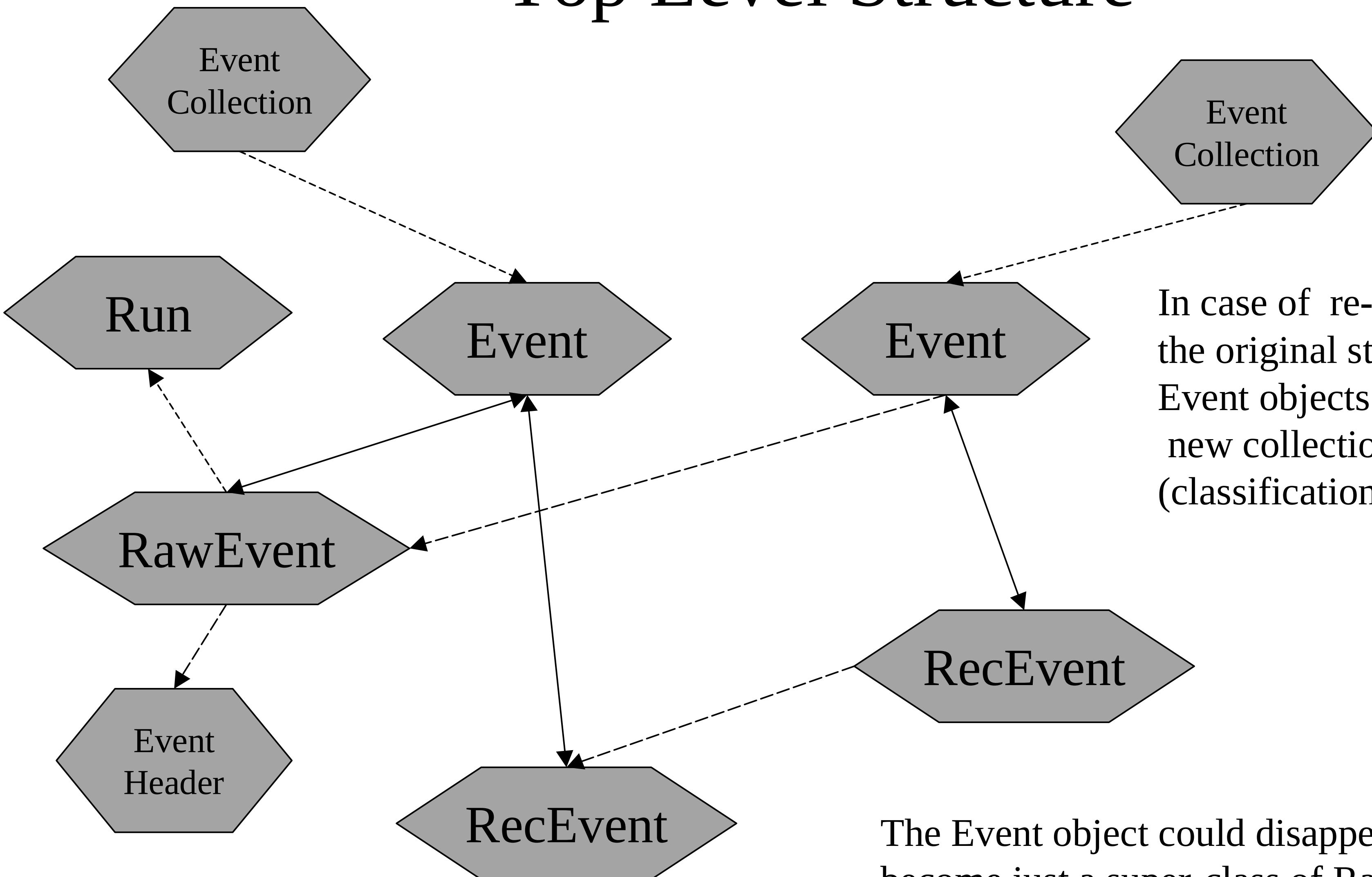
CMS Persistent Event Structure

Vincenzo Innocente

CERN, EP/CMC

