



# Advanced Error Handling

With Event-Driven Architecture



# Feedback



---

# About me

- Software Architect at SSENSE
- Passionate about purposeful usage of technology

 *@bicatu*

*medium.com/@mbneto*

*www.linkedin.com/in/mbneto*

---

---

# Agenda

- Error? Not Me!
- Event-Driven Curve Balls
- Standard Approach & Common Pitfalls
- Sagas: Friend or Foe?



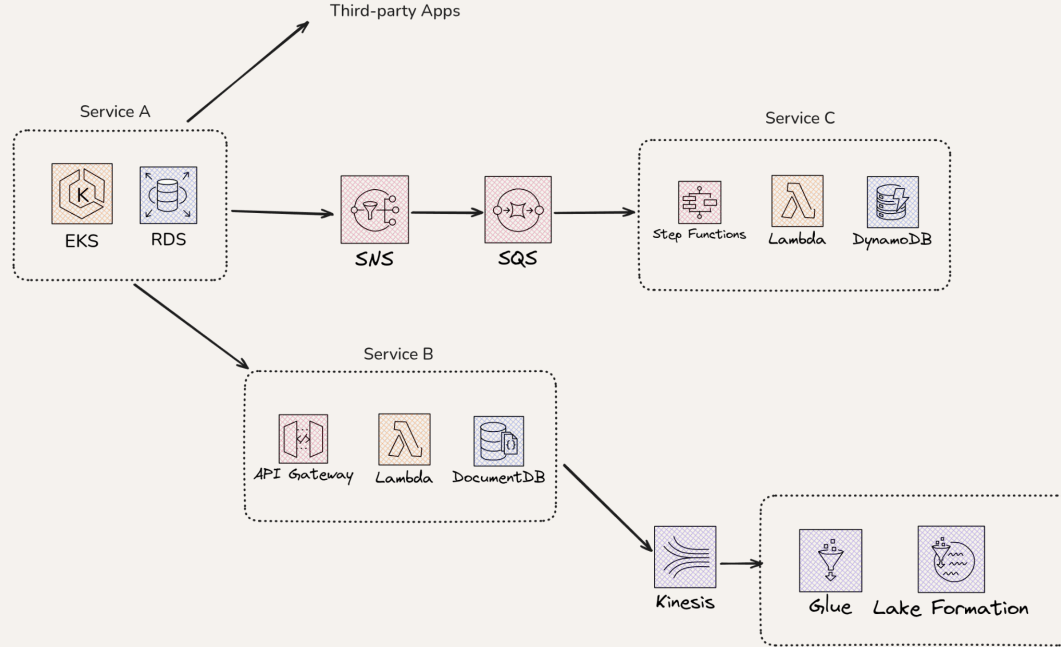
# Quiz Time

Access <https://slido.com>

Code: 2411055

---

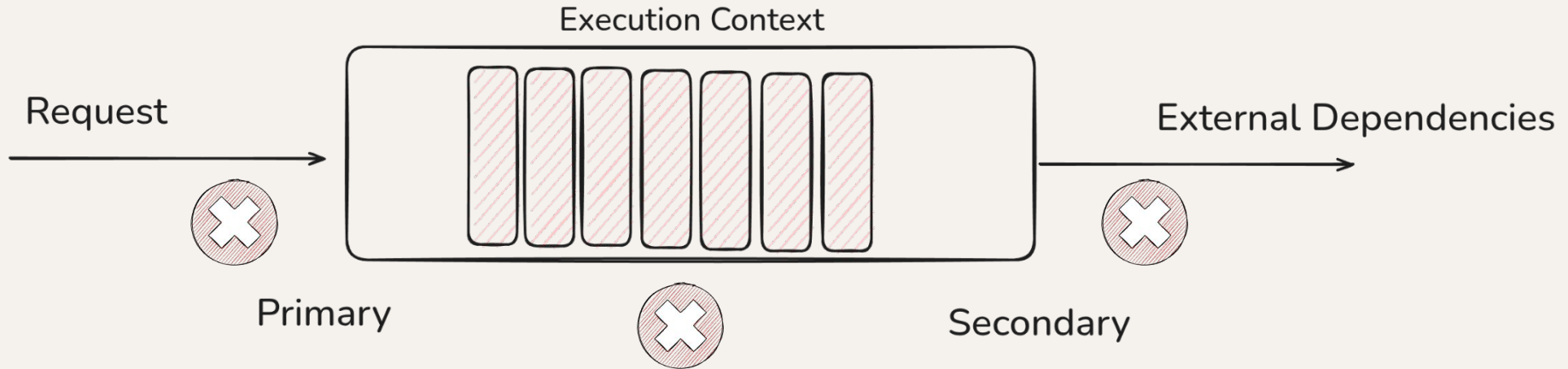
# Error? Not Me!



