COMPUTING

Summer 2024 Internship

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Ulysses Juan
SMA

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Lawrence Livermore National Laboratory

Overview

- About Me
- What is NOTI?
- Part 1: NOTI Architecture
- Part 2: NOTI CI/CD Pipeline
- What I Learned

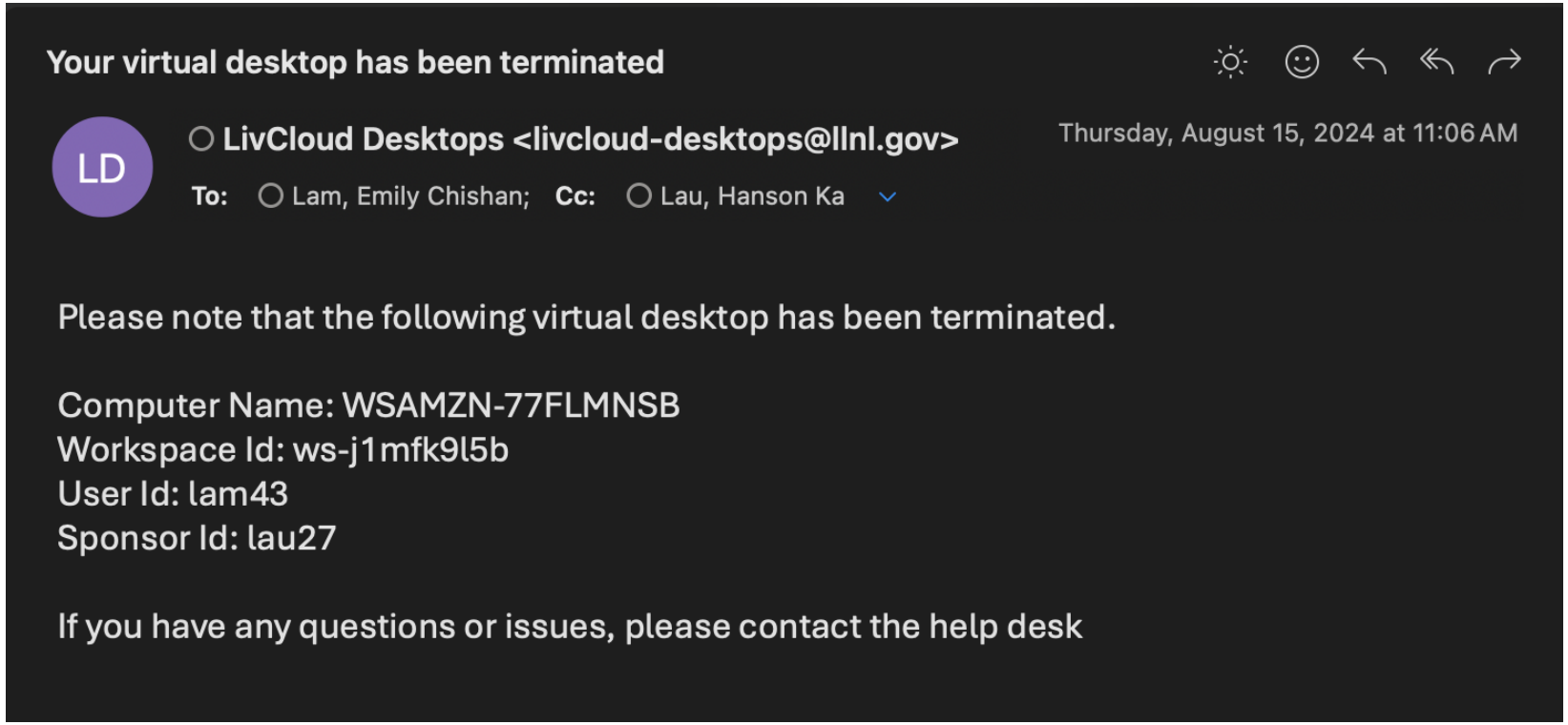
About Me

- Education
  - University of California, Santa Cruz
    - Class of 2026
    - B.S. Computer Science

