

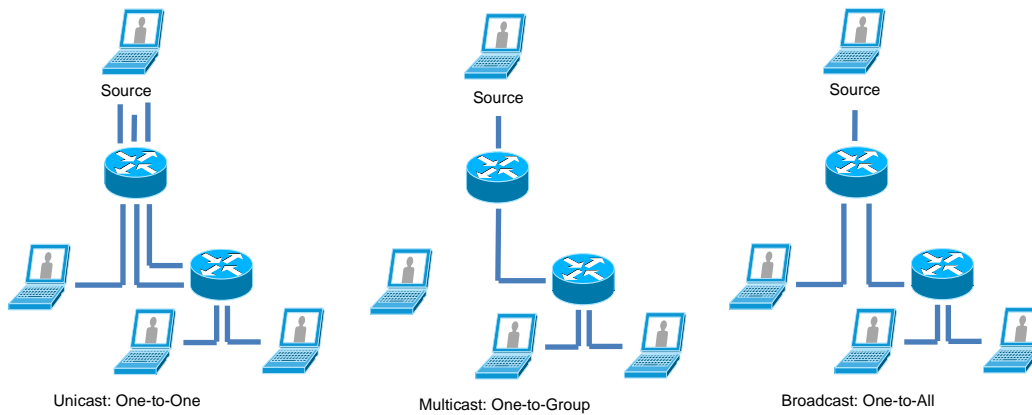


Network IP Multicast Monitoring & Troubleshooting

Author: Brad Hale

Share: [!\[\]\(666e09182d4cd268646ea700ea60dcdf_img.jpg\)](#) [!\[\]\(1ef1ef0bf9af6c6996401964cf280f2d_img.jpg\)](#) [!\[\]\(e9a80c8557f9285916925bd4ac40fff5_img.jpg\)](#)

Multicast is a special type of network traffic where packets are delivered to a group of destinations as a single transmission. Multicast is used for advanced network services such as multimedia distribution, finance, education, and desktop imaging just to name a few. Compared to unicast in which one computer talks directly to another computer, and broadcast in which one computer talks to all computers, multicast provides an optimized and targeted communication path from computer or device to a select group of other devices within its group.



Multicasting is used primarily to improve the performance of your network by reducing the amount of bandwidth consumed by network traffic. In a unicast environment, a separate stream of data is sent to each device on the network while in a multicast environment, only one stream of traffic is transmitted to the devices within the multicast group.

Routing multicast traffic is more complex than unicast since there may be a large number of receivers that want to receive the multicast transmission. In multicast, the source does not need to know all of the destination addresses, however, the routers have to be able to translate the multicast address into the destination address. This is accomplished through distribution trees that specify the forwarding path from the source to the destination based on a multicast routing protocol.

Multicast Monitoring Using CLI

There are a number of methods for manually monitoring IP multicast routing including displaying multicast peers, packet rates, and loss information; tracing a path; displaying IP multicast system and network statistics; and monitoring IP multicast delivery using IP multicast heartbeat.

When you want to know which neighboring multicast routers are peering with the local router, packet rates, and loss information, or when you want to trace the path from a source to a destination, then you use the following:

Discover, Map and Monitor Your Network in Under An Hour! Try [SolarWinds NPM](#) today!

[↓](#) **DOWNLOAD FREE TRIAL**

Command	Purpose
Router# mrinfo	Queries which neighboring multicast routers are peering with the local router
Router# mstat allsource	Displays IP multicast packet rate and loss information
Router# mtrace allsource	Traces the path from a source to a destination branch for a multicast distribution tree

To display IP multicast system statistic to show the contents of the IP multicast routing tables, information about interfaces, and neighbors discovered by the router, use the following:

Command	Purpose
Router# ping [group-name group-address]	Sends an ICMP echo request message to a multicast group address or group name
Router# show ip mroute	Displays the contents of the IP multicast routing table
Router# show ip pim interface	Displays information about interfaces configured for PIM
Router# show ip pim neighbor	Lists the PIM neighbors discovered by the router

The IP multicast heartbeat feature provides a way to monitor the status of multicast delivery and be informed if the delivery fails using SNMP traps.

Command	Purpose
Router# configure terminal	Enters global configuration mode
Router(config)# ip multicast-routing	Enables IP multicast routing
Router(config)# snmp-server host 224.1.0.1 traps public	Specifies the recipient of an SNMP notification operation
Router(config)# snmp-server enable traps ipmulticast	Enables the router to send IP multicast traps
Router(config)# ip multicast heartbeat ethernet0 224.1.1.1 1 1 10	Enables the monitoring of the IP multicast packet delivery

As is so often the case with command line configuration, this approach quickly becomes unmanageable in large, dynamic networks. It's a great example of a situation where automated tools supporting network multicast monitoring come in handy. CLI commands are fine for small static networks but if you need to solve problems in larger environments, you will quickly find a

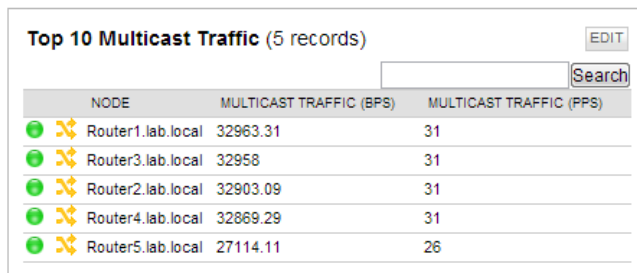
need to understand real-time metrics and topology without running CLI commands on every router. This is where automated network monitoring tools come in handy.

