New Requirements of CN (802.1Qau)

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IEEE 802.1 DCB

New Requirements of CN

- The essential of CN is to early alarm the potential Congestion
  - It directly reflect the congestion status of the network.
  - It's an efficient mechanism to reduce the possibility of the network congestion.

- CN is targeted at limited bandwidth delay product network
  - There is significant customer interest and market opportunity for Ethernet as a consolidated Layer 2 solution in high-speed short-range networks such as data centers, backplane fabrics, single and multi-chassis interconnects, computing clusters, and storage networks.

The Trend of the Layer3 DC network hierarchy

- Due to the requirement of extremely high throughput, the multi-path L3 network is normally used due to its IP ECMP ability.

- We have visited TOP3 Internet companies and currently all of them are using Layer3 network in their own DC environment.

Limitation of CN

- Limitation when CN is used in Layer3 interconnected DC network
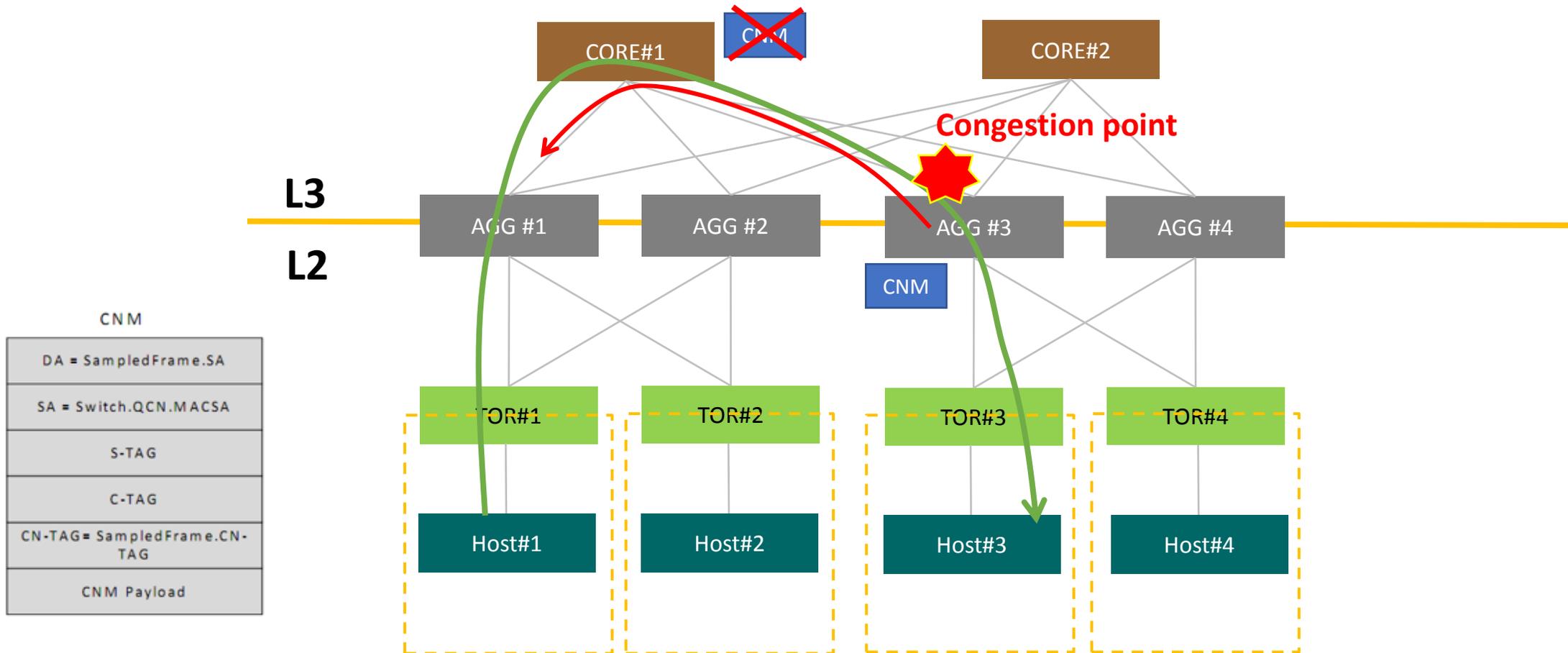
Other Congestion Control Methods

- DCTCP (Microsoft)
  - ECN based, congestion feedback is sent from receiver instead of the congestion point, which introduce additional delay.
- DCQCN(Microsoft)
  - in fact leverage switches with ECN capabilities, in order to accelerate congestion notification and greatly improve the congestion feedback loop timing – thereby eliminating packet loss.
  - But still Subject to the additional delay.

More generic CN ?

- We are doing the test that to extend CN to Layer 3 DC network.
  - Encapsulate CN info in IP header. We've done the simulation and are collecting the test results.
- We are seeking for **a more generic** method to extend CN function to make it workable in Layer 3 DC network.

Thank you