802.1ah: CBP Address Translation
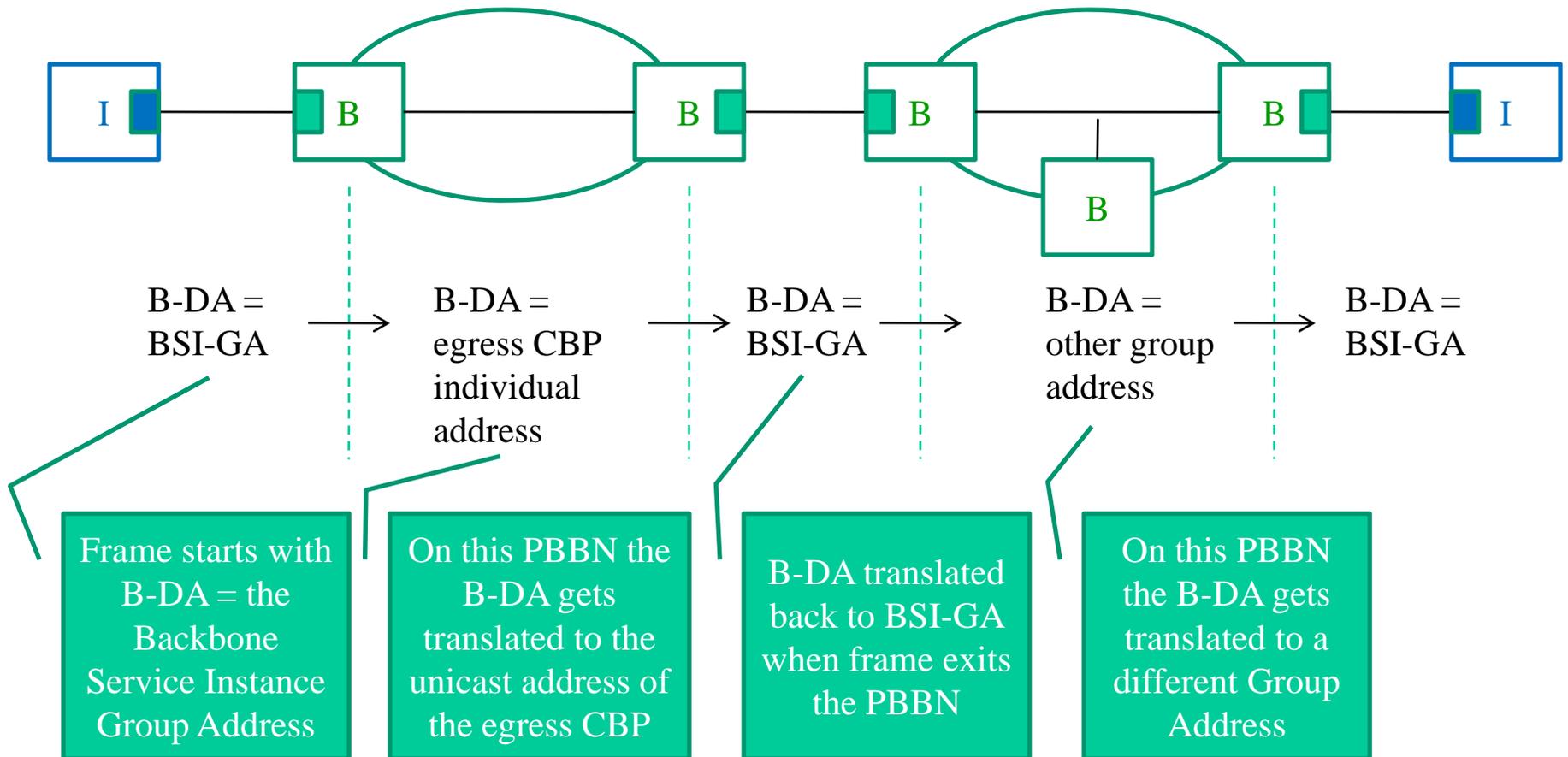## Version 3

