External Queue
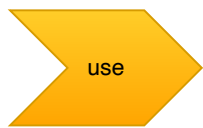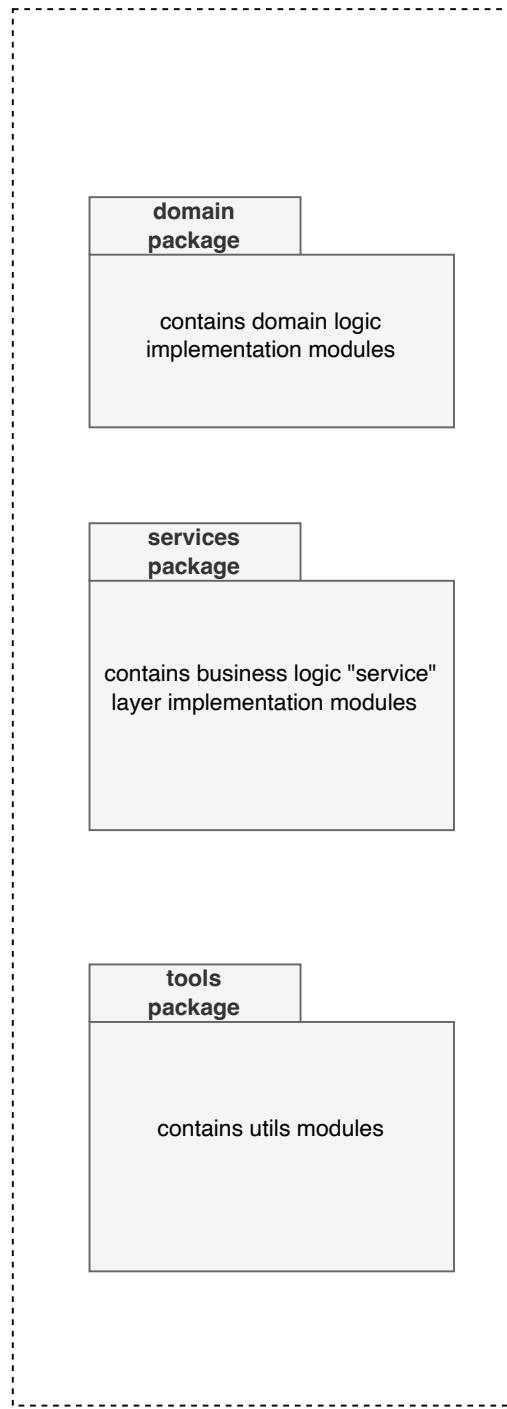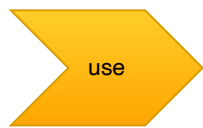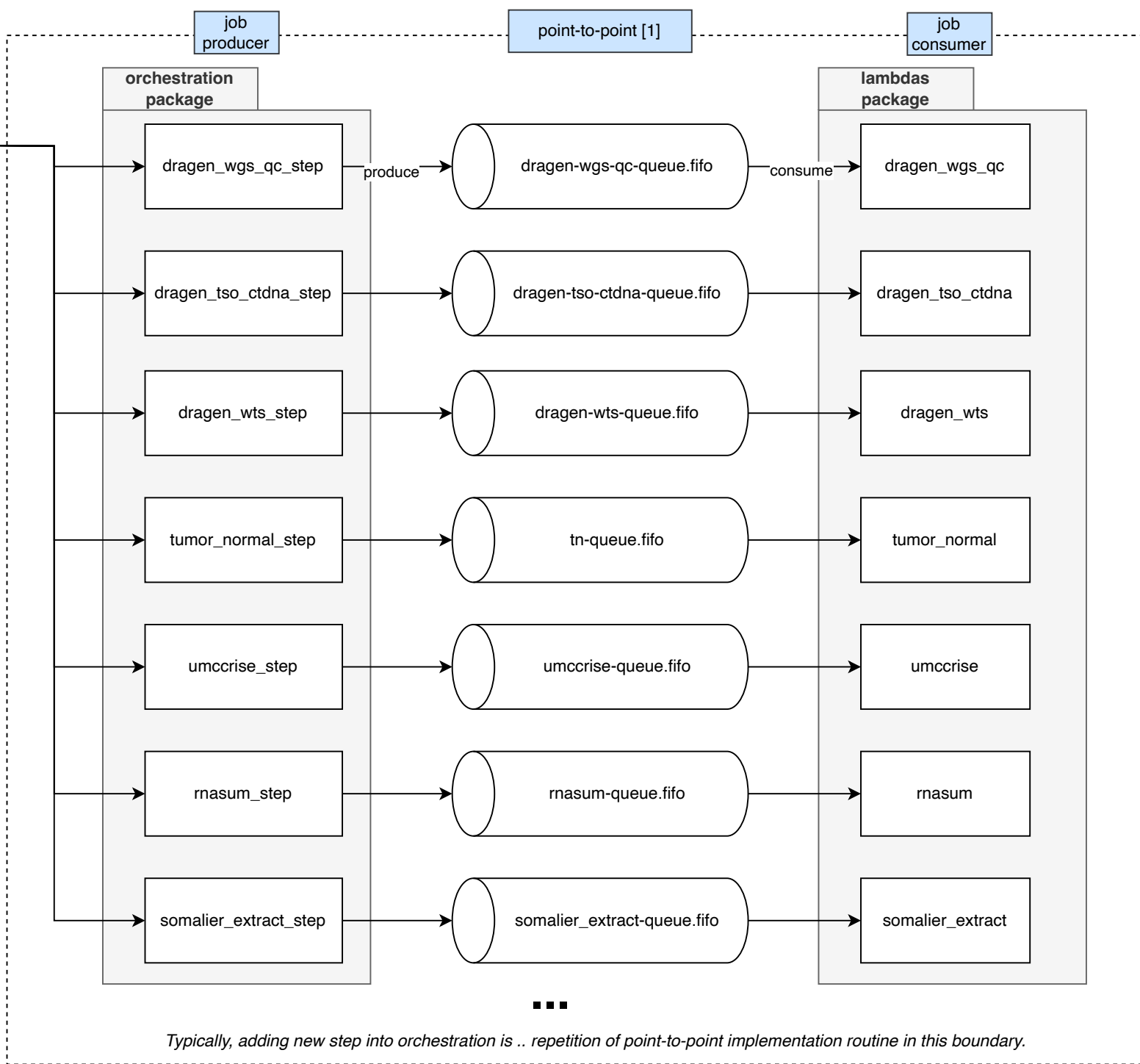
- Portal "main" queues are for subscribing "external" services event to kick off Portal orchestration.
- We use SQS Standard queue type [3] for maximum through-put.
- Messages are typically un-ordered and, duplicated (i.e. guarantee deliver once).
- We then attach processing Lambda to this "main" queue for event routing purpose.
- We use dead-letter-queue (DLQ) for fault tolerance and, processing Lambda error handling purpose.
- If message enter into DLQ, alarm will be raise in supporting Slack ops channel.

