WITH

vars AS (

SELECT

TIMESTAMP("{START\_TIME}") AS start\_date,

TIMESTAMP("{END\_TIME}") AS end\_date,

TIMESTAMP("{NO\_OLDER\_TWEETS\_THAN\_DATE}") AS no\_older\_tweets\_than\_date

),

-- Get raw user-tweet interaction events from UUA

actions\_unioned AS (

SELECT

userIdentifier.userId AS userId,

item.tweetInfo.actionTweetId AS tweetId,

eventMetadata.sourceTimestampMs AS tsMillis,

CASE

WHEN actionType = "ServerTweetFav" THEN 1

WHEN actionType = "ServerTweetUnfav" THEN -1

END AS favAction,

CASE

WHEN actionType = "ServerTweetReply" THEN 1

WHEN actionType = "ServerTweetDelete" THEN -1

END AS replyAction,

CASE

WHEN actionType = "ServerTweetRetweet" THEN 1

WHEN actionType = "ServerTweetUnretweet" THEN -1

END AS retweetAction,

IF(actionType = "ClientTweetVideoPlayback50", 1, NULL) AS videoPlayback50Action

FROM `twttr-bql-unified-prod.unified\_user\_actions\_engagements.streaming\_unified\_user\_actions\_engagements`, vars

WHERE (DATE(dateHour) >= DATE(vars.start\_date) AND DATE(dateHour) <= DATE(vars.end\_date))

AND eventMetadata.sourceTimestampMs >= UNIX\_MILLIS(vars.start\_date)

AND eventMetadata.sourceTimestampMs <= UNIX\_MILLIS(vars.end\_date)

AND (actionType = "ServerTweetReply"

OR actionType = "ServerTweetRetweet"

OR actionType = "ServerTweetFav"

OR actionType = "ServerTweetUnfav"

OR actionType = "ClientTweetVideoPlayback50"

)

),

user\_tweet\_action\_pairs AS (

SELECT

userId,

tweetId,

-- Get the most recent fav event

ARRAY\_AGG(IF(favAction IS NOT NULL, STRUCT(favAction AS engaged, tsMillis), NULL) IGNORE NULLS ORDER BY tsMillis DESC LIMIT 1)[OFFSET(0)] as ServerTweetFav,

-- Get the most recent reply / unreply event

ARRAY\_AGG(IF(replyAction IS NOT NULL,STRUCT(replyAction AS engaged, tsMillis), NULL) IGNORE NULLS ORDER BY tsMillis DESC LIMIT 1)[OFFSET(0)] as ServerTweetReply,

-- Get the most recent retweet / unretweet event

ARRAY\_AGG(IF(retweetAction IS NOT NULL, STRUCT(retweetAction AS engaged, tsMillis), NULL) IGNORE NULLS ORDER BY tsMillis DESC LIMIT 1)[OFFSET(0)] as ServerTweetRetweet,

-- Get the most recent video view event

ARRAY\_AGG(IF(videoPlayback50Action IS NOT NULL, STRUCT(videoPlayback50Action AS engaged, tsMillis), NULL) IGNORE NULLS ORDER BY tsMillis DESC LIMIT 1)[OFFSET(0)] as ClientTweetVideoPlayback50

FROM actions\_unioned

GROUP BY userId, tweetId

)

-- Combine signals

-- Apply age filter in this step

SELECT

userId,

tweetId,

CAST({CONTRIBUTING\_ACTION\_TYPE\_STR}.tsMillis AS FLOAT64) AS tsMillis

FROM user\_tweet\_action\_pairs, vars

WHERE

{CONTRIBUTING\_ACTION\_TYPE\_STR}.engaged = 1

AND

({SUPPLEMENTAL\_ACTION\_TYPES\_ENGAGEMENT\_STR})

AND timestamp\_millis((1288834974657 +

((tweetId & 9223372036850581504) >> 22))) >= vars.no\_older\_tweets\_than\_date