LAMBDATEST

Enhancing CI/CD Pipelines with **GitHub Actions** & **Azure DevOps:** *Integrating **SmartUI** for **Visual Testing***

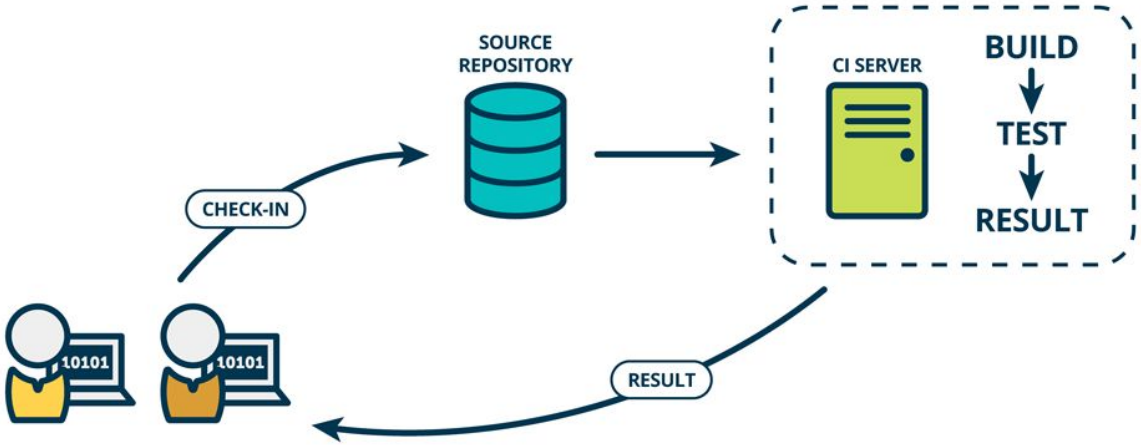
That's me 👋

JEEVESH JAIN

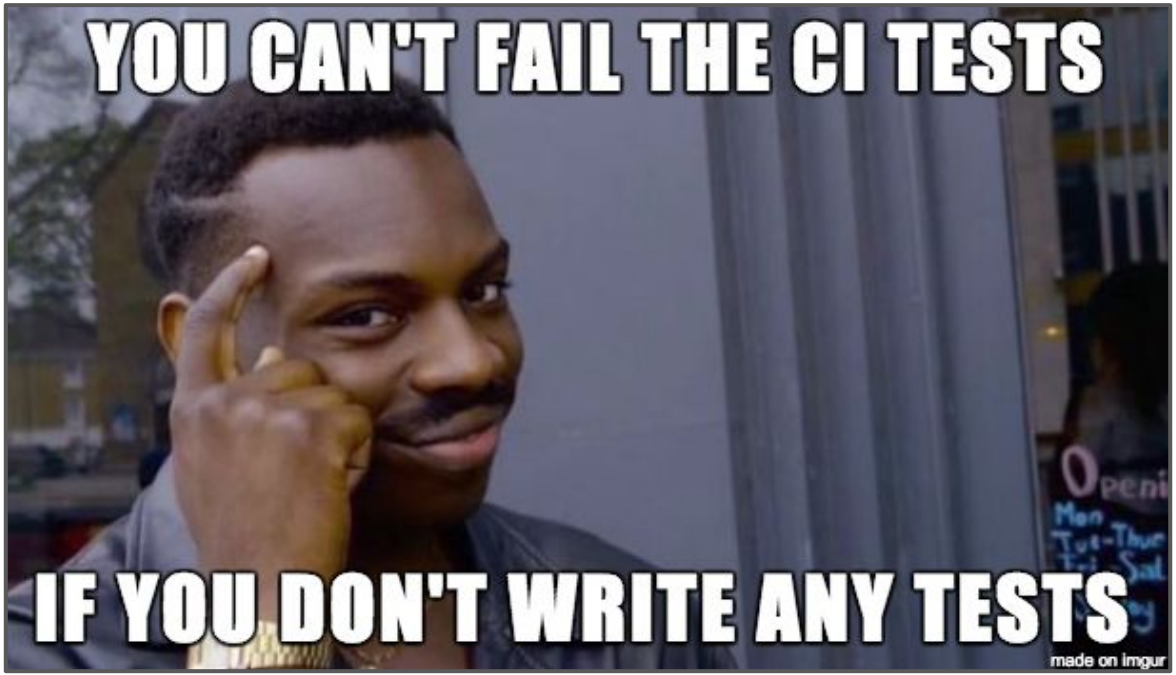
PRODUCT MANAGER

LAMBDATEST

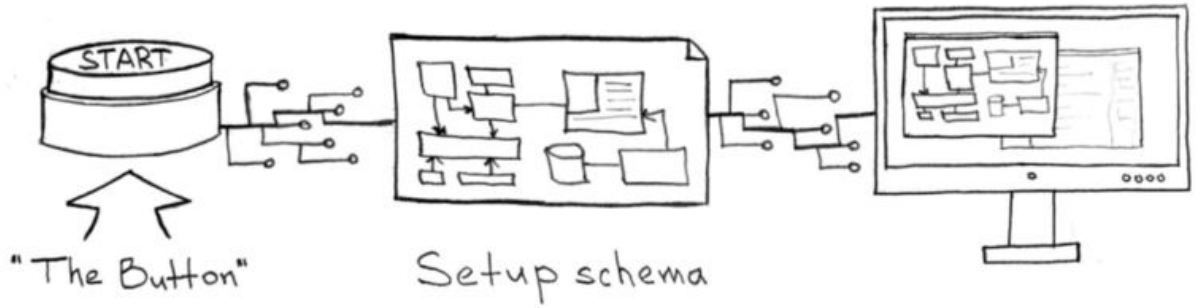
Continuous Integration (CI)