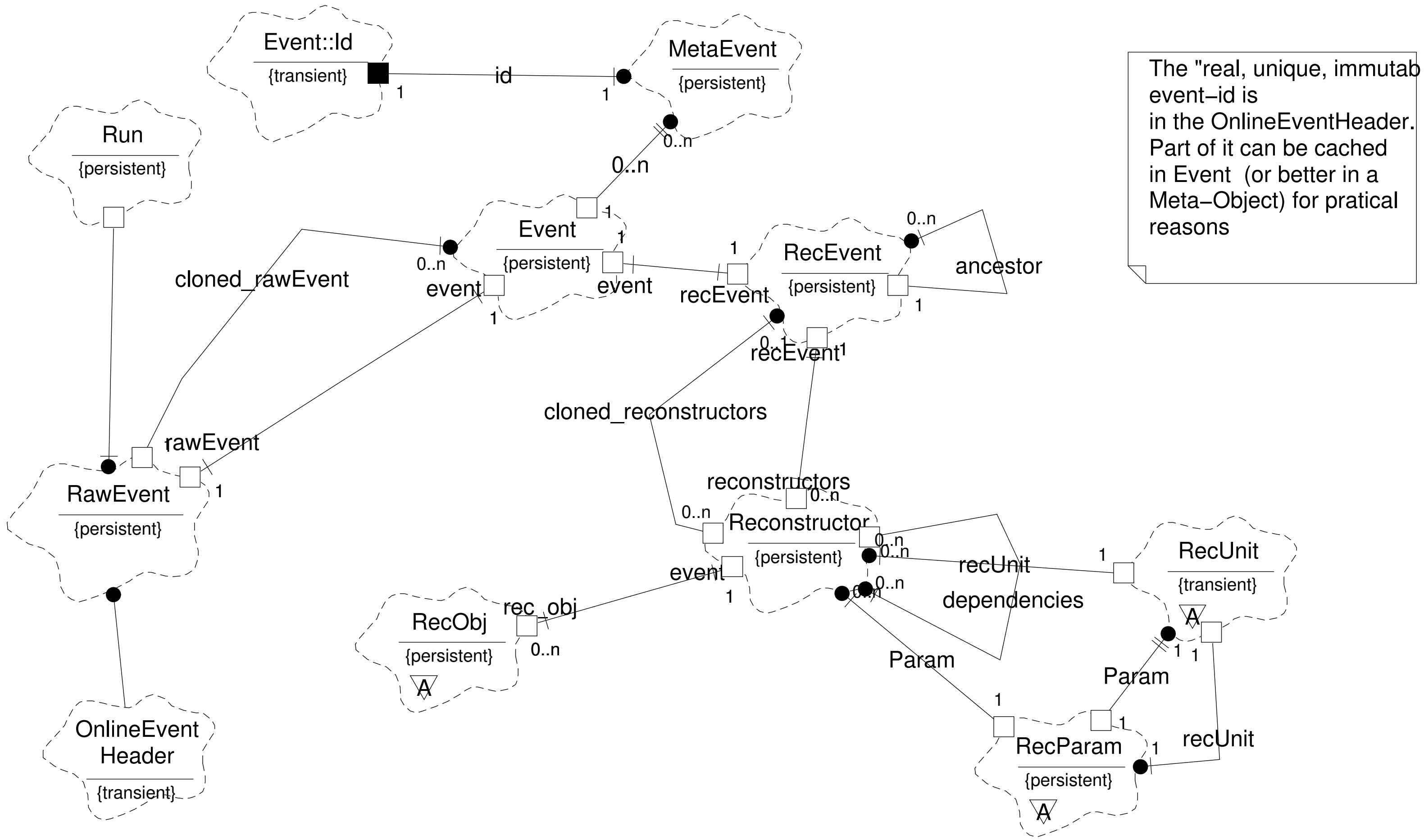
Top Level Structure



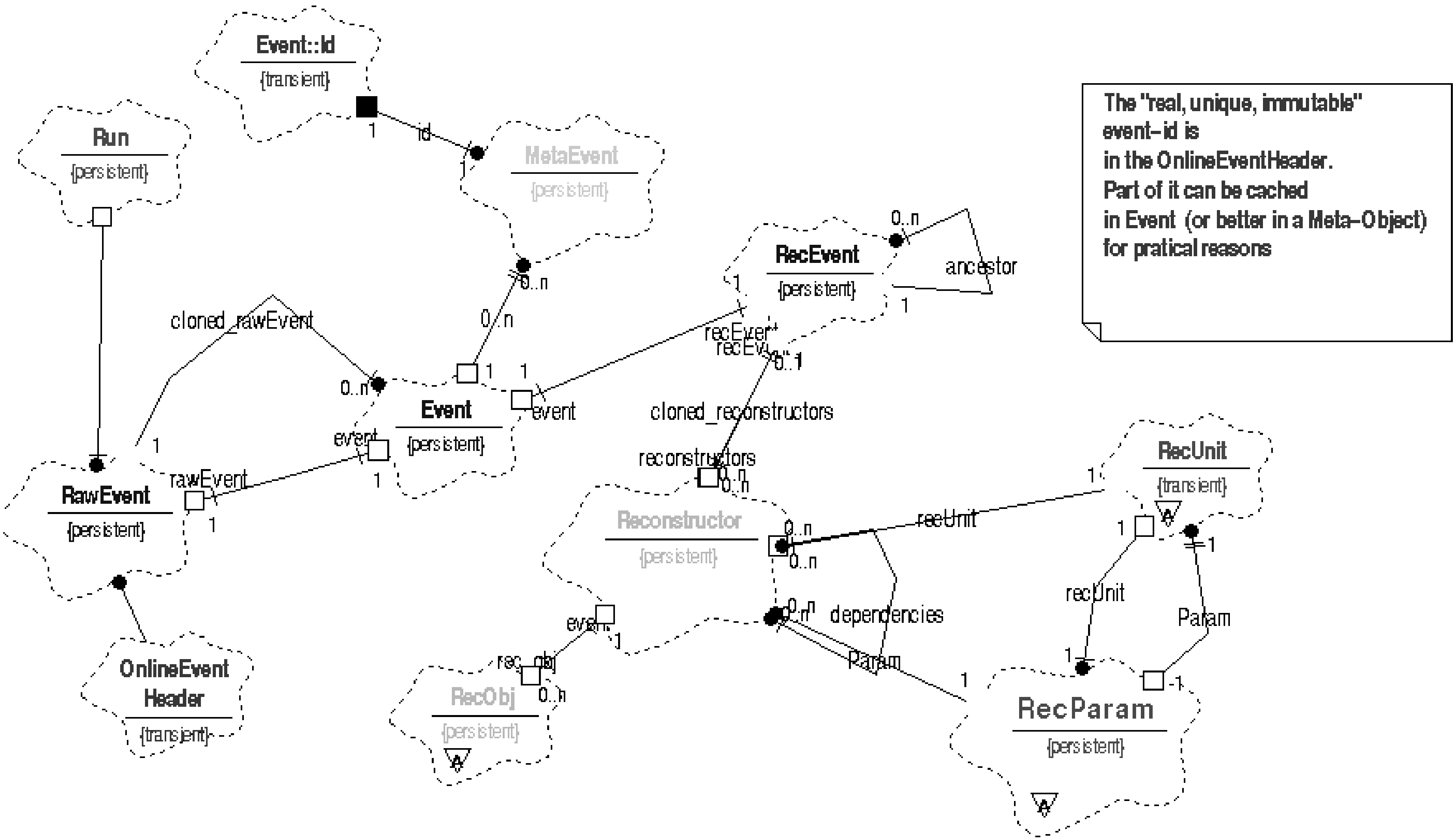
In case of re-reconstruction the original structure is kept. Event objects are cloned and new collections created (classification may change).

