802.1ah: Multiprotocol Service Interface

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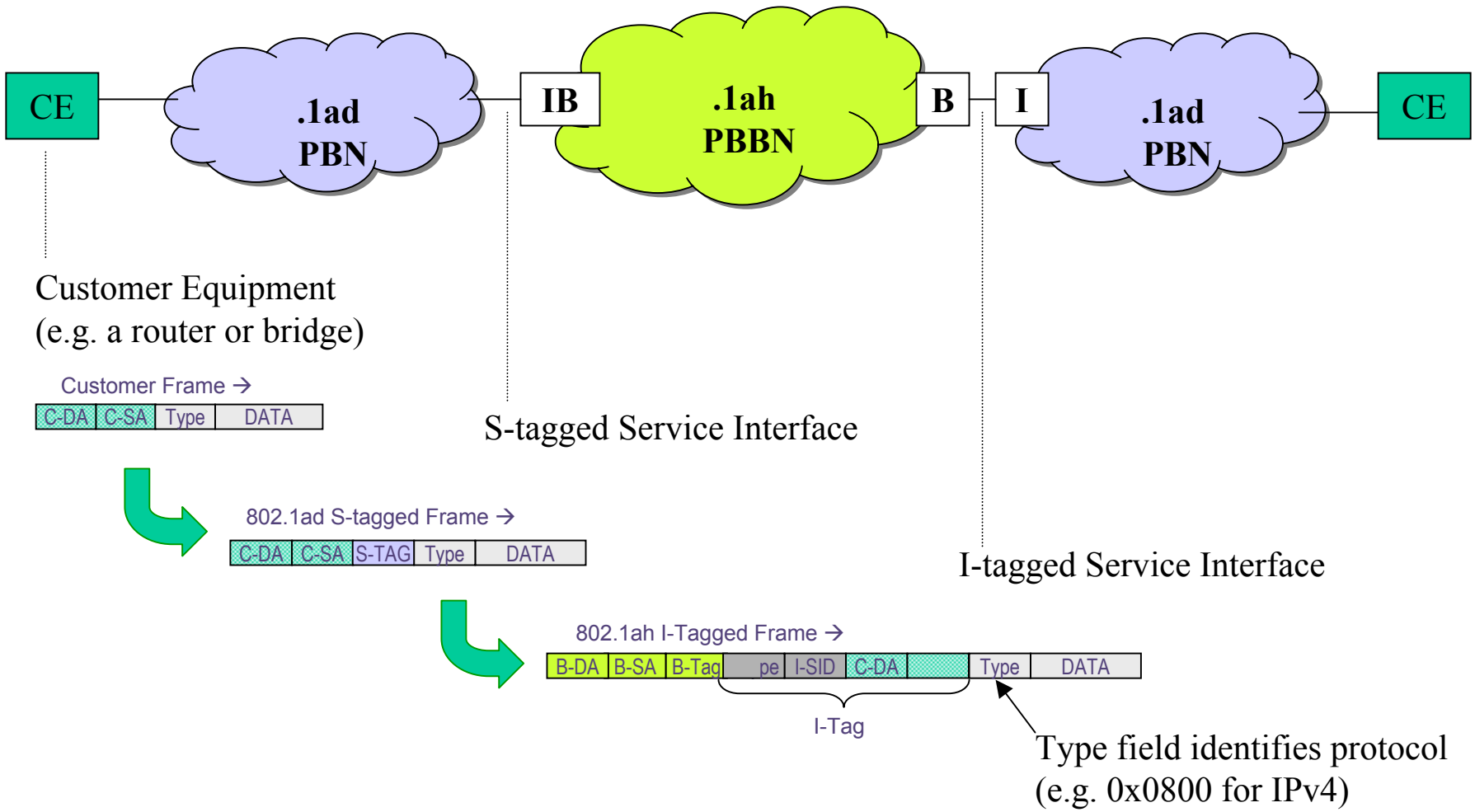
Provider Backbone Bridged Network