detect errors as early as possible in build process

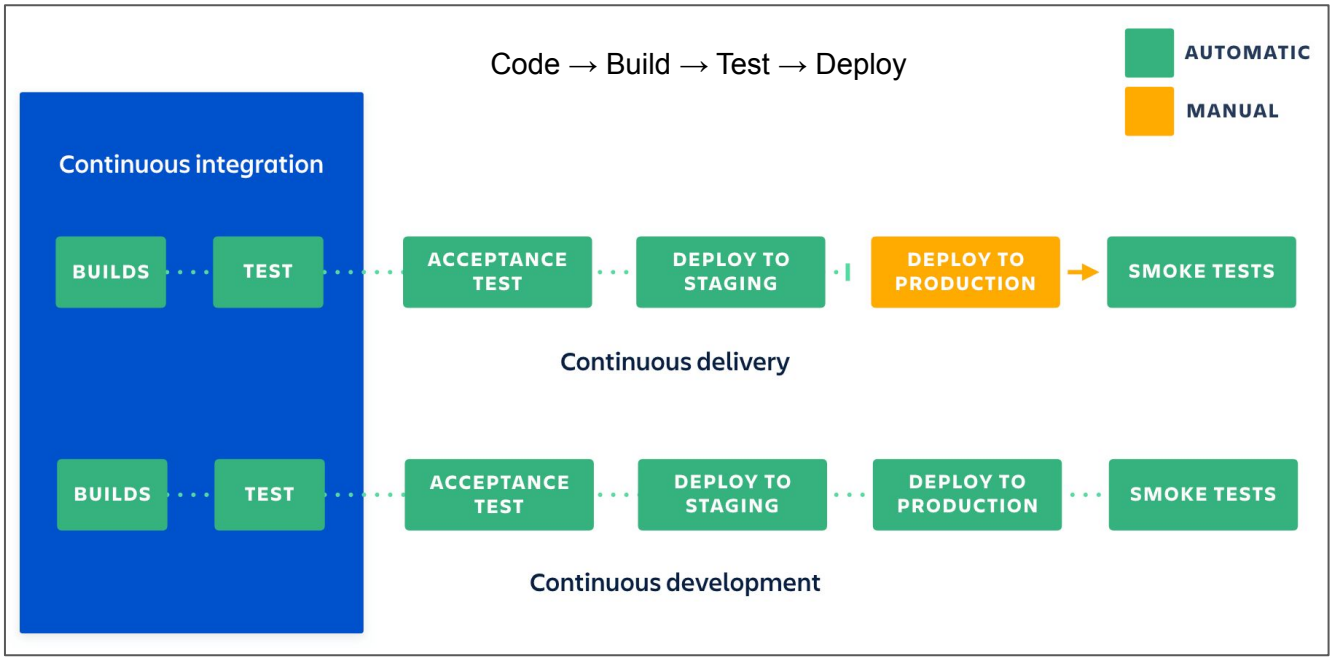

YOU CAN'T FAIL THE CI TESTS
IF YOU DON'T WRITE ANY TESTS
made on imgur

Continuous Delivery (CD)

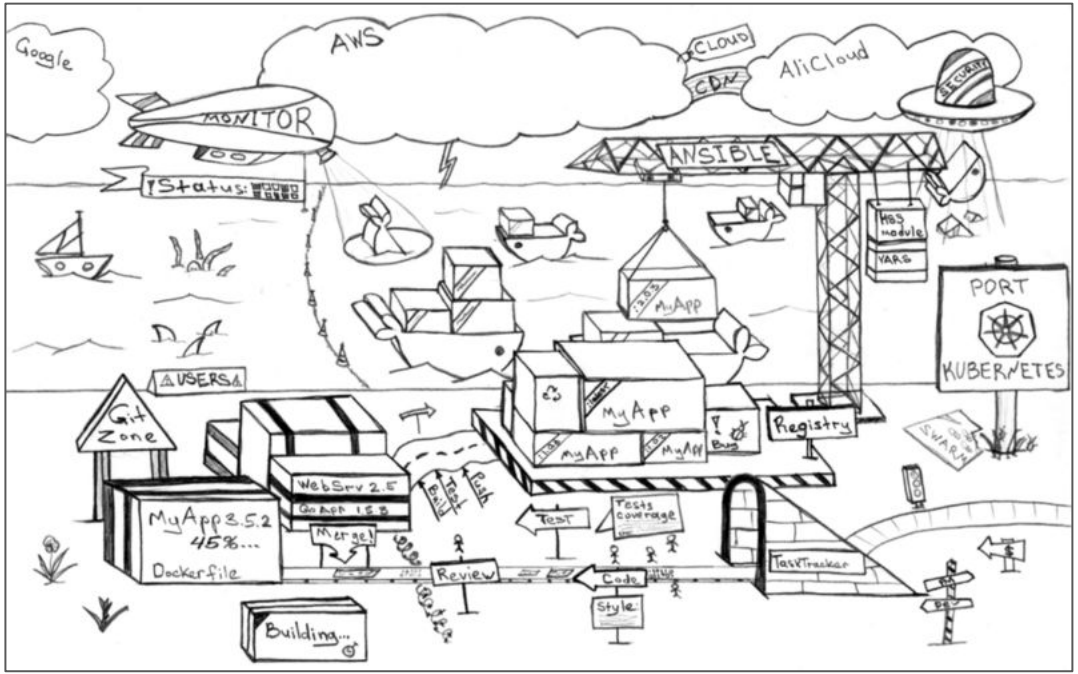


ensures that the **code is ready and can be delivered at any time**. Requires CI!

Continuous Deployment (Also CD!)