"Things Fail All The Time"

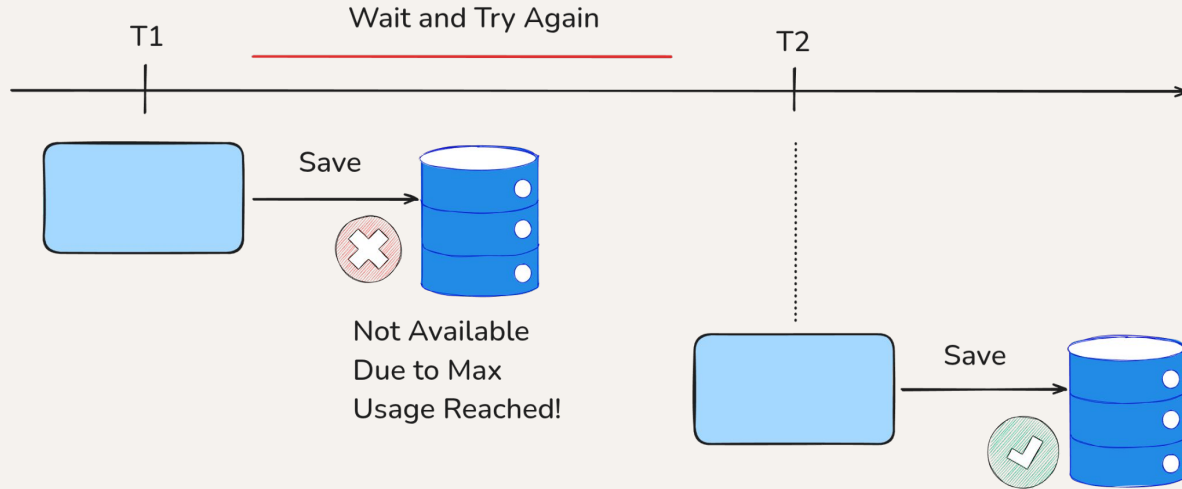
# The Anatomy Of An Error

Location



# The Anatomy Of An Error

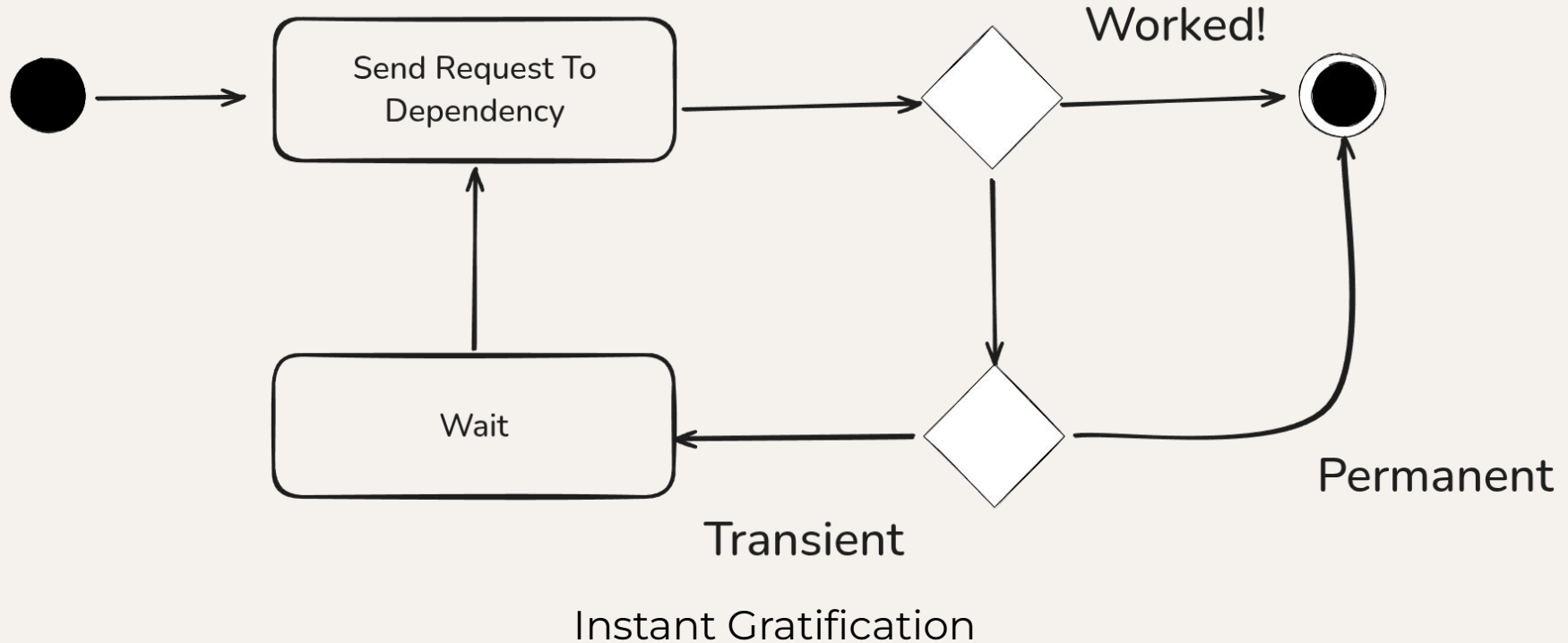
Transience



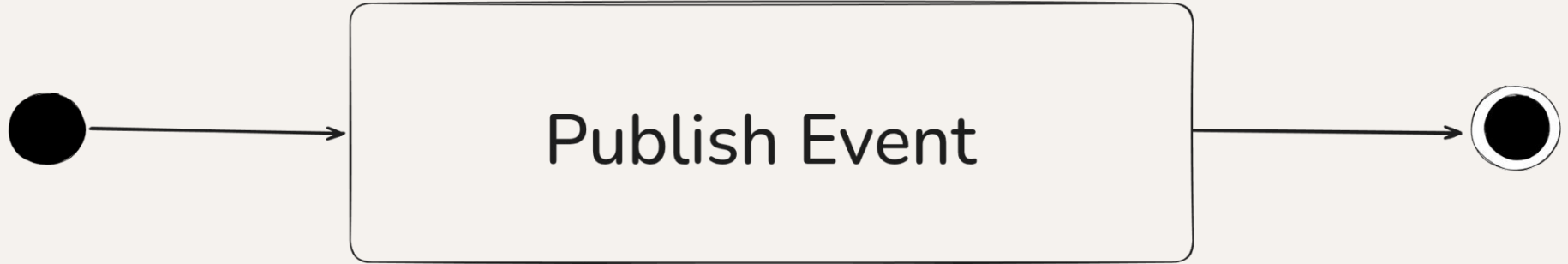
Not All Errors Are Created Equal



# The Anatomy Of An Error



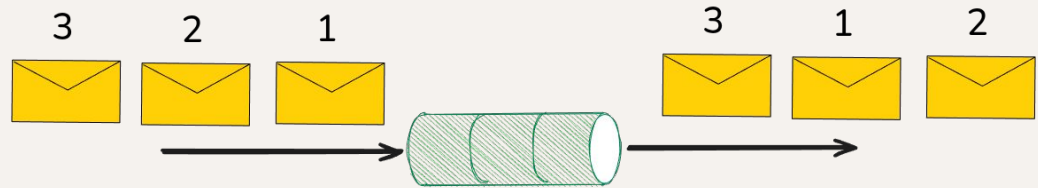
