Information Elements for Data Link Layer Traffic Measurement
(draft-kashima-ipfix-data-link-layer-monitoring-03)

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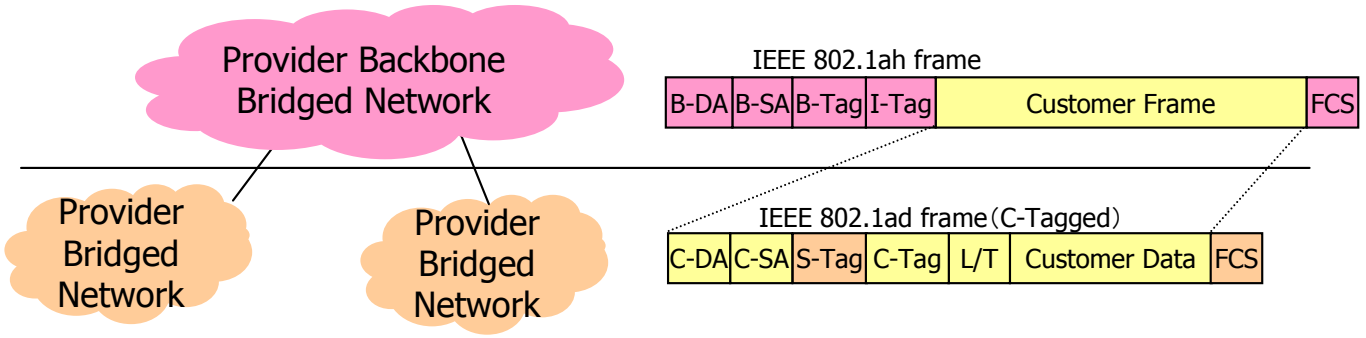
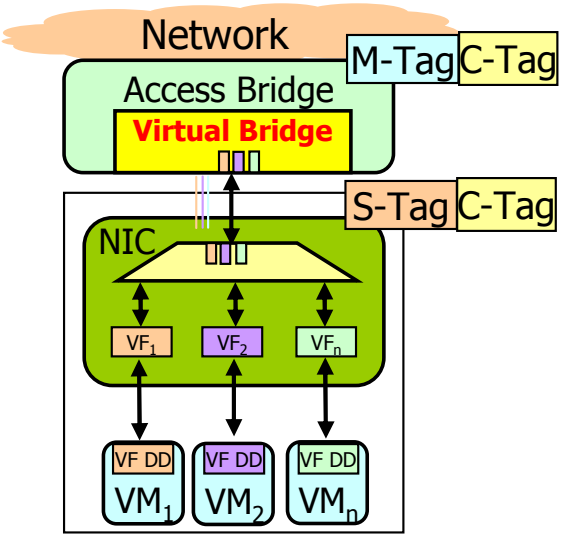
Motivation

- **A Wide-Area Ethernet and a Data Center Bridging has a lot of Ethernet components.**
  - Many kinds of MAC-Address and VLAN-Tag (VLAN ID and QoS parameter bit), etc.