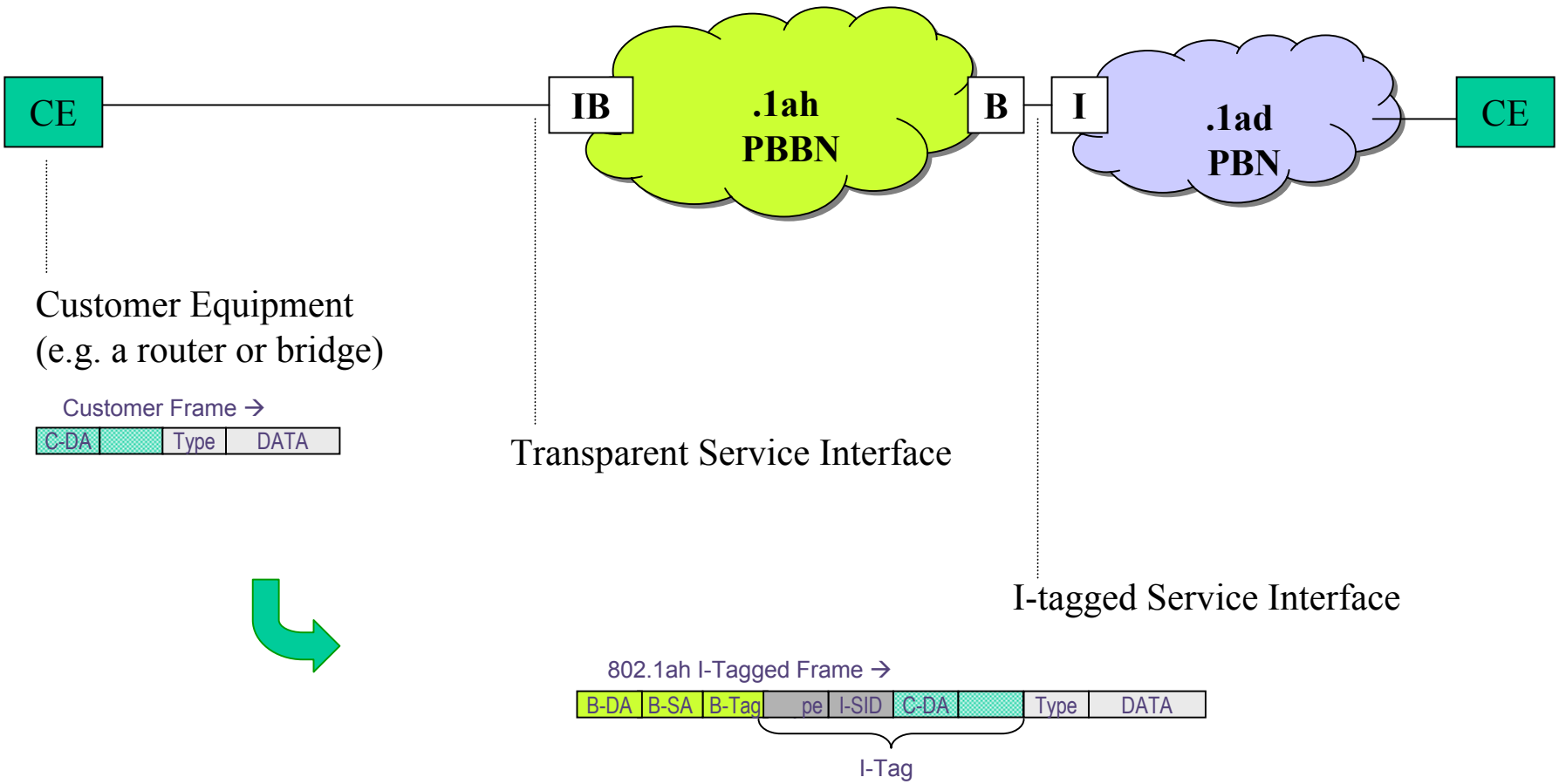
- **Scope:** The scope of this standard is to define an architecture and bridge protocols compatible and interoperable with Provider Bridged Network protocols and equipment allowing interconnection of multiple Provider Bridged Networks, to allow scaling to at least 2^20 Service Virtual VLANs, and to support management including SNMP.

