Introduction

• Reference

• 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