Internal Queue

- Portal "internal" queues are for event control, async comm, efficiency and fault tolerance.
  - e.g. *keep Lambda runtime < 28s i.e. you have only 28s processing time..!*
- Typically, these are within Portal Orchestration use only and,
- They exhibit "point-to-point" communication pipe that is very deterministic.
  - e.g. *you won't get TN workflow event from QC fifo queuing pipe..!*
- We use FIFO queue type [3] for better distinction, orderly, simplicity and precise control. (design tradeoffs)
- We normally do not need high-throughput messaging in these FIFO comm channels.

ICA v1 Cloud

ENS

subscribe

iap-ens-event-queue → iap-ens-event-dlq → Slack Alert

lambda trigger

sqs_iap_event → orchestrator

event router [2]

bcl_convert

note: code dependency also goes from left to right

job producer | point-to-point [1] | job consumer

orchestration package

lambdas package

dragen_wgs_qc_step	produce → dragen-wgs-qc-queue.fifo ← consume	dragen_wgs_qc
dragen_tso_ctdna_step	dragen-tso-ctdna-queue.fifo	dragen_tso_ctdna
dragen_wts_step	dragen-wts-queue.fifo	dragen_wts
tumor_normal_step	tn-queue.fifo	tumor_normal
umccrise_step	umccrise-queue.fifo	umccrise
rnasum_step	rnasum-queue.fifo	rnasum
somalier_extract_step	somalier_extract-queue.fifo	somalier_extract

...

Typically, adding new step into orchestration is .. repetition of point-to-point implementation routine in this boundary.

use

domain package

contains domain logic implementation modules

services package

contains business logic "service" layer implementation modules

tools package

contains utils modules

use

models package

contains entity models

viewsets package

contains API endpoint modules

REF

1. https://www.enterpriseintegrationpatterns.com/patterns/messaging/PointToPointChannel.html
2. https://www.enterpriseintegrationpatterns.com/patterns/messaging/MessageRouter.html
3. https://docs.aws.amazon.com/AWSSimpleQueueService/latest/SQSDeveloperGuide/sqs-queue-types.html