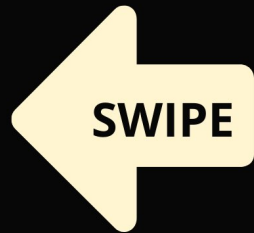




#ASLI ENGINEERING

Handling Timeouts in Microservices



BY

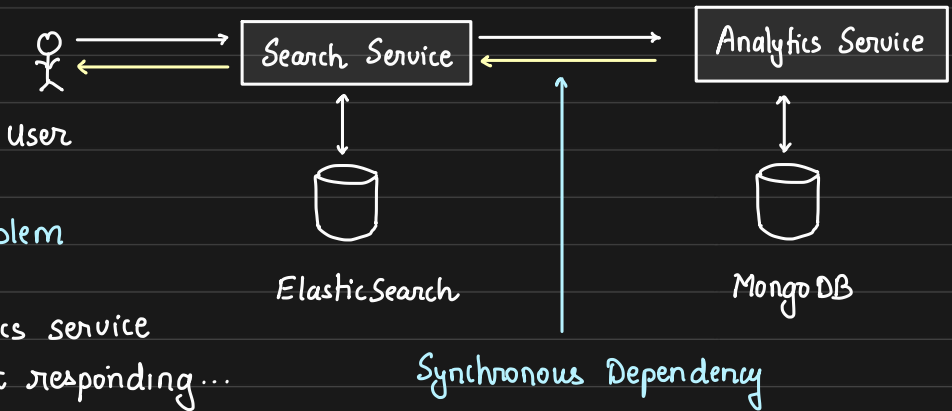
ARPIT BHAYANI

Handling timeouts in Microservices



But there are concerns, one of them is **Timeouts**

Scenario: User wants to search Blogs. Search service computes most relevant blogs. Then talks to Analytics service to get Blog Views and then returns the response to the user.

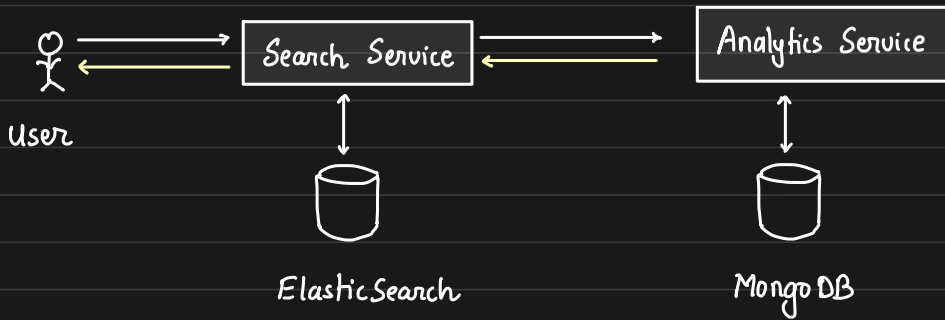


How long should you wait?

What action should you take?

Send partial response

Not send any response to the user



What could go wrong?

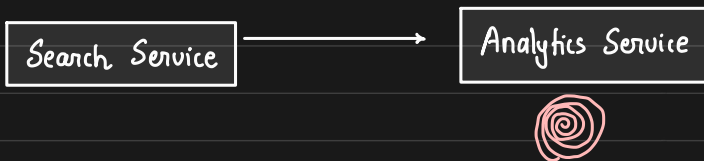
↳ Analytics service never got the request



↳ Response from the Analytics team never reached the Search Service



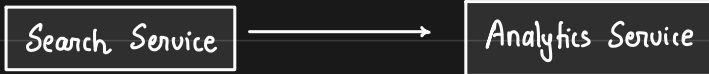
↳ Analytics service is taking too long to process



The core problem: Delays are arbitrarily long

So, how long do we wait? We cannot wait forever!

Use Timeouts, always



[timer]

Waits for the response from
the analytics service for at
the max 10 seconds.

← Timeout

How to handle timeouts, then....

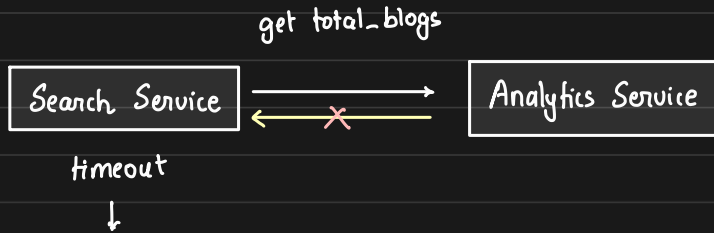
Approach 1: Ignore [not recommended]

We assume operation succeeded → leads to unpredictable UX
but it actually failed...

Good practice: Catch all exceptions... everytime
and then take an informed call depending
on the context.

Approach 2: Configure and use defaults

Upon timeout, you may choose to use a default value



use default, total_blogs = 0

Approach 3: Retry

Assume that the remote operation failed, and retry.

Retries are simple when it is a "read request"

But, sometimes situation becomes tricky

- ↳ request is non-idempotent eg: moving money from A to B
- ↳ request is expensive eg: heavy analytics query
- ↳ other service is overloaded
and you add more load with retry

Good to have: Retries with exponential backoffs

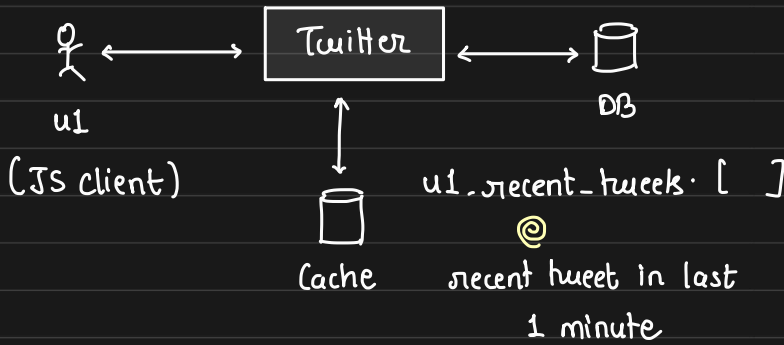
[1s, 2s, 4s, 8s, ...]

Make services as idempotent as possible

Approach 4: Retry only if needed

In some cases, we may check for the completion and then decide to retry

eg: User tweeting the same post twice accidentally (within one minute)



Approach 5: Rearchitect

Remove synchronous communication
whenever possible

Event driven arch.

Highlights:

always have timeouts
picking timeout value is tricky
make retries safe
↳ Idempotence

Too short → false positives
Too long → perf. bottlenecks