- **Purpose:** This standard will complete the future work identified by P802.1ad, by providing a specific means for interconnecting Provider Bridged Networks. It will enable a Service Provider to scale the number of Service Virtual LANs in a Provider Network by interconnecting the Service Virtual VLANs, and provide for interoperability and consistent standards based management.

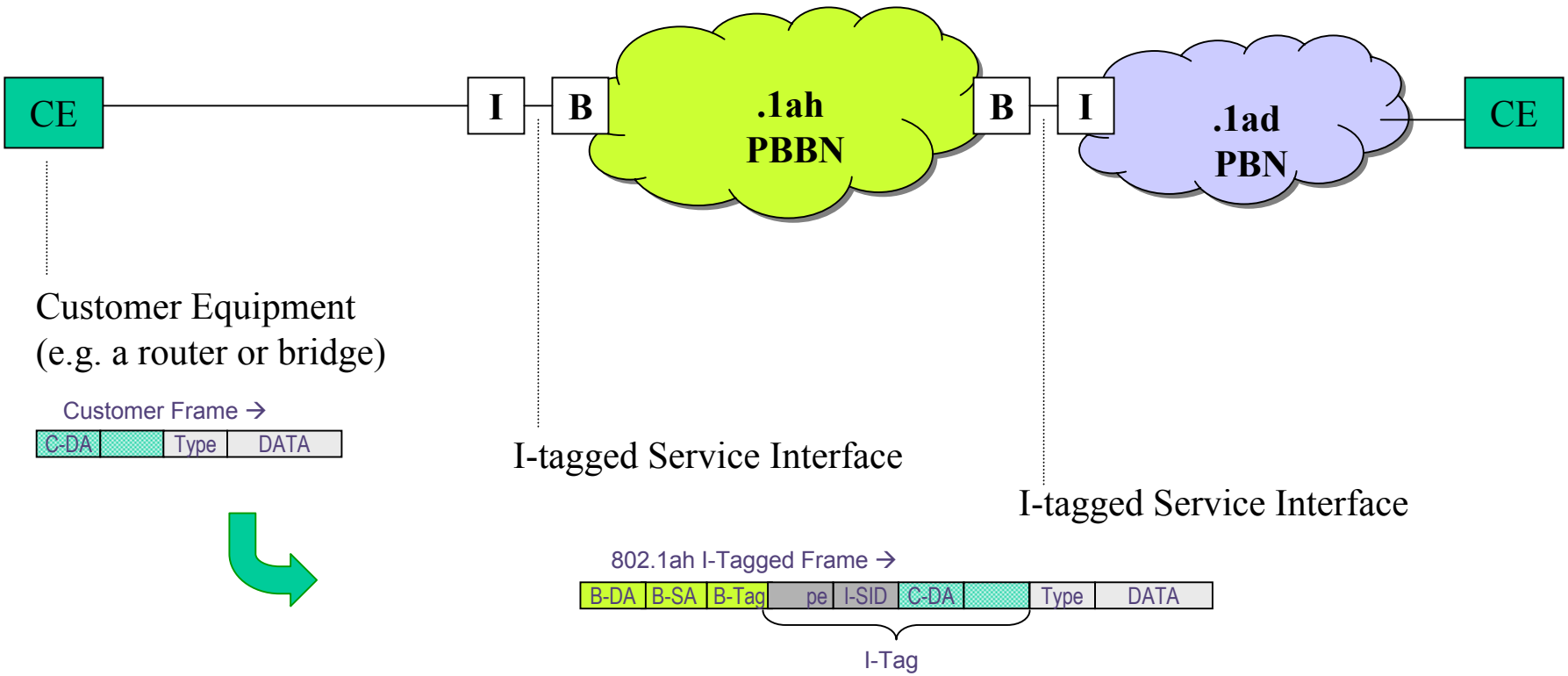
802.1ad / 802.1ah Networks



This is allowed

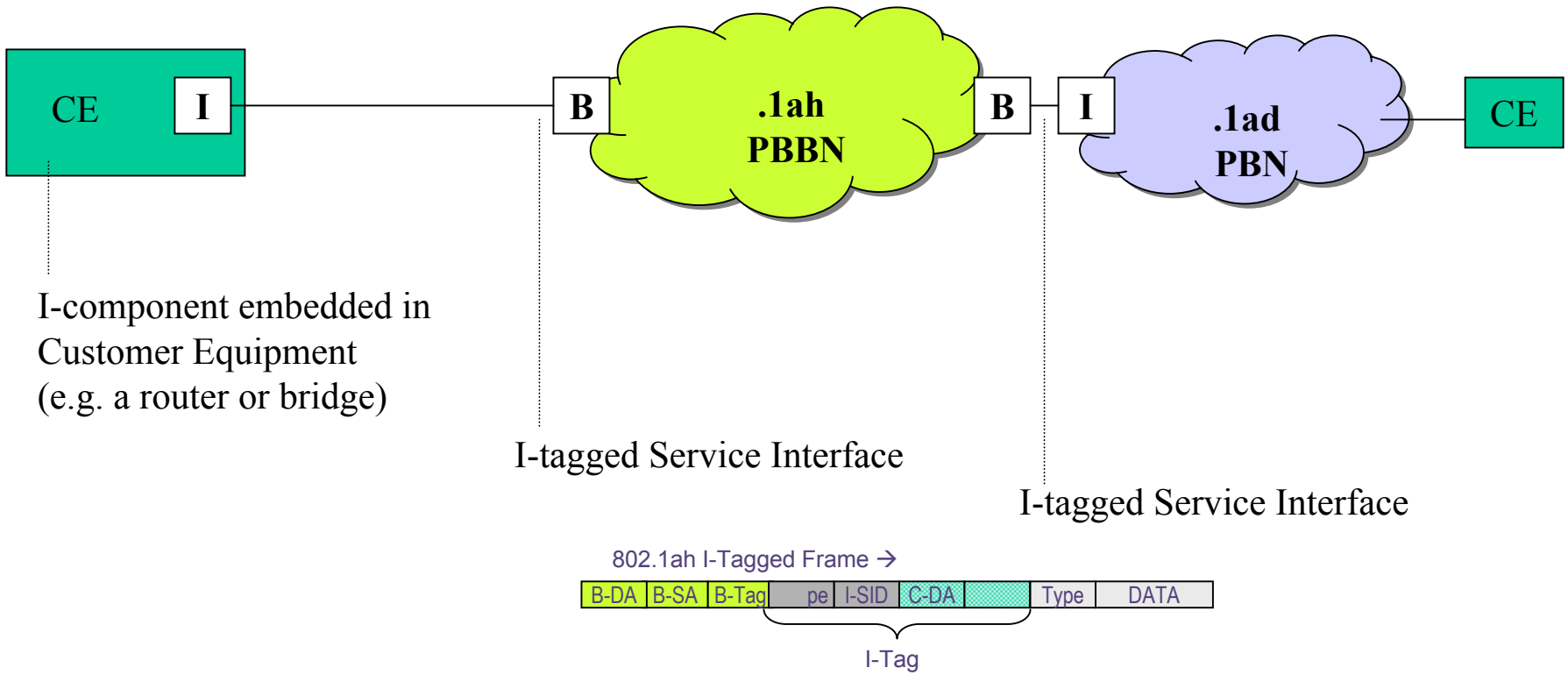


Is this allowed?