- Hobbies
  - Badminton
  - Pokémon GO

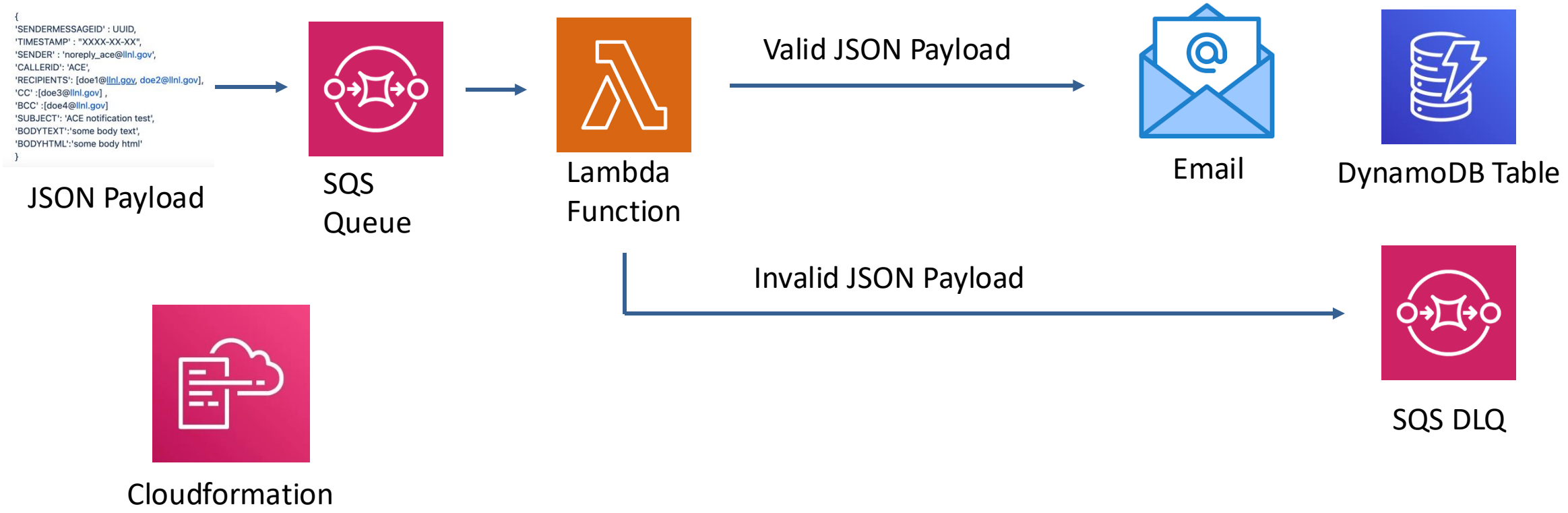
What is NOTI?

- Notification system used by in-house projects
  - ACE
  - LDMS



Part 1: NOTI Architecture

Original NOTI Structure



What was the Problem?