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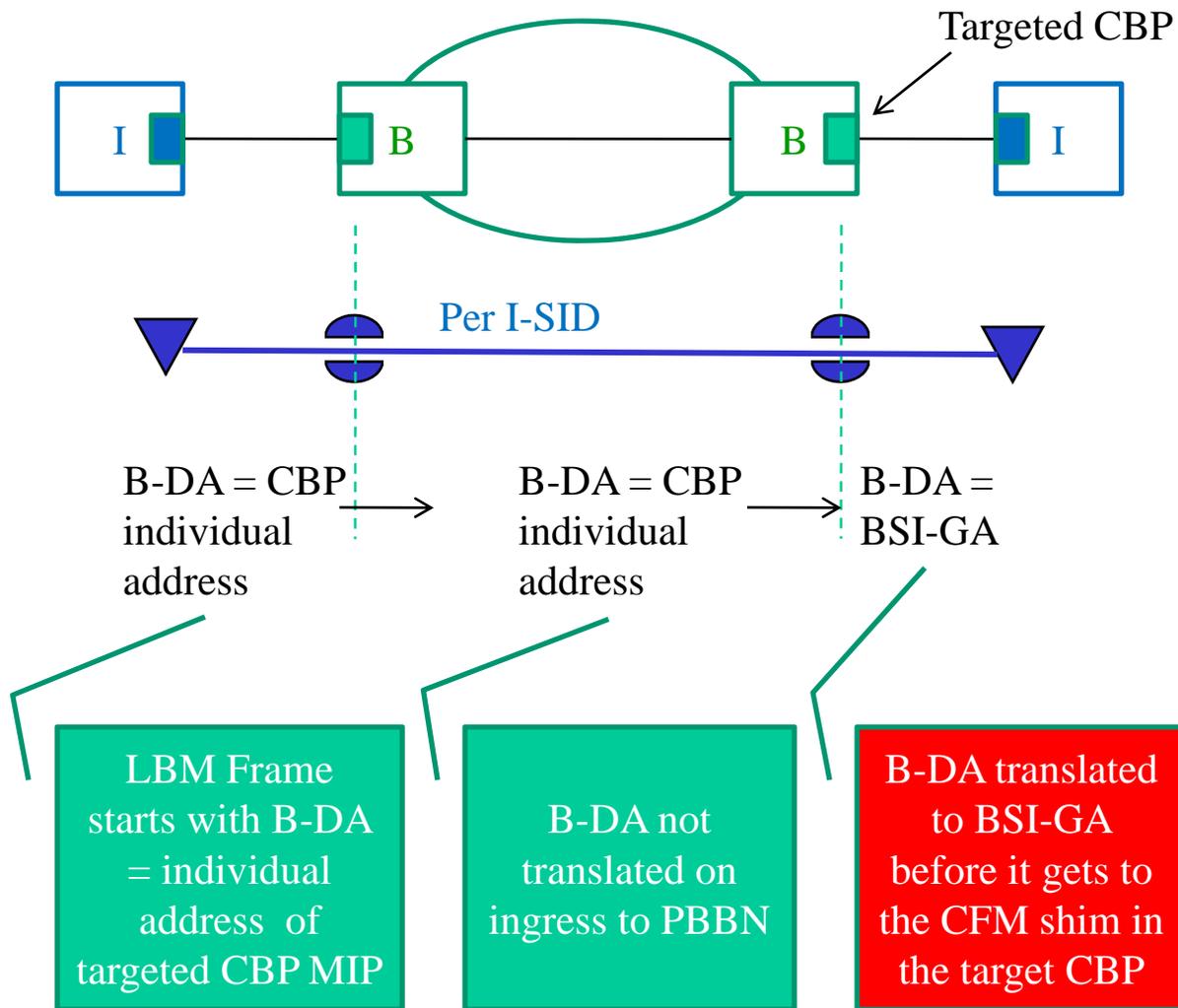
September 5, 2007

802.1 Interim, Stockholm

d3.6 CBP address translation rules

- ## UNITDATA.indication (ingress to PBBN)

  - If B-DA is the Backbone Service Instance Group Address (constructed from 802.1ah OUI and the I-SID), the CBP may translate the B-DA to the address configured in the Default Backbone Destination parameter.

