

# Working with Task Queues and Cron Jobs

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# Overview

**Scheduling tasks with cron jobs on App Engine**

**Handling asynchronous processing using queues**

**Working with push queues and pull queues**

# Cron Jobs

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# Cron Jobs

Regularly scheduled tasks that are triggered by App Engine at defined or regular intervals

# Cron Jobs



**Cron job makes HTTP GET request to URL**

**Request sent out at scheduled times**

**Handler for URL is executed**

**Can set retry parameters if cron fails**

Demo

**Implementing cron jobs on App  
Engine**

# Task Queues

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# Task Queues

App Engine abstractions that allow apps to execute background tasks asynchronously (outside of user requests). Useful to run tasks where results are not needed right away.



May not be a good choice where the user is waiting on the result of the execution

## Task Queues

App Engine abstractions that allow apps to execute **background tasks asynchronously** (outside of user requests). Useful to run tasks where results are not needed right away.

# Types of Task Queues



Push queues

Pull queues

In both cases, apps push tasks to queue for **asynchronous** execution

# Types of Task Queues



Push queues

Pull queues

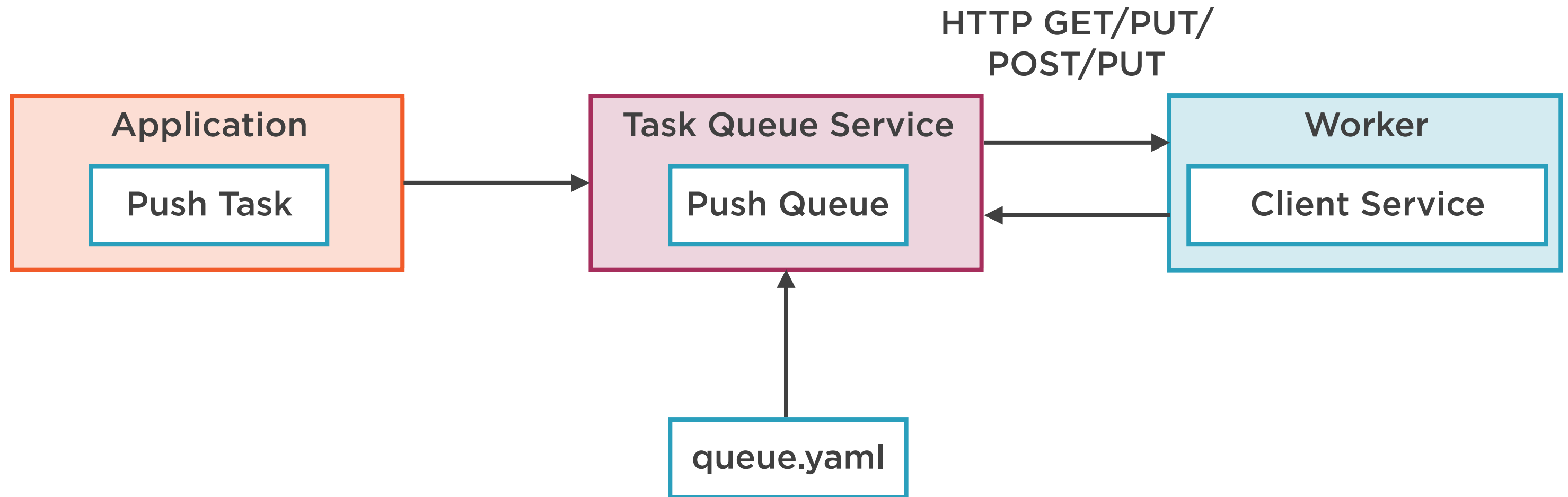
**They differ in the manner in which the requests are pushed out for execution**