# The Lost Simplicity



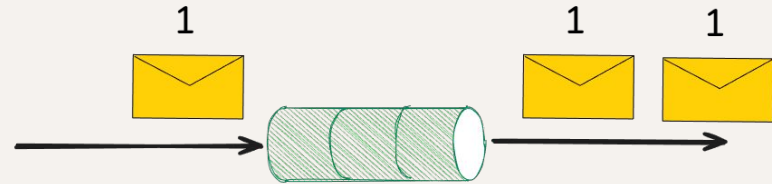
Fire And Forget

# Event-Driven Curve Balls

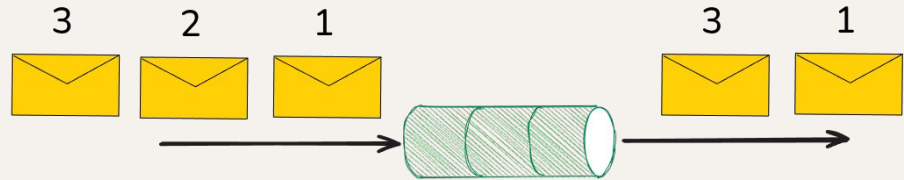
Out Of Order



Duplicate



Missing





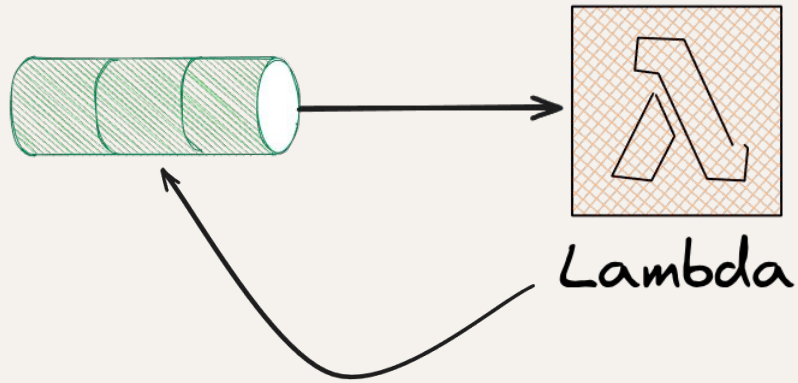
# Quiz Time

Access <https://slido.com>

Code: 2411055

---