The Event object could disappear and Event become just a super-class of Raw&RecEvent

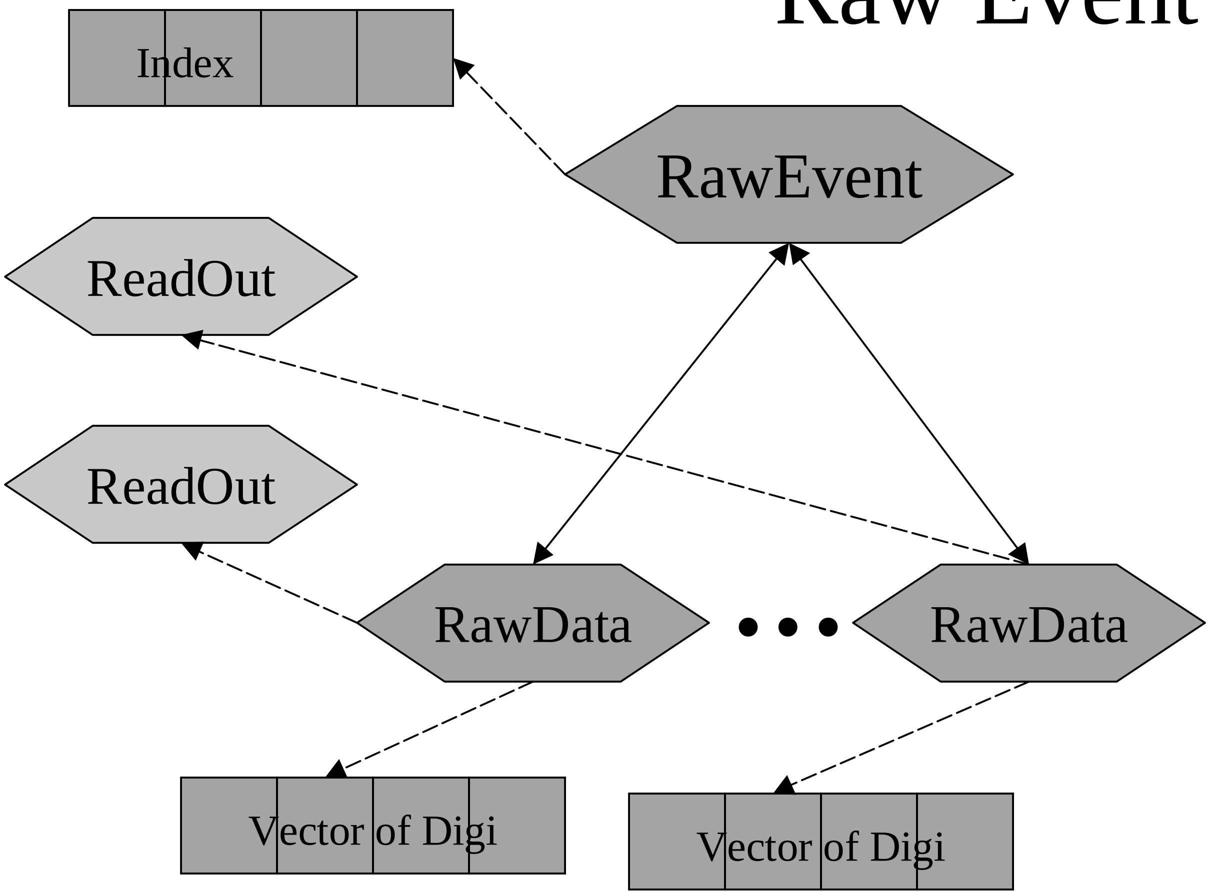
Object Model



Object Model



Raw Event



Index implemented as an ordered vector of pairs

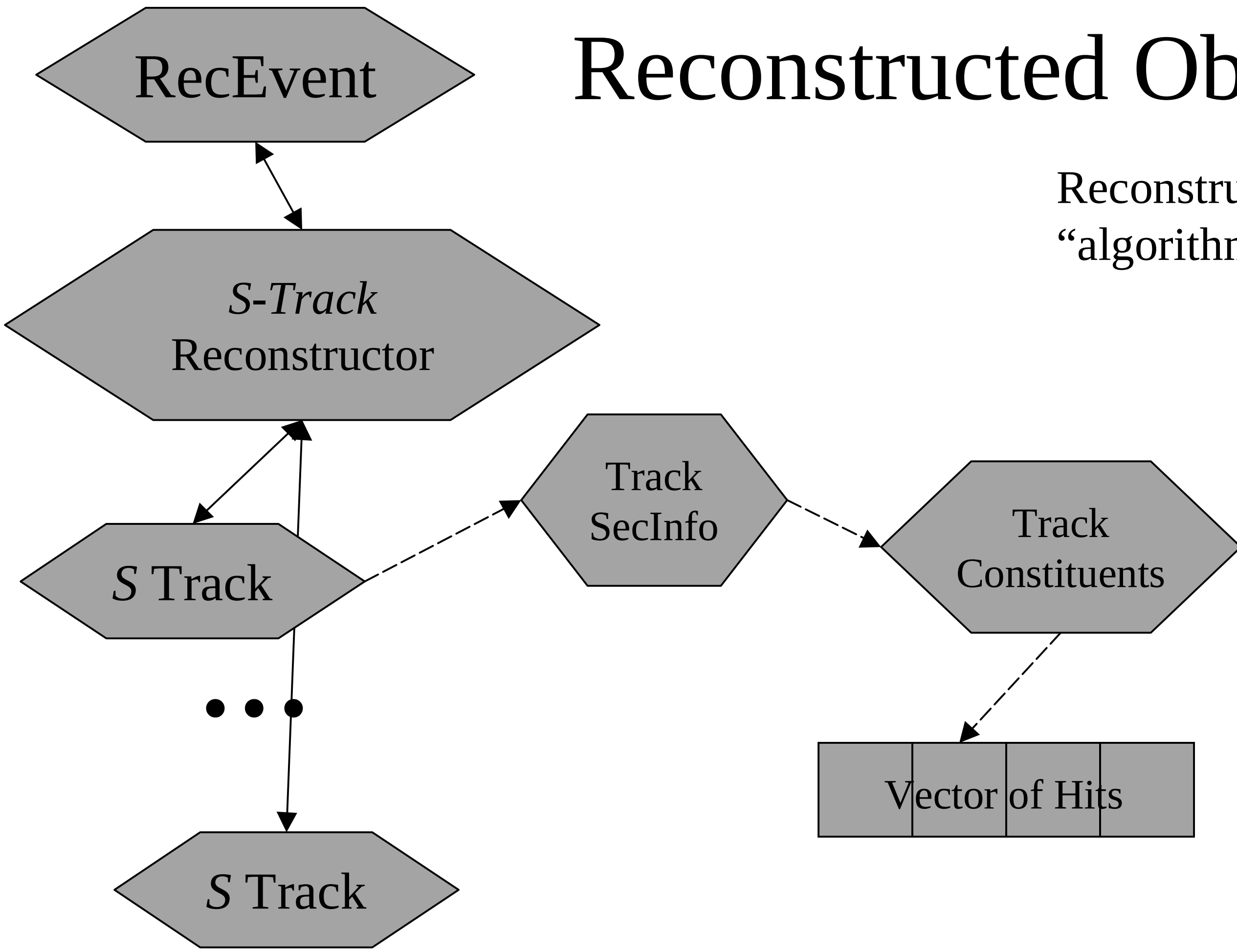
RawData are identified by the corresponding ReadOut.

RawData belonging to different "detectors" are clustered into different containers.
The granularity will be adjusted to optimize I/O performances.

An index at RawEvent level is used to avoid the access to all containers in search for a given RawData.

A range index at RawData level could be used for fast random access in complex detectors.

