



Computer Networks

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Recap

- Network Architecture
- Network Models

Unit 3

Network Layer



Contents

ARP

RARP

ICMP

IGMP

IGMP

- Internet Group Management Protocol
- IGMP is basically a companion of Internet Protocol(IP).
- IGMP is not a multicasting routing protocol but it is a protocol that manages the group membership.
- This protocol is used in streaming videos, gaming, or web conferencing tools.

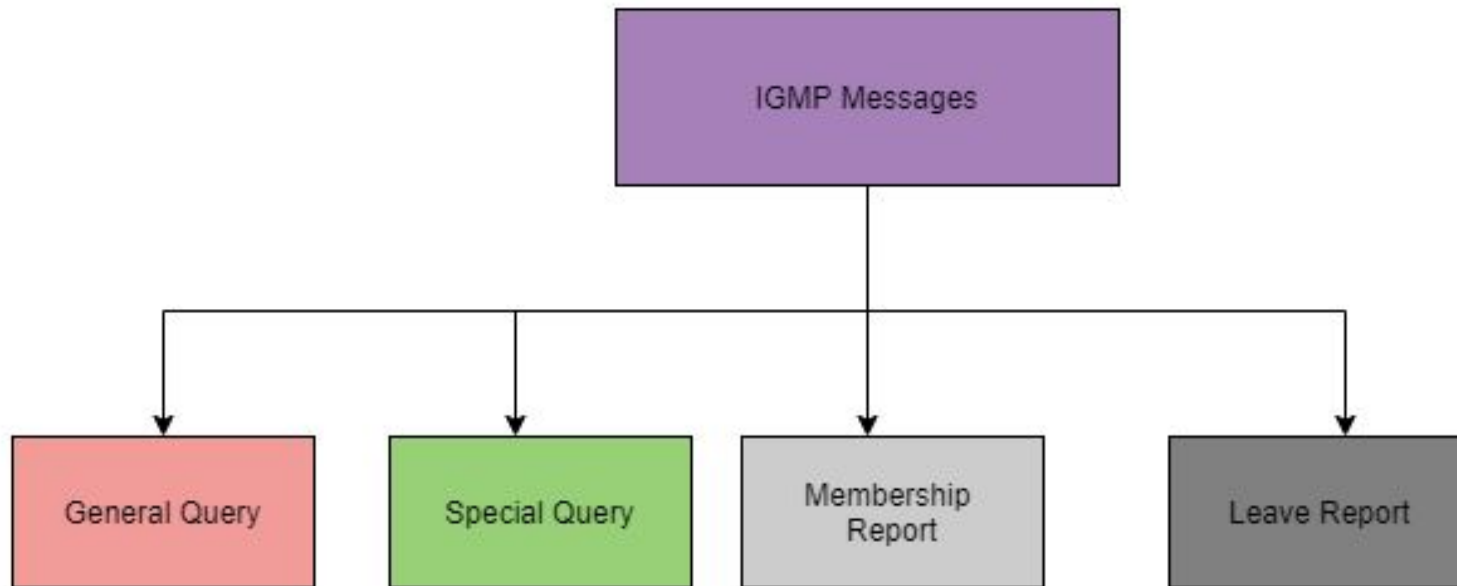
IGMP Messages

There are two versions of IGMP: IGMPv1 and IGMPv2.

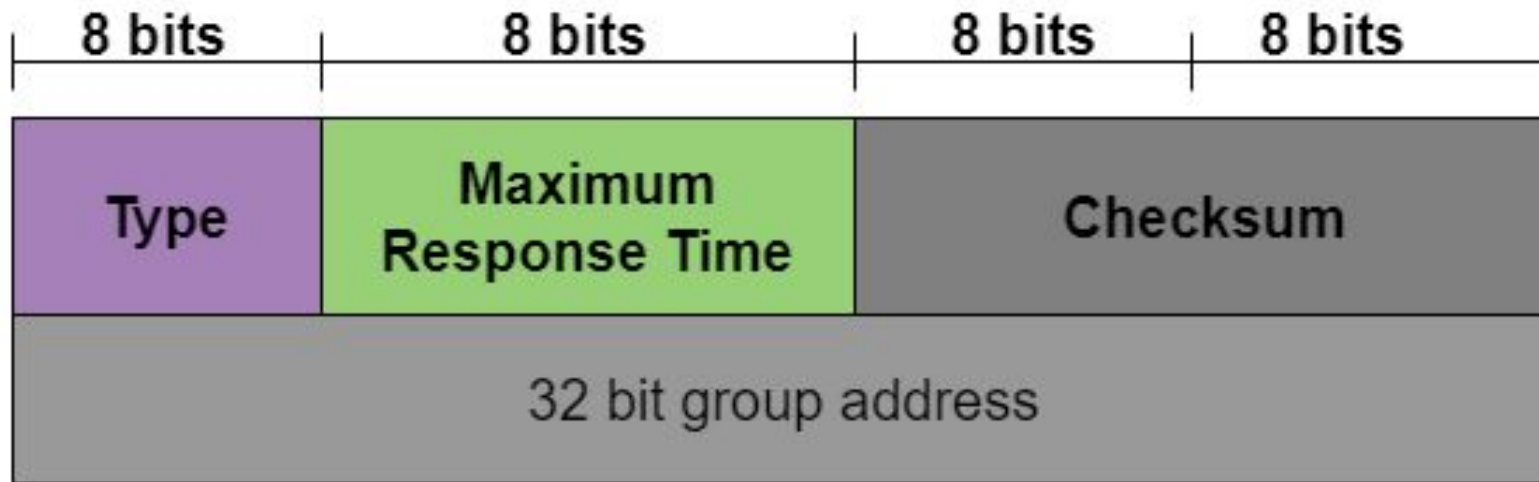
The version IGMPv2 has three types of messages:

