

Deep Analysis - Cloud Deployment Roadmap

Objective

Build a cloud-ready FastAPI + Redis + Celery system for scalable background task processing.

Phase 1: Setup Azure Redis

1. Create Azure Cache for Redis (basic plan).
2. Get Redis access credentials (host, password).
3. Update FastAPI to connect to Azure Redis.
4. Test simple push to Redis from FastAPI.

Phase 2: Setup Celery Worker

5. Deploy a Celery Worker (Azure VM or container).
6. Connect Celery Worker to Azure Redis.
7. Test simple Celery task end-to-end.

Phase 3: Productionize Background Task System

8. Update FastAPI to push real analysis jobs.
9. Update Celery Worker to run actual heavy analysis.
10. Save task results to MongoDB and Blob Storage.

Phase 4: Optimization

11. Build Task Status API to track tasks.
12. Add retries, monitoring, logging for tasks.

Final System Flow

User uploads file -> FastAPI App -> Redis -> Celery Worker -> MongoDB/Blob

Each component cloud hosted, fully scalable.

Notes

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Start small (small Redis, single VM)

Scale as traffic grows

Use Azure Monitor for health checks

Redis for pending tasks, MongoDB/Blob for final results.