Multicast Monitoring with SolarWinds® Network Performance Monitor

As opposed to manually retrieving multicast information from each router in your network using CLI, automated tools can display details that include group details, multicast interfaces, group interfaces, and multicast topology information alongside status and performance statistics so you can get a real-time visual indication of your multicast status.

SolarWinds Network Performance Monitor (NPM) is a powerful network fault, availability, and performance management solution that simplifies detection, diagnosis, and resolution of network issues; tracks response time, availability, and uptime of routers, switches, and other SNMP-enabled devices; and shows performance statistics in real time via dynamic, drillable network maps. Additionally, NPM automatically detects, imports, and monitors existing multicast groups and applications.

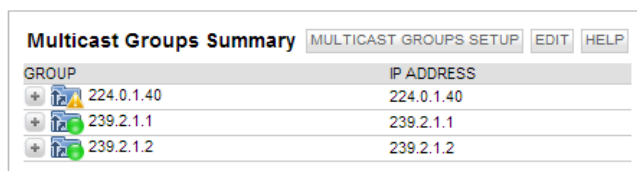
The “Top 10 Multicast Traffic” resource will provide you an overview of the top 10 most talkative multicast groups and their status. It will help to identify top multicast traffic sources and determine if they are active and sending or receiving data. This data can be correlated with SNMP interface data to see who is responsible for traffic so you can identify potential capacity issues.



Top 10 Multicast Traffic (5 records)			
		Search	
NODE	MULTICAST TRAFFIC (BPS)	MULTICAST TRAFFIC (PPS)	
Router1.lab.local	32963.31	31	
Router3.lab.local	32958	31	
Router2.lab.local	32903.09	31	
Router4.lab.local	32869.29	31	
Router5.lab.local	27114.11	26	

SolarWinds Network Performance Monitor Top 10 Multicast Traffic

The “Multicast Groups Summary” resource presents the status of all detected multicast groups, their health and their IP address. A group or device may be in one of three statuses: active multicast traffic on all nodes in the group; warning status where some of the nodes have no multicast traffic; and critical status where some of the nodes have an interface that is down.



Multicast Groups Summary		MULTICAST GROUPS SETUP	EDIT	HELP
GROUP	IP ADDRESS			
+	224.0.1.40	224.0.1.40		
+	239.2.1.1	239.2.1.1		
+	239.2.1.2	239.2.1.2		









SolarWinds Network Performance Monitor Multicast Groups Summary

Discover, Map and Monitor Your Network in Under An Hour! Try SolarWinds NPM today!

[DOWNLOAD FREE TRIAL](#)

NPM provides that ability to “drill-down” into any node for additional detail. Historical data such as “Multicast Traffic by Groups” or “Node Utilization by Multicast Traffic” is presented in an interactive drag-and-discover chart. Both of these are important to understanding the overall performance of your network.

Multicast Upstream Routers (0 records)					
					EDIT HELP
					Search
PREVIOUS NODE	TIME UP	VIA INTERFACE	MULTICAST TRAFFIC	MODE	

Multicast Downstream Routers (2 records)					
					EDIT HELP
					Search
PREVIOUS NODE	TIME UP	VIA INTERFACE	MULTICAST TRAFFIC	MODE	
 	Router2.lab.local	9.06:28:12	 FastEthernet0/0 - Fa0/0	26 pps	
 	Router3.lab.local	9.06:32:09	 FastEthernet0/0 - Fa0/0	26 pps	

SolarWinds Network Performance Monitor Multicast Topology

Multicast topology is something that is very difficult to keep up to date in dynamically changing networks. NPM provides real-time multicast topology for devices in each group. By selecting a group, you are able to see multicast upstream and downstream routers, previous node, interface, traffic, and mode configuration (sparse vs. dense).

Summary

By combining real-time network multicast information alongside device status and performance statistics, SolarWinds Network Performance Monitor gives you the ability to monitor your multicast traffic and receive alerts when issues arise.

See how SolarWinds Network Performance Monitor can help you monitor and troubleshoot network multicast issues by downloading a free, fully functional 30-day trial at www.solarwinds.com.

Discover, Map and Monitor Your Network in Under An Hour! Try SolarWinds NPM today!

 **DOWNLOAD FREE TRIAL**

© 2013 SolarWinds Worldwide, LLC. All rights reserved. SOLARWINDS, SOLARWINDS & Design and other SolarWinds marks, identified on the SolarWinds website, as updated from SolarWinds from time to time and incorporated herein, are registered with the U.S. Patent and Trademark Office and may be registered or pending registration in other countries. All other SolarWinds trademarks may be common law marks or registered or pending registration in the United States or in other countries. All other trademarks or registered trademarks contained and/or mentioned herein are used for identification purposes only and may be trademarks or registered trademarks of their respective companies.