Packet Duplication for Noisy Channels

Note

To achieve simplification and consistency, the Cisco SD-WAN solution has been rebranded as Cisco Catalyst SD-WAN. In addition, from Cisco IOS XE SD-WAN Release 17.12.1a and Cisco Catalyst SD-WAN Release 20.12.1, the following component changes are applicable: **Cisco vManage** to **Cisco Catalyst SD-WAN Manager**, **Cisco vAnalytics** to **Cisco Catalyst SD-WAN Analytics**, **Cisco vBond** to **Cisco Catalyst SD-WAN Validator**, **Cisco vSmart** to **Cisco Catalyst SD-WAN Controller**, and **Cisco Controllers** to **Cisco Catalyst SD-WAN Control Components**. See the latest Release Notes for a comprehensive list of all the component brand name changes. While we transition to the new names, some inconsistencies might be present in the documentation set because of a phased approach to the user interface updates of the software product.

Table 1: Feature History

Feature Name	Release Information	Description
Packet Duplication for Noisy Channels	Cisco Catalyst SD-WAN Release 19.2.1	This feature helps mitigate packet loss over noisy channels, thereby maintaining high application QoE for voice and video.

Information about Packet Duplication

Cisco vEdge devices use packet duplication to overcome packet loss.

Packet duplication sends copies of packets on alternate available paths to reach Cisco vEdge devices. If one of the packets is lost, a copy of the packet is forwarded to the server. Receiving Cisco vEdge devices discard copies of the packet and forward one packet to the server.

Packet duplication is suitable for edges with multiple access links. Once packet duplication is configured and pushed to your device, you can see the tunnel packet duplication statistics.

Configure Packet Duplication

1. Select **Configuration > Policies**

2. Select **Centralized Policy** at the top of the page and then click **Add Policy**.

3. Click **Next** twice to select Configure Traffic Rules.

4. Select **Traffic Data**, and from the Add Policy drop-down, click **Create New**.

5. Click **Sequence Type** in the left pane.

6. From the Add Data Policy pop-up, select **QoS**.

7. Click **Sequence Rule**.

8. In the **Applications/Application Family List/Data Prefix**, Select one or more applications or lists.

9. Click **Actions** and select **Loss Correction**.

10. In the Actions area, select the **Pack Duplication** option to enable the packet duplication feature.

    • **FEC Adaptive**—Only send Forward Error Correction (FEC) information when the system detects a packet loss.

    • **FEC Always**—Always send FEC information with every transmission.

    • **None**—Use when no loss protection is needed.

    • **Packet Duplication**—Enable when packets need to be duplicated and sent on the next available links to reduce packet loss.

11. Click **Save Match and Actions**.

12. Click **Save Data Policy**.

13. Click **Next** and take these actions to create a Centralized Policy:

    • Enter a Name and a Description.

    • Select **Traffic Data Policy**.

    • Choose **VPNs/site list** for the policy.

    • Save the policy.

Monitor Packet Duplication Per Application

1. Select **Monitor > Network**

2. Select a device group.

3. In the left pane, click **Applications**.

4. On the Application usage, select the application family of interest, and click on the Application family listed.

5. If packet duplication is enabled for any application, Cisco SD-WAN Manager displays Packet Delivery Performance as GOOD, MODERATE, or POOR or the field displays as N/A.

6. GOOD and MODERATE performance is a clickable link. When clicking on the link, the status pops up a window.

7. On the pop-up window, you see Application, Packet Delivery Performance, Overall for the Application, Average Drop Rate, and Overall for the Application information. The time slot graph represents the packets transmitted with different available link colors and the overall performance calculated when packet duplication is enabled.

8. If you hover over the time slot, you can see the performance status and the average drop rate for each link.