SOFTWARE TESTING

IN A DIGITAL TRANSFORMATION JOURNEY

About me

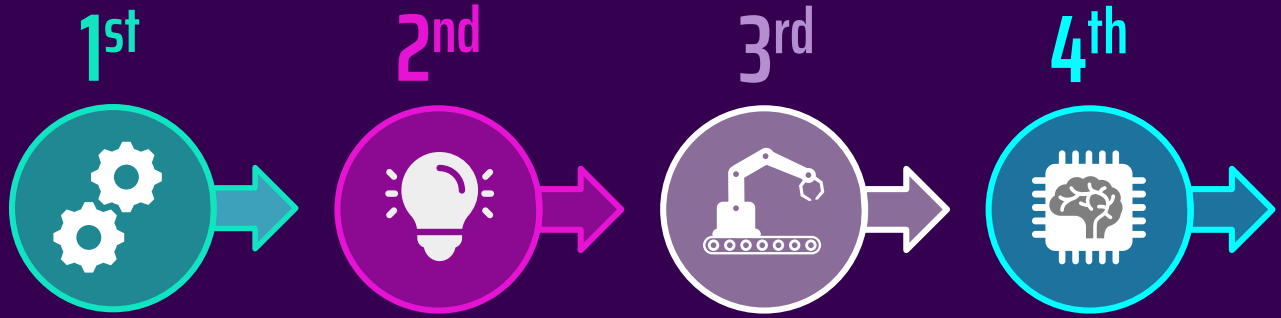
Alan Cafruni Gularte

- Bachelor in System Information
- Specialist in Big Data & Data Science
- 12+ years in IT
- 7 years in Software Testing
- Senior Consultant for CaaS (Kubernetes) @ Dell Technologies

"THE PRESENT TIMES ARE 'LIQUID' BECAUSE EVERYTHING CHANGES SO QUICKLY. NOTHING IS BUILT TO BE DURABLE, TO BE 'SOLID'."

ZYGMUNT BAUMAN

The Evolution of the Industry



Industry 4.0

3D

Additive Manufacturing

IA

Artificial Intelligence

IoT

Internet of Things

SynBio

Synthetic Biology

The Digital Transformation

Waterfall

Agile

Where software testing is in this transformation?

FASTER DELIVERIES,
BIGGER BUGS RISKS

TESTS ARE ESSENTIAL

MORE THAN EVER

The Major Challanges

- Shorter and faster testing life cycles
- Data Management
- Environment Validation
- Testing scripts creation and maintaince
- Cloud Testing

The Journey

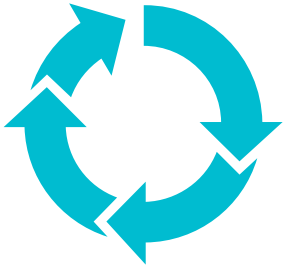
Process

Technologies

