Flow Selection Techniques

draft-peluso-flowselection-tech-02.txt

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Motivation

• Resource control
  – Traffic highly dynamic
  – Number of flows hard to predict
  – Resources limited

• Selection objectives
  – Limit resource consumption
  – Select only flows of interest (e.g. only large flows)

• An Example: PlanetLab Europe
  – Federated Testbed for Internet research
  – Multiple users sharing measurement device
  – Resource control by selection techniques
Flow Selection vs. Packet Selection

Packet Information

Packet Export

Packet Record Generation

Flow Information

Flow Export

Flow Record Generation

IPFIX

PSAMP (using IPFIX)

Aggregation

Flow-based pkt-selection

Classification

Packet Selection

Packet Processing

Timestamping

Selection Rules

Clock Signal

Snapsize

Packet Capturing

Core Functions

Optional Functions

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Terminology
Position of the Flow Selection Process
Description of **Flow Selection Techniques**
Information Model for **Configuration** of Flow Selection Techniques
Information model for **Reporting** of Flow Selection Information
Implementation requirements
Position of the Flow Selection Process

- Always *after* classification
- Flow-state dependent packet selection
  - Record only a subset of flows by selecting packets
  - Taking the class the packets belong to into account
  - e.g. sample &hold: selection of packets based on flow record status
- During flow recording
  - Record only a subset of flows
  - e.g. based on available memory
- At flow export
  - Export only a subset of flow records
  - e.g. due to transport resource limits
- At collector
Flow Selection Techniques

• Based on flow record content
  – All reported flow characteristics
  – e.g. flow size, flow start time, etc.

• Based on flow record arrival time or sequence
  – Arrival times at collection process
  – Sequence in which flows arrive

• Based on external events
  – Exhaustion of resources
  – E.g., number of entries in flow cache
Relation to IPFIX Mediator Drafts

- **Flow Selection**
  - No modification of records
  - But selection of a subset of flow records
- Can be seen as an example for a mediation function (like anonymization)
How to proceed?

• PSAMP situation
  – PSAMP closed
  – PSAMP topics (MIB etc.) moved to IPFIX

• Is flow selection of interest as working group item for the IPFIX group?
Thank You