1, Relay Action : RLY_FDB, Chassis ID Subtype : NONE, Chassis ID : none, Ingress Action : ING_OK, Ingress Mac : 2C:FA:A2:02:DE:B8, Ingress Port ID Subtype : LOCALLY_ASSIGNED, Ingress Port ID : 1/1/1A, Egress Action : EGR_OK, Egress Mac : 2C:FA:A2:02:DE:B9, Egress Port ID Subtype : LOCALLY_ASSIGNED, Egress Port ID : 1/1/1B</p> <p>Ttl : 61, LTM Forwarded : no, Terminal MEP : yes, Last Egress Identifier : 00:00:2C:FA:A2:02:DE:B1, Next Egress Identifier : 00:00:2C:FA:A2:1C:05:C1, Relay Action : RLY_HIT, Chassis ID Subtype : NONE, Chassis ID : none, Ingress Action : ING_OK, Ingress Mac : 2C:FA:A2:1C:05:F7, Ingress Port ID Subtype : LOCALLY_ASSIGNED, Ingress Port ID : 1/1/48, Egress Action : EGR_NONE, Egress Mac : 00:00:00:00:00:00, Egress Port ID Subtype : NONE, Egress Port ID : none</p>



Path Verification - Now Through OAM

BVLAN 4002

TOR1	(cont.)
<p>-> ethoam linktrace target-macaddress 2c:fa:a2:1c:05:c1 source-endpoint 33 domain ALE association BVLAN4002</p> <p>Transaction Id:1037127829</p> <p>-> show ethoam linktrace-reply domain ALE association BVLAN4002 endpoint 33 tran-id 1037127829</p> <p>LTM operation successful. Target is reachable.</p> <p>Ttl : 63, LTM Forwarded : yes, Terminal MEP : no, Last Egress Identifier : 00:00:2C:FA:A2:1C:09:81, Next Egress Identifier : 00:00:2C:FA:A2:1C:09:81, Relay Action : RLY_FDB, Chassis ID Subtype : NONE, Chassis ID : none, Ingress Action : ING_OK, Ingress Mac : 2C:FA:A2:03:70:B1, Ingress Port ID Subtype : LOCALLY_ASSIGNED, Ingress Port ID : 1/1/1B, Egress Action : EGR_OK, Egress Mac : 2C:FA:A2:03:70:B0, Egress Port ID Subtype : LOCALLY_ASSIGNED, Egress Port ID : 1/1/1A</p>	<p>Ttl : 62, LTM Forwarded : yes, Terminal MEP : no, Last Egress Identifier : 00:00:2C:FA:A2:1C:09:81, Next Egress Identifier : 00:00:2C:FA:A2:03:70:A9, Relay Action : RLY_FDB, Chassis ID Subtype : NONE, Chassis ID : none, Ingress Action : ING_OK, Ingress Mac : 2C:FA:A2:03:70:B1, Ingress Port ID Subtype : LOCALLY_ASSIGNED, Ingress Port ID : 1/1/1B, Egress Action : EGR_OK, Egress Mac : 2C:FA:A2:03:70:B0, Egress Port ID Subtype : LOCALLY_ASSIGNED, Egress Port ID : 1/1/1A</p> <p>Ttl : 61, LTM Forwarded : no, Terminal MEP : yes, Last Egress Identifier : 00:00:2C:FA:A2:03:70:A9, Next Egress Identifier : 00:00:2C:FA:A2:1C:05:C1, Relay Action : RLY_HIT, Chassis ID Subtype : NONE, Chassis ID : none, Ingress Action : ING_OK, Ingress Mac : 2C:FA:A2:1C:05:F6, Ingress Port ID Subtype : LOCALLY_ASSIGNED, Ingress Port ID : 1/1/47, Egress Action : EGR_NONE, Egress Mac : 00:00:00:00:00:00, Egress Port ID Subtype : NONE, Egress Port ID : none</p>



SPB Verification

MAC Learning

TOR1

-> show mac-learning domain spb

Legend: Mac Address: * = address not valid,

Mac Address: & = duplicate static address,

Domain	Vlan/Srvclid[ISId/vnId]	Mac Address	Type	Operation	Interface
SPB	1:1001	00:0c:29:78:fa:de	dynamic	servicing	sap:1/1/1:1001
SPB	1:1001	00:0c:29:d3:0c:37	dynamic	servicing	sdp:32772:1

Total number of Valid MAC addresses above = 2

CORE1

-> show mac-learning domain spb

Legend: Mac Address: * = address not valid,

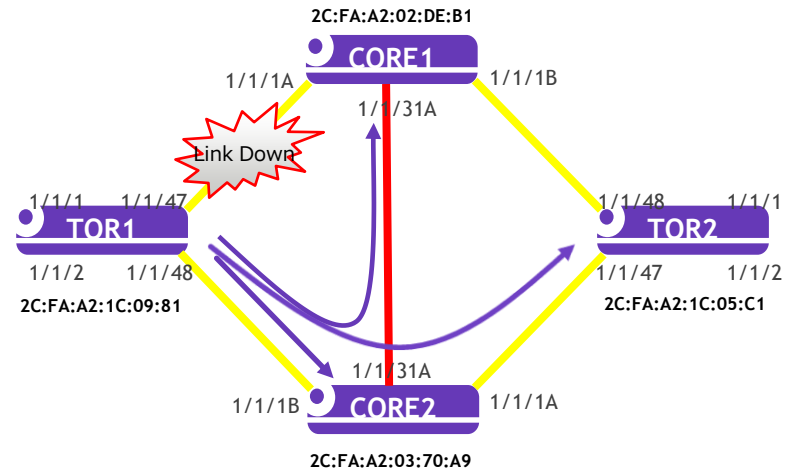
Mac Address: & = duplicate static address,

