KIP-213-Scratch

Co-Located

Primary Key = A
Foreign Key = i

K=A,
V=(i=2,k=3)

This KTable
(events)

K=2
V=(A, OriginalValueHash)

1) Extract ForeignKey &
Generate Hash of Original
Value

OriginalValueHash =
HashFunc(V=(i=2,k=3))

2) Sink

Pre-Subscribe
Repartition
Topic

K=2
V=(A, OriginalValueHash)

3) Source

Combine the FK (2)
and PK (A) together

Co-Located

4a) OneToOne
and State
Store
Materializer

OneToOne reads from
Other KTable

K=2,
V=(c=Red)

Other KTable
(entities)

K=CombinedKey(2-A),
V=OriginalValueHash

Materialize

Materialized
CombinedKey
StateStore

PrefixScan the StateStore

7) Get Original
Primary Key Data

get(A) =>
v=(i=2,k=3)

OriginalValueHash =
HashFunc(V=(i=2,k=3))

8) Hash Filter &
Joiner (See Note 3)

6) Source

Post-
Subscribe
Repartition
Topic

5) Sink

Sinks result

Sinks result

4b) Rekey
Processor
w/
PrefixScan

K=A
V=(ForeignKey=2, v=(c=Red),
OriginalValueHash
)

K=A
V=Joined((i=2,k=3), (c=Red))

1) If This KTable is updated, it propagates a single update
through the workflow.

2) If the Other KTable is updated, it performs a prefix scan on
Materialized CombinedKey StateStore and propagates all records
which have the required prefix through the workflow.

3) Joiner is only triggered by Post-Subscribe Repartition Topic
updates.
Discard events if the Primary Key or Foreign Key are inconsistent
with the current state (ie: Foreign Key changed, or Primary Key
was deleted). Additionally, discard any events where the original
value hash does not match the current value hash computed at
step 8. This indicates the event has changed and prevents
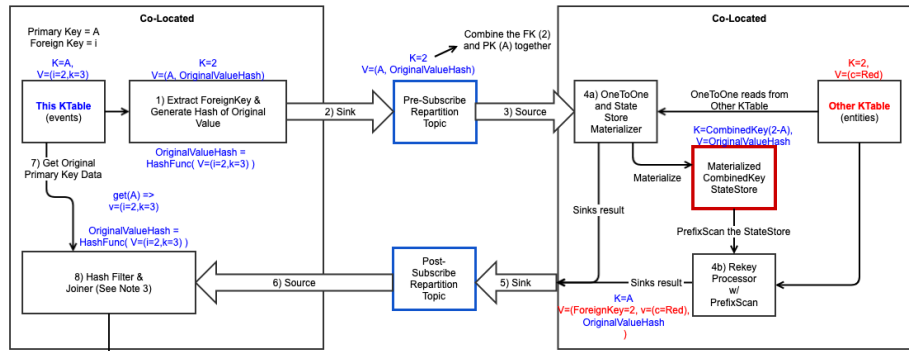duplicate events from being published downstream.

There are two paths by which SubscriptionResponses are created:

4a) An update coming in from the left-hand-side via "3) Source" is processed
by 4a. It is written to the Materialized CombinedKey StateStore, and then
the foreign-key is used to obtain the foreign-key values from the Other
KTable. The resultant SubscriptionResponse is sunk to "5) Sink".

4b) An update made to the Other KTable is propagated to 4b. The statestore
materialized in 4a is prefix scanned for all matching events. A resultant
SubscriptionResponse is sunk to "5) Sink" for each matching result.