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Switch Abstraction Interface

Change Proposal

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# List of Changes

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# Overview

L2 Multicast, a basic layer 2 feature, which provides a security solution by isolating flooding domain from VLAN to l2multicast group. Meanwhile, it decreases the traffic load on a Layer 2 switch. This document covers details of l2multicast object –l2multicast group creating and removing, l2multicast group attributes setting and getting, port adding to l2multicast group, and port removing from l2multicast group.

# Specification

This section describes the details of the proposed interface/API

## Changes to sai.h

typedef enum \_sai\_api\_t {

SAI\_API\_L2MC= 44, /\* sai\_l2mc\_api\_t \*/

} sai\_api\_t;

## Changes to saivlan.h

/\*\*

\* @brief Attribute Id in sai\_set\_vlan\_attribute() and

\* sai\_get\_vlan\_attribute() calls

\*/

typedef enum \_sai\_vlan\_attr\_t

{

/\*\* READ-WRITE \*/

/\*\* VLAN IGMP Snooping enable [bool]

\* (default is enabled)\*/

SAI\_VLAN\_ATTR\_IGMP\_SNOOPING\_EN,

/\*\* VLAN IGMP Snooping discard\_unknown [bool]

\* (default is enabled)\*/

SAI\_VLAN\_ATTR\_IGMP\_SNOOPING\_DISCARD\_UNKNOWN,

/\*\* Custom range base value \*/

SAI\_VLAN\_ATTR\_CUSTOM\_RANGE\_BASE = 0x10000000

} sai\_vlan\_attr\_t;

## New definitions in sail2mc.h

/\*

\* L2 multicast entry key

\*/

typedef struct \_sai\_l2mc\_entry\_t

{

sai\_mac\_t mac\_address;

sai\_vlan\_id\_t vlan\_id;

} sai\_l2mc\_entry\_t;

/\*

\* Attribute Id for L2 mutlicast entry

\*/

typedef enum \_sai\_l2mc\_entry\_attr\_t

{

/\* READ-ONLY \*/

/\* READ-WRITE \*/

/\* SAI port list [sai\_object\_list\_t] (CREATE\_AND\_SET) \*/

SAI\_L2MC\_ATTR\_PORT\_LIST,

/\* -- \*/

/\* Custom range base value \*/

SAI\_L2MC\_ENTRY\_ATTR\_CUSTOM\_RANGE\_BASE = 0x10000000

} sai\_l2mc\_entry\_attr\_t;

/\*

\* Routine Description:

\* Create L2 multicast entry

\*

\* Arguments:

\* [in] l2mc\_entry - L2 multicast entry

\* [in] attr\_count - number of attributes

\* [in] attr\_list - array of attributes

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_create\_l2mc\_entry\_fn)(

\_In\_ const sai\_l2mc\_entry\_t\* l2mc\_entry,

\_In\_ uint32\_t attr\_count,

\_In\_ const sai\_attribute\_t \*attr\_list

);

/\*

\* Routine Description:

\* Remove L2 multicast entry

\*

\* Arguments:

\* [in] l2mc\_entry – L2 multicast entry

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_remove\_l2mc\_entry\_fn)(

\_In\_ const sai\_l2mc\_entry\_t\* l2mc\_entry

);

/\*

\* Routine Description:

\* add port list to L2 multicast

\*

\* Arguments:

\* [in] l2mc\_entry - L2 multicast entry

\* [in] port\_list - port list

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_add\_ports\_to\_l2mc\_fn)(

\_In\_ const sai\_l2mc\_entry\_t\* l2mc\_entry,

\_In\_ const sai\_object\_list\_t \*port\_list

);

/\*

\* Routine Description:

\* remove port list from L2 multicast

\*

\* Arguments:

\* [in] l2mc\_entry - L2 multicast entry

\* [in] port\_list - port list

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_remove\_ports\_from\_l2mc\_fn)(

\_In\_ const sai\_l2mc\_entry\_t\* l2mc\_entry,

\_In\_ const sai\_object\_list\_t \*port\_list

);

/\*

\* Routine Description:

\* Set L2 multicast entry attribute value

\*

\* Arguments:

\* [in] L2 multicast - L2 multicast entry

\* [in] attr - attribute

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_set\_l2mc\_entry\_attribute\_fn)(

\_In\_ const sai\_l2mc\_entry\_t\* l2mc\_entry,

\_In\_ const sai\_attribute\_t \*attr

);

/\*

\* Routine Description:

\* Get L2 multicast entry attribute value

\*

\* Arguments:

\* [in] l2mc\_entry - L2 multicast

\* [in] attr\_count - number of attributes

\* [inout] attr\_list - array of attributes

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_get\_l2mc\_entry\_attribute\_fn)(

\_In\_ const sai\_l2mc\_entry\_t\* l2mc\_entry,

\_In\_ uint32\_t attr\_count,

\_Inout\_ sai\_attribute\_t \*attr\_list

);

/\*

\* L2 multicast method table retrieved with sai\_api\_query()

\*/

typedef struct \_sai\_l2mc\_api\_t

{

sai\_create\_l2mc\_entry\_fn create\_l2mc\_entry;

sai\_remove\_l2mc\_entry\_fn remove\_l2mc\_entry;

sai\_create\_l2mc\_entry\_fn sai\_add\_ports\_to\_l2mc\_fn;

sai\_remove\_l2mc\_entry\_fn sai\_remove\_ports\_from\_l2mc\_fn;

sai\_set\_l2mc\_entry\_attribute\_fn set\_l2mc\_entry\_attribute;

sai\_get\_l2mc\_entry\_attribute\_fn get\_l2mc\_entry\_attribute;

} sai\_l2mc\_api\_t;

# Examples

sai\_api\_query(SAI\_API\_L2MC, &sai\_l2mc\_api);

sai\_l2mc\_entry\_t l2mc\_entry;

sai\_object\_id\_t port\_list\_obj[2] = {0};

sai\_attribute\_t attr[1] = {0};

l2mc\_entry.vlan\_id = 10;

l2mc\_entry.mac\_address = {0x01, 0x00, 0x5e, 0x00, 0x02, 0x00};

attr[0].id = SAI\_L2MC\_ATTR\_PORT\_LIST;

port\_list\_obj [0] = port1\_obj;

port\_list\_obj [1] = port2\_obj;

attr[0].value.objlist.count = 2;

attr[0].value.objlist.list = port\_list\_obj;

sai\_l2mc\_api->create\_l2mc\_entry(&l2mc\_entry, 1, attr);