How to integrate Celery(4.4) with django(2.1.7) application to execute tasks asynchronously?

AGENDA
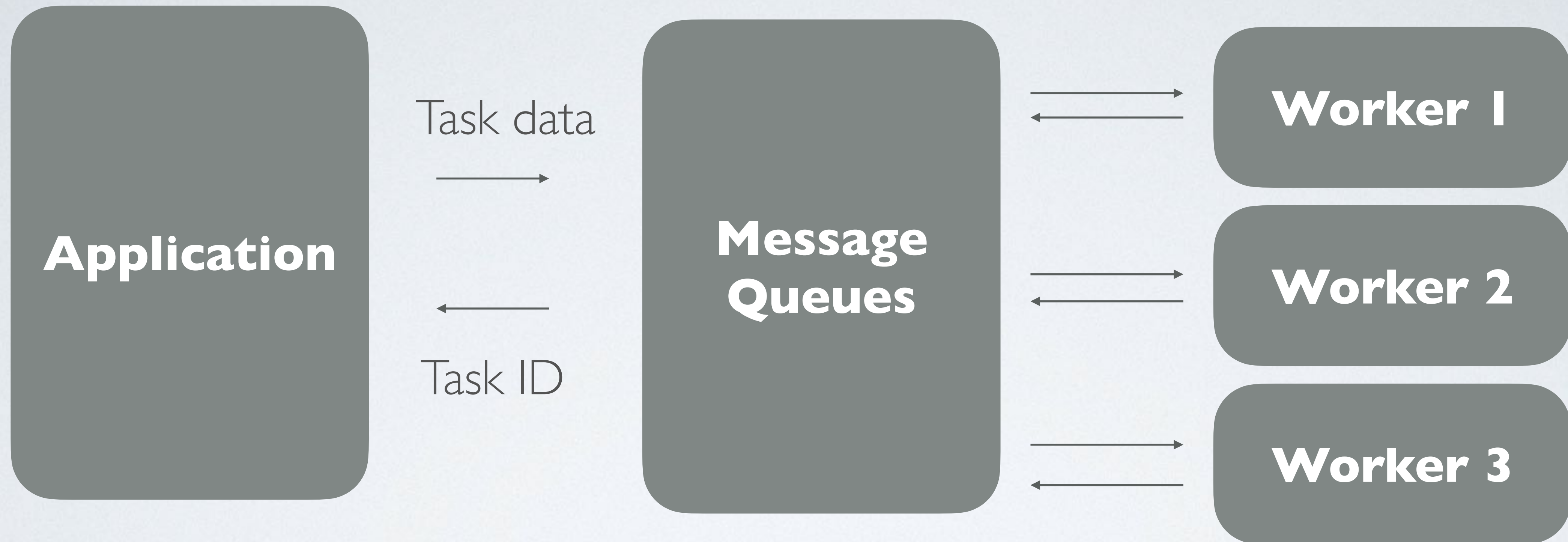
- What is Celery ?

- Architecture of Celery?

- When should we use Celery?

- Integration with Django application using simple task

- Use job schedular(Celery beat) to execute tasks periodically

WHAT IS CELERY?

- Software which uses task queues and worker(s) to process the tasks

- It can execute tasks periodically as configured

- Celery communicates between clients and workers via messages. To initiate a task the client adds a message to the queue, the broker then delivers that message to a worker.

- Celery is written in Python, but the protocol can be implemented in any language. Eg. node-celery

- Communication between client, worker and message queue(broker) happens using serialized data

ARCHITECTURE OF CELERY

WHEN SHOULD WE USE CELERY?

- When you have time consuming tasks. Eg. Sending emails, creating database entries on background, processing images etc

- When you want to execute the tasks asynchronously without blocking the main thread

- When you want to execute the tasks on regular basis. Eg. On every Monday at 10:00 am

INTEGRATION WITH DJANGO APPLICATION

- Documentation: https://docs.celeryproject.org/en/stable/django/first-steps-with-django.html

- Install and create django application with simple api: (django-admin startproject test)https://www.djangoproject.com/download/

- Install celery and redis(message broker): pip3 install celery, pip3 install redis OR https://redis.io/download for redis

- Modify settings.py(CELERY_BROKER_URL, CELERY_ACCEPT_CONTENT, CELERY_TASK_SERIALIZER), celery.py, __init__.py under main project

- Create tasks.py under django app and create celery task using @shared_task decorator

- Run celery worker process: celery -A proj worker -l info

- Call celery task from client(our django app) using task_name.delay(args)

JOB SCHEDULER USING CELERY BEAT

- Documentation: https://docs.celeryproject.org/en/stable/userguide/periodic-tasks.html

  https://www.merixstudio.com/blog/django-celery-beat/

- Celery beat configuration in settings.py:

```
CELERY_BEAT_SCHEDULE = {
# Executes every 10 sec
'call-fn-on-every-10s': {
    'task': 'blogs.tasks.sleep_well',
    'schedule': 10,
    'args': [2]
  },
}
```

- Run celery worker for celery-beat: celery -A proj beat -l info

THANK YOU

Please comment your queries or ask me on
twitter (@jitubutwal144) if you have any questions :)