# Dead-Letter Queues



Message not removed  
from queue

Receive message



Validate structure

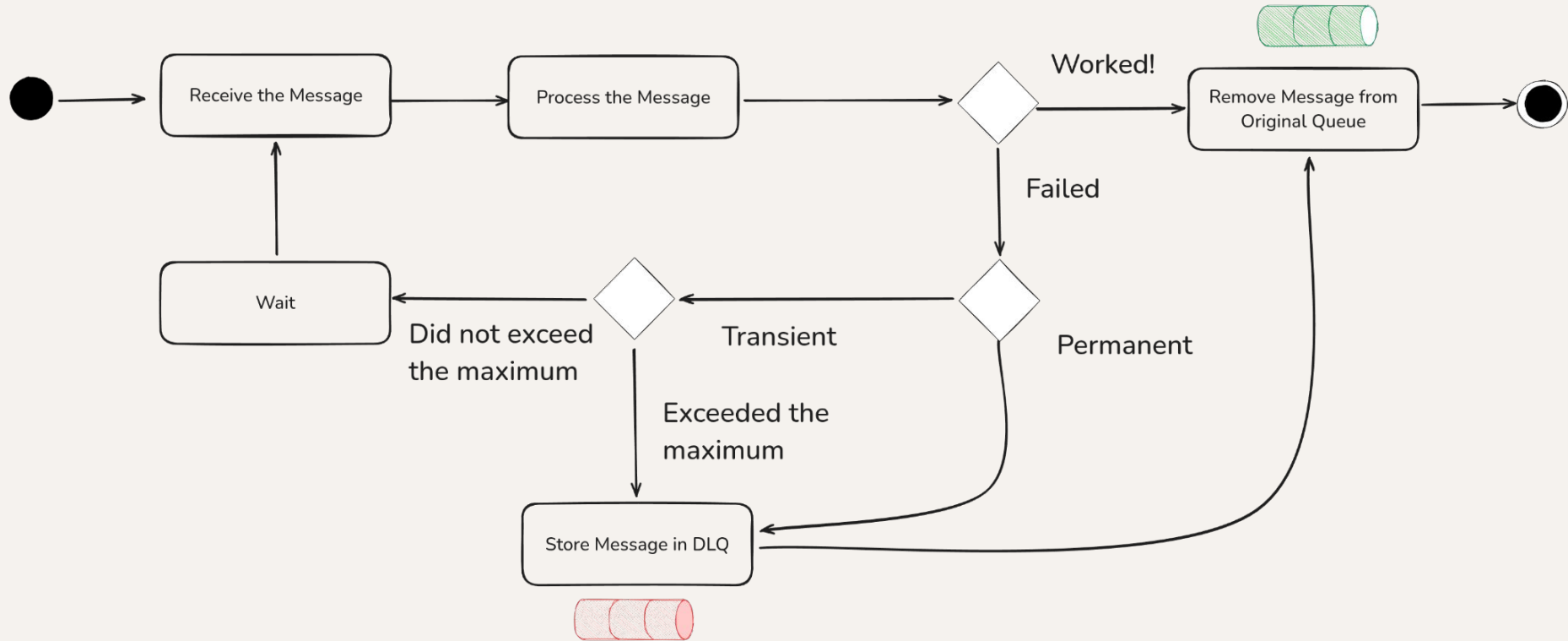


Perform action

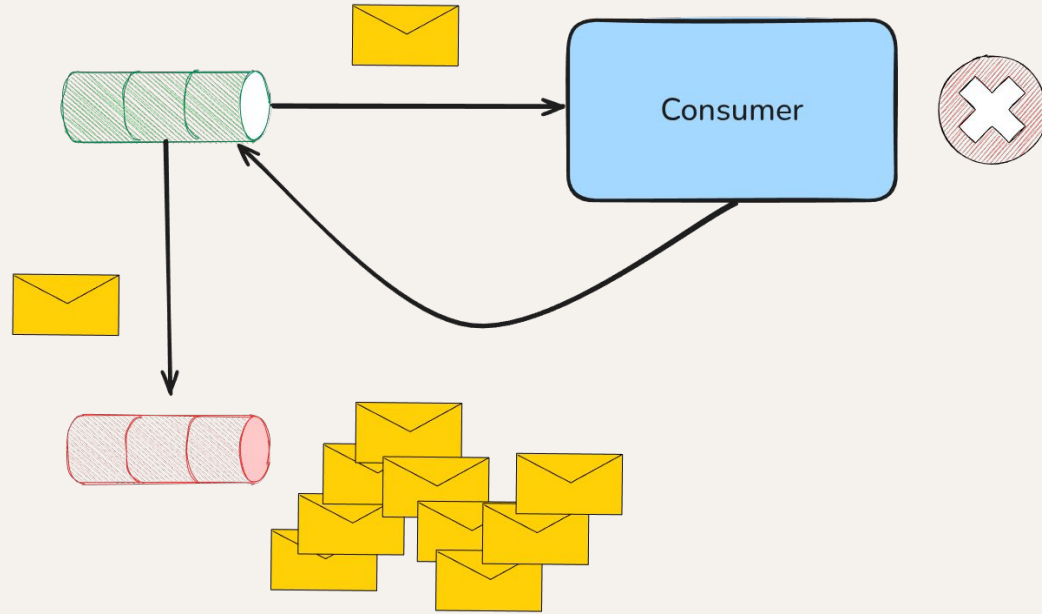


To  and beyond!

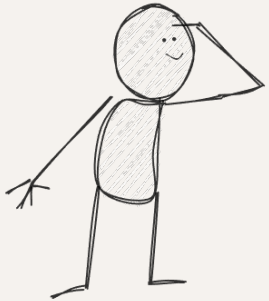
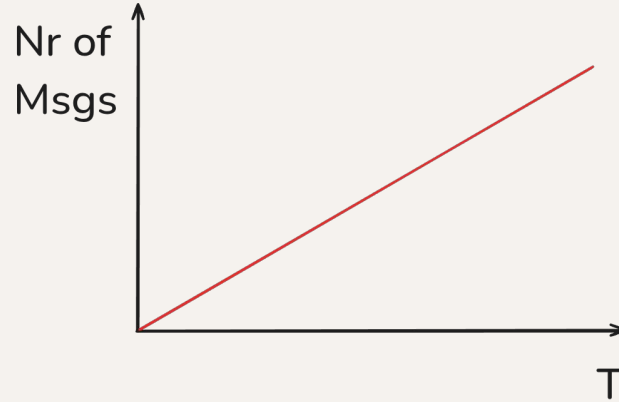
# Dead-Letter Queues



