

IPFIX Summary for IETF 103

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Introduction

- Reference
 - <https://tools.ietf.org/html/draft-boydseda-ipfix-psamp-bulk-data-yang-model>
- Broadband access market has requirements for using IPFIX for transporting bulk data
 - *"Bulk data collection is an automated collection of data from a device that is packaged together and delivered to an IPFIX collector"*
 - Bulk data goes beyond Packet SAMPLing (PSAMP) data, e.g. it includes interface, subinterface, session statistics
- Also has requirements for using IPFIX for transporting bulk data associated with other protocols
 - Example: BBF TR-352 ICTP (Inter-Channel Transport Protocol) uses IPFIX to transport dynamic data (e.g., lease information) across participating NGPON2 (Next-Generation Passive Optical Network 2) systems

Analysis

- Have looked at the existing `ietf-ipfix-psamp@2012-09-05` model (RFC 6728)
 - Single YANG module that performs PSAMP sampling
 - Collection process (PSAMP) and the IPFIX exporting process are part of the same YANG module
 - Only supports a PSAMP meter, and assumes the device supports SCTP
- Using this existing model is challenging for other IPFIX applications (e.g., TR-352 ICTP mentioned above)
 - Requires support for SCTP, therefore requiring the need for YANG deviations to announce non-support
 - Requires PSAMP meter to be configured, even if the observation point is already defined by other YANG models
- There are also some more general challenges (see the ID for details), e.g.
 - Interfaces are referenced via IF-MIB `ifIndex` rather than via `ietf-interfaces` interface name (RFC 8343)
- Conclusion
 - Don't believe it's possible to meet these requirements by augmenting the existing model
 - Prefer to develop a new YANG model where functionality is separated into different modules such that the functions can be independently leveraged

New Model

- Adheres to RFC 6728 general principles, with the following exceptions
 - Adopts and conforms to the latest RFC 8407 YANG guidelines, e.g. for identifier naming conventions
 - Is therefore not backwards-compatible
 - Adds support for RFC 8343 interface references
 - Model is separated into the following three modules
 - **ietf-ipfix**: Describes the IPFIX collector and exporter functions
 - **ietf-psamp**: Describes the PSAMP functions for configuring a device to sample/meter a subset of packets from the network
 - **ietf-bulk-data-export**: Describes the bulk data IPFIX templates and filtering functions to apply to bulk data (outside PSAMP bulk data application)
 - SCTP data nodes are made optional via the sctp feature for applications not requiring to support SCTP
 - IPFIX transport sessions allow transport session information to be retrieved individually
 - Source and destination address type choice statements are added to improve extensibility of the model
- Bulk data applications that use this RFC are expected to only need to import the applicable YANG modules, e.g.
 - PSAMP uses the ietf-ipfix and ietf-psamp modules
 - Statistics use the ietf-ipfix and ietf-bulk-data-export modules
 - TR-352 ICTP applications use only the ietf-ipfix module