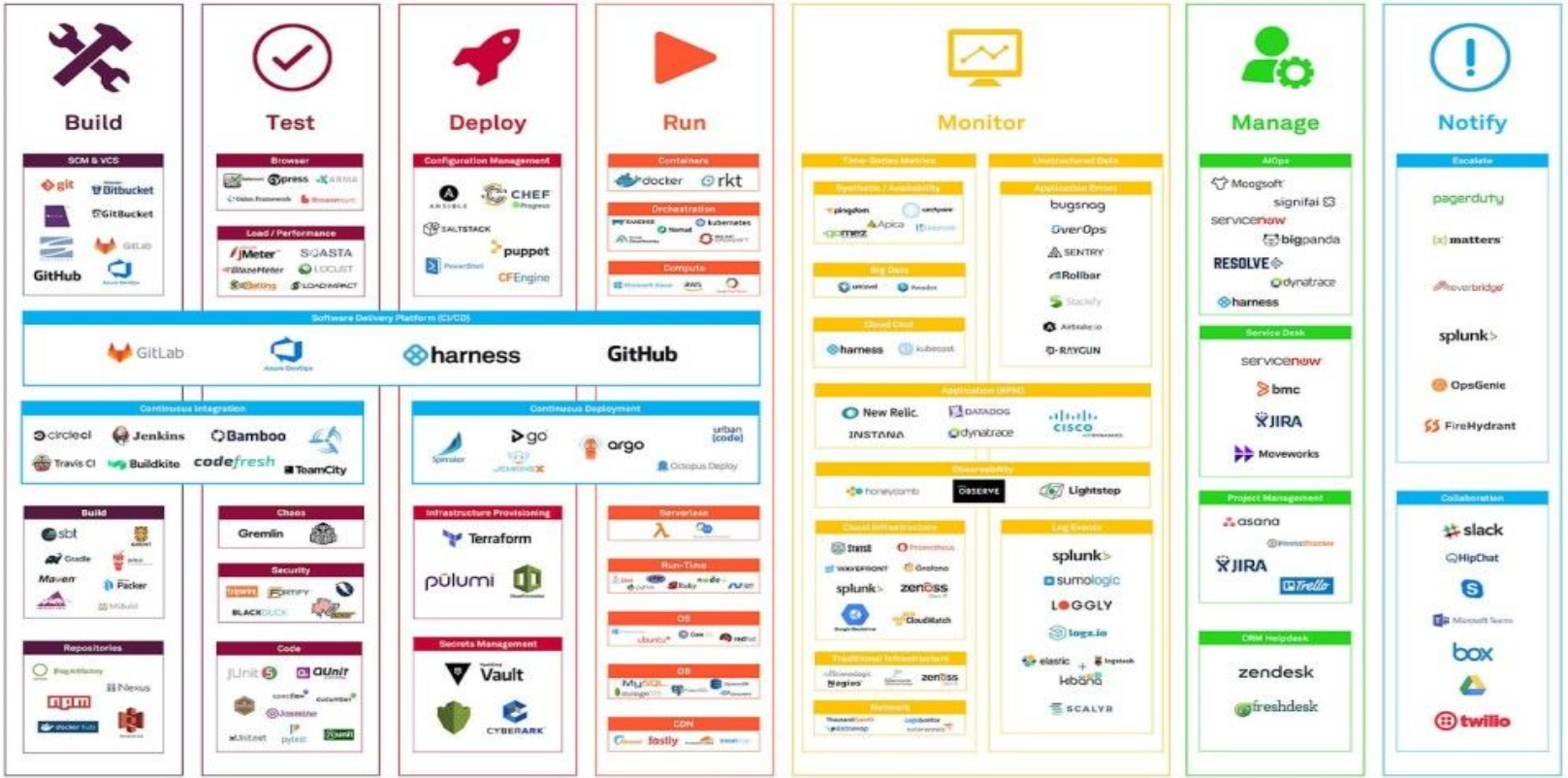


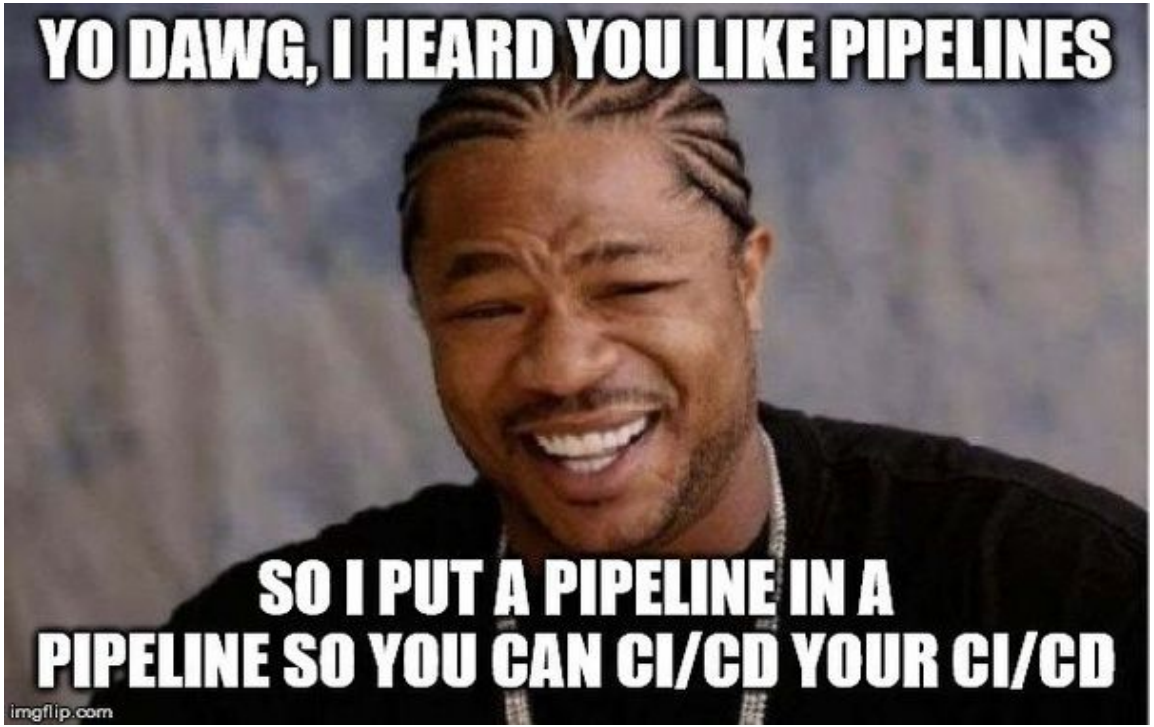
How does CI/CD process looks in practice?



code > commit changes > build > unit test > deploy to staging machine > auto tests > deploy to prod