1. The Query
2. The Membership report
3. The Leave report.

There are two types of Query messages: **General** and **Special**



Message Format



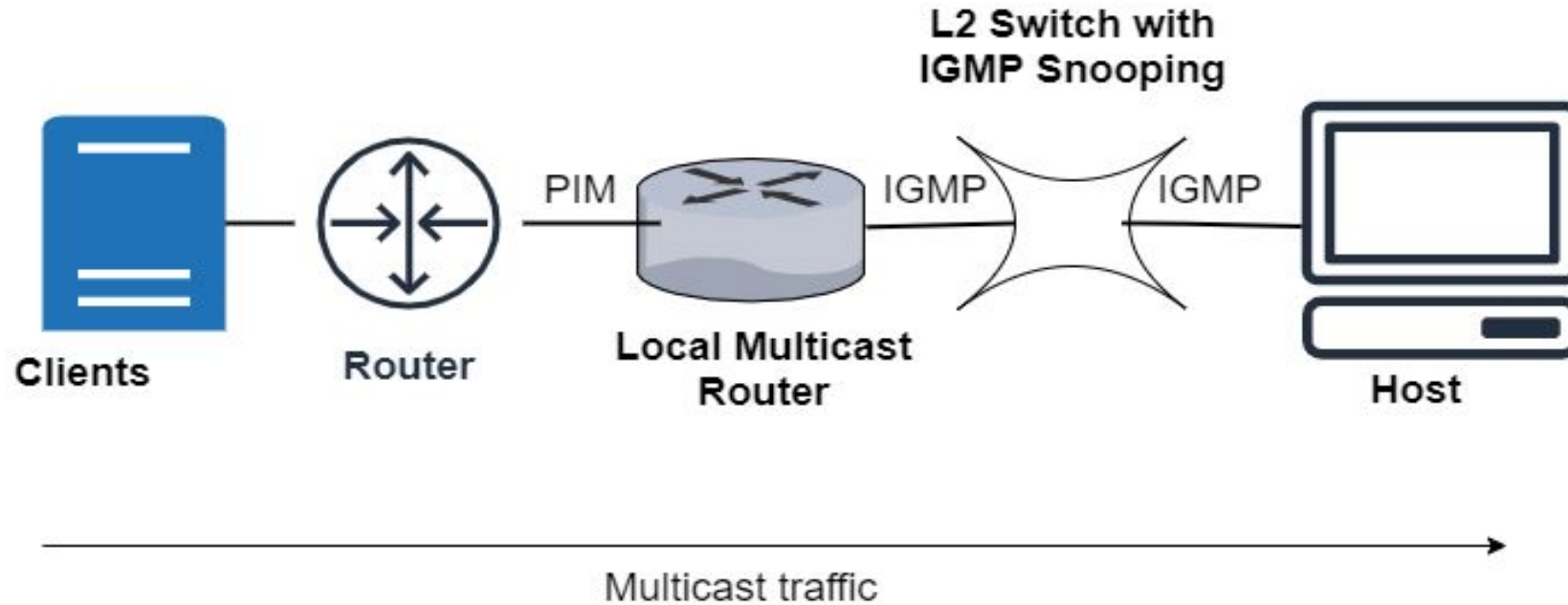
Type: defines the type of the message

Maximum Response Time: defines the amount of time in which query must be answered. The value of this field is nonzero in the query message; while its value is zero in the other two types.

Checksum: Error checking

Group address: The value of this field is 0 in the case of the general query message. In the case of a special query, membership report, and leave report messages the value of this field defines the groupid.

Working of IGMP



The switch mainly receives the message from the host and then forwards the membership report mainly to the local multicast router. After that, the multicast traffic is then further forwarded to remote routers from local multicast routers using PIM (Protocol Independent Multicast) protocol so that the clients can receive the message/data packets.

If the Clients wish to join the network then they can send a join message in the query and then the switch intercepts the message and then adds the ports of clients to its multicast routing table.

IGMP Operations

Joining a group: both the host and the router can join a group. Whenever a process on the host wants to join a group then it simply sends the request to the host. After that, the host then adds the name of the process and the name of the group to its list.

In case, if this is the first entry of that particular group, then the host sends the membership report message to the multicast router of the group.

And if the entry is not the first entry then there is no need of sending such a message.

Leaving a group: Whenever the host finds that there is no process that is interested in the group then it mainly leaves a report message.

Monitoring membership: general query message does not define a particular group.

Delayed response: In order to prevent unnecessary traffic, the IGMP mainly makes use of a delayed response strategy.

CIDR

- Classless Interdomain Routing
- Using a CIDR notation, a prefix 205.100.0.0 of length 22 is written as 205.100.0.0/22. The /22 notation indicates that the network mask is 22 bits, or 255.255.252.0
- The entries in a CIDR routing table contain a 32-bit IP address and a 32-bit mask
- CIDR enables a technique called supernetting to allow a
- single routing entry to cover a block of classful addresses

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Thank you