Distributed Flow Measurement in IPv6

draft-wang-ippm-ipv6-distributed-flow-measurement-03

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Motivation

- **High requirements for SLA**
  Network devices report measurement data to the controller. The controller collects data and calculates the quality of the forwarding path. The controller optimizes the path and issues a new path to the ingress node. The processing procedure is lengthy and difficult to guarantee the SLA requirements.

- **Reduce the complexity of interaction between controllers**
  In the inter-AS scenarios the measurement data needs to be summarized, calculated and presented on the centralized inter-AS controller. This interaction is complex between different level controllers.

- **No dependent on controller**
  We also hope to support forwarding path quality measurement in scenarios where controllers are not deployed.

This draft proposes a **distributed flow performance measurement method** without the participation of the controller. The measurement results can be used by the router to select the forwarding path that meets the high SLA requirements.
Overview

✓ **Objective**

To propose a distributed flow performance measurement method with *without* the participation of the controller.

The measurement results can be used by the router to select the forwarding path that meets the SLA requirements.

✓ **Work process**

1. Source Node (A)
   
   Add flow measurement data to traffic, based on the method proposed in [draft-wang-ippm-ipv6-flow-measurement]

2. Intermediate nodes (B/C) and End node (F)
   
   • Record statistics and timestamps based on the flow measurement data of the traffic
   
   • Send the statistics and timestamps to the source node (A)

3. Source Node (A)

   According to the results of the measurement, choose the appropriate path to F

✓ **Main context of draft**

- Define work mode
  
  Source node model & End node model

- Defines Extension to flow monitor option for carrying the necessary measurement data

- Measurement information and result notification
  
  Defines the data structure for the measurement results
  
  Discusses several ways of sending measurements back to the source node

![Diagram](image-url)
Extension of the Flow Monitor Option

1. Extend the Ext FM type bitmap of Flow Monitor Option for distributed flow measurement.
   - Packet timestamp bit
   - Previous period count bit

2. Carry one or more measurement information and results in the form of TLV in the additional information field of Flow Monitor Option.
   - Packet count TLV
   - Time Stamp TLV
   - Packet loss TLV
   - Packet delay TLV
   - Average Packet loss TLV
   - Average Packet delay TLV
Next Step

• This draft has been presented at IETF-115 in IPPM WG.
• Any questions or comments are Welcomed
• Seeking for adoption call
Thank You