Domain	Vlan/Srvclid[ISId/vnId]	Mac Address	Type	Operation	Interface
--------	-------------------------	-------------	------	-----------	-----------

Total number of Valid MAC addresses above = 0

ONLY AT THE EDGE, NEVER AT THE CORE: SCALABILITY & STABILITY

Failure & Re-Convergence



TOR1

-> show spb isis spf bvlan 4001 bmac 2c:fa:a2:1c:05:c1

SPB ISIS Path Details:

Path Hop Name	Path Hop BMAC
TOR2	2c:fa:a2:1c:05:c1
CORE1	2c:fa:a2:02:de:b1

-> interfaces port 1/1/47 admin-state disable

-> show spb isis spf bvlan 4001 bmac 2c:fa:a2:1c:05:c1

SPB ISIS Path Details:

Path Hop Name	Path Hop BMAC
TOR2	2c:fa:a2:1c:05:c1
CORE2	2c:fa:a2:03:70:a9

L2 RE-CONVERGENCE SAME AS L3 LINK-STATE PROTOCOL

Performance

CORE 1

-> show saa

Legend: eth-lb = ethoam-loopback

eth-dmm = ethoam-two-way-delay

SAA	Owner	Type	Status	Interval	Time of Last Run	Last Run Result	Description
				(min)			
SPB-4001-2c-fa-a2-03-70-a9	SPB	mac-ping	started	150	2016-11-03,04:16:54.0	success	DEFAULT
SPB-4001-2c-fa-a2-1c-05-c1	SPB	mac-ping	started	150	2016-11-03,04:17:06.0	success	DEFAULT
SPB-4001-2c-fa-a2-1c-09-81	SPB	mac-ping	started	150	2016-11-03,04:16:42.0	success	DEFAULT
SPB-4002-2c-fa-a2-03-70-a9	SPB	mac-ping	started	150	2016-11-03,04:17:00.0	success	DEFAULT
SPB-4002-2c-fa-a2-1c-05-c1	SPB	mac-ping	started	150	2016-11-03,04:17:12.0	success	DEFAULT
SPB-4002-2c-fa-a2-1c-09-81	SPB	mac-ping	started	150	2016-11-03,04:16:48.0	success	DEFAULT

-> show saa statistics aggregate

Legend: eth-lb = ethoam-loopback

eth-dmm = ethoam-two-way-delay

- = Delay or jitter value not available

Aggregate Record:

SAA	Owner	Type	Time of Last-Run		RTT		RTT		Jitter		Jitter		Packets		Description
			Min	Avg	Max	Thr	Min	Avg	Max	Thr	Sent	Rcvd			
SPB-4001-2c-fa-a2-03-70-a9	SPB	mac-ping	2016-11-03,04:16:54.0		100	116	618	0	0	15	508	0	55	55	DEFAULT
SPB-4001-2c-fa-a2-1c-05-c1	SPB	mac-ping	2016-11-03,04:17:06.0		94	105	134	0	0	5	34	0	55	55	DEFAULT
SPB-4001-2c-fa-a2-1c-09-81	SPB	mac-ping	2016-11-03,04:16:42.0		94	106	133	0	0	5	29	0	55	55	DEFAULT
SPB-4002-2c-fa-a2-03-70-a9	SPB	mac-ping	2016-11-03,04:17:00.0		95	105	139	0	0	4	38	0	55	55	DEFAULT
SPB-4002-2c-fa-a2-1c-05-c1	SPB	mac-ping	2016-11-03,04:17:12.0		96	109	163	0	0	5	48	0	55	55	DEFAULT
SPB-4002-2c-fa-a2-1c-09-81	SPB	mac-ping	2016-11-03,04:16:48.0		93	106	121	0	0	4	28	0	55	55	DEFAULT

AUTO PERFORMANCE MONITORING

Follow us on:



[Twitter.com/ALUEnterprise](https://twitter.com/ALUEnterprise)



[Facebook.com/ALUEnterprise](https://facebook.com/ALUEnterprise)



[Youtube.com/user/enterpriseALU](https://youtube.com/user/enterpriseALU)



[Linkedin.com/company/alcatellucententerprise](https://linkedin.com/company/alcatellucententerprise)



[Slideshare.net/Alcatel-Lucent_Enterprise](https://slideshare.net/Alcatel-Lucent_Enterprise)



[Storify.com/ALUEnterprise](https://storify.com/ALUEnterprise)

enterprise.alcatel-lucent.com