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# Setting of flow identification rule for BCN-Based congestion management

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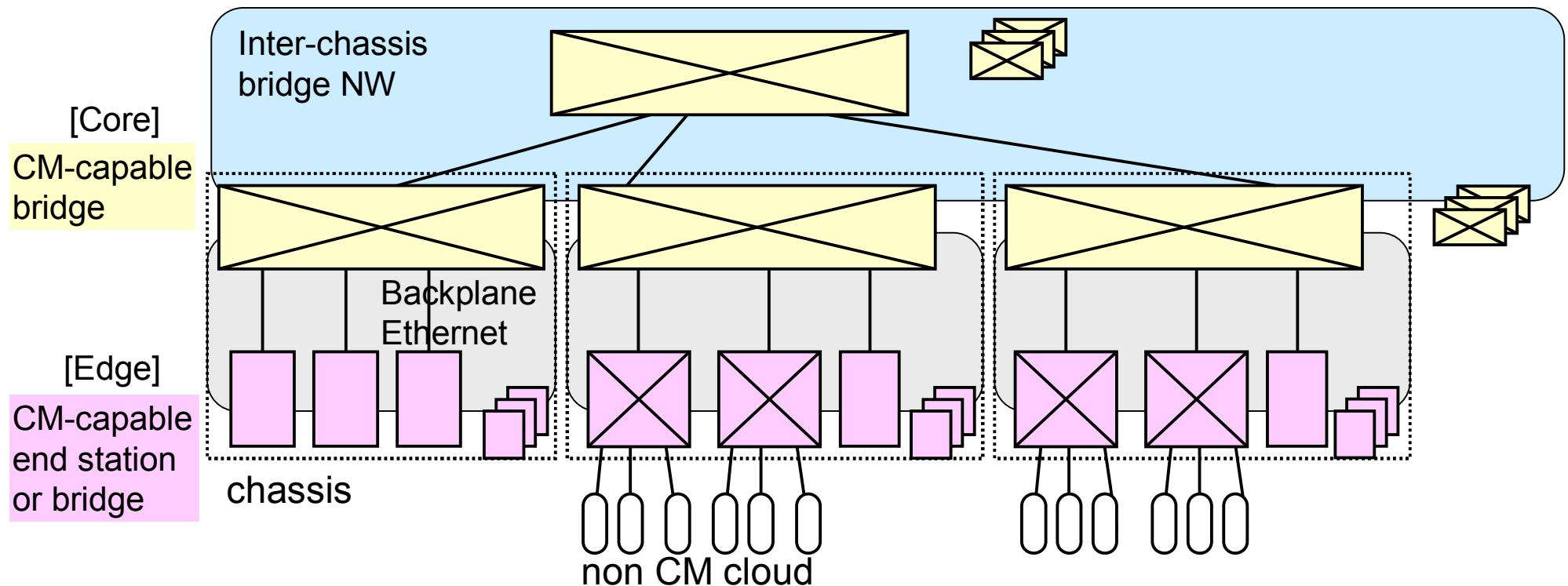
# BCN-based congestion management

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- Based on Hugh's presentation at interim in Jan. 2006  
<http://www.ieee802.org/1/files/public/docs2006/new-barrass-cm-overview-0106.pdf>
- It describes flow granularity as follows.
  - (p.6) Reaction point: granularity dependant on implementation  
Could be SA/DA/PRI, DA/PRI, PRI-only, or entire link
  - (p.12) Generate BCN packet ... first N bytes of sampled frame  
– to allow reaction point to see higher layers
- This presentation discusses setting of flow identification rule at reaction point according to a node type of BCN message generation point.

