NETGEAR IGMP Plus™

White Paper

What is NETGEAR IGMP Plus™?

NETGEAR's M4250, M4300, and M4500 fully-managed switches provide a unique feature called IGMP Plus. This feature greatly simplifies system architectures by enabling the same well-known IGMP techniques across the entire AV over IP (AVoIP) network. In a nutshell, IGMP Plus is an enhanced implementation for automatic multicast across a Layer 2 multicast network.

Why is it important?

NETGEAR IGMP Plus provides ProAV network engineers with an effortless and efficient implementation of a Layer 2 multicast network. With other switching vendors, the process of configuring a ProAV multicast VLAN requires many IGMP commands to be entered via the command line which introduces the possibility of user error due to the complexity.

The following list identifies some of the typical requirements to support ProAV multicast configuration using Layer 2:

• IGMP version 2 support

• IGMP snooping

• Filter/drop unregistered multicast traffic

• Disable unregistered multicast flooding

• Enable fast leave support

With NETGEAR IGMP Plus, all the above configuration and more is done with a single command. This provides AV engineers with a quick and concise implementation that works at the first multicast stream from the encoder. In the illustration below, IGMP Plus can quickly configure a semi-large ProAV spine and leaf network architecture with only using a single command on all 17 M4500 switches.
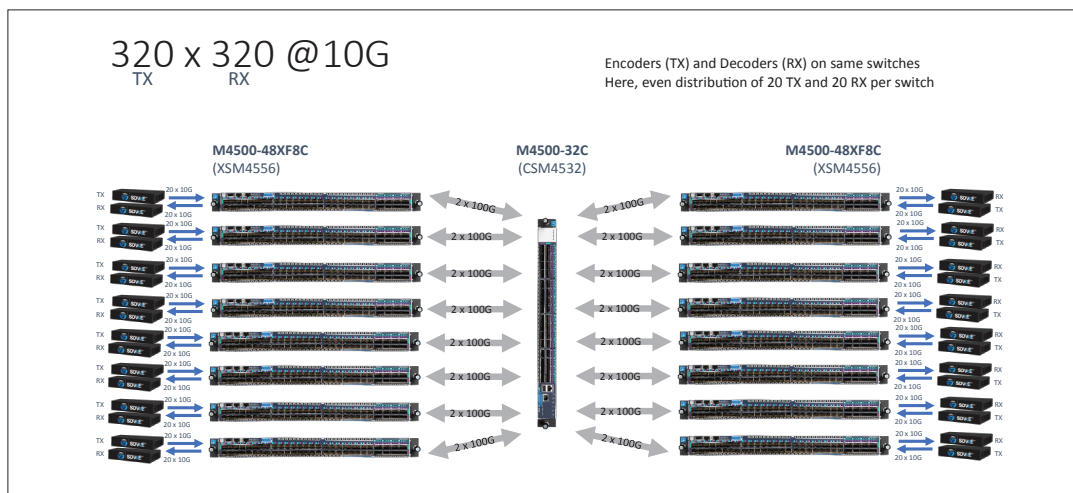
How do other competitors implement their multicast configuration?

With other switch vendors, the AVoIP Layer 2 multicast configuration becomes more of a nuisance rather than a turn-key single command solution. For example, to configure AVoIP Layer 2 multicast on a competitor switch involves the following commands[1]:

igmp 10 set

igmp fast-leave 10

set igmp querier 10

set igmp querier 10 address 254.1.1.10

set igmp querier election participate 10

set igmp

set igmp querier

set igmp querier address 254.1.1.10

What are the key benefits?

The first key benefit is when configuring IGMP on any switch, each IGMP configuration may require extra CLI commands to configure the VLAN and Ethernet ports. As a result, the probability of user confusion and running into a configuration error is quite probable. With IGMP Plus, a single command is all that is needed to configure a VLAN or VLANs for IGMP. All the multicast configuration is completed without the need to configure the VLAN and then configure the Ethernet port.

The second key benefit is when IGMP Plus enabled on the VLAN or VLANs, it helps alleviate multicast traffic flooding throughout the network. The diagram below shows the difference between the two networks. The first diagram on the left, 'Without IGMP Plus", unsolicited multicast traffic from TX1, TX3, and TX4 is being forwarded to the IGMP Querier - creating excess traffic that may create bandwidth and connection issues. The second diagram on the right, With IGMP Plus, only the subscribed multicast traffic from TX1 encoder will be forwarded to the IGMP Querier and received on the decoder on RX4. Resulting in an efficient multicast packet forwarding throughout the AVoIP network.

---

[1] The commands referenced assume that basic switch features (VLANs, VLAN IP addresses, and etc.) are already configured. The IGMP configuration commands are compared with other switches when configuring with the switch CLI.
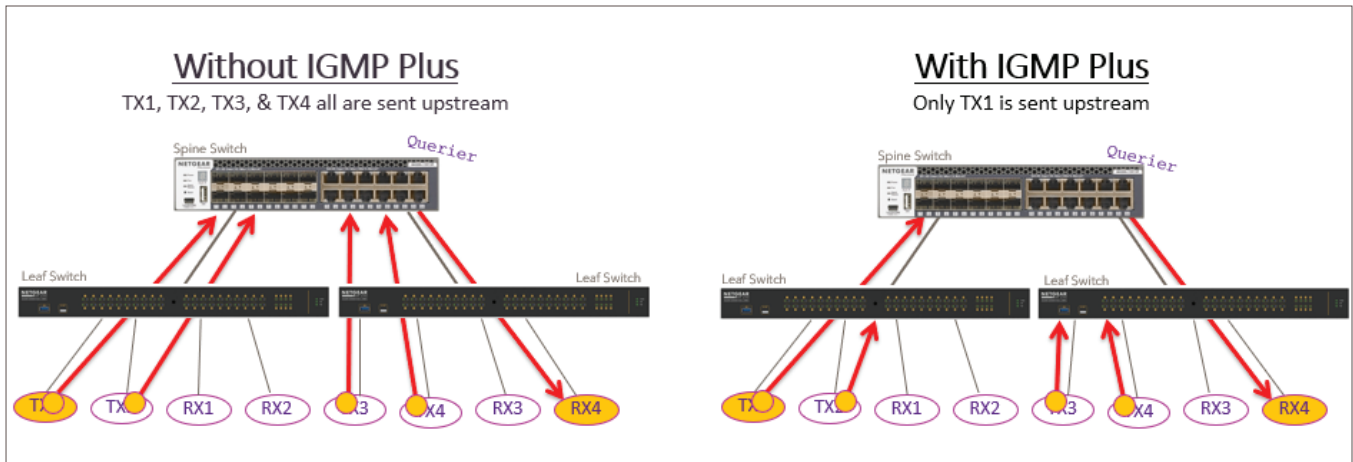
Conclusion

NETGEAR IGMP Plus™ feature, standard on M4250, M4300, and M4500 switches with latest firmware, provides AVoIP engineers and installers with a shortcut to configure a Layer 2 multicast configuration in a complex network implementation and assist in alleviating multicast flooding in an AVoIP network. The majority of the other switches in the market today do not have a quick and easy method to configure IGMP on their switch and may incur some unsolicited multicast flooding. The use of NETGEAR IGMP Plus results in fewer user errors and implements an efficient multicast implementation for a more reliable deployment of AVoIP installations.