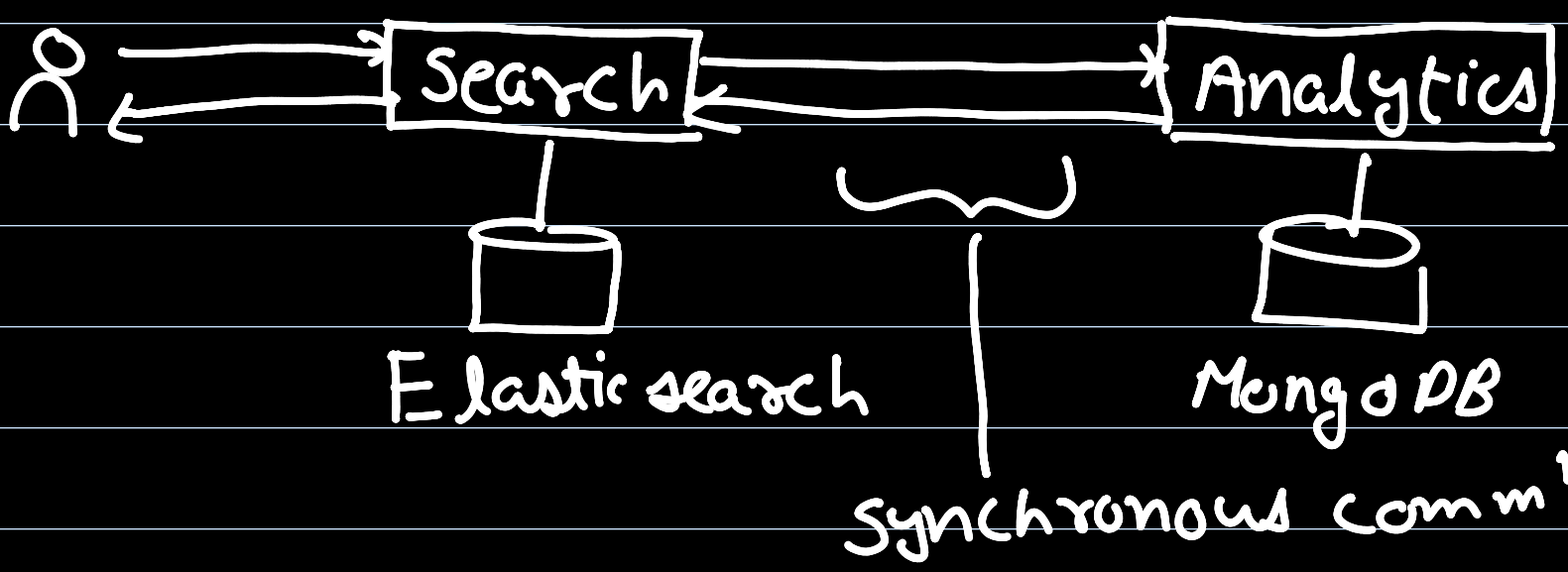
Handling Timeouts

Microservices are great at handling the complex problem & also helps in making new features easy. But there is one problem we need to address:- Timeouts

let's take an example:-



Let's say we have a search service. When the user searches something (blog/product, etc). Then it shares some data with analytics service as well.

Now comes the interesting part, these two are communicating with a synchronous way.

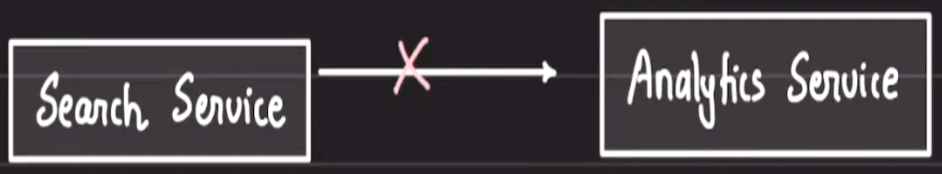
Here comes some cases:-

1 All good:- Everything works fine and result is delivered.

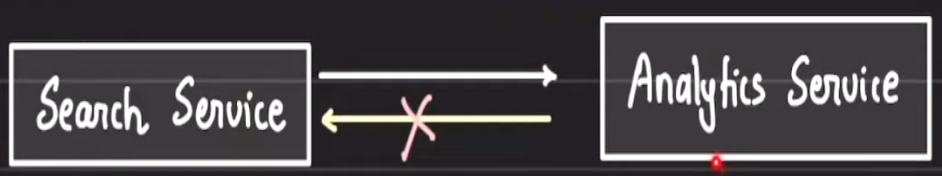
2 Delay occurs:- The search completes it jobs and sends request to the analytics servic

but there is delay. Now this delay is not good for UX. So we need to handle it.