CI/CD Tools


Build
SCM & VCS
git
Bitbucket
GitBucket
GitLab
GitHub
Test
Browser
Cypress
KARMA
Load / Performance
jMeter
SOASTA
WaveMeter
LOCUST
LOADIMPACT
Deploy
Configuration Management
ANSIBLE
CHEF
SALTSTACK
puppet
PowerShell
CFEngine
Run
Containers
docker
rkt
Orchestration
kubernetes
Compute
Monitor
Application Errors
bugsnag
OverOps
SENTRY
Rollbar
Airbrake.io
RAYGUN
Application (APM)
New Relic.
DATADOG
INSTANA
dynatrace
CISCO
Observability
OBSERVE
Lightstep
Log Events
splunk>
sumologic
LOGGLY
logz.io
elastic
kibana
SCALYR
Manage
AIOps
Mcogsoft
signifai
servicenow
bigpanda
RESOLVE
dynatrace
harness
Service Desk
servicenow
bmc
JIRA
Moveworks
Project Management
asana
JIRA
Trello
CRM Helpdesk
zendesk
freshdesk
Notify
Escalate
pagerduty
matters
everbridge
splunk>
OpsGenie
FireHydrant
Collaboration
slack
HipChat
box
twilio
Software Delivery Platform (CI/CD)
GitLab
harness
GitHub
Continuous Integration
circleci
Jenkins
Bamboo
Travis CI
Buildkite
codefresh
TeamCity
Continuous Deployment
go
argo
urban code
Octopus Deploy
Build
sbt
Gradle
Maven
Packer
Repositories
Nexus
npm
Chaos
Gremlin
Security
BLACKDUCK
Code
JUnit
QUnit
Infrastructure Provisioning
Terraform
pulumi
Secrets Management
Vault
CYBERARK
Serverless
Run-Time
OS
DB
CDN
fastly

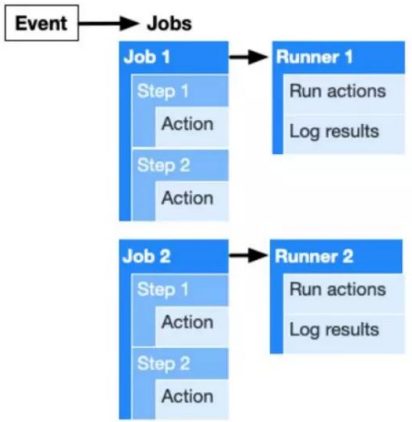

YO DAWG, I HEARD YOU LIKE PIPELINES
SO I PUT A PIPELINE IN A PIPELINE SO YOU CAN CI/CD YOUR CI/CD
imgflip.com

Github Actions

Automation platform that allows you to define custom workflows for your GitHub repositories.

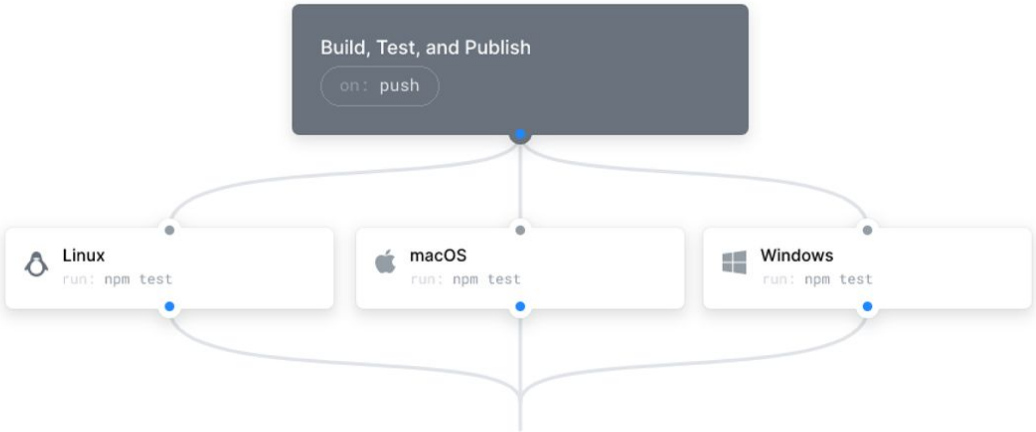
Components of GitHub Actions

1. **Workflows** - YAML files defining the automation process
2. **Events** - Triggers that start workflows
3. **Jobs** - Groups of steps run on the same runner
4. **Steps** - Individual tasks within a job
5. **Actions** - Reusable units of code for steps
6. **Runners** - Servers that execute the workflows



Run a workflow on any GitHub event

GitHub Actions



Linux, macOS, Windows, and containers

Hosted runners for every major OS make it easy to build and test all your projects. Run directly on a VM or inside a container.

Matrix builds

Save time with matrix workflows that simultaneously test across multiple operating systems and versions of your runtime.

Any language

GitHub Actions supports Node.js, Python, Java, Ruby, PHP, Go, Rust, .NET, and more. Build, test, and deploy applications in your language of choice.

Azure DevOps

Components/Services of Azure DevOps

Azure Boards

Allows Work item tracking, Agile planning, Power BI visualization, and similar other reporting tools.

Azure Repos

Provides full-support for cloud-hosted private repositories.

Azure Pipelines

Defines CI/CD- Continuous Integration and Continuous deployment process with support for containers and Kubernetes.

Azure Test Plans

Provides integrated planning and investigation of testing solutions.

Azure Artifacts

Package management Support for Maven, npm, NuGet and Python package feeds from private or public sources.

Functional Testing: Does it **behave** correctly?

