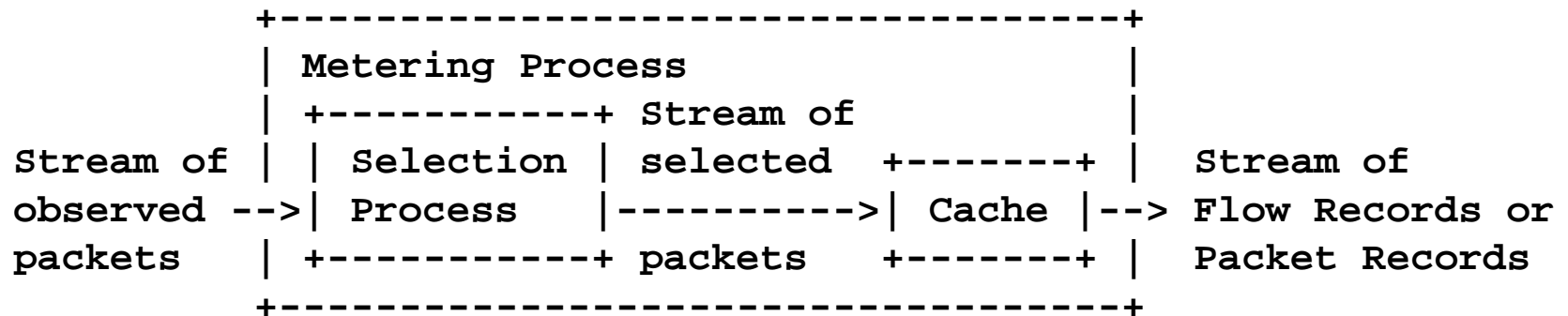# Configuration Data Model for IPFIX and PSAMP

draft-ietf-ipfix-configuration-model-00

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72nd IETF Meeting, Dublin, 2008

Metering Process

```
          +------------------------------------+
          |  Metering Process                  |
          |  +-----------+  Stream of          |
Stream of |  | Selection |  selected  +-------+ |   Stream of
observed -->| Process    |----------->| Cache |--> Flow Records or
packets   |  +-----------+  packets   +-------+ |   Packet Records
          +------------------------------------+
```

▶ Configuration data model specifies instances!

▶ Selection Process instance may hold state
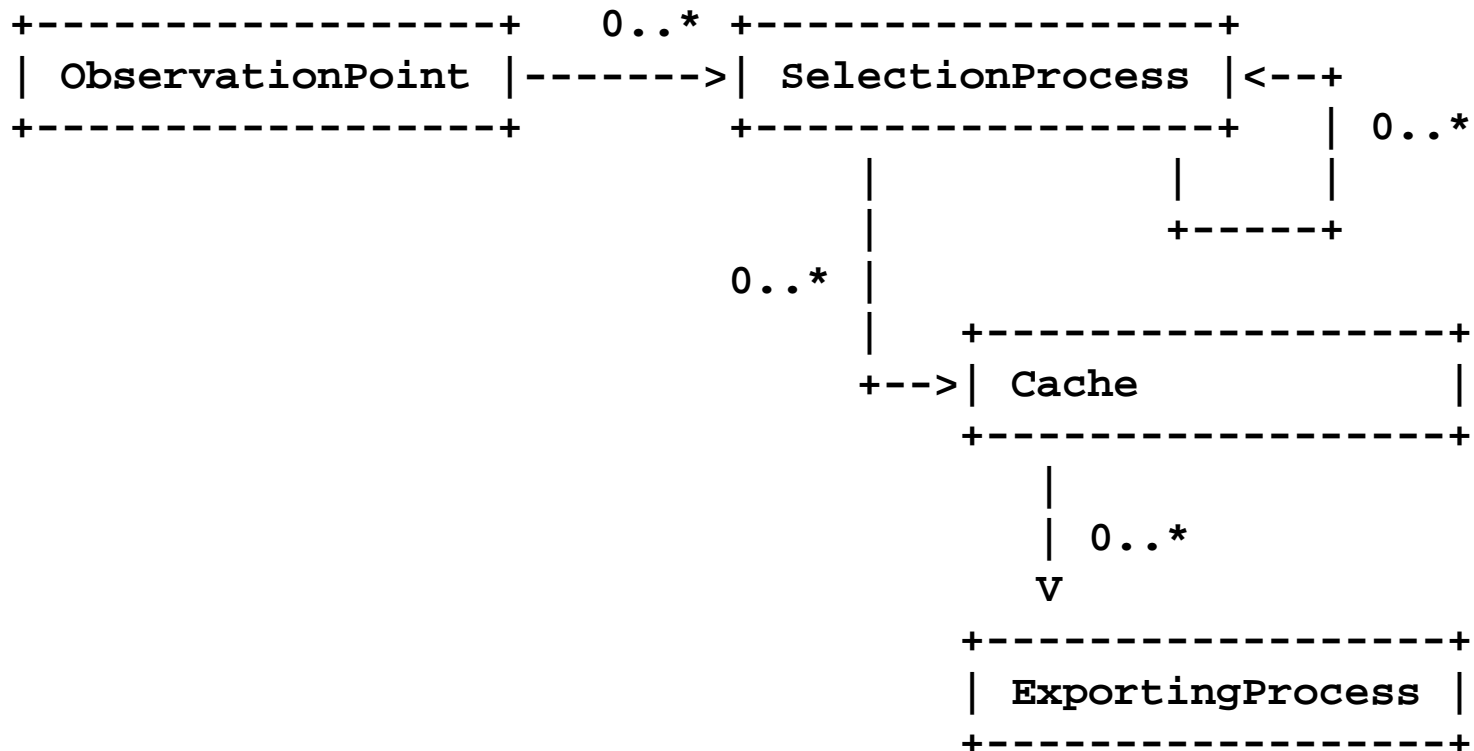 ● e.g. count-based systematic sampling

