

# IPFIX concentrator

<draft-kobayashi-ipfix-concentrator-model-01.txt>  
<draft-kobayashi-ipfix-concentrator-mib-01.txt>

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# Motivation

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- Problems in large-scale networks
  - Too many flow records
    - Too many flow records to handle properly.
    - Single collector can't store and aggregate all records.
  - Scalability
    - Networks have recently become larger and larger.
    - Difficult for the traffic collector's performance to be improved as the network grows.
- Using IPFIX concentrator is useful
  - It resolves several problems in a large-scale network.

# Solution: use IPFIX concentrators

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The solution of using concentrators has three features.

- Cascading concentrators

- ☐ let us adjust the number of IPFIX concentrators to suit the network size.
- ☐ enable step-by-step aggregation of flow records.

- Aggregation method

- ☐ reduces flow records according to “dressler-ipfix-aggregation”.
- ☐ reduces the load on the Traffic collector.

- Distribution of flow records

- ☐ achieves load-balancing of Traffic collector.

# Clarification of IPFIX concentrator

## ■ Reference model of IPFIX concentrators

- Internal model
  - defines process model of concentrator as internal model.
- External model
  - clearly shows the method of connecting concentrators which works well as a solution.
- New information elements
  - provide some of the information lost in the aggregation process.
  - Some examples of these elements are "Minimum active time" and "Maximum active time".

## ■ Managed objects of IPFIX concentrators

- Cascading concentrators need to act as a single collector.
  - Components of each concentrator are also controlled and referred to by other nodes through SNMP.
  - The IPFIX concentrator needs MIB objects.
- The defined MIB objects are divided into two groups.
  - Architecture of concentrator MIB is similar to PSAMP MIB.
  - Collector MIB is used in general collectors.

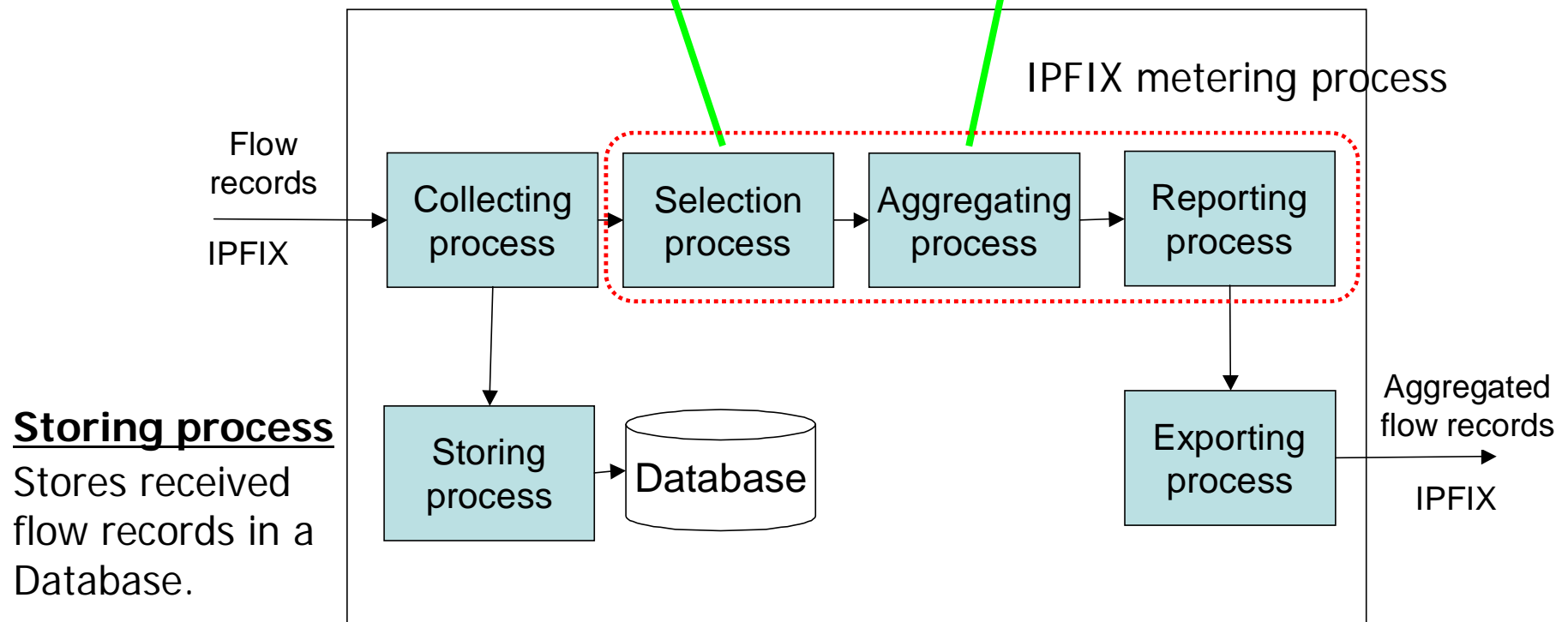
# Internal process model

## Selection process

Has only a filtering function.  
Filter selects flow records  
based on flow records content.