End to End UI | API Testing | Data Testing

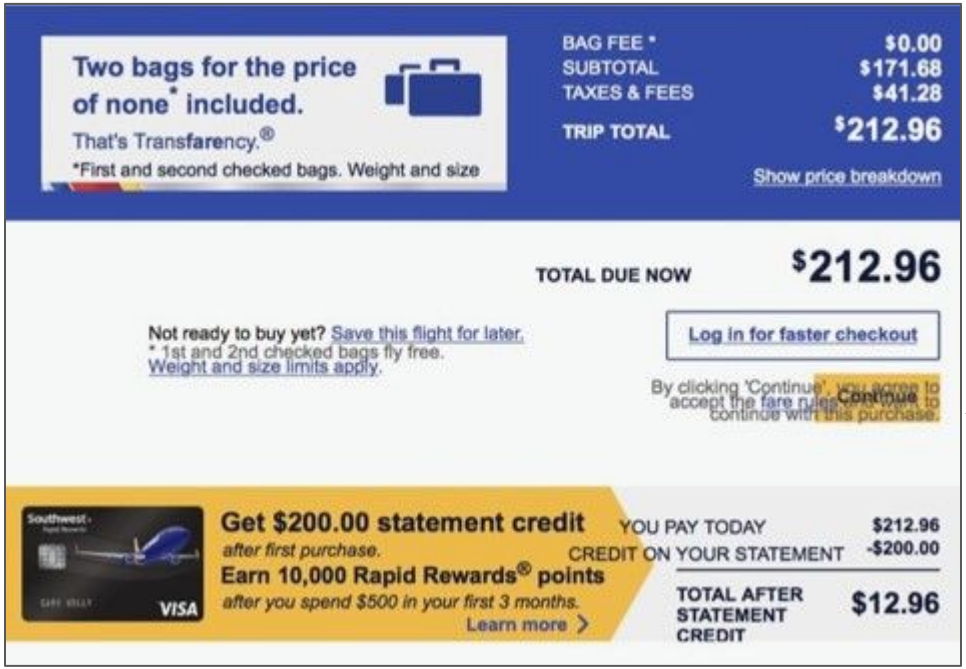
Manual Testing

- Fully Manual prone to human error
- Too much time consuming for validating the visual results.

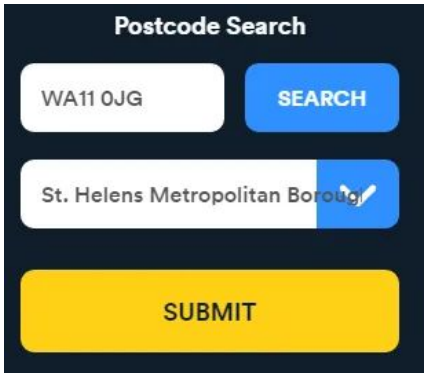
Automation Testing

- Conducts only functionality checks.
- Cannot identify the User Interface desing related issues.

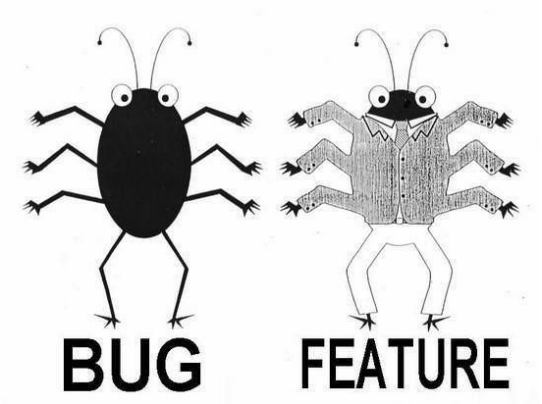
How is visual validation checked?


Two bags for the price of none* included.
That's Transfarency.®
*First and second checked bags. Weight and size
BAG FEE *
$0.00
SUBTOTAL
$171.68
TAXES & FEES
$41.28
TRIP TOTAL
$212.96
Show price breakdown
TOTAL DUE NOW
$212.96
Not ready to buy yet? Save this flight for later.
* 1st and 2nd checked bags fly free.
Weight and size limits apply.
Log in for faster checkout
By clicking 'Continue', you agree to accept the fare rules. Continue to continue with this purchase.
Continue
Get $200.00 statement credit
after first purchase.
Earn 10,000 Rapid Rewards® points
after you spend $500 in your first 3 months.
Learn more
YOU PAY TODAY
$212.96
CREDIT ON YOUR STATEMENT
-$200.00
TOTAL AFTER STATEMENT CREDIT
$12.96

Visual Bug


Postcode Search
WA11 0JG
SEARCH
St. Helens Metropolitan Borough
SUBMIT

Visual Bug


BUG
FEATURE

Functional Testing: Does it **behave** correctly?

Visual Testing: Does it look correctly?


Corporate needs you to find the differences between this picture and this picture.
Visual Regression Testing
They're the same picture.

Why are we so bad at shipping software that looks correct?

The answer is simple. The odds are not in our favor.

Users have endless combinations of

devices x browsers x screen resolutions

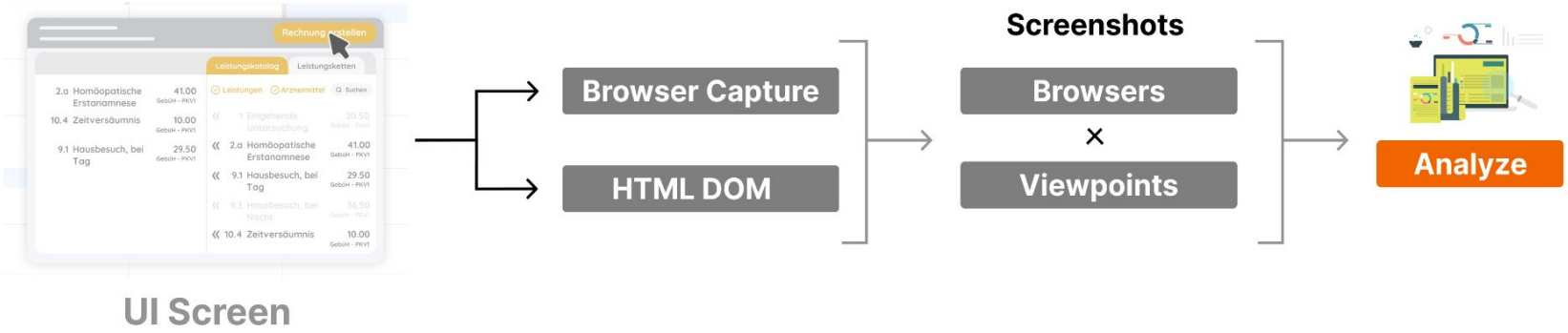
x app screens x app states = 🤯

Do you check each of these combinations for every commit you make??