# ForgetVille



# ForgetVille



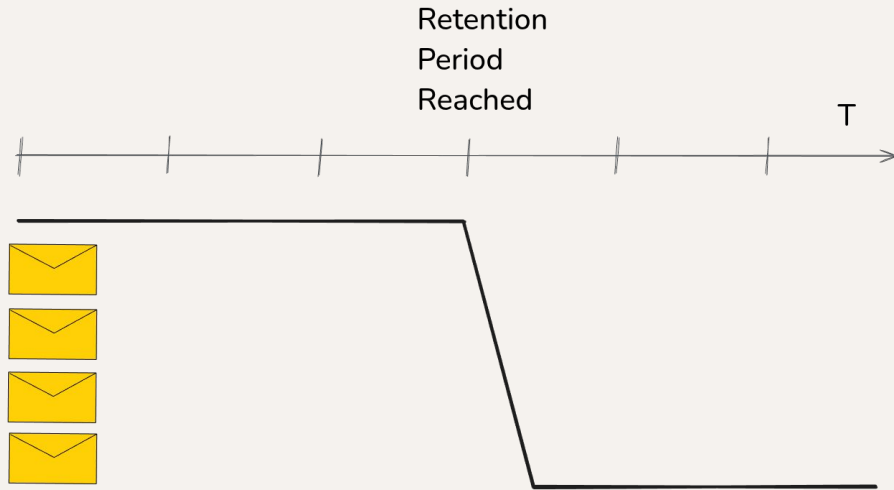
Problems?  
I don't see any  
problems...



Where is my  
order?

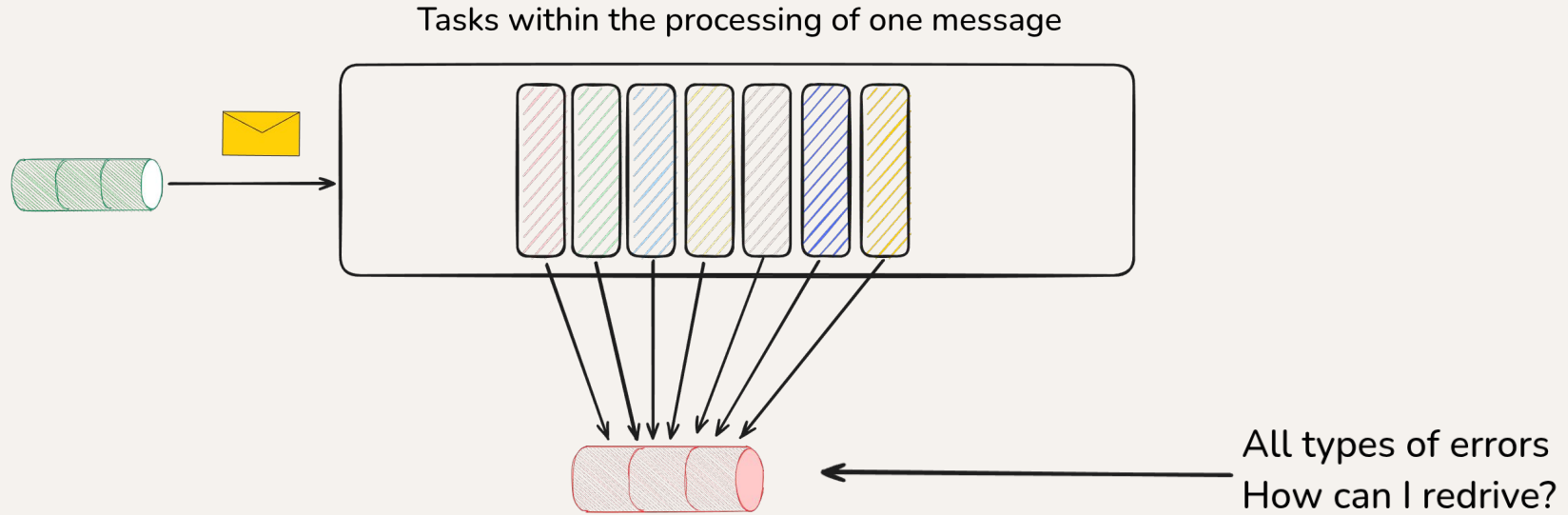


# Gone Forever



Where are my  
messages?

