
Group Multicast Modules

Overview

IP Infusion's ZebOS® Network Platform Group Multicast Modules are two multicast group management protocol software packages that support IPv4 or IPv6, or combination IPv4/IPv6 network requirements.

Internet Group Management Protocol

The ZebOS Internet Group Management Protocol (IGMP) Module is the protocol used by IPv4 systems to report their IP multicast group memberships to neighboring multicast routers. ZebOS implements IGMPv3 adding support for source filtering. Source filtering is the ability to advertise an interest in receiving packets only from specific multicast addresses, or from all except specific multicast addresses, sent to a particular multicast address. Such information may be used by routing protocols to avoid delivering multicast packets from specific sources to networks on which there are no interested receivers.

Multicast Listener Discovery

An IPv6 router can utilize the ZebOS Multicast Listener Discovery (MLD) module to discover both the presence of multicast listeners on directly attached links and which multicast addresses are of interest to the neighboring nodes. ZebOS supports MLDv2 features as defined in RFC 3810. It is interoperable with MLDv1, and adds the ability for a node to report interest in listening to packets with a particular multicast address that are sent from specific sources addresses, or from all sources except specific source addresses.

IGMP and MLD Snooping

The ZebOS IGMP and MLD Modules also support Snooping features. For IPv4, a switch supporting IGMP snooping can passively snoop on IGMP packets to learn their IP Multicast group membership. With IGMP snooping, multicast traffic for a group is only forwarded to ports that have members in that group. In IPv6 systems, MLD Snooping switches provide the same mechanism. Neither ZebOS IGMP nor ZebOS MLD Snooping generate any additional network traffic.

IGMP and MLD Proxy

In certain network topologies, it is not necessary to run a specific multicast routing protocol, such as Protocol Independent Multicast (PIM). It is sufficient for devices to learn and proxy IGMP or MLD group membership information and forward multicast packets based upon that information. Using ZebOS ARS IGMP- or MLD-based forwarding to replicate multicast traffic on devices can greatly simplify the design and deployment of those devices.

Features

- Source Specific Multicast (SSM) Capabilities
- Source Filtering
- IGMPv1/v2/v3 Functionality
- MLDv1/v2 Functionality
- MLD Management Information Base (MIB)

- IGMP MIB
- IGMP and MLD Snooping Switches
- IGMP and MLD Proxying
- Dynamic Registration and De-registration of Multicast Groups

Benefits

- Platform-independent modules
- Industry-standard Command Line Interface (CLI) for easy protocol management
- Robust feature set and scalable installation contribute to Return on Investment (ROI)
- Simplified multicast forwarding based on IGMP or MLD only
- Reduced operational overhead due to reduced forwarding of unwanted multicast packets
- IGMP/MLD Proxy devices are independent of the routing protocol used by network core routers
- IGMP/MLD Snooping conserve bandwidth by only forwarding traffic to interested nodes

Standards Supported

- RFC 3376 — Internet Group Management Protocol, Version 3
- RFC 3810 — Multicast Listener Discovery Protocol, Version 2
- RFC 4541 — Considerations for Internet Group Management Protocol (IGMP Version 1, 2, and 3) and Multicast Listener Discovery (MLD Version 1 and 2) Snooping Switches
- draft-ietf-magma-mgmd-mib-08 — Multicast Group Membership Discovery (MGMD) MIB
- draft-ietf-magma-igmp-proxy-06 — IGMP/MLD-based Multicast Forwarding (“IGMP/MLD Proxying”)
- draft-ietf-magma-igmpv3-and-routing--05 — IGMPv3/MLDv2 and MRP Interaction
- draft-holdbrook-idmr-igmpv3-ssm-08 — Using IGMPv3 and MLDv2 for Source-Specific Multicast
- draft-ietf-mboned-ip-mcast-mib-04 — IP Multicast MIB

Requirements

- ZebOS Network Services Module
- ZebOS Layer 2 VLAN (L2-VLAN)

Standard Deliverables

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