not ok:
```
OP1 -> SP1 -> Cache1 -> EP1

OP2 -> SP1 -> Cache2 -> EP2
```
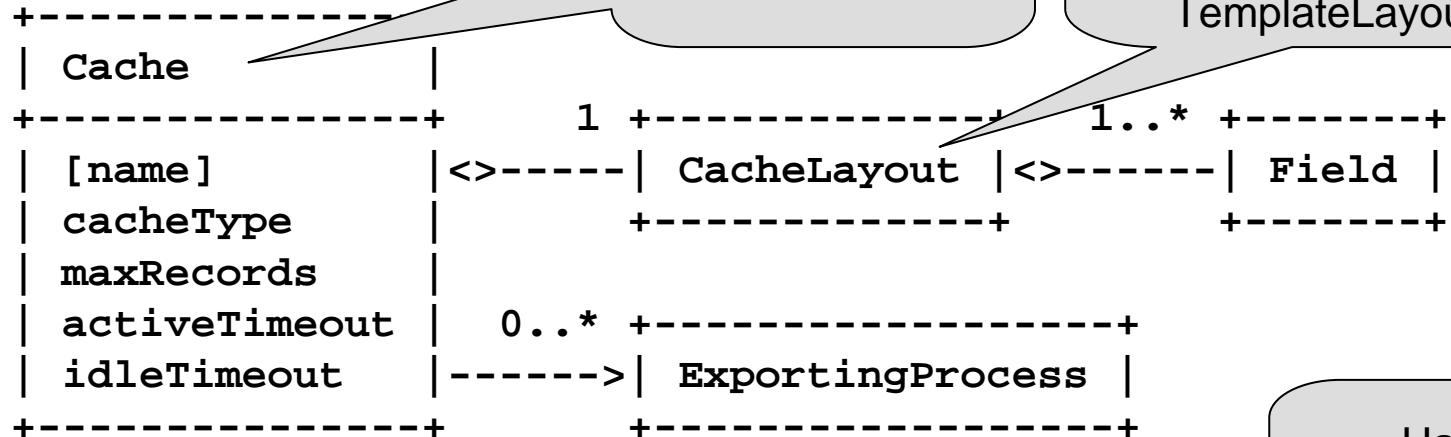
ok:
```
OP1 -> SP1 -> Cache1 -> EP1

OP2 -> SP2 -> Cache2 -> EP2
```

New Structure

```
+-------------------+     0..* +-------------------+
| ObservationPoint  |-------->| SelectionProcess  |<--+
+-------------------+         +-------------------+   | 0..*
                                      |           |   |
                                      |           +-----+
                              0..* |
                                      |         +-------------------+
                                  +-->|  Cache            |
                                      +-------------------+
                                          |
                                          | 0..*
                                          V
                                      +-------------------+
                                      | ExportingProcess  |
                                      +-------------------+
```

▶ Fulfills the requirements

▶ Metering Process does not explicitly appear

Cache Type and Layout

Find a better term: FlowRecord?

Find a better term: RecordLayout? GenericTemplate? TemplateLayout?

```
+----------------+
| Cache          |
+----------------+     1 +--------------+  1..* +-------+
| [name]         |<>-----| CacheLayout  |<>------| Field |
| cacheType      |       +--------------+       +-------+
| maxRecords     |
| activeTimeout  |  0..* +-------------------+
| idleTimeout    |------>| ExportingProcess  |
+----------------+       +-------------------+
```

Have an alternative "strict" layout?

▶ **Cache Type:** "normal", "immediate", or "permanent"

▶ **Cache Layout (instead of Template):**

- specifies which fields MAY be present in the resulting Records
- Records MUST include all fields of the Cache Layout which are available in the incoming packet
- Records MUST NOT include any fields which are not available in the incoming packet
- → prevention of invalid/empty fields
- → allows having a single Cache for TCP/UDP/ICMP/…

Further Todos and Open Issues

▶ **Complete the model**
- add TLS/DTLS parameters
- review model w/r to mandatory/optional parameters and default values
- relationship to operational data (read-only, non-configurable parameters) in IPFIX MIB and PSAMP MIB
  - ➡ integrate read-only parameters into the model?
  - ➡ translate MIBs to XML/Netconf and enable linkage?
- … and maybe more depending on your appreciated reviews

▶ **Model specification with YANG**
- + a usable specification language for NETCONF data models
- + adopted as WG document by NETMOD WG
- – not to be standardized before September 2009

Dependency on YANG: Possible Solutions

1) Accept delay of IPFIX/PSAMP configuration data model	▶ Time could be used for - prototyping - gathering practical experience - inclusion of further parameters (e.g. for mediator configuration)
2) Do not use YANG	▶ Which alternative? ▶ How to ensure conformance to NETCONF?
3) Split document into information model (UML part) and data model (YANG/XML part)	▶ Information model is independent from YANG can be finished before YANG becomes RFC ▶ However, what is the value of having an information model if there is no data model?