## Aggregation process

Gathers flow records within a time  
interval and then merges ones having  
common properties.  
Adds other information elements in the  
aggregated flow.



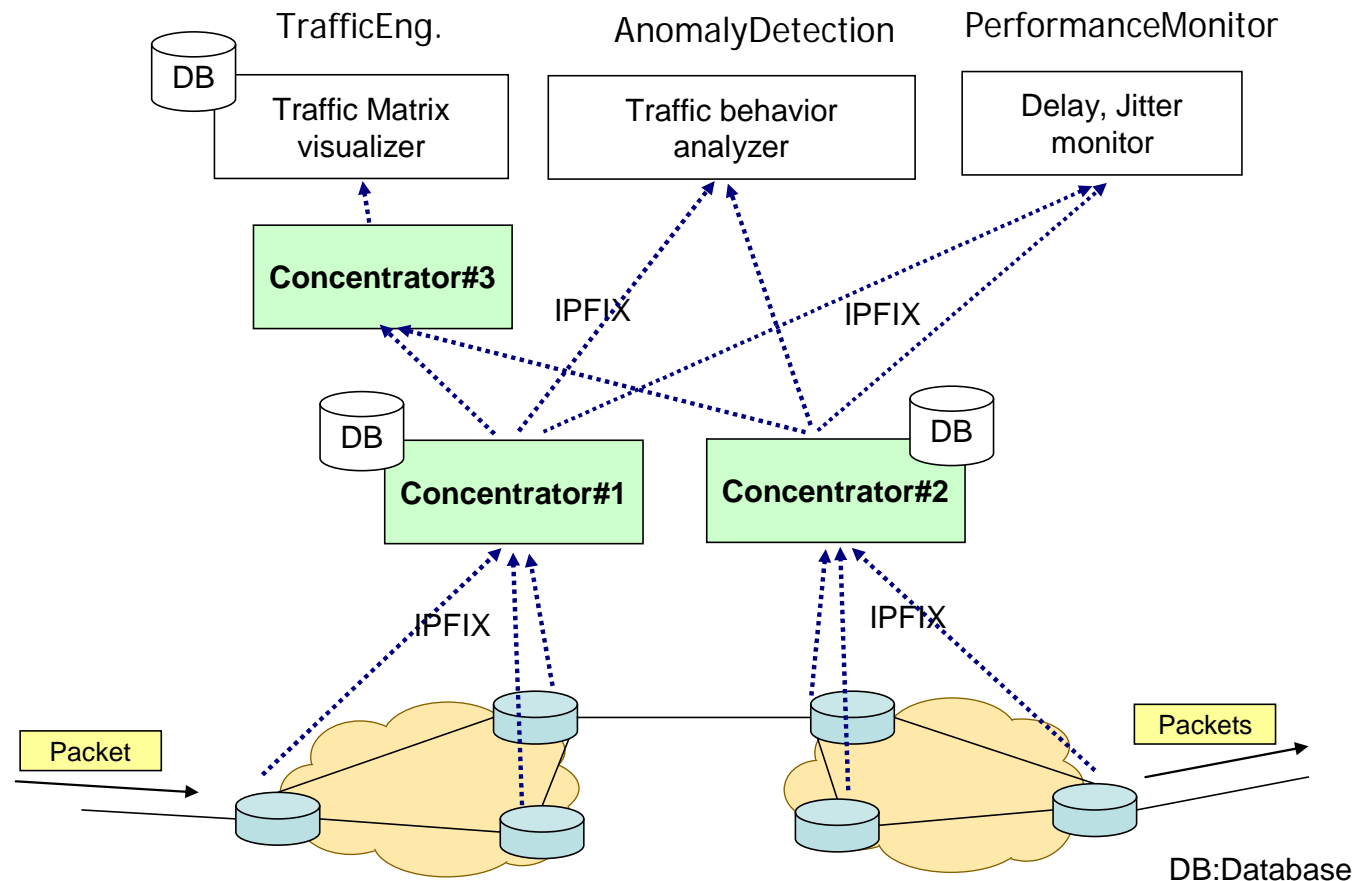
## Storing process

Stores received  
flow records in a  
Database.

