Tradeoff between Map VLAN Tag and Tunnel VLAN Tag in VC FlexFabric

Mapped vs. Tunneled

The difference is that with Mapped VLAN mode the Virtual Connect module handles the VLAN mapping and will place packets on the correct VC network based on the VLAN ID. In Tunnel mode, VC does not look at the VLAN tag within a packet and just passes the packet to the destination MAC address. It is then up to the destination device to untag the packet and move it to where needed.

One advantage of Mapped Mode is that by burdening the ultra-fast Flex Module to separate out the VLAN packets, we eliminate what could be significant operating system interrupt service routine overhead, depending on the OS and driver, issues with Multicast and Unicast where a physical external device may participate on two or more VLANs (i.e. Load Balancer). Tunnel Mode is 802.1Q operation at the VC level. Meaning, as a frame ingresses into VC, the VID field (even if it does not contain a VLAN ID) is moved into the payload of the frame, increasing the size of the frame by 4 Bytes), until it arrives at the destination port, and is reinserted back into the VID field (reducing the size of the frame). In Tunneling mode, each OS in the enclosure will by definition have to parse out dot1Q trunked traffic. In Mapped Mode, we have a choice, even when we trunk VLANs through your SUS, we can present non-tagged traffic to any or all FlexNICs, depending on how many ports and VLANs we're working with.

If your environment isn't ultra-high security and enjoys 10G uplinks, enough FlexNIC ports allow Mapped Mode to keep even a hypervisor environment free of VLAN tagging. This "keeps it simple" in the VMware side, pushing all of the VLAN configuration between the FlexModules and your upstream switches.

With the release of 3.30/3.51:

- Simultaneous tunneled and mapped networks in a single domain
- One type per server connection
  – One per physical port or one per FlexNIC
- 162 VLANs per physical connection
- 1000 networks per SUS

With VC 3.30/3.51, we can mix and match these different configs, so we don't have to make a VC Domain wide decision. If your customer or design can fit within the VC limitations VC 3.30 improves upon, then stick with Mapped Mode.