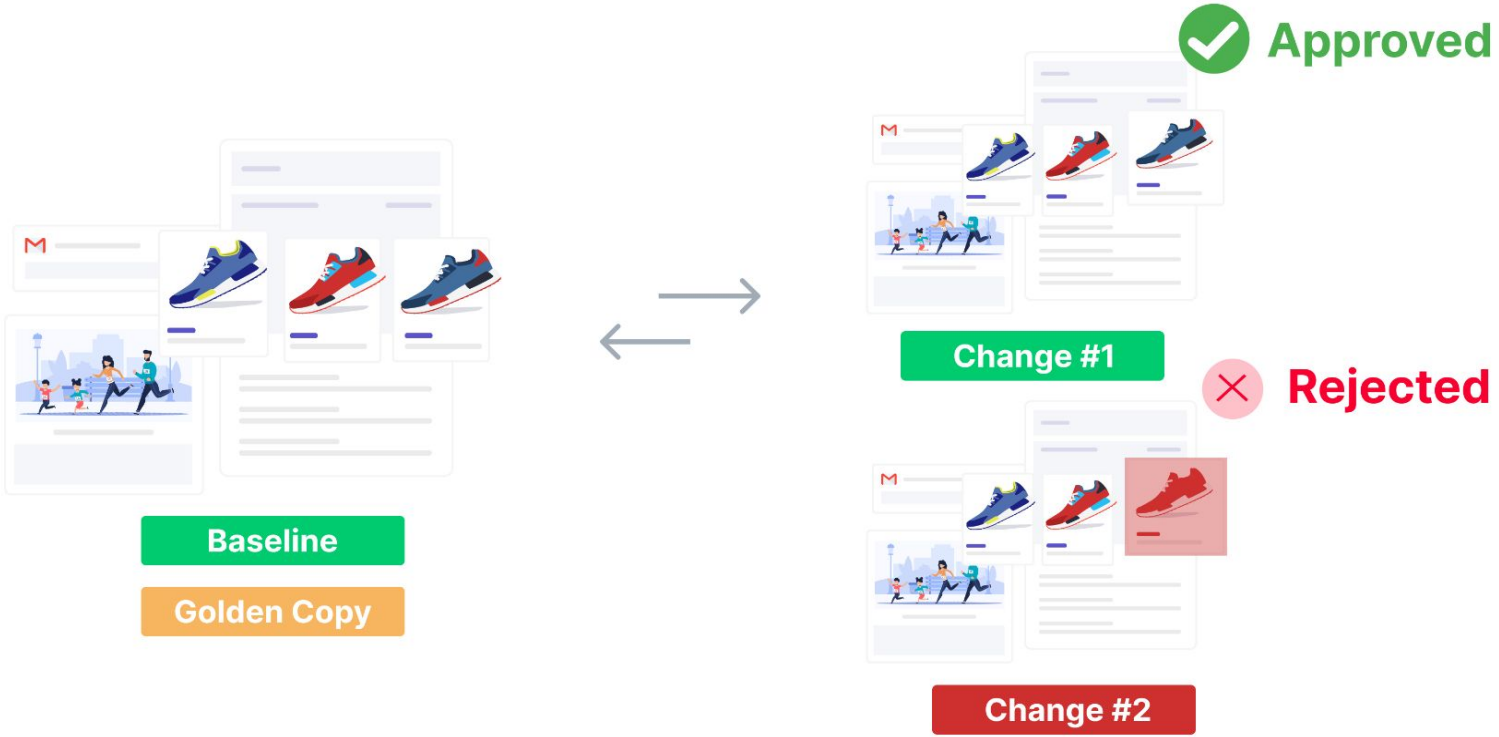
~~ A Visual Testing Approach ~~

Capture and compare screenshots automatically as your application evolves

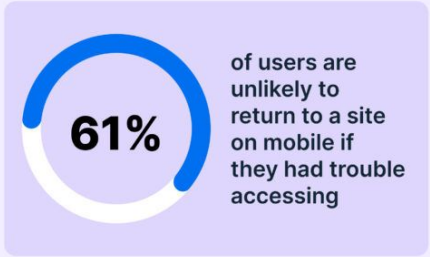
~~ A Visual Testing Approach ~~

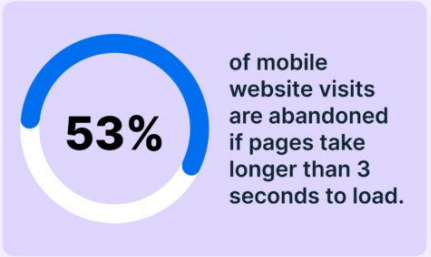


~~ A Visual Testing Approach ~~



Why ? (user's perspective)