# Types of Task Queues

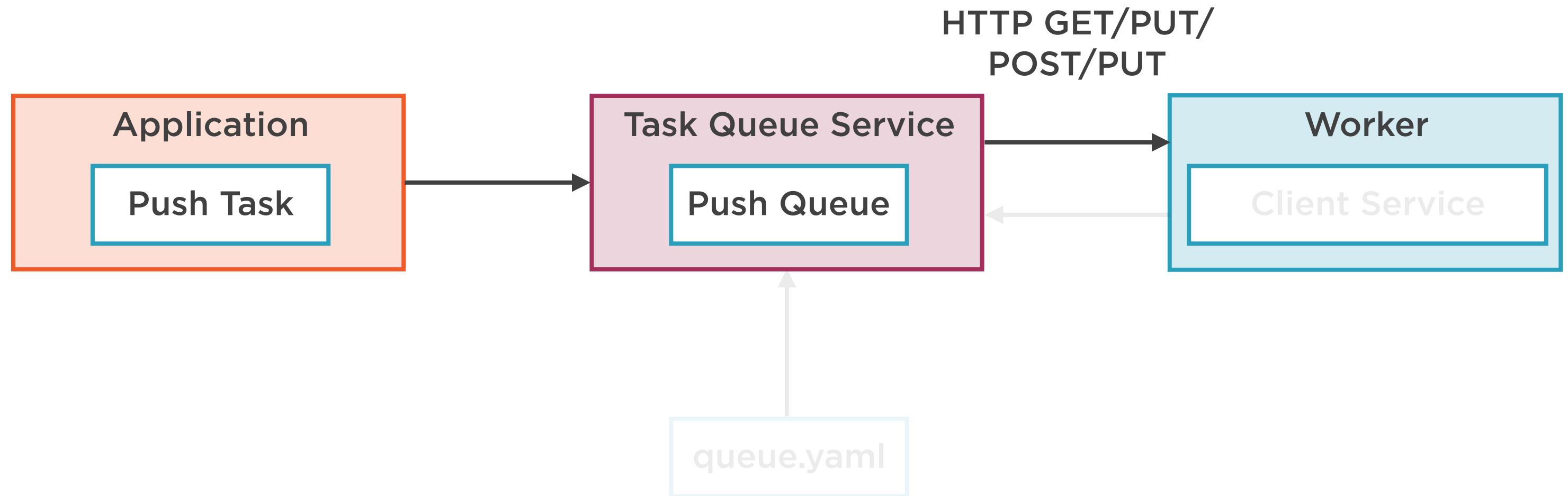
**Push queues**

**Pull queues**

# Push Queues



# Tasks Pushed to the Worker Service



**Requests are dispatched at a reliable steady rate**

# Push Queues



## **Tasks must meet stringent deadline requirements**

- Tasks handled by automatic scaling services must finish in 10 minutes
- Tasks handled by manual, basic scaling services have 24 hours