    - Default Backbone Destination may be a group address or, if the backbone service instance is point-to-point on this PBBN, the individual address of the egress CBP.

- ## UNITDATA.request (egress from PBBN)

  - If B-DA is any group address or the individual address of this CBP, the CBP translates the B-DA to the Backbone Service Instance Group Address.

d3.6 Address translation at CBP

I — B — B — B — B — I

B

| B-DA = BSI-GA | → | B-DA = egress CBP individual address | → | B-DA = BSI-GA | → | B-DA = other group address | → | B-DA = BSI-GA |

Frame starts with B-DA = the Backbone Service Instance Group Address

On this PBBN the B-DA gets translated to the unicast address of the egress CBP

B-DA translated back to BSI-GA when frame exits the PBBN

On this PBBN the B-DA gets translated to a different Group Address

d3.6 Problem with CFM individual address

Targeted CBP

I — B — B — I

Per I-SID

B-DA = CBP individual address → B-DA = CBP individual address → B-DA = BSI-GA

LBM Frame starts with B-DA = individual address of targeted CBP MIP

B-DA not translated on ingress to PBBN

B-DA translated to BSI-GA before it gets to the CFM shim in the target CBP

d3.6 Proposal for CFM individual address

Targeted CBP

I — B | B — I

Per I-SID

B-DA = CBP individual address → B-DA = CBP individual address → B-DA = BSI-GA

LBM Frame starts with B-DA = individual address of targeted CBP MIP

B-DA not translated on ingress to PBBN

B-DA translated to BSI-GA before it gets to the CFM shim in the target CBP
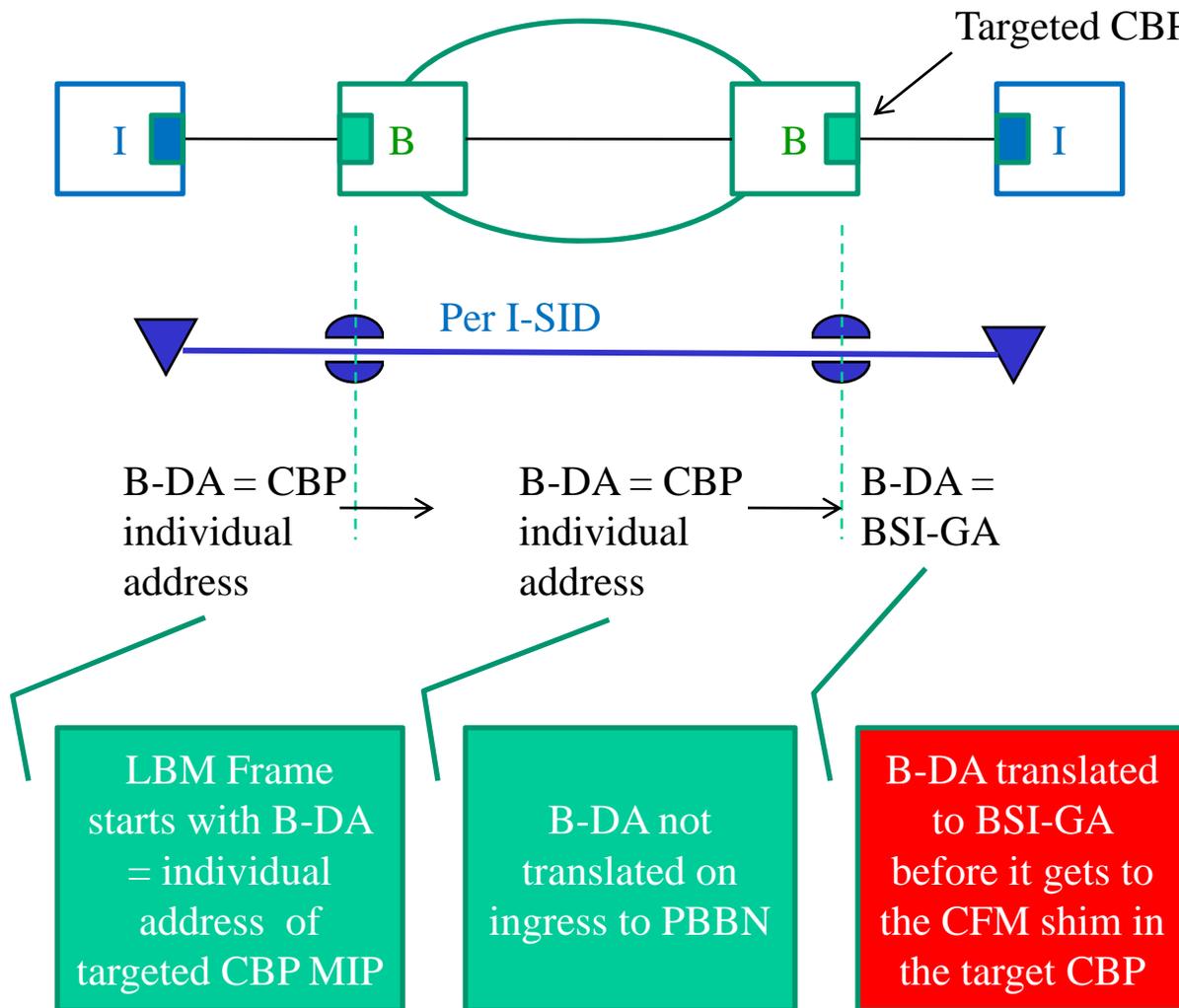
1) Make egress translation dependent on NCA bit (don't translate B-DA of backbone service instance level CFM).
2) CBP has two individual addresses: one for CFM shims and one for B-DA on user data frames.
3) Don't allow translating B-DA of user data frames to/from CBP individual address.
4) Put CFM shims above CBP functions (6.11) in interface stack.