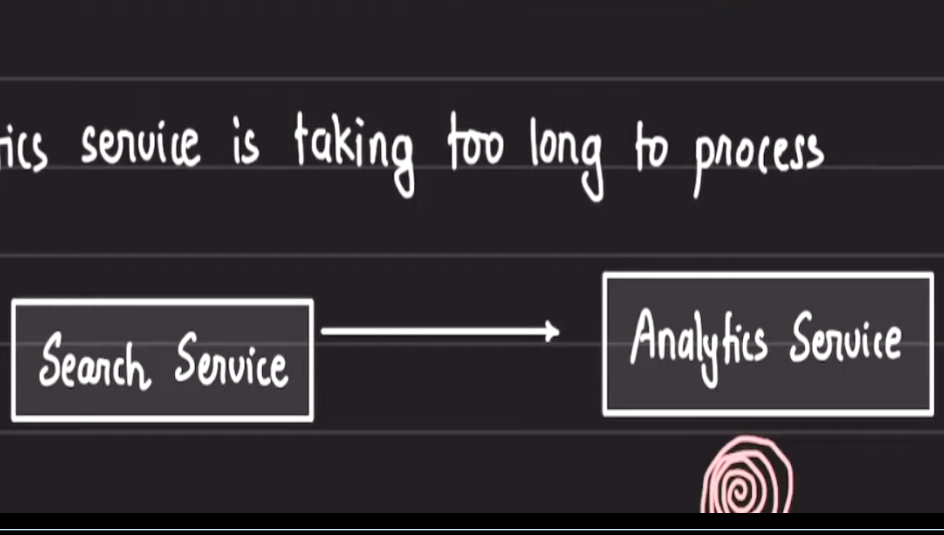
↳ Analytics service never got the request



↳ Response from the Analytics team never reached the Search Service



↳ Analytics service is taking too long to process



Here comes the concept of timeouts. Timeout is basically a wait time for the requesting service we add to move forward.

Rule of Thumb:- Always have Timeouts in your services.

APPROACHES

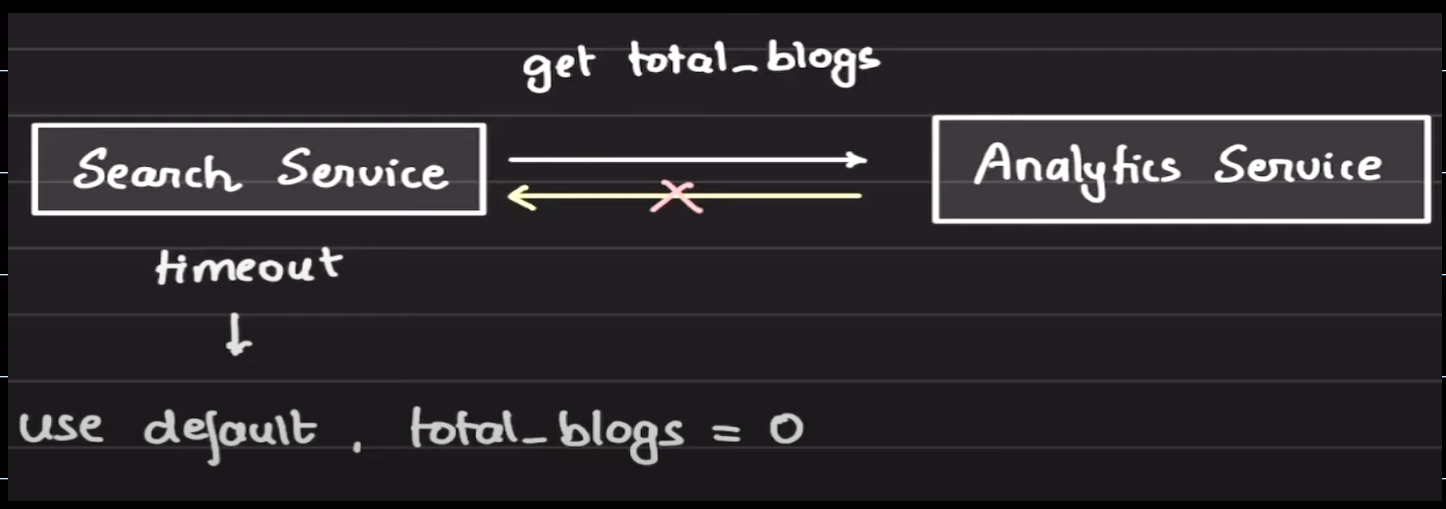
1 Ignore these things (Not Recommended)

In this scenario we assume that everything will run succesfully (but isn't). This leads to unpredictable user experience.

Good practice :- Catch all exceptions and then take an informed decision.

2. Configure and use defaults

Upon timeout use a default value (choice)



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

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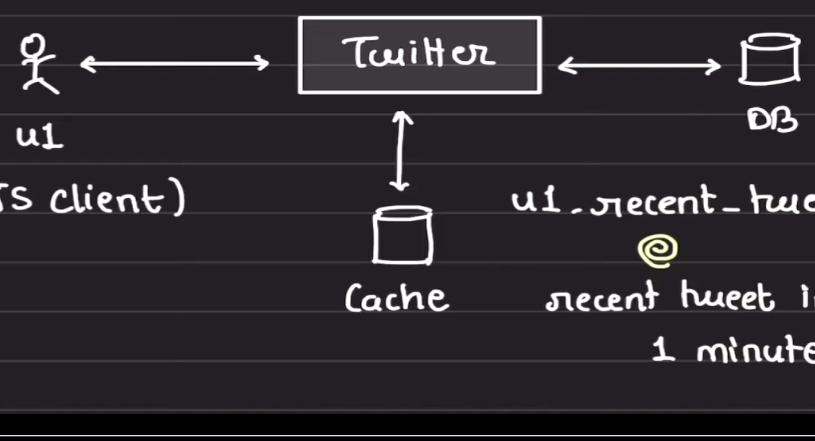
eg: User tweeting the same post twice accidentally (within one minute)



Approach 5: Rearchitect

Event driven arch.

Remove synchronous communication wherever possible