# Catch ALL



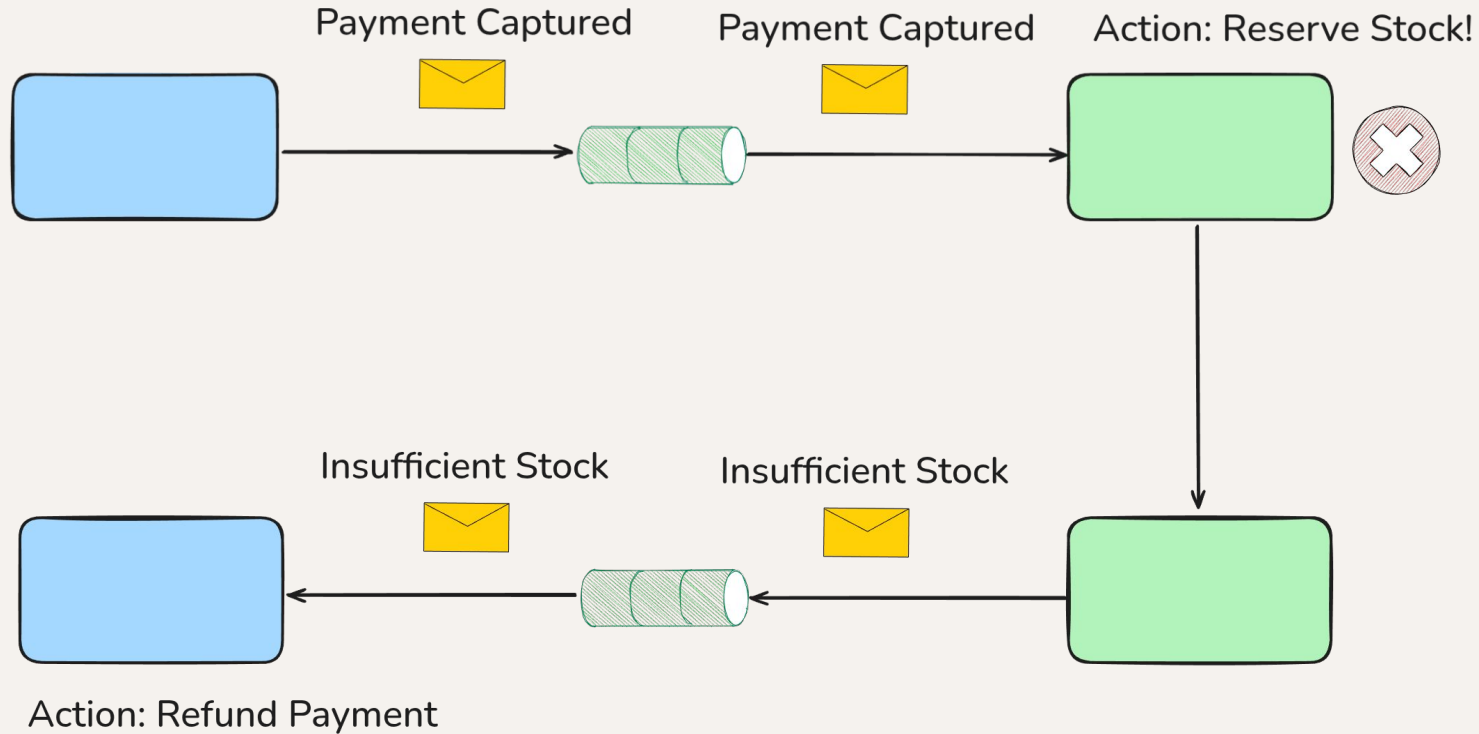


# Quiz Time

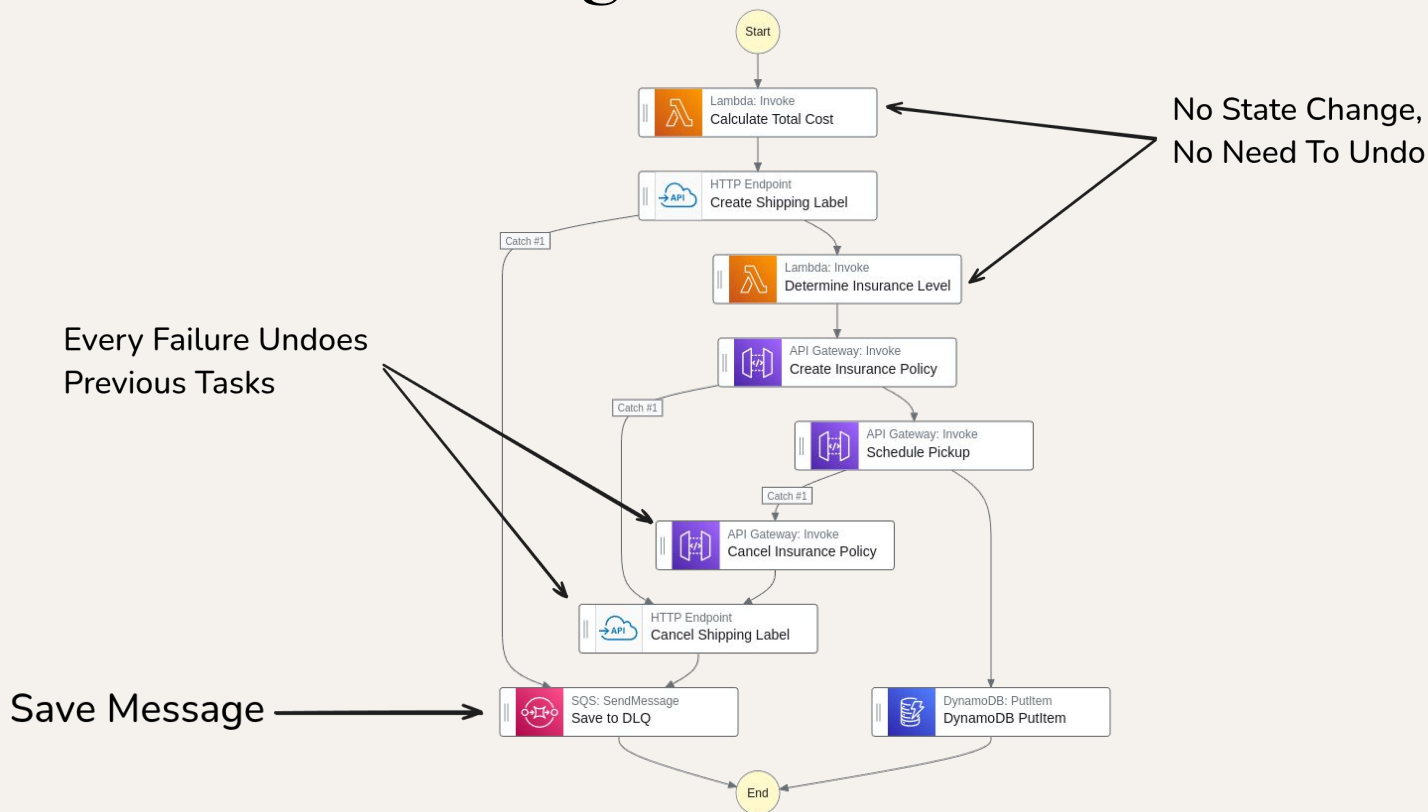
Access <https://slido.com>

Code: 2411055

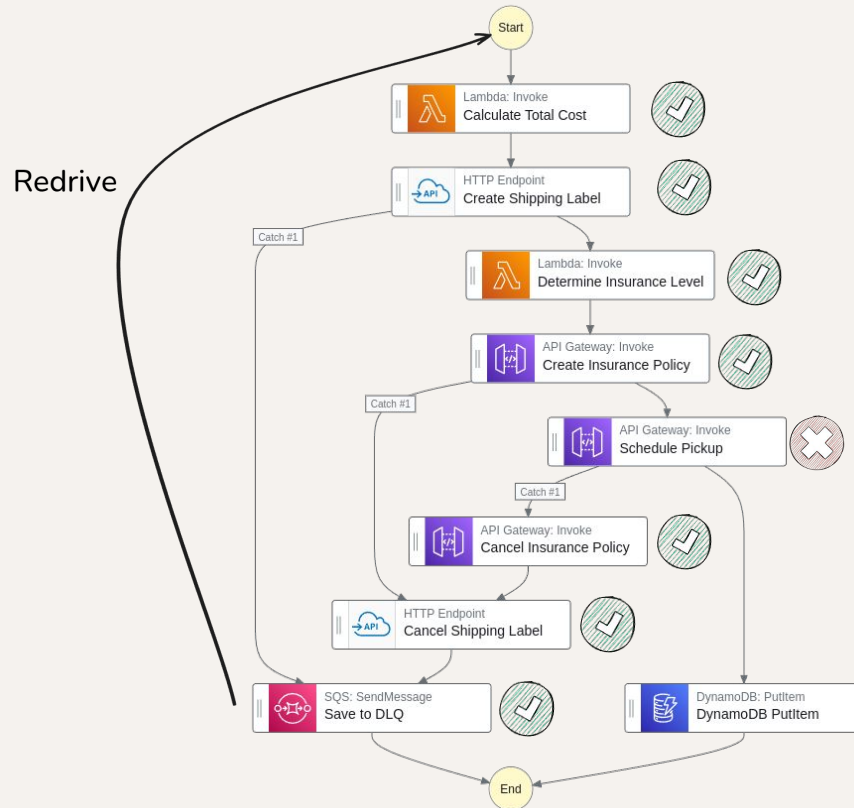
# Choreographed Sagas



# Orchestrated Sagas

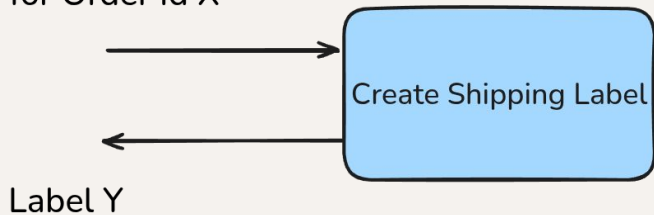


# Rollback & Redrive



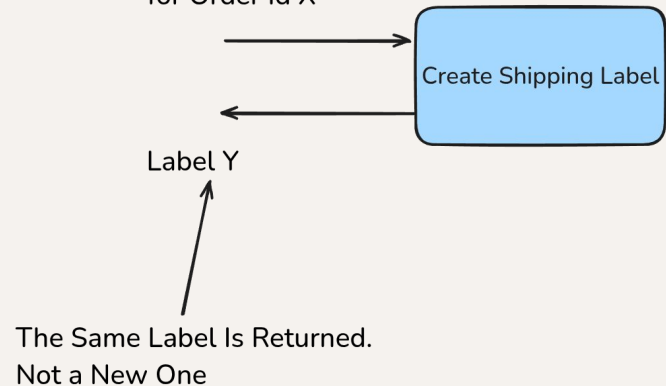
# Idempotency

Create Shipping Label  
for Order Id X

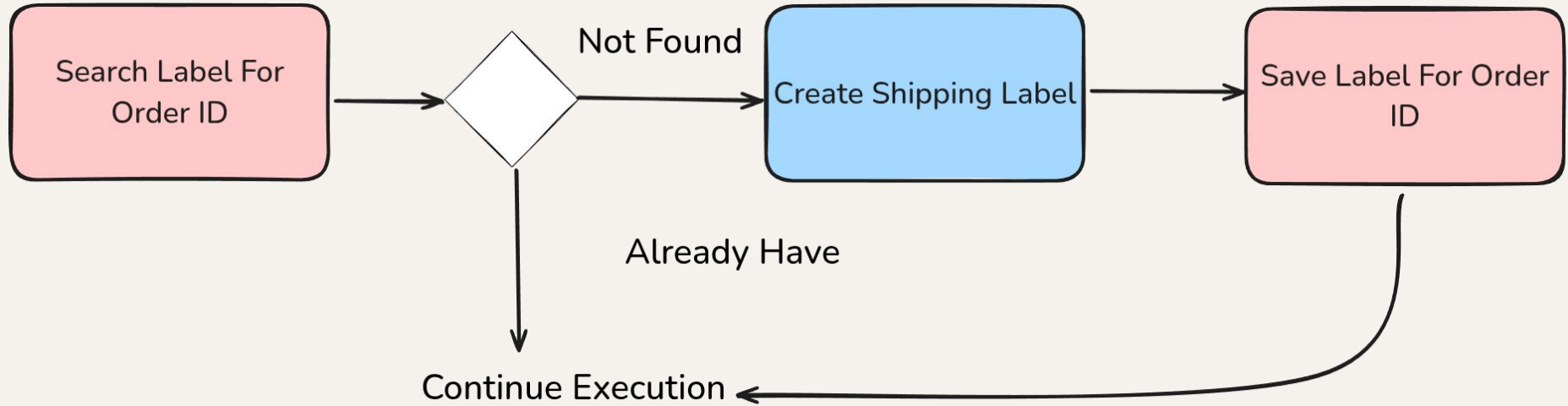


A Failure Takes Place  
Redrive  
We Request The Same Thing

Create Shipping Label  
for Order Id X

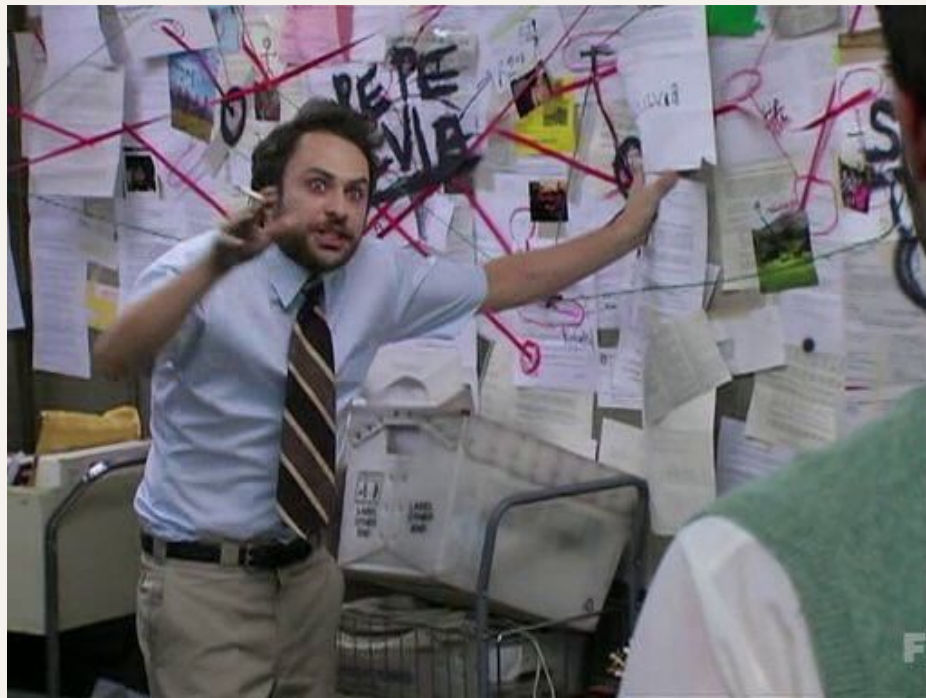


# Idempotency





# It's All Connected

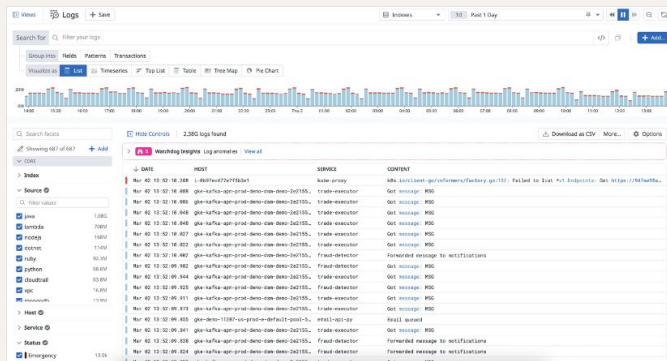


