Finally HP Virtual Connect bring-in Priority Queue QoS

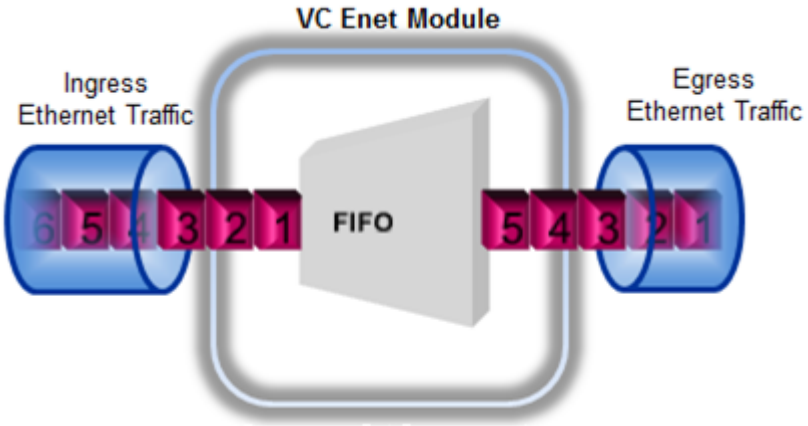
Cisco brought QoS in their UCS Compute platform long time back and it was expected by virtue that Cisco implemented QoS in their switches long long ago. We always thought some day or other HP also will put their feet into the same shoe and now that time comes. Yes, with Virtual Connect 4.0, HP bring-in priority queue QoS.

It interoperates with QoS environments to improve reliability and utilization. It allocates bandwidth up to 8 traffic classes and VC scheduler prioritizes the traffic on egress and ingress.

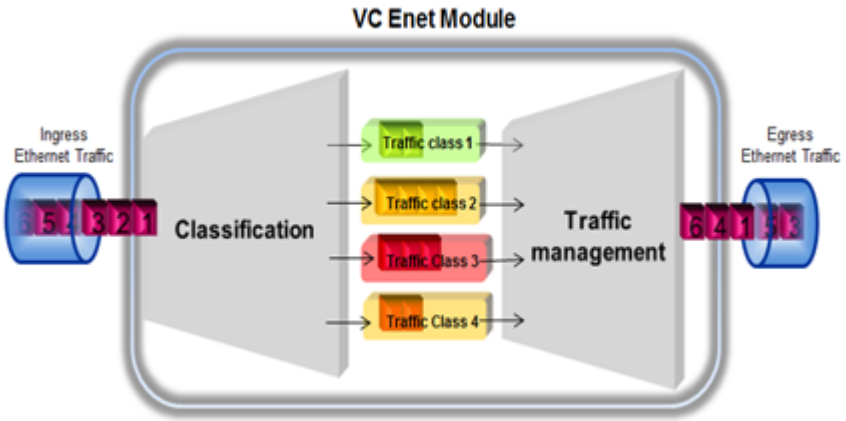
So in a nutshell traffic classification will be applied during ingress for all traffic & use priority values that are already in VLAN tag. It uses DSCP values from IP header & can't be used with priority value. It provides option to tag the egress frame with newly mapped priority value.

The beauty of this solution is it allows OS Tag priority to pass through VC. IP (Layer 3) Header mapped to Layer 2 and is applicable to IP traffic only. If IP header is set as priority, IP classification takes precedence for IP traffic. For all other traffic 802.1 Q priority is used.

It is similar to VMware NetIOC or Cisco UCS QoS Policies. Now let me show you how does a QoS Pass-Through looks like and how does traffic looks with QoS.