**We can get several solutions with using this IPFIX concentrator.**

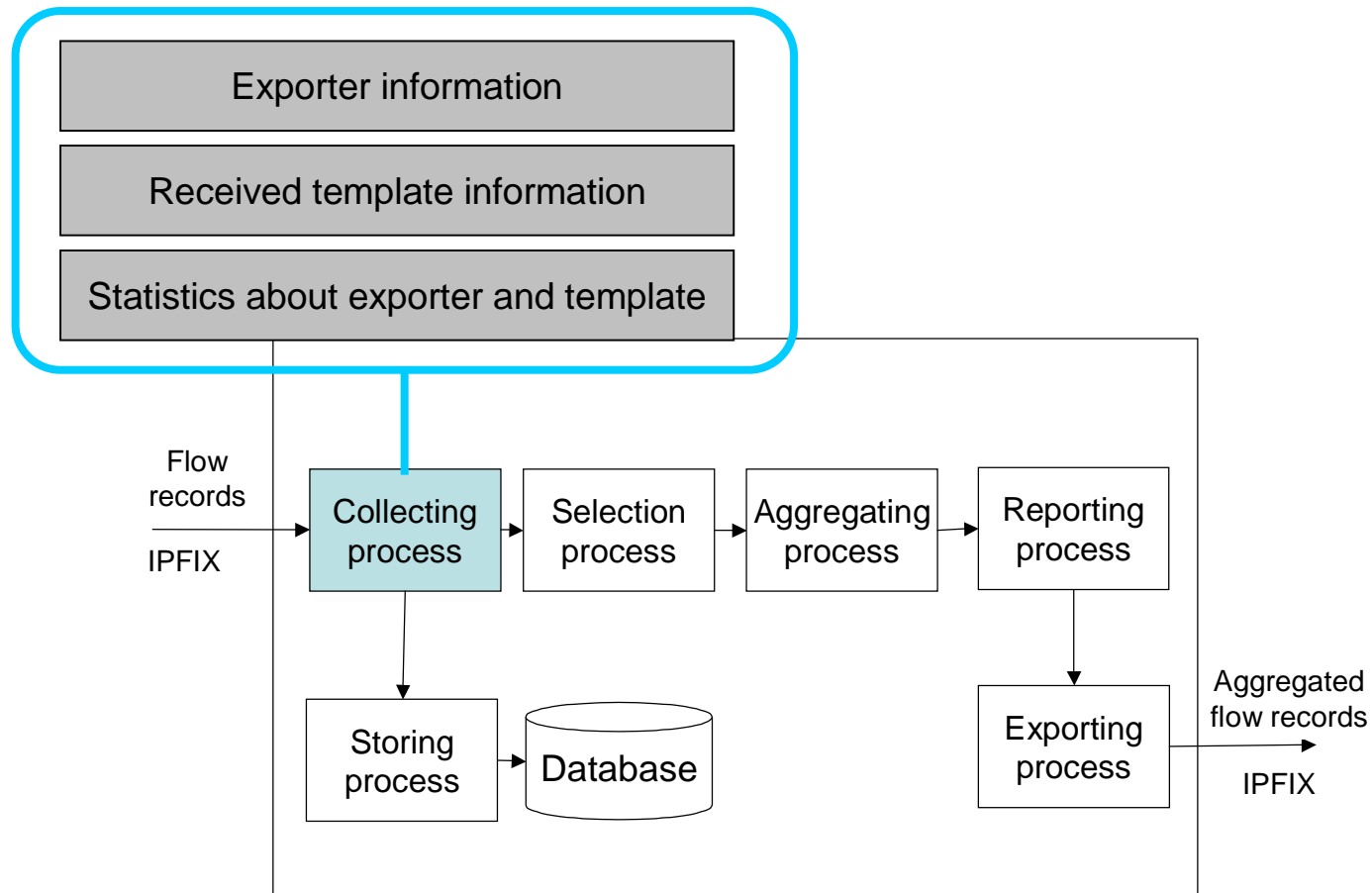
# Solution using IPFIX concentrators

- Hierarchical model of concentrators enables
  - aggregation step by step.
  - distribution flow records based on Traffic Collector role.