Reconstructed Objects



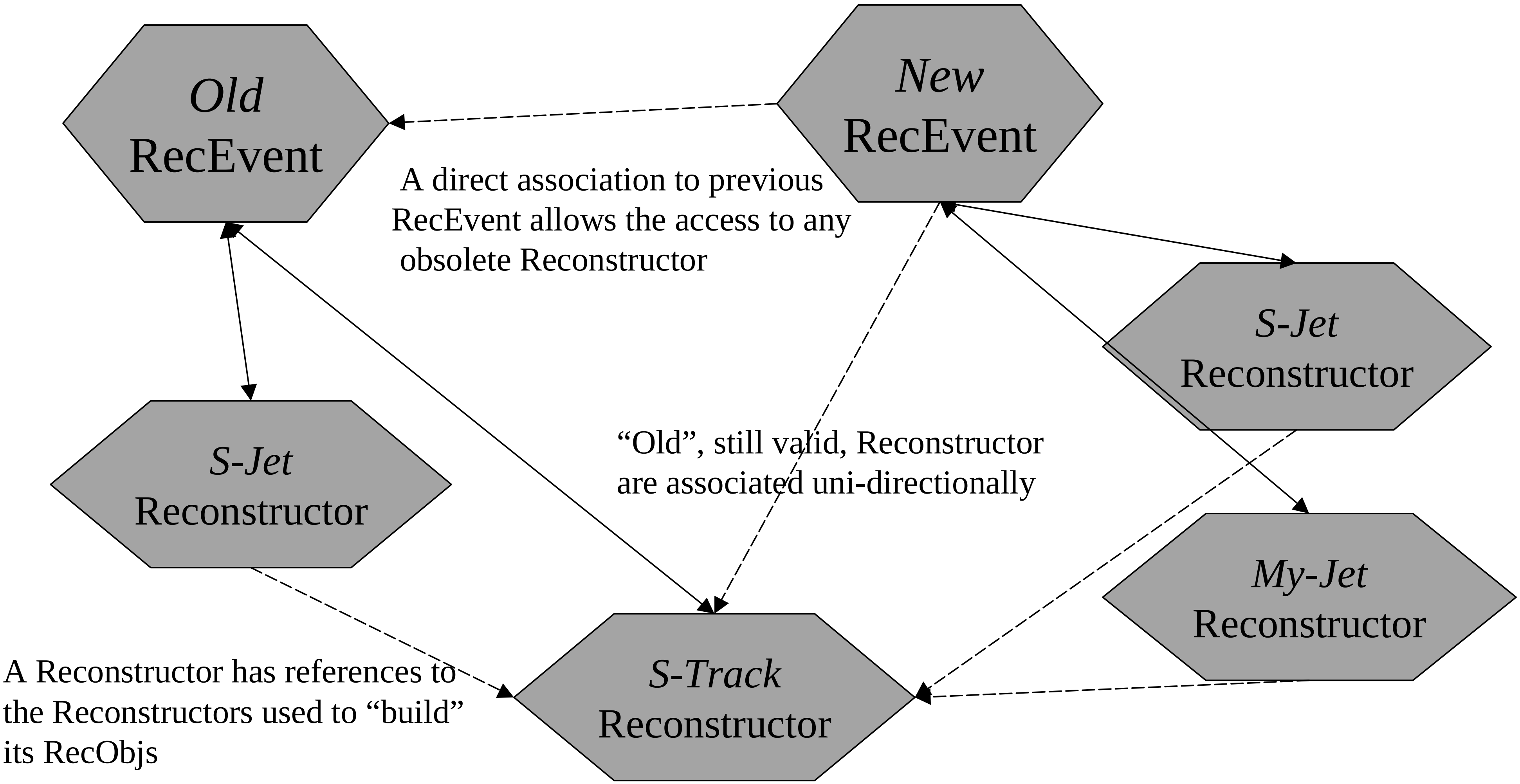
Reconstructed Objects produced by a given "algorithm" are managed by a Reconstructor.

A Reconstructed Object (Track) is split into several independent persistent objects to allow their clustering according to their access requirements (physics analysis, reconstruction, detailed detector studies, etc.).

