

|  |
| --- |
|  |

Switch Abstraction Interface

Change Proposal

|  |  |
| --- | --- |
| **Title** | **L2MC** |
| **Authors** | **CENTEC** |
| **Status** | **In Review** |
| **Type** | **Standards Track** |
| **Created** | **17/10/2015** |
| **SAI-Version** | **0.9.3** |

**Contents**

[List of Changes i](#_Toc440457978)

[1 Overview 1](#_Toc440457979)

[2 Specification 1](#_Toc440457980)

[2.1 Changes to sai.h 1](#_Toc440457981)

[2.2 New definitions in sail2mc.h 1](#_Toc440457982)

[3 Examples 3](#_Toc440457983)

# List of Changes

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Changes | Name | Date |
| 0.9.3 | Base version |  | 17/10/2015 |

License

© 2014 Microsoft Corporation, Dell Inc., Facebook, Inc, Broadcom Corporation, Intel Corporation, Mellanox Technologies Ltd.

As of September 9, 2014, the following persons or entities have made this Specification available under the Open Web Foundation Final Specification Agreement (OWFa 1.0), which is available at <http://www.openwebfoundation.org/legal/the-owf-1-0-agreements/owfa-1-0>

Microsoft Corporation, Dell Inc., Facebook, Inc, Intel Corporation, Mellanox Technologies Ltd.

You can review the signed copies of the Open Web Foundation Agreement Version 1.0 for this Specification at <http://opencompute.org/licensing/>, which may also include additional parties to those listed above.

Your use of this Specification may be subject to other third party rights. THIS SPECIFICATION IS PROVIDED "AS IS." The contributors expressly disclaim any warranties (express, implied, or otherwise), including implied warranties of merchantability, noninfringement, fitness for a particular purpose, or title, related to the Specification. The entire risk as to implementing or otherwise using the Specification is assumed by the Specification implementer and user. IN NO EVENT WILL ANY PARTY BE LIABLE TO ANY OTHER PARTY FOR LOST PROFITS OR ANY FORM OF INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER FROM ANY CAUSES OF ACTION OF ANY KIND WITH RESPECT TO THIS SPECIFICATION OR ITS GOVERNING AGREEMENT, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), OR OTHERWISE, AND WHETHER OR NOT THE OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE FOLLOWING IS A LIST OF MERELY REFERENCED TECHNOLOGY: Microprocessor technology, semiconductor manufacturing technology, operating system technology (including without limitation networking operating system technology), emulation technology, graphics technology, video technology, integrated circuit packaging technology and the like, compiler technologies, object oriented technology, optical/RF communications technology including chip I/O and driver technology, bus technology, memory chip technology (including, without limitation, NAND memory, NOR memory, resistive RAM (RRAM), seek scan probe (SSP) memory, nonvolatile memory (including without limitation, memory based on chalcogenide materials, phase change memory (PCM), one or more stacked layers of memory cells, embedded PCM memories, non-volatile cache memory, solid state drives, SRAM, embedded DRAM, ferro-electric memory, and polymer memory)) and/or health-related and medical technology. IMPLEMENTATION OF THESE TECHNOLOGIES MAY BE SUBJECT TO THEIR OWN LEGAL TERMS.

# 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= 28, /\* sai\_l2mc\_api\_t \*/

} sai\_api\_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);