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ZebOS®
Network Platform

VLAN Modules

Overview

IP Infusion's ZebOS® Network Platform VLAN Modules offer convenient and consistent network-wide management tools for managing VLANs and Bridged VLANs in support of the IEEE 802.1Q standard. The standard also provides a mechanism for multiple bridged networks to transparently share the same physical network link without leaking information between networks. VLAN Bridging allows network devices to segment into virtual LANs (Local Area Networks), regardless of their physical location. The ZebOS VLAN Modules support all IEEE 802.1D LAN MAC (Media Access Control) protocols, shared media, and point-to-point LANs.

VLANs and VLAN identifiers (VIDs) offer convenient, consistent, network-wide methods for bridges to identify rules to classify user data for VLANs; extend source and destination MAC addresses by treating addressing for different VLANs independently; identify and select from multiple active topologies; and identify parameters that restrict access from one part of a network to another.

ZebOS VLAN modules facilitate easy administration of logical groups of stations that can communicate as if they were on the same LAN. They make it easier to manage a move, add, delete, or other updates to members of these groups. Traffic between VLANs is restricted to bridges that forward unicast, multicast or broadcast traffic only on the LAN segments that serve the VLAN to which the traffic belongs.

Port and Protocol Classification

Port and Protocol Classification is an amendment to 802.1Q that describes enhancements that allow classification of incoming packets by methods other than source port. Specifically, it defines rules for classification based on data-link-layer protocol identification.

VLAN Prioritization

ZebOS VLAN Modules include 802.1p priority signaling for prioritizing traffic, traffic class expediting, and dynamic multicast filtering. Priority specification is done at the MAC level. Eight classes of service are available that are passed in a user_priority field in frame headers.

Generic Attribute Registration Protocol Module

The Generic Attribute Registration Protocol (GARP) provides a generic framework for bridges to register and de-register attributes, such as VLAN identifiers and multicast group membership.

GARP VLAN Registration Protocol Module

The GARP VLAN Registration Protocol (GVRP) provides 802.1Q VLAN pruning and dynamic VLAN creation. A switch can exchange VLAN configuration information with other GVRP-aware switches, prune unnecessary broadcast traffic and unknown unicast traffic, and dynamically create and manage VLANs.

Multiple VLAN Registration Protocol Module

The Multiple VLAN Registration Protocol (MVRP) manages the registration of multiple VLANs, and provides for the rapid healing of network failures without interrupting services to unaffected VLANs. In addition, MVRP improves convergence time for the GVRP module.

Features

- MAC services supported and preserved on end stations attached to Virtual Bridged LANs
- High Quality of Service
- Supports the VLAN MIB
- Traffic Class Expediting with eight different classes available
- Automatic reconfiguration in the event of a component failure
- VLAN Stacking support

Benefits

- Predictable and configurable paths based upon component availability
- Increased service availability
- Minimized denial of service effects due to reconfiguration events
- Modular, portable, and extensible software that supports business growth

Requirements

- ZebOS Network Services Manager
- ZebOS xSTP (Spanning Tree Protocol/Rapid Spanning Tree Protocol/Multiple Spanning Tree Protocol)

Standards Support

- IEEE 802.1p/Q — Virtual Bridged Local Area Networks
- IEEE 802.1v — Port and Protocol Classification
- IEEE 802.1ak — Multiple VLAN Registration Protocol
- IEEE 802.1Q (2003) — Generic Attribute Registration Protocol
- IEEE 802.1Q (2003) — GARP VLAN Registration Protocol
- RFC 4363 — Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions

Standard Deliverables

- Source Code (written in ANSI-compliant C)
- Installation Guide
- Configuration Guide
- Command Reference Guide
- Developer Guide