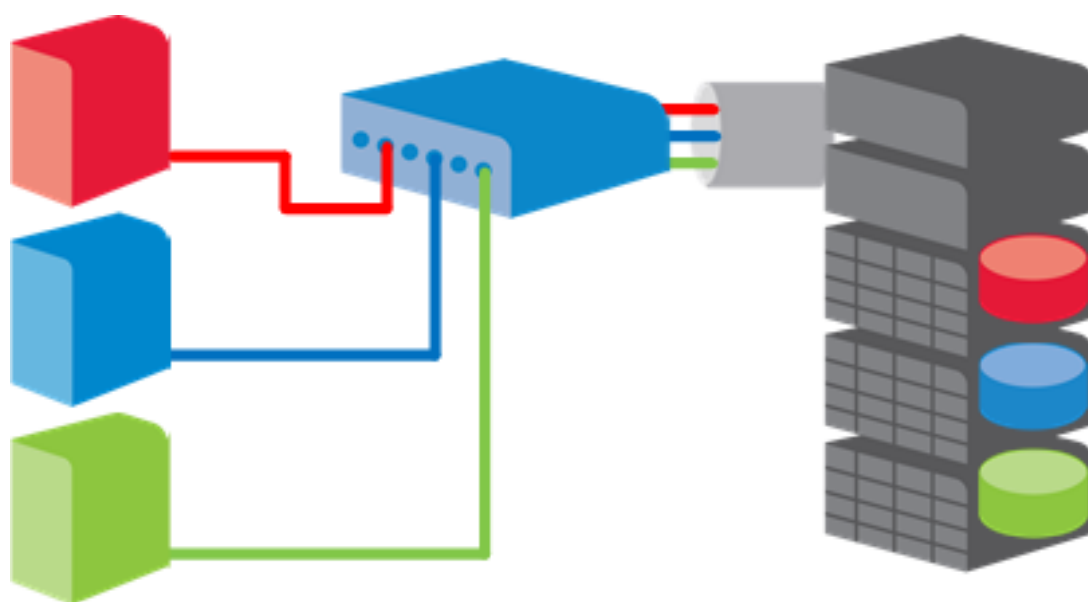




Storage Center Multi-VLAN Feature Brief

Introducing the new Multi-VLAN tagging features in Dell Storage SC Series



What is VLAN Tagging?

VLAN Tagging is an IEEE 802.1Q Ethernet networking standard which allows the division of a physical network consisting of switches, bridges, NICs, and cabling into one or more separate networks.

Multi-VLAN Benefit

Summary

Datacenter networks are commonly shared for a number of uses. Segregating IP based storage traffic into distinct VLAN networks provides flexible mechanisms for providing isolation, security, and traffic shaping while making the most efficient use of network infrastructure.

Spanning the range of Small Business to Fortune 100, networks provide end to end connectivity between business infrastructure such as servers, workstations, and storage, as well as their customers.

A growing need for flexible network isolation lead to the IEEE 802.1Q Standard for Virtual Bridged Local Area Networks, also known as VLAN Tagging or VLAN Trunking. VLAN tagging allows a new or existing physical network which supports the 802.1Q standard to be divided into multiple networks. This isolation provides a number of useful benefits relating to security and convergence. When dedicated networks are required in infrastructure, platform, application, or multi-tenant designs, VLAN tagging provides the opportunity to meet these requirements without significant complexity or cost.

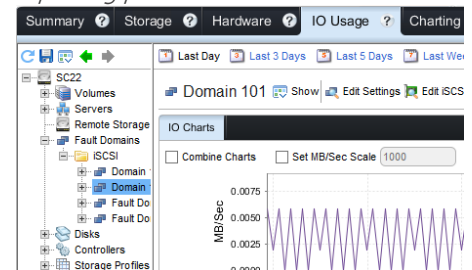
Where Storage Fits In

iSCSI is an IP based block storage protocol which should be deployed on a highly available network fabric dedicated to and sized for storage traffic. The reality in many cases is the iSCSI storage will be deployed on an existing physical network which is shared with other applications and services provided in the datacenter. VLAN Tagging in conjunction with the Multi-VLAN feature in Dell Storage OS 6.5 or higher will provide the needed isolation on a shared network infrastructure. The iSCSI traffic isolation is important first and foremost because iSCSI traffic is not encrypted by default. If iSCSI traffic was shared on a network with other types of traffic, an opportunity for unauthorized eavesdropping could exist. This is a data security concern, particularly where shared storage supports multi-tenant architectures.

A Closer Look At The Features

While Storage Center has historically supported 802.1Q VLAN Tagging, the 6.5 release introduces the ability to support up to 64 trunked VLANs per front end 10GbE iSCSI port. Tagged VLAN traffic with a supported ID range between 1-4094 inclusive is assigned to a Fault Domain allowing failover and redundancy within and across Storage Center controllers. Each Fault Domain may be bound consistently across all available front end iSCSI ports or to explicit ports to maintain physical traffic isolation for dedicated usage. Multi-VLAN supports on-the-fly configuration with no downtime, dual or single controller designs, Jumbo Frames, CHAP and Bidirectional CHAP, NAT Port Forwarding, and traffic shaping through Class of Service Priority values and permanently disabled Drop Eligible Indicator (DEI) value.

*Added in Storage Center 6.5:
IOPS, Throughput, and Latency
reporting per VLAN.*



Multi-VLAN Requirements

Multi-VLAN requires Storage Center 6.5 or higher, Enterprise Manager 2014 R2 or higher, installed on a Windows operating system, Chelsio 10GbE front-end iSCSI ports configured in virtual port mode, and a 10GbE iSCSI network infrastructure

“With Multi-VLAN tagging, we can host more customers on the same array, segment traffic between customers for increased security, and deliver the performance levels required by each customers’ SLAs. And we can do all of this in a cost-efficient iSCSI network infrastructure. It’s a big win all around.”

*Kevin Meyer,
Manager
Expedient, Inc.*



which supports the IEEE 802.1Q standard.

Multi-VLAN Use Cases

Businesses of any size with a properly sized new or existing 802.1Q VLAN tagged network are a natural fit for Dell Compellent's Multi-VLAN features. Without a dedicated iSCSI network infrastructure, VLAN tagging is a required feature to support secure individual or multi-tenant isolation as well as successful internal or external IT audits. Traffic isolation for both security and performance reasons is standard across private, public, and hybrid cloud datacenters. Cloud service providers and shared service organizations will appreciate the added security, scalability, and flexibility to support business growth without adding costly or complex changes to the datacenter design.

Conclusion

Dell Compellent Storage Center is an easy to manage and scalable storage platform for a wide variety of platforms spanning private, public, and hybrid cloud environments. The features added in 6.5 enhance and expand the use cases on iSCSI storage fabrics via 802.1Q standardization, fault tolerant storage traffic isolation, and prioritization.