DLQ

```
{
  id: "XXXXXX",
  items: [
    { .... },
    { .... }
  ]
}
```



## Keyword Search Logs



## Find Out What Happened

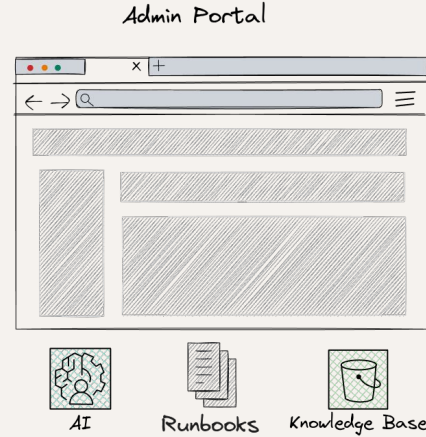
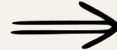
# It's All Connected

```
{  
  executionId: "AAAAAAA",  
  correlationId: "XXXXX",  
  error: "Unable to create shipping label",  
  executionStep: "XXXXXXXX",  
  stackTrace: [ ... ],  
  originalInput: {  
    id: "xxxxxx",  
    ....  
  }  
}
```

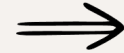
Provide Context +  
Original Input



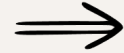
Persist



Decide



Redrive



Mark As Resolved

---

# Takeaways

- Error handling is more complex in a event-driven architecture
  - Missing events, duplicate, out of order are often overlooked
  - DLQs are your friends, but don't abuse them
  - Sagas can help to regain some similarity to the synchronous world
  - Rollback if you can and redrive
  - Make steps idempotent if you can't rollback
-

# Feedback



# Resources

- Exploring Advanced Error Handling, Part I and Part II
- Sagas: When Distributed Transaction Is The Right Thing
- Achieving Idempotency: There Are More Ways Than You Think



<https://bit.ly/confoo2025>

---

# Thank You!



*@bicatu*

*medium.com/@mbneto*

---