# Push Queues

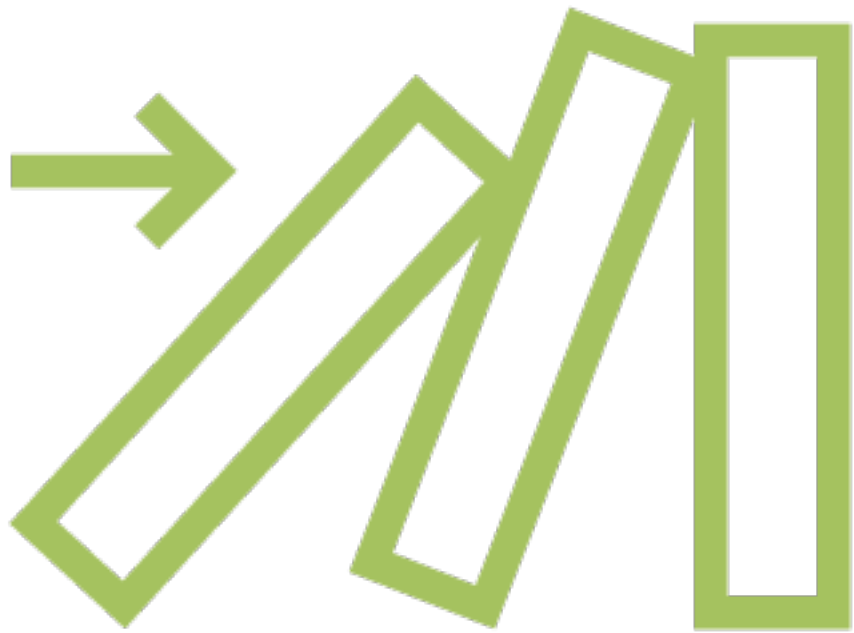


**Requests delivered at constant rate**

**If task fails, service retries by sending another request**



# Push Queues



**App can control rate at which tasks are sent from queue**

**In this way, can control costs**

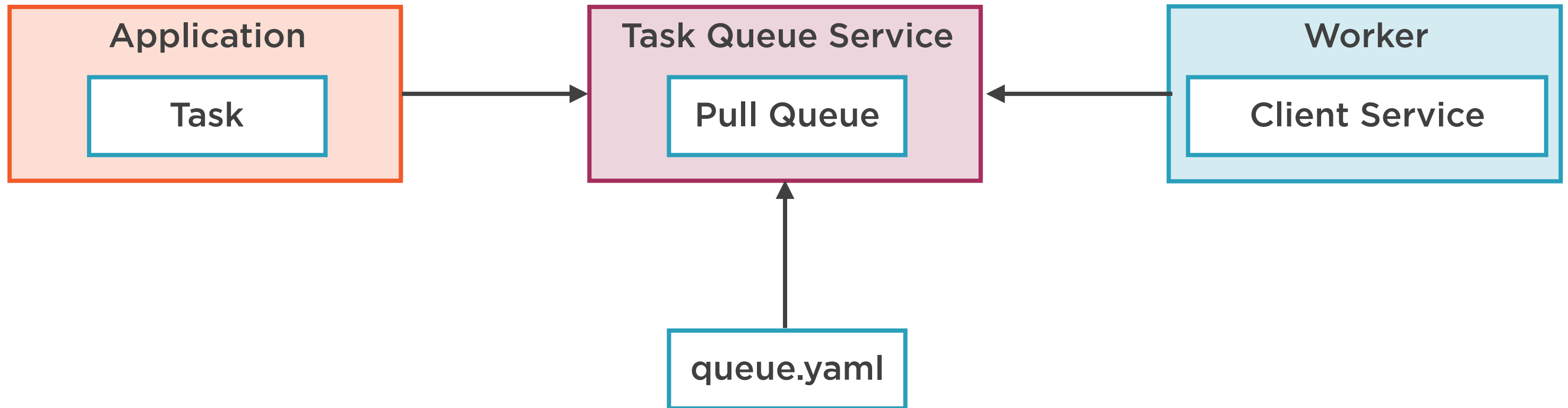
**Used to perform slow operations in the background**