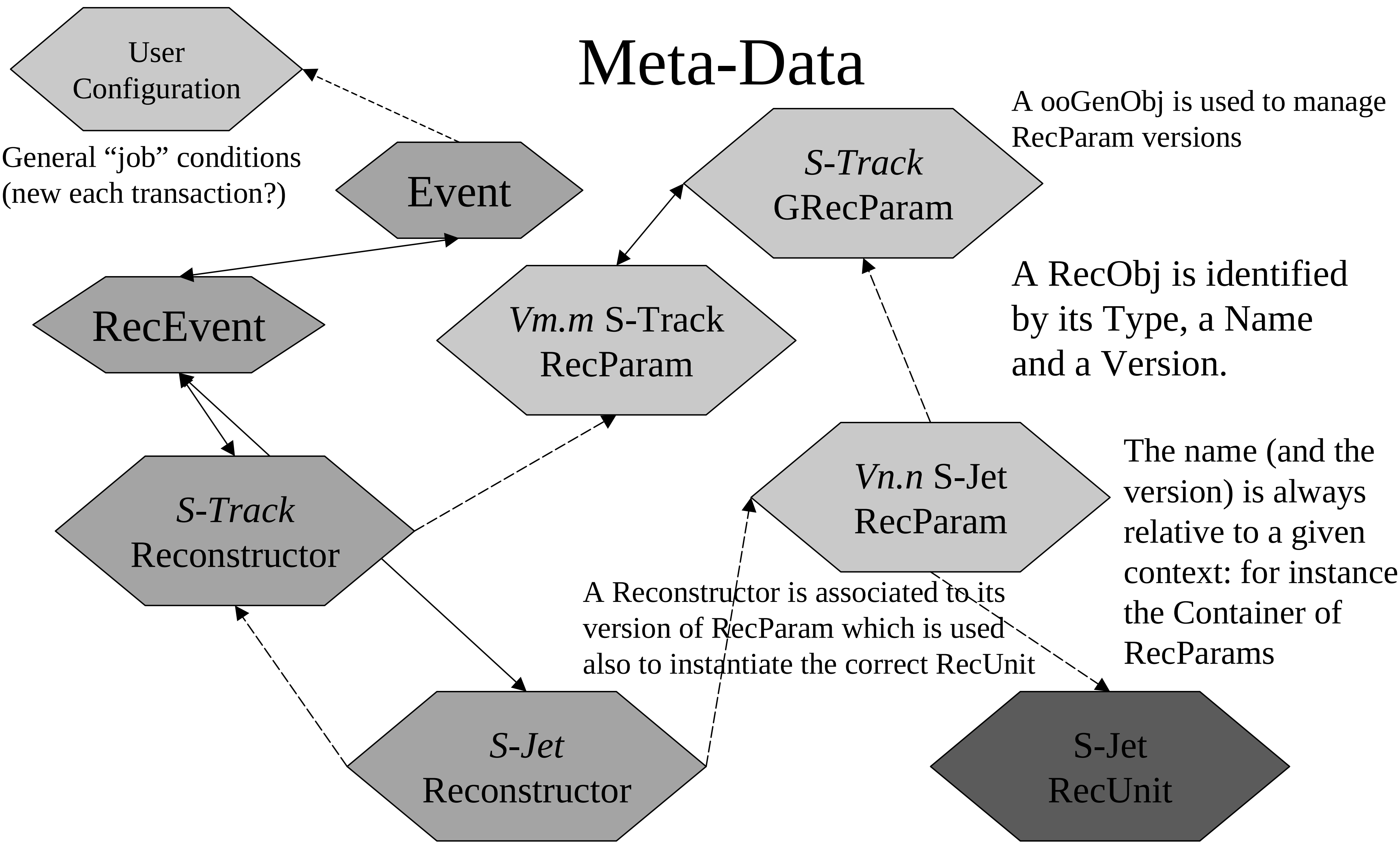
The top level object acts as a proxy.

Intermediate reconstructed objects (Hits) are transient and are cashed *by value* into the final objects .

Reconstructed Event



Meta-Data


User Configuration
General “job” conditions (new each transaction?)
Event
RecEvent
S-Track Reconstructor
S-Jet Reconstructor
Vm.m S-Track RecParam
S-Track GRecParam
A ooGenObj is used to manage RecParam versions
A RecObj is identified by its Type, a Name and a Version.
Vn.n S-Jet RecParam
The name (and the version) is always relative to a given context: for instance the Container of RecParams
A Reconstructor is associated to its version of RecParam which is used also to instantiate the correct RecUnit
S-Jet RecUnit