- No one would get notified if a message got sent to the DLQ

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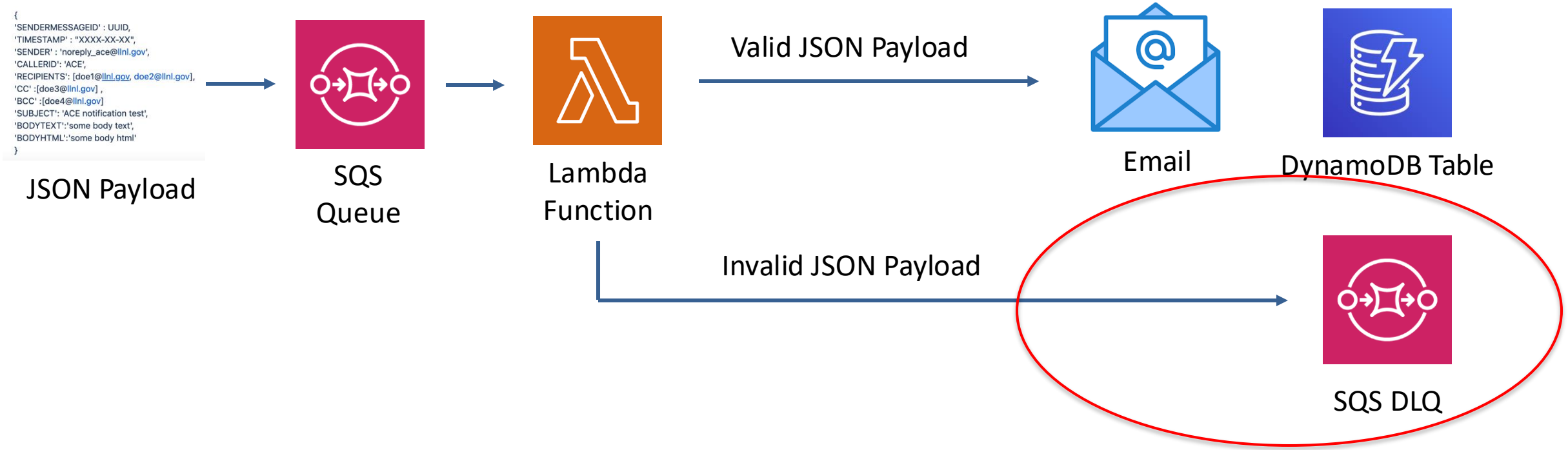
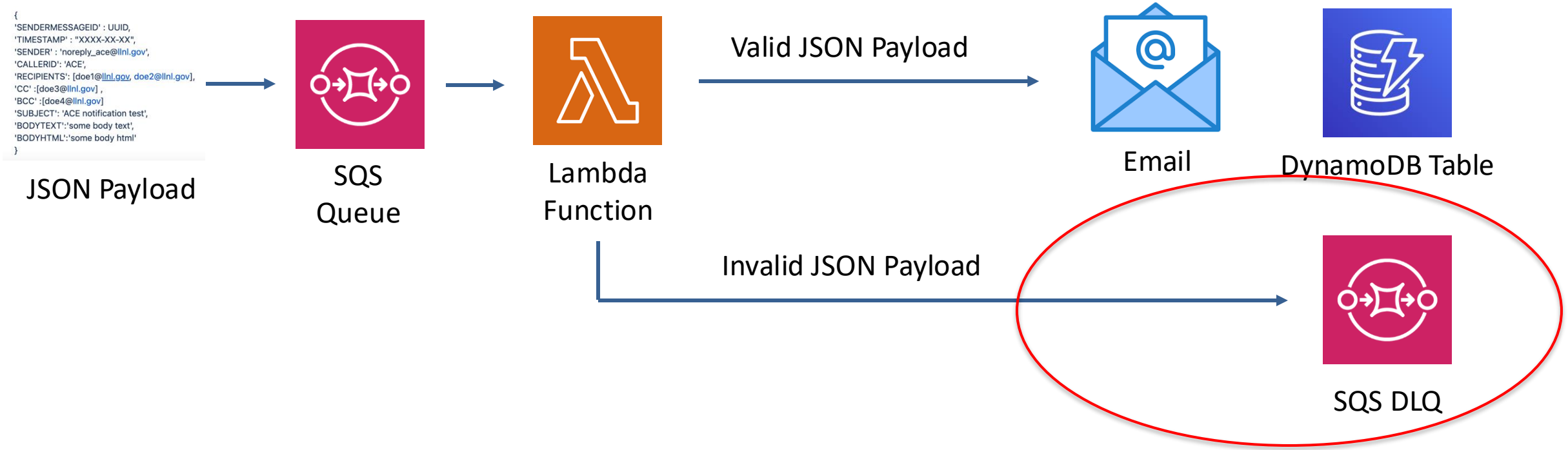
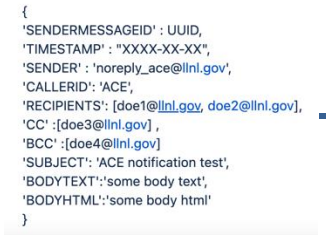


What was the Problem?

- No one would get notified if a message got sent to the DLQ
- Messages in the DLQ can indicate a bug somewhere



Solution



JSON Payload

SQS Queue

Lambda Function

Valid JSON Payload

Email

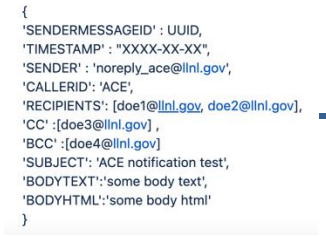
DynamoDB Table

Invalid JSON Payload

SQS DLQ

From: SENDER
To: RECIPIENTS

Solution



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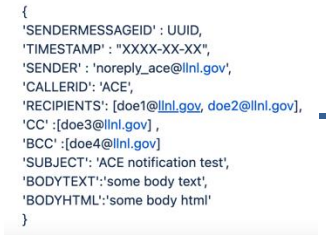