Resolution d3.6 → d3.7

- In San Francisco we selected option 1, but it had a fundamental problem:
  - It solved the original problem statement, but …
  - CFM frames that are created with a CCM or LTM group address can have that translated to a CBP individual address. At that point they are indistinguishable from CFM frames created with the CBP individual address.
    - Not translating the CBP individual address back to the backbone service instance group address (BSIGA) based on the NCA bit is the wrong decision if the original address was the BSIGA.
    - Translating the CBP individual address to the BSIGA is the wrong decision if the original address was the CBP individual address.

- Therefore d3.7 went to the second proposed solution: the CBP translation function uses a different individual address than the CBP CFM shims.

d3.7 CBP address translation rules

- UNITDATA.indication (ingress to PBBN)

  - If B-DA is the Backbone Service Instance Group Address (constructed from 802.1ah OUI and the I-SID) or a CCM or LTM group address, the CBP may translate the B-DA to the address configured in the Default Backbone Destination parameter.

    – Default Backbone Destination may be a group address or, if the backbone service instance is point-to-point on this PBBN, the individual address of the egress CBP.

- UNITDATA.request (egress from PBBN)

  - If B-DA is any group address or the individual address of this CBP, the CBP translates the B-DA to the Backbone Service Instance Group Address.

- The CBP individual address used for address translations is different than the address used by CFM shims at the CBP.

d3.7 comments

- Oliver: Now unicast CFMs get forwarded using different destination address than data frames – don't really test the data path.

- Maarten: How are the two addresses per CBP assigned/derived/specified?

Possible resolutions:

- Leave the two address solution as it is. (Basically ignore the issue Oliver brings up and say it is good enough.)

- Eliminate CBP option to translate B-DA to an individual CBP address. (3rd potential solution proposed in San Francisco)

- Change the way CFM loopbacks operate per Oliver's proposed resolution. (Changes to CFM are rippling further and further.)

d3.7 Address translation at CBP

I —— B ⬯ B —— B ⬯ B —— I

B

B-DA = CCM/LTM → B-DA = BSI-GA → B-DA = BSI-GA → B-DA = other group address → B-DA = BSI-GA

Frame starts with B-DA = a CFM group address

On this PBBN the B-DA gets translated to the backbone service instance group address

On this PBBN the B-DA gets translated to a configured Default Backbone Destination (either individual or group)

B-DA translated back to BSI-GA when frame exits the PBBN