Introducing SmartUI - a next gen Visual Regression Tool

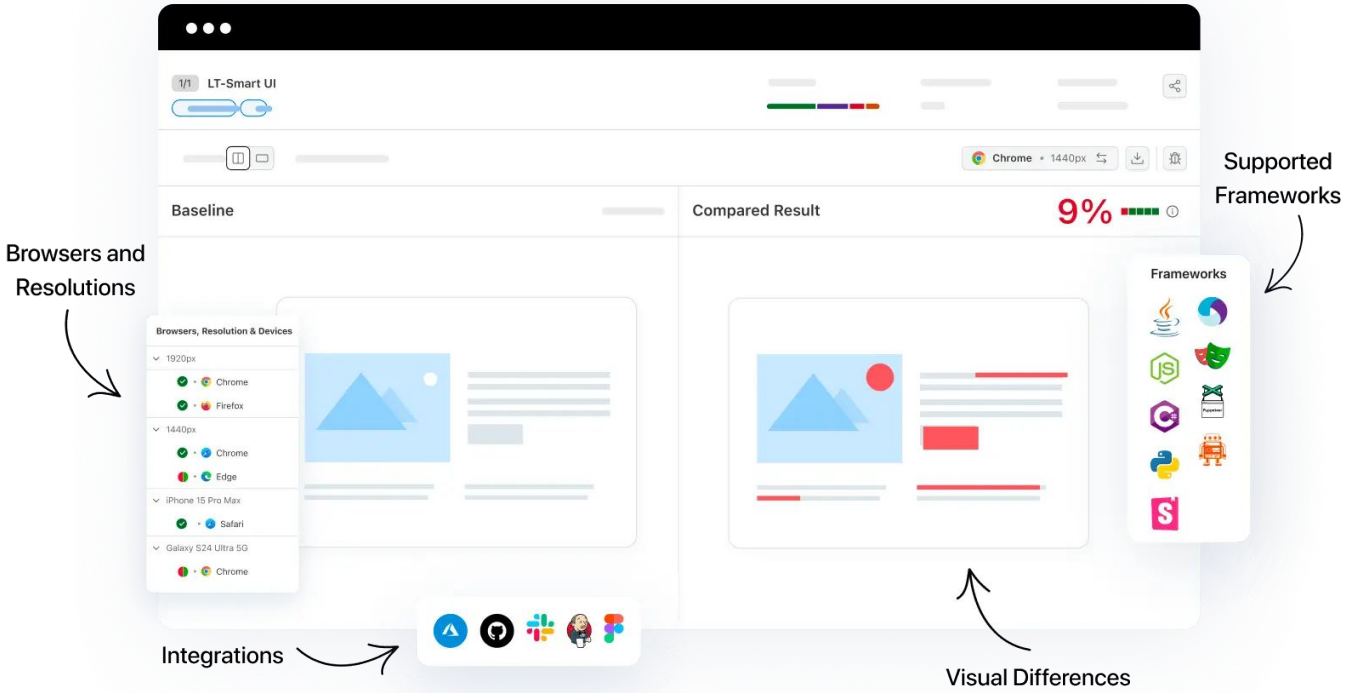
Test intelligently, ship faster

with

LambdaTest

RUN ANY test scripts, frameworks (Selenium, Appium, Katalon, Tosca, Playwright, etc.
ON ANY Operating System (macOS, Windows, Linux, iOS, Android + containers)

SmartUI : AI-Powered Visual Regression Testing Cloud



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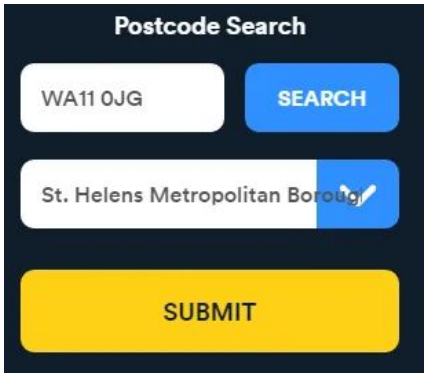
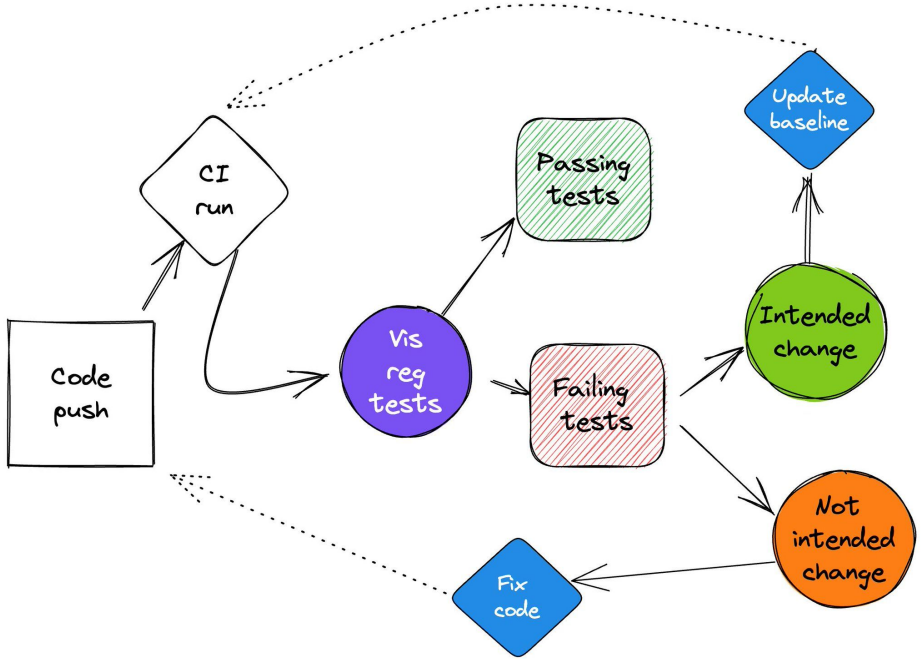
SmartUI : AI-Powered Visual Regression Testing Cloud

Captures Screenshots

```
1  await smartuiSnapshot(driver, "Lambdatest");
2  await driver.get("https://www.abc.com/sd/112801165652823604/");
3  await smartuiSnapshot(driver, "SearchBox");
4
```



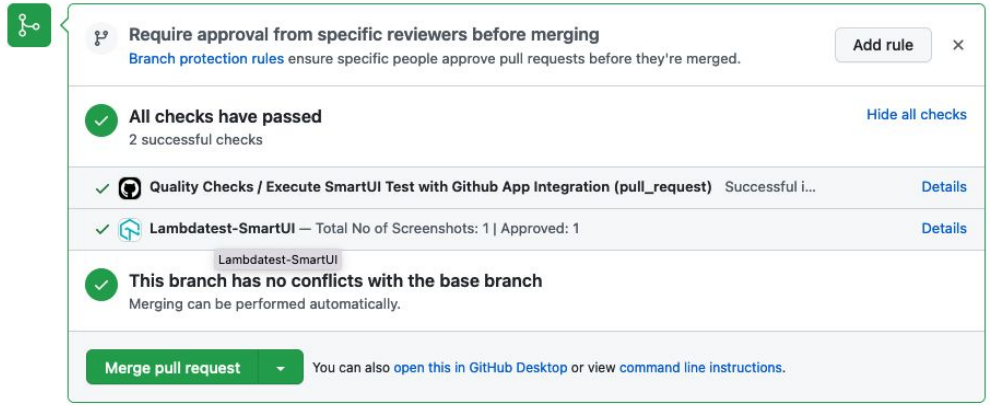
How does Smart UI work?