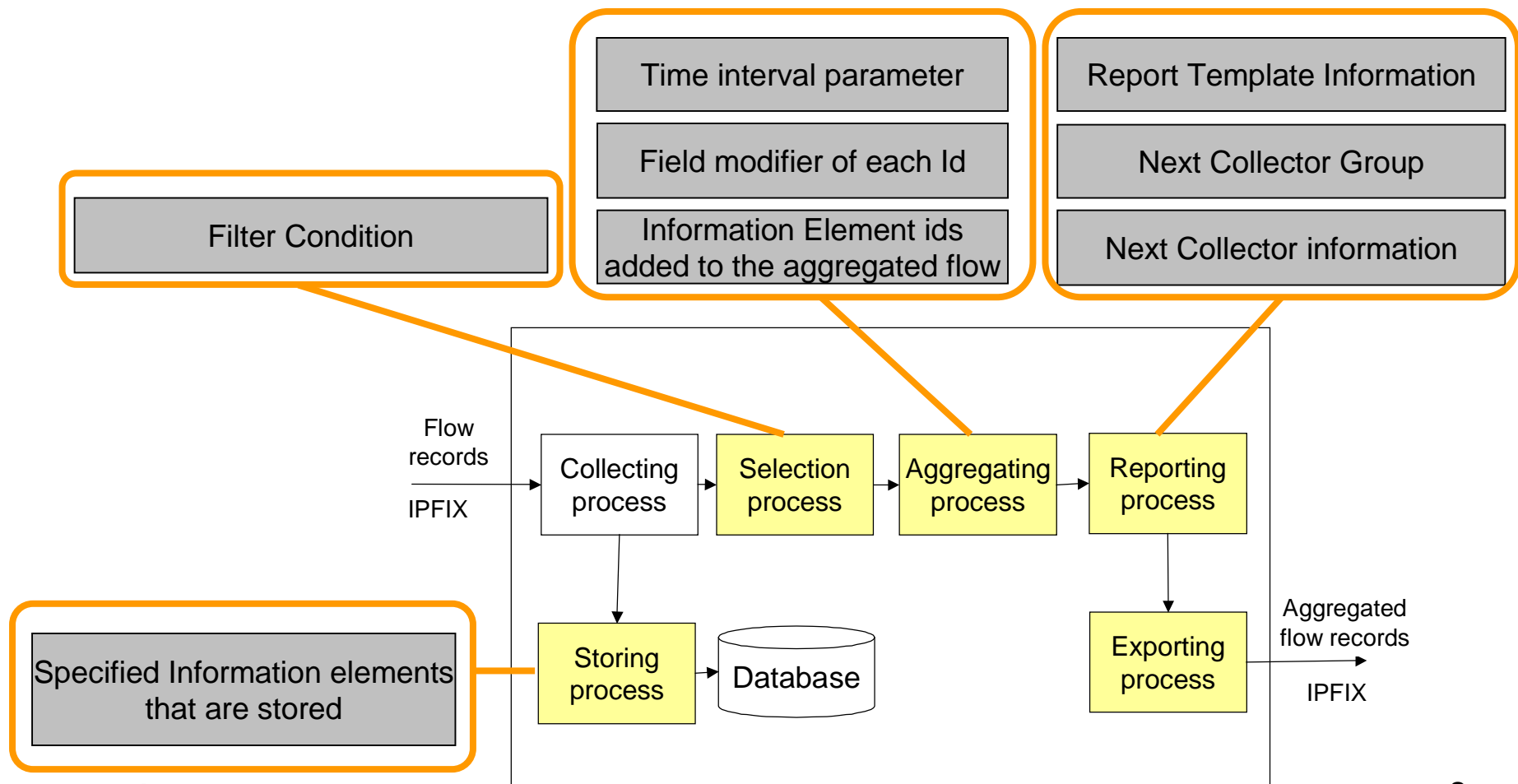
# IPFIX collector MIB

- Collecting process manages collector MIB that has 3 tables.
- They contain Exporter information, Received template information and statistics about Exporter and Templates.



# IPFIX concentrator MIB

- Each process has several objects.
- Base association associates these tables just like PSAMP-MIB.





# Next step

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- Reference model

- There are other processes or other new information elements that should be added to or deleted from IPFIX concentrator.

- MIB objects

- They need refining.
    - Comments are welcome.
  - Current draft does not contain whole aggregation-draft.
    - does not take into account “chain of aggregator”.
    - should be revised according as the aggregation-draft progresses.