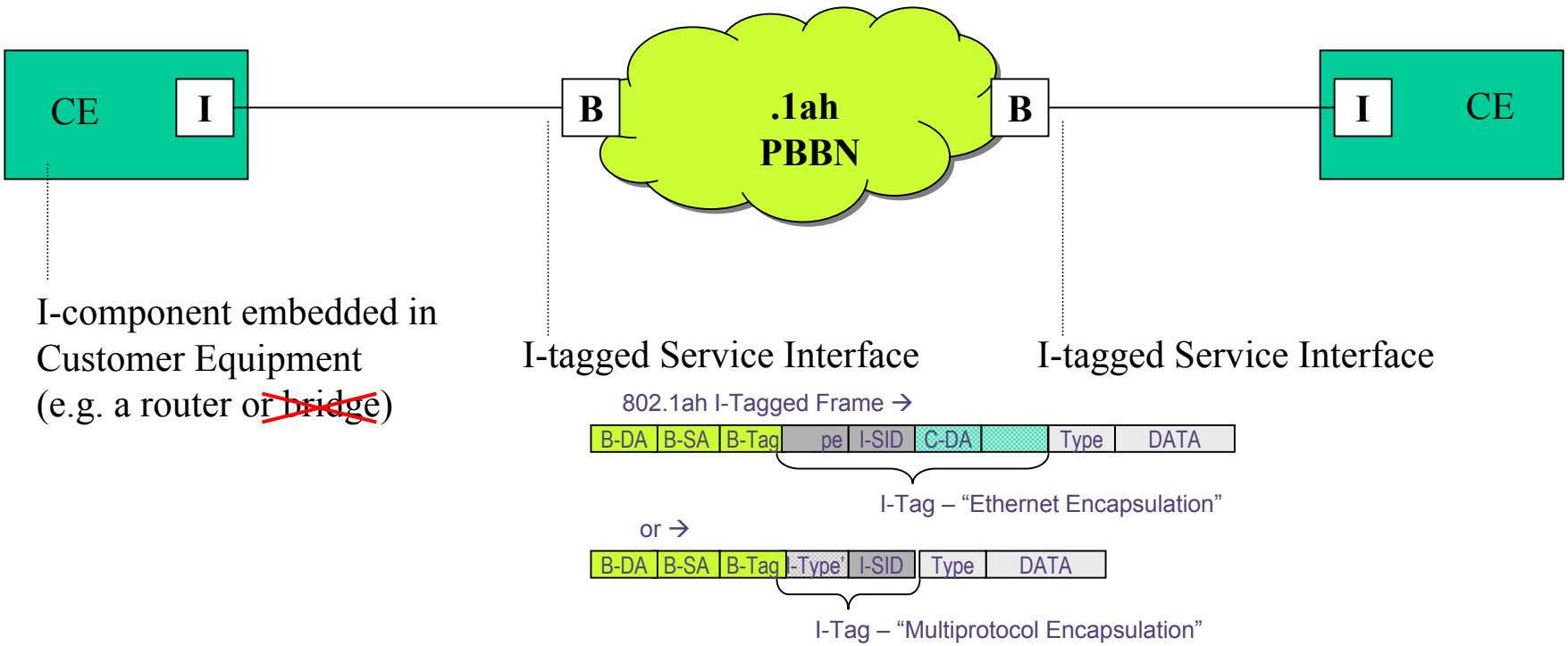
- Not explicitly described in the standard, but the specification of the components supports it.
- Would have to go out of our way to prevent it.

Is this allowed?



- Cannot prevent it.
- Note that in such a piece of Customer Equipment, the B-MAC address may be the same as the C-MAC address.

Does this warrant a new frame format?



- Saves 12 bytes when:
  - Customer Equipment is a "host system" from a 802 point of view (i.e. a router or server or multiprotocol gateway but not a bridge)
  - I-component is embedded in CE at all PBBN service interfaces

Pros and Cons

- Pros
  1. Saves 12 bytes
     - When all I-component functionality is embedded in CE at all service interfaces for a given ISID, the C-MAC addresses are redundant and need not be carried in the frame.
  2. If we don't define an Ethertype for this frame format then vendors will do it anyway with proprietary Ethertypes.
- Cons
  1. Only works when all communicating CE devices have embedded I-component and are connect directly to PBBN.
     - If any CE device connects through an 802.1ad network then must use I-tag with Ethernet encapsulation format.
     - Therefore any such device needs to know how the devices it is communicating with are connected.
     - Likely that any such device would need to support both formats.