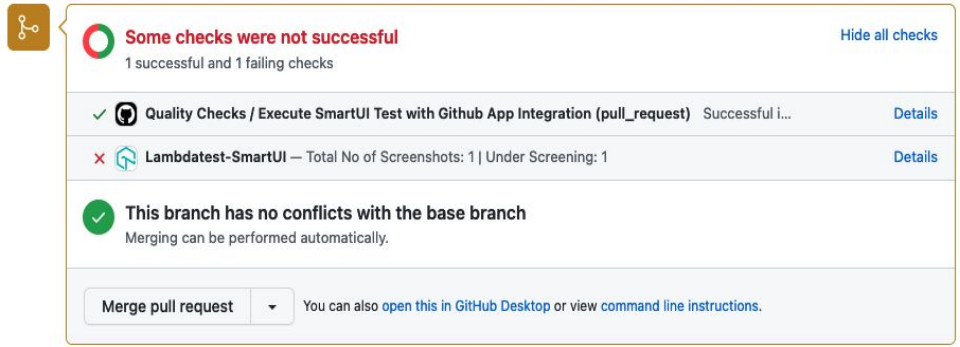


SmartUI + GitHub Actions

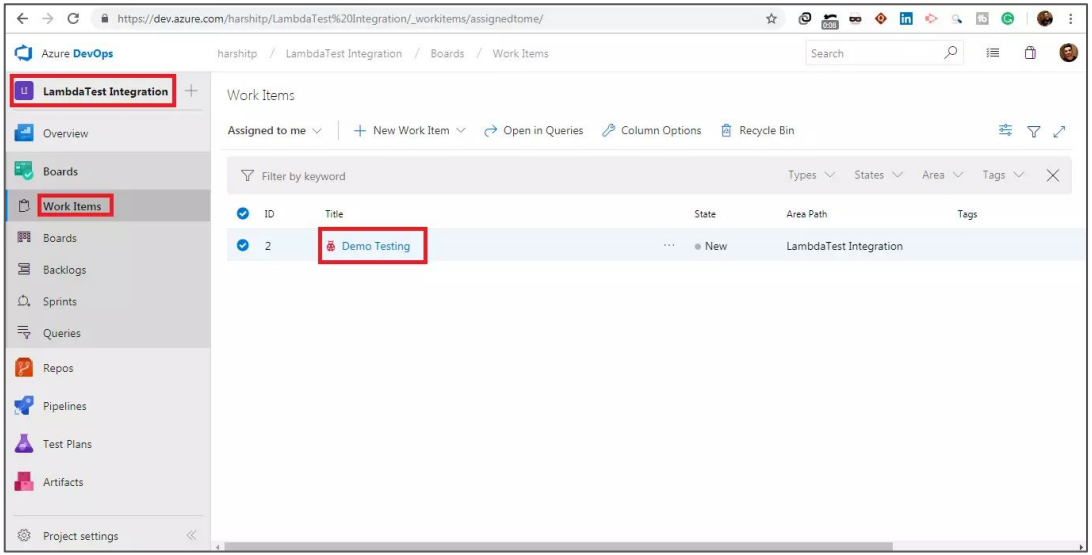
```yaml
name: Storybook PR Checks
on:
  pull_request:
    branches:
      - master

env:
  PROJECT_TOKEN: ${{ secrets.PROJECT_TOKEN }}

jobs:
  smartui-github-action:
    name: Execute Storybook build
    runs-on: ubuntu-latest
    steps:
    - uses: actions/checkout@v1

    - name: Find Last CommitId
      run: |
        API_HOST=https://api.github.com
        # Check out the PR branch
        git checkout $GITHUB_HEAD_REF
        # Get the commit ID of the last commit
        COMMIT_ID=$(git rev-parse HEAD)
        echo "Last commit ID of PR: $COMMIT_ID"
        GITHUB_URL=$API_HOST/repos/$GITHUB_REPOSITORY/statuses/$COMMIT_ID
        echo "GITHUB_URL: $GITHUB_URL"
        echo "GITHUB_URL=$GITHUB_URL" >> $GITHUB_ENV

    - name: Install Dependencies
      run: |
        npm install
        npm install @lambdatest/smartui-storybook -g

    - name: Create storybook static build
      run: npm run build-storybook

    - name: Execute storybook build
      run: |
        smartui --version
        smartui config create .smartui.json
        smartui storybook ./18c18586-e375-4f83-b871-4bfec453c5ef --config .smartui.json
```

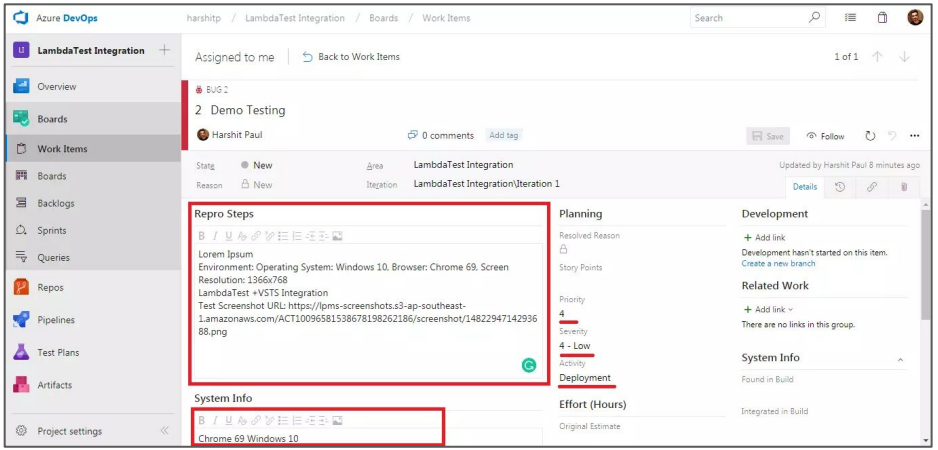
SmartUI + GitHub Actions





SmartUI + Azure DevOps





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Hands On Time 👨‍💻

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FREE ONLINE CONFERNCE

TestμConference

21-23 AUG 2024

03	40+	30+	20K+	2K+
Days	Speakers	Sessions	Attendees	Minutes

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Testμ Conference 2024

Register for free

Thank You

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https://www.linkedin.com/in/jeevesh-jain-9b5014191/