Operations Alert Bulletin

Configuring Stat Mux Dejitter Groups on the DNCS

Background

Statistical multiplexing is the process of using a statistical multiplexer (or stat mux) to combine a number of MPEG programs so that the sum total bit rate of the included programs does not exceed a programmed limit. This allows system operators to change the bit rates of channels dynamically according to the bandwidth requirements of each channel.

The GQAM does not provide statistical multiplexing, but it does process the stat mux data with an algorithm that uses time shifting of information, glue frame (valid frames with no video data) replacement, and/or frame dropping to reduce the individual program bit rates, as required by the bandwidth limitations.

This GQAM algorithm can introduce jitter as compared to the input signal, so dejitter techniques are applied as part of the processing.

A stat mux dejitter group (SMDG) processes the stat mux stream as a group of programs (as a single unit). In the GQAM, it ensures that the stream realizes the optimum dejittering. Using SMDGs, the GQAM uses just one buffer dedicated to one, and only one, transport stream. This produces an output stream closest in quality to the original.

The SMDG provides the following functions:

- Processes the variable bit rate (VBR) stream as a group of programs
- Ensures optimum dejitter by using one buffer that is dedicated to only one transport stream
- Produces an output stream closer to the received jitter
- Processes the SMDG as a session, so it can be created and torn down as needed

Important! Setting up an SMDG enables the GQAM modulator to appropriately process multiplexed sources. Failing to set up SMDGs on GQAM modulators that receive multiplexed sources may result in tiling (macroblocking) of the video on DHCTs.

Recommendation

You should use SMDGs so that your GQAMs can eliminate the macroblocking associated with improperly processed multiplexed sources.

Cisco recommends that system operators who want to set up SMDGs on GQAM modulators that receive multiplexed sources follow the procedures in this document.

About This Bulletin

Audience

This document is intended for system operators who run DNCS System Release (SR) 2.7/3.7/4.2 SP2 and later and who also use Cisco's GQAM modulator to provide services to subscribers. Cisco field service engineers who help system operators troubleshoot GQAM or session-related issues will also find the contents of this document to be useful.

Document Version

This is the second release of this document.

Overview

Setting up a system that uses multiplexed sources is a process that includes the following steps.

1. Add and provision the GQAM modulator on the DNCS.
2. Configure the SMDG.
3. Set up sessions for the SMDG to carry.

Important! The procedures in this document only describe how to configure the SMDG. For the procedures for any of the other steps listed above, refer to the online help provided with your DNCS system release.

Configure Stat Mux Dejitter Groups

This section describes how to use the Stat Mux Dejitter Groups window to set up SMDGs on GQAM modulators that receive multiplexed sources. You can set up a maximum of 16 SMDGs on a GQAM modulator — one SMDG for each RF output port on the GQAM modulator. Each SMDG can accommodate a maximum of 60 sessions.

Important! Setting up an SMDG enables the GQAM modulator to appropriately process multiplexed sources. Failing to set up SMDGs on GQAM modulators that receive multiplexed sources may result in tiling (macroblocking) of the video on DHCTs.

Before You Begin

Software Required

Before you begin, make certain that you have the following software installed on your system:

- GQAM software release 4.0 or later
- DNCS SR 2.7/3.7/4.2 SP2 or later

Information Required

You will need your network map and the following information:

- The input ports that receive the multiplexed source (ASI inputs, Ethernet inputs, or both)
- If a GbE port is used for multicasting, the destination multicast IP address (IP multicast address) for the GQAM modulator
- If a GbE port is used for unicasting, the destination UDP port number on the GQAM modulator that receives the source
- GQAM output port number that modulates the source onto the network

Note: All of this information should be recorded on your network map. However, if it is not, contact your system administrator to obtain the information.

Configuring Stat Mux Dejitter Groups

Complete these instructions to set up SMDGs by mapping the input port that receives the multiplexed source to the output port that modulates the source onto the network.

1. From the DNCS Administrative Console, select the **Network Element Provisioning** tab.
2. Click **QAM**. The QAM List window opens.
3. Double-click the GQAM modulator on which you want to set up an SMDG. The Set Up GQAM window opens with the Basic Parameters tab in the forefront.
4. Click the **Advanced Parameters** tab.
5. Click the **Set Up** button for Stat Mux Dejitter Groups. The Stat Mux Dejitter Groups window opens for the selected GQAM modulator.
6. Click **New**.
7. Enter the following information to map the input port that receives the multiplexed source to the output port that modulates the source onto the network:
   - **ID** - Enter an identifier to indicate the SMDG.

     Notes:

     – This must be a unique numerical value from 1 to 65535.

     – This number must be unique across all of the GQAMs in your system.
   - **Bandwidth** - Not selectable; the bandwidth defaults to the bandwidth of the GQAM RF port being used for the SMDG.
   - **Input Port** - Select the input port type (ASI or Ethernet) that this SMDG uses.
   - **Destination IP Address** - If a GbE port receives the multicast source, enter the IP multicast address for the GQAM modulator.

     Notes:

     – This is only used for multicast sessions. If you are not using multicast sessions, leave this field blank.

     – If an ASI port receives the source, leave this field blank.
   - **Destination UDP Port** - If a GbE port receives the unicast source, enter the UDP port on the GQAM modulator that receives the multiplexed source.

     Notes:

     – This is only used for unicast (non-multicast) sessions. If you are using multicast sessions, leave this field blank.

     – If an ASI port receives the source, leave this field blank.
   - **Output Port** - Select the output port that this SMDG uses.
8. Click **Save**. Parameters for the SMDG are listed in the Stat Mux Dejitter Group window.

9 Do you need to add another SMDG to this GQAM modulator?

- If **yes**, repeat steps 6 to 8.
- If **no**, go to step 10.

10 Do you need to add SMDGs to another GQAM modulator?

- If **yes**, repeat steps 3 to 9.
- If **no**, you have successfully added SMDGs to the GQAM modulators that receive multiplexed sources. You are ready to set up sessions for these SMDGs. For assistance setting up sessions, refer to the online help provided with your DNCS system release.

Known Issues with Stat Mux Dejitter Groups

There is one known issue with SMDGs as of the publication date of this document.

CR 70946: Doctor Report Incorrectly Identifies SMDGs as Sessions Without Sources

In the Doctor report, SMDG sessions are incorrectly reported as not having active source definitions.

When you run a Doctor report, you might see sessions similar to the following example:

```
Source Definitions for Active CF Sessions

============================================================

Error: The following active CF sessions do not have active source definitions:

caca7f82047d 00002d2f

caca7f82047d 00002d35

caca7f82047d 00002d3b

caca7f82047d 00002d41

caca7f82047d 00002d47

caca7f82047d 00002d4d
```

Do not delete these sessions. Sessions with MAC addresses beginning with **caca** (as shown above) could be SMDGs.

For More Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Cisco Systems, Inc.
5030 Sugarloaf Parkway, Box 465447
Lawrenceville, GA 30042

678 277-1120
800 722-2009
www.cisco.com

January 2013 Printed in USA Part Number 78-4021637-01 Rev B