

NotificationService

IdempotencyService

NotificationRepository

FcmGateway

keyFor(payload)→

←key

isProcessed(key)?→

alt**[ya procesado]**

saveLog(status=OK, reason="duplicate")→

skip send

←

[no procesado]

sendToTopic(payload)→

←DeliveryResult(OK)

markProcessed(key)→

saveLog(status=OK)→