# Types of Task Queues

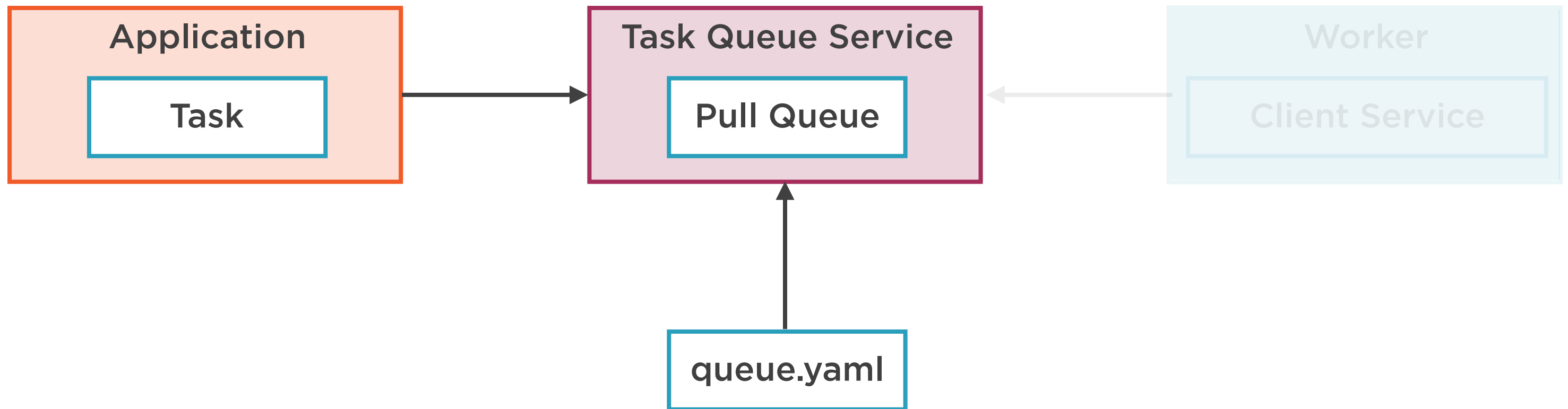
Push queues

Pull queues

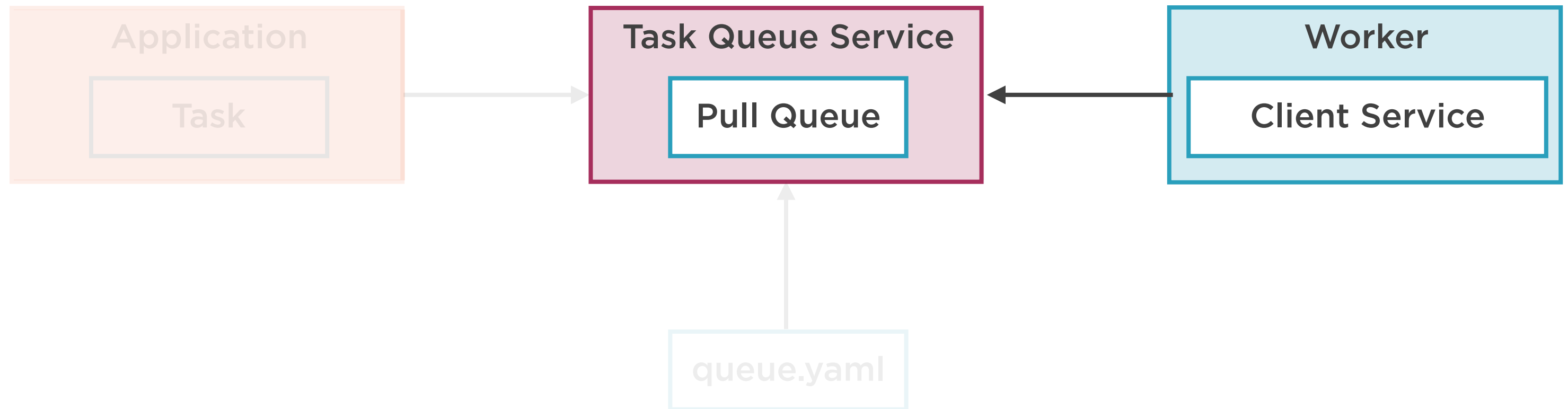
# Pull Queues



# Application Adds Task to Queue



# Worker Pulls Tasks from Queue



# Pull Queues



**Workers must pull (“lease”) tasks from such queues**

**Pull queues do not dispatch tasks to other workers at all**

# Pull Queues



**When task is leased, worker declares deadline**

**When deadline elapses, worker must either complete the task or release it**

**If completed, deleted from queue**

**If not completed, another worker can lease it**

# Pull Queues



## Use case

- Pull all tasks with same tag at one go
- Referred to as batching



# Demo

**Using push task queues**

Demo

**Using pull task queues**

# Summary

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**Working with push queues and pull queues**