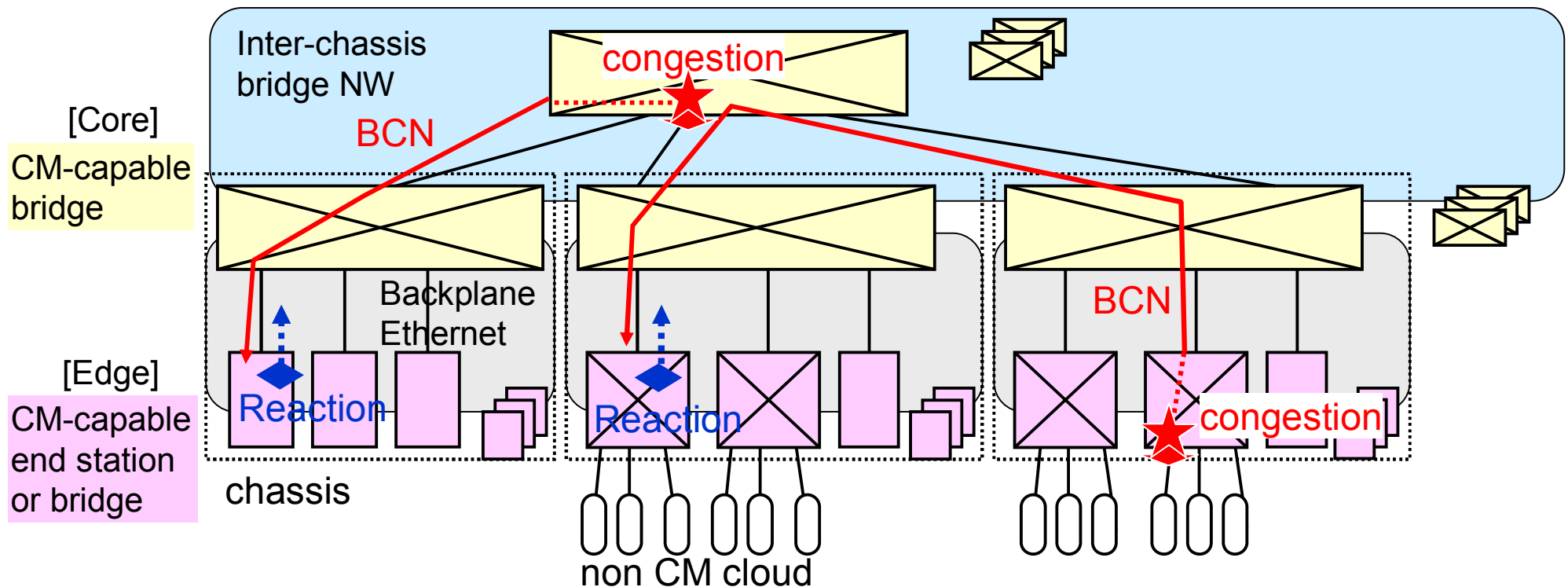
# Sample network topology of CM cloud

- CM cloud can consist of backplane and inter-chassis bridge network.
- Edge of CM cloud can be an end station (host, IP/MPLS router) or 802.1Q/ad/ah bridge.



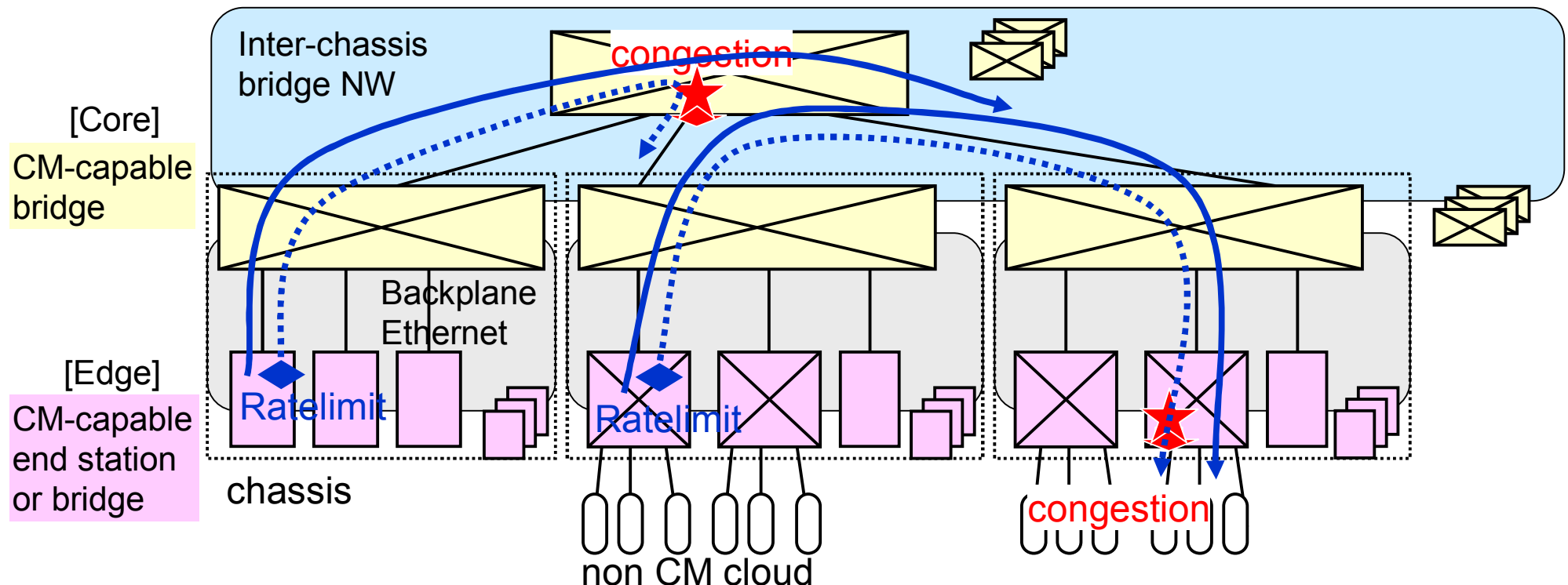
# Backward congestion notification

- BCN messages will be sent from CM-capable bridges or edges of CM cloud (end station or bridge).
- BCN messages will be terminated at edges of CM cloud (end station or bridge).



# Requirements for reaction

- Differentiation of CM- and non-CM-controlled traffic by VLAN priority
- Avoid head-of-line blocking between CM-controlled traffic destined to different destinations.
  - Reaction point should be able to identify a flow at least based on a frame's VLAN priority and destination.