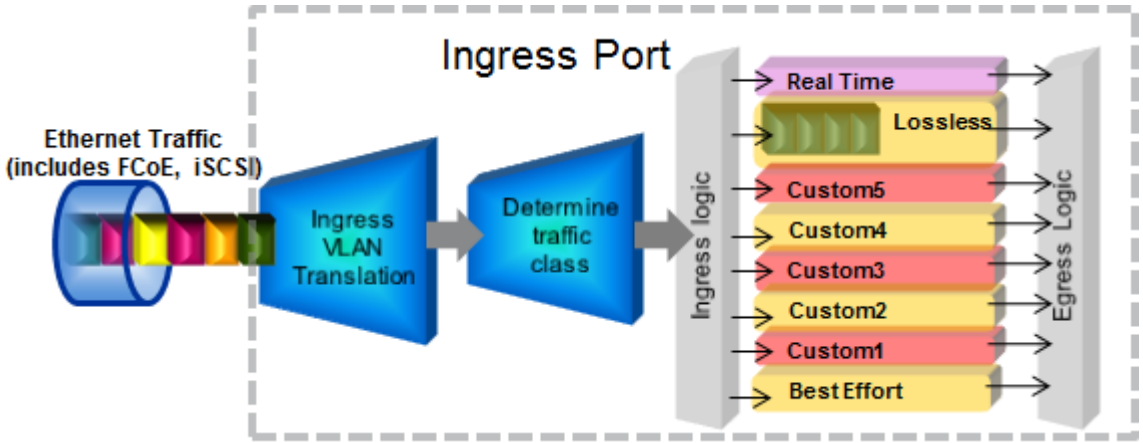


The above picture depicts that QoS is not configured (pre-4.0) and traffic flows on a FIFO basis. During congestion, traffic at the tail of the queue is dropped, as shown in this figure.



Above snapshot is the traffic with QoS configured. With QoS configured, traffic flows according to resource allocation and priority. Packets may enter in one order but exit in a different order based on priority. During congestion, some packets may be dropped based on queue resource allocation as shown in this figure.

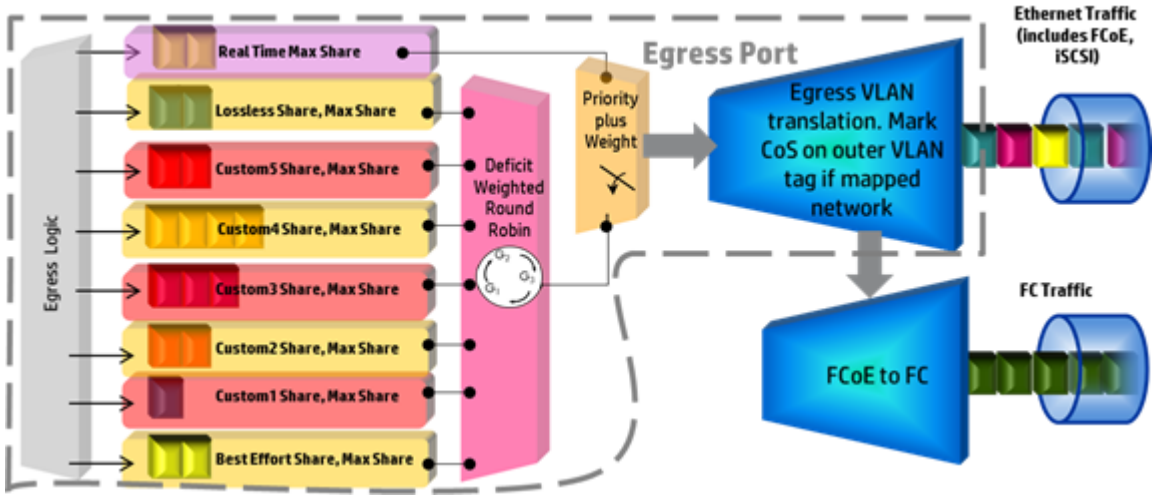
Now you might wonder, I talked about Ingress and Egress both but I did not show you how does it happen or elaborate on this. Let me show you now an elaboration of Ingress Classification.



On ingress, traffic is classified into different traffic classes using dot1p, DSCP, or ToS classifiers. VC supports up to 8 configurable traffic classes with or without FCoE.

Without FCoE configuration there is 1 system class (Best Effort) and up to 7 user defined classes. However with FCoE configuration there are 2 system classes (Best Effort and FCoE Lossless) and up to 6 user defined classes.

Now look at the Egress prioritization.



On egress, traffic is queued on the appropriate traffic class/queue of the destination (egress) port and scheduler selects packets for egress based on bandwidth allocation for each class/queue. Before a packet leaves the egress port, an egress *dot1p* priority value associated with the traffic class is marked on the packet.

Marking only happens if egress packet has a VLAN tag and the network is in mapped mode. For tunneled traffic, the original dot1p priority value is untouched. Traffic on stacking link will be classified on ingress to one of the VC modules. The egress *dot1p* priority associated with the traffic class is used on stacking links to achieve consistent QoS for traffic across the VC Domain.