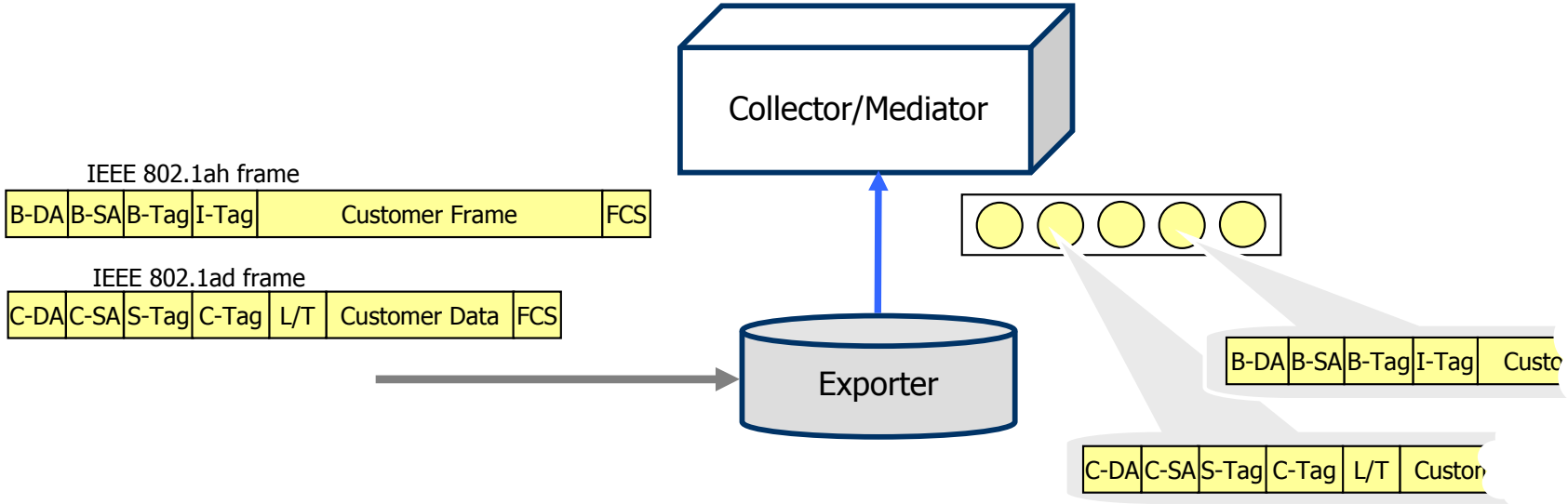


Under a discussion in IEEE 802.1 Data Center Bridging

- **A variety of traffic monitoring is required.**
  - Traffic volume for each VLAN and QoS class (for traffic report to customer)
  - Multicast traffic volume (for capacity planning and loop detection)
- **A flexible traffic measurement is required in Ethernet layer.**

Proposal

- **A flexible traffic measurement in Ethernet layer.**
  - Just like ip*PacketSection for IPv4 and IPv6.
  - Just like mpls*LabelStackSection* for MPLS.



- **Then we proposed adding three IEs in IETF77 meeting.**

Name	Description	Data Type	Id
dataLinkFrameType	The type of the selected link frame.	signed32	TBD1
dataLinkFrameSize	The size of the selected link frame.	unsigned16	TBD2
dataLinkFrameSection	The first N octets of the selected link frame. A variable length.	octetArray	TBD3

Discussion

- **Several definitions for "dataLinkFrameType" are considered.**
  - Reference to "IANAifType":
    - Good enumeration, but indicates interface type, not frame type.
    - Probably needs more than 8 bit length because it has already reserved from 1 to 255, (including legacy types).
  - Sub-type by reusing libpcap (used in tcpdump) frame type:
    - Good enumeration, but is not under the management of IANA.
    - Perhaps needs more than 8 bit length because it has already reserved from 1 to 215, (including legacy types).
  - New sub-type:
    - Needs IANA registration, and needs to discuss about list.
    - Needs only 8 bit length if we make a list with only required types.

Discussion [cont.]

- **Perhaps an Ethernet-specific method is better than a generic method applicable to all link layer protocols.**
  - Just like that mpls*LabelStackSection* is MPLS-specific.
  - Because Ethernet is very common.
  - Ethernet-specific method:
    - “dataLinkFrameType” -> (removed)
    - “dataLinkFrameSize” -> “ethernetFrameSize”
    - “dataLinkFrameSection” -> “ethernetFrameSection”

Comparison

Plan	Plan 1-1	Plan 1-2	Plan 1-3	Plan 2
	IANAifType (1-255)	Libpcap (1-215)	New sub-type (1-??)	(removed)
General Versatility	Good	Good	Good	Bad
Sub-type Standards Work	Easy (no work)	Not easy (not under the management of IANA)	Difficult	Easy (no work)
Saving Data Size	Maybe not good (16bit or 32bit if more than 255 types are reserved)	Maybe not good (16bit or 32bit if more than 255 types are reserved)	Good (8bit)	Very good (0 bit)

Primal plan

Discussion [cont.]

- **Is this valuable as WG item?**