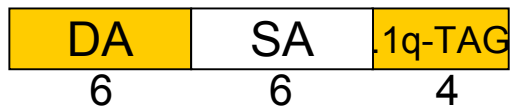


# Identification of a flow for reaction

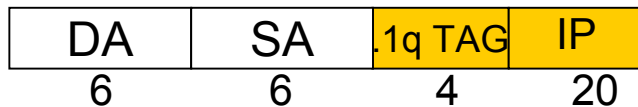
- It depends on a node type of BCN message generation point.

(Example)

- 802.1Q bridge → {.1q-tag priority & VID, (aggregated) DA}



- IP router → {.1q-tag priority & VID, (aggregated) IP-DA}



- 802.1ah provider backbone edge bridge → {B-tag priority, I-tag VID, (aggregated) Customer DA}

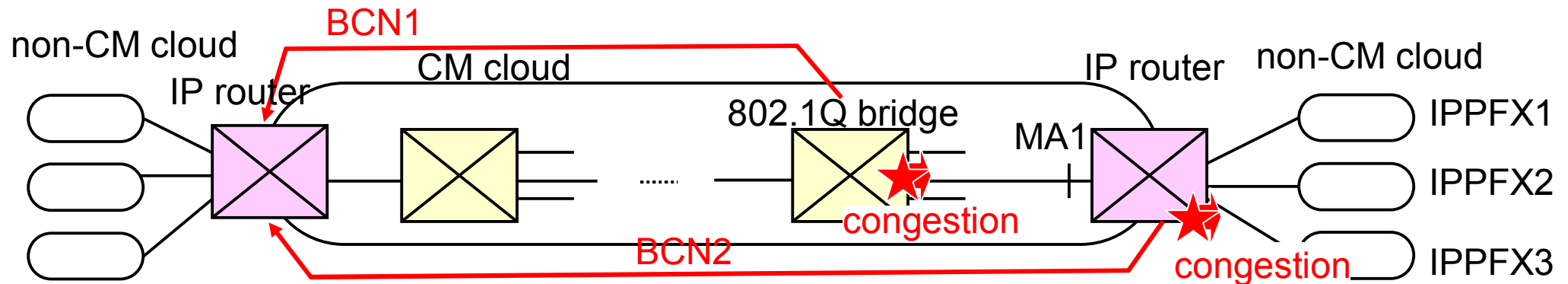


# Flow identification rule for reaction

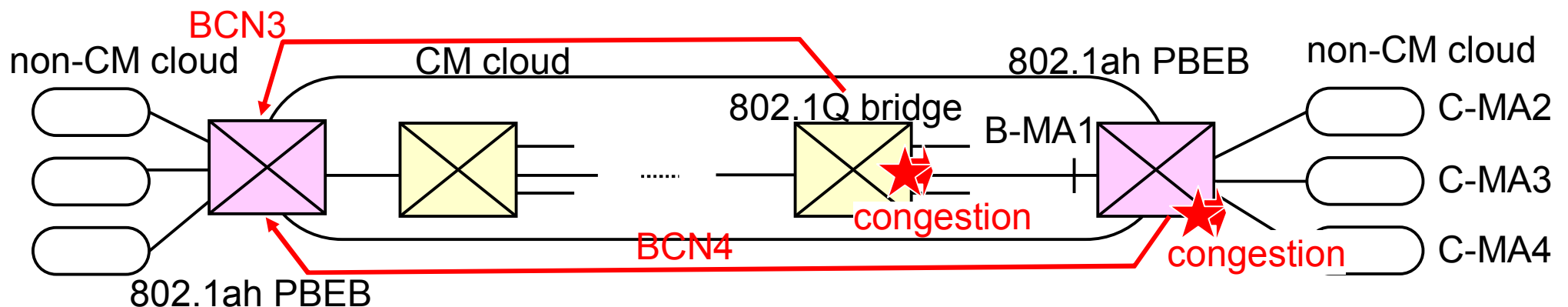
MA: MAC address  
IPPFX: IP prefix address

(Example)

- For BCN1, ratelimit a flow that matches Dest MA = MA1.
- For BCN2, ratelimit a flow that matches Dest IPPFX = IPPFX3



- For BCN3, ratelimit a flow that matches Dest B-MA = B-MA1.
- For BCN4, ratelimit a flow that matches Dest MA = C-MA4



# Setting of a flow identification rule at reaction point

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- Need a general mechanism that allows to set a flow identification rule considering higher layer fields at reaction point (end station or bridge)
- The setting can be done statically or dynamically.
  - Static: define MIB parameters for setting of a flow identification rule for reaction.
  - Dynamic: define a (option) field to describe a flow identification rule for reaction in a BCN message.



# Summary

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- BCN message generation point can be edges of CM cloud such as IP/MPLS router and 802.1Q/ad/ah bridge.
- A flow identification rule at reaction point (end station or bridge) depends on a node type of BCN message generation point.
- Need a general mechanism that allows to set a flow identification rule considering higher layer fields at reaction point. It can be done statically or dynamically.