Date:-

*What is IGMP?

IGMP is an acronym for Internet Group Management protocol.

→ IGMP is a communication protocol used by hosts and adjacent routers for communication with IP networks and uses the resources efficiently to transmit the data/ message packets.

→ Multiple communication can have single or multiple senders and receivers and thus, IGMP can be used in streaming videos, gaming or web conferencing tools.

→ this protocol is used on IPV4 networks and for using this on IPV6 multicating is managed by Multicast Listener Discovery (MLD).

→ The IGMP message is encapsulated within an IP datagram.

IP protocol supports two types of communication:-

- Unicasting:- It is a communication b/w one sender and one receiver. Therefore, we can say that it is one-to-one communication.
- Multicasting:- Sometimes the sender wants to a large of receivers simultaneously. This process is known as multicasting which has one-to-many communication.

Applications of IGMP:-

- Streaming - Multicast routing protocols are used for audio and video streaming over the network i.e., either one-to-many (or) many-to-many.
- Gaming - internet group management protocol is often used in simulation games which has multiple users over the network such as online games.
- Web conferencing tools - video conferencing is very new method to meet people from your own convience and IGMP connects to the users for conferencing to the transfers the message/data packets efficiently.

☆ What Types of IGMP Messages are there?:-

The IGMP uses several types of messages to manage multicast group memberships.

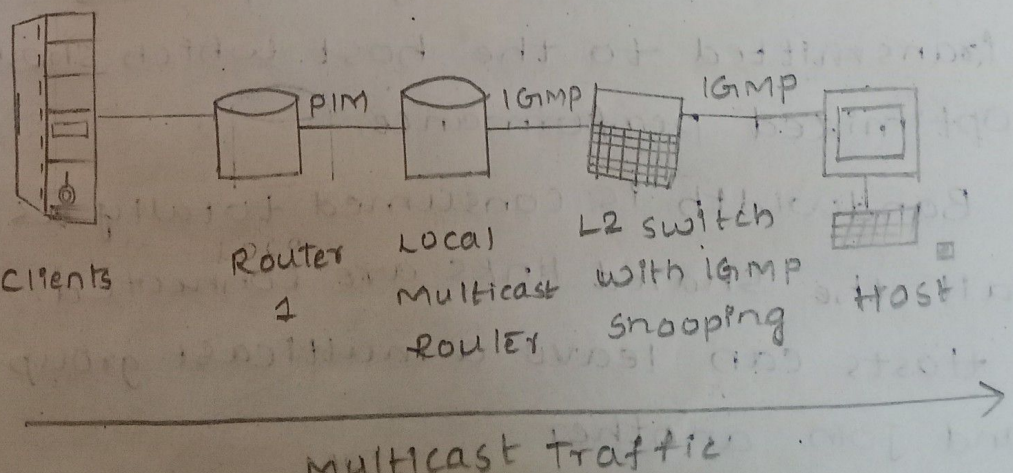
- IGMP Membership Query:-
  The sent by routers to determine which multicast groups have members on a particular network segment.
- IGMP Membership Report:-
  Sent by hosts to indicate their interest in joining a multicast group.
- IGMP Leave Group:-
  Sent by hosts to indicate that they are leaving a multicast group.

- IGMP V3 Membership Report (in IGMPV3):- This allows hosts to specify the exact multicast group addresses they want to join or leave and can include source specific multicast (SSM) information

WORKING OF IGMP

IGMP works on devices that are capable of handling multicast groups and dynamic multicasting. These devices allow the host to join or leave the membership in the multicast group. These devices also allow to add and remove clients from the group. These communication protocol is operated between the host and the local multicast router. When a multicast group is created, the multicast group is address is in the range of class D (224-239) IP addresses and is forwarded as the destination IP address in the packet.

WORKING OF IGMP



L2 or Level-2 devices such as switches are used in between host and multicast router for IGMP snooping. IGMP snooping is a process to listen to the IGMP network traffic in controlled manner. switches receives the message from host and forwards the membership report to the local multicast router. The multicast traffic is further forwarded to remote routers. from local multicast routers using PIM (protocol Independent Multicast). so that clients can receive the message/data packets. clients wishing to join the network sends join message in the query and which switch intercepts the message and adds the ports of clients to the multicast routing table.

Advantages of IGMP :-

- IGMP communication protocol efficiently transmits the multicast data to the receivers and so, no junk packets are transmitted to the host which shows optimized performance.
- Bandwidth is consumed totally as all the shared links are connected.
- Hosts can leave a multicast group and join another.

Disadvantages of IGMP :-

- It does not provide good efficiency in filtering and security.
- Due to lack of TCP/network congestion can occur.
- IGMP is vulnerable to some attacks such as.

DOS attack (Denial-of-Service).