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From: SENDER
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From: NOTI Admins
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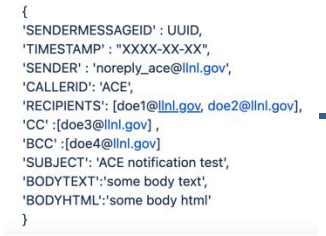

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SQS DLQ

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Email

From: SENDER
To: RECIPIENTS

From: NOTI Admins
To: SENDER

From: NOTI Admins
To: NOTI Admins

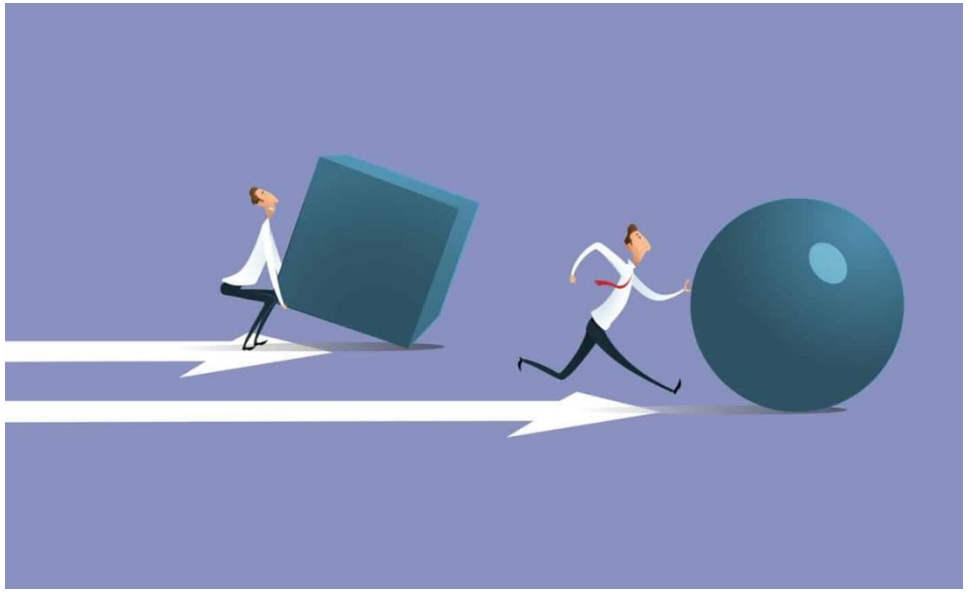
Solution: Main Takeaway

- Prepare for the worst possible outcome, be able to catch all errors
- Make sure messages are not lost
- We want to know if messages fail

Part 2: NOTI CI/CD Pipeline

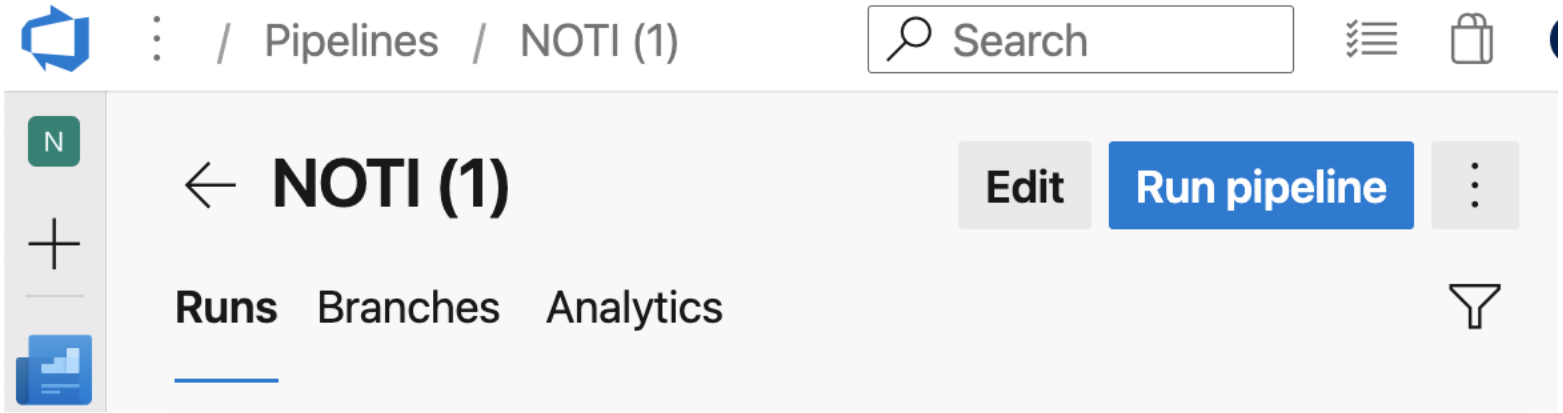
Original Deployment Method

- Could only be deployed through the command line
- Difficult to deploy to different AWS accounts

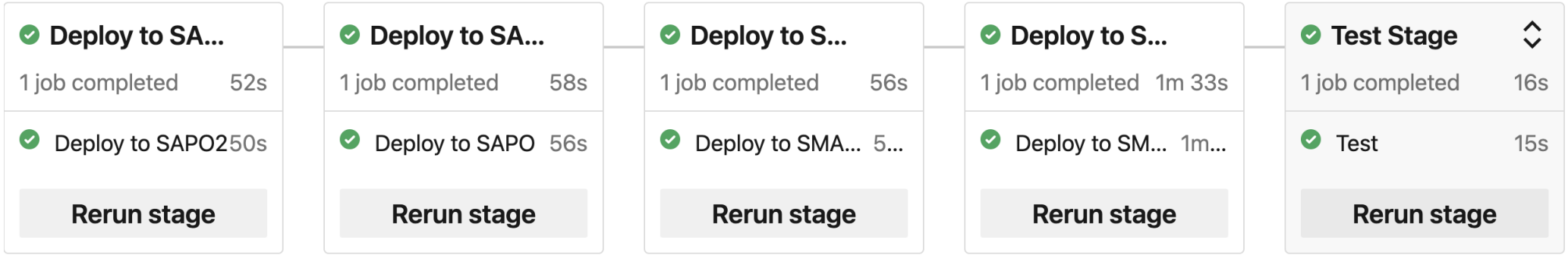


Purpose of a Pipeline

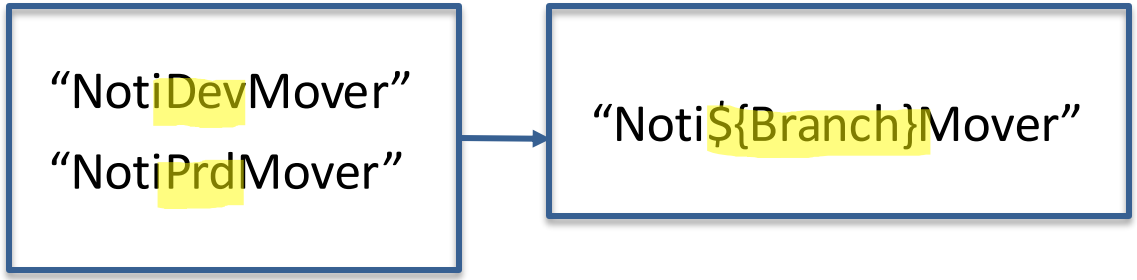
- Pipeline = set of instructions that get carried out whenever the pipeline is triggered
- Make deployment easy



The Pipeline

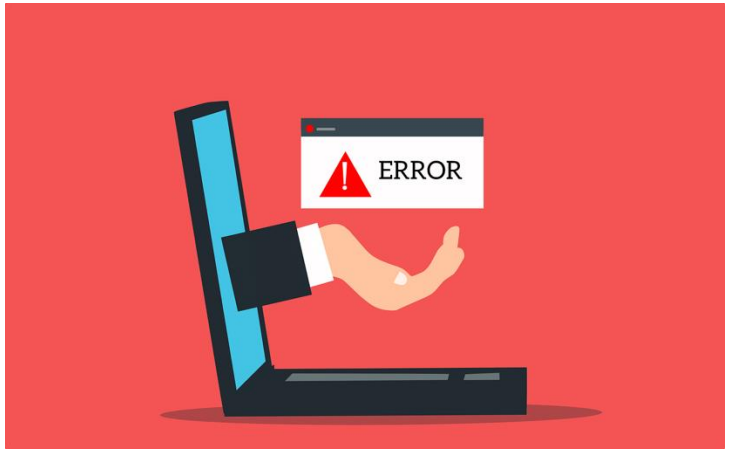


- Deploy into multiple AWS accounts
  - Parameterization!
- Unit Test



What I Learned

AWS



Error Catching, Unit Tests

Pipelines

Thank you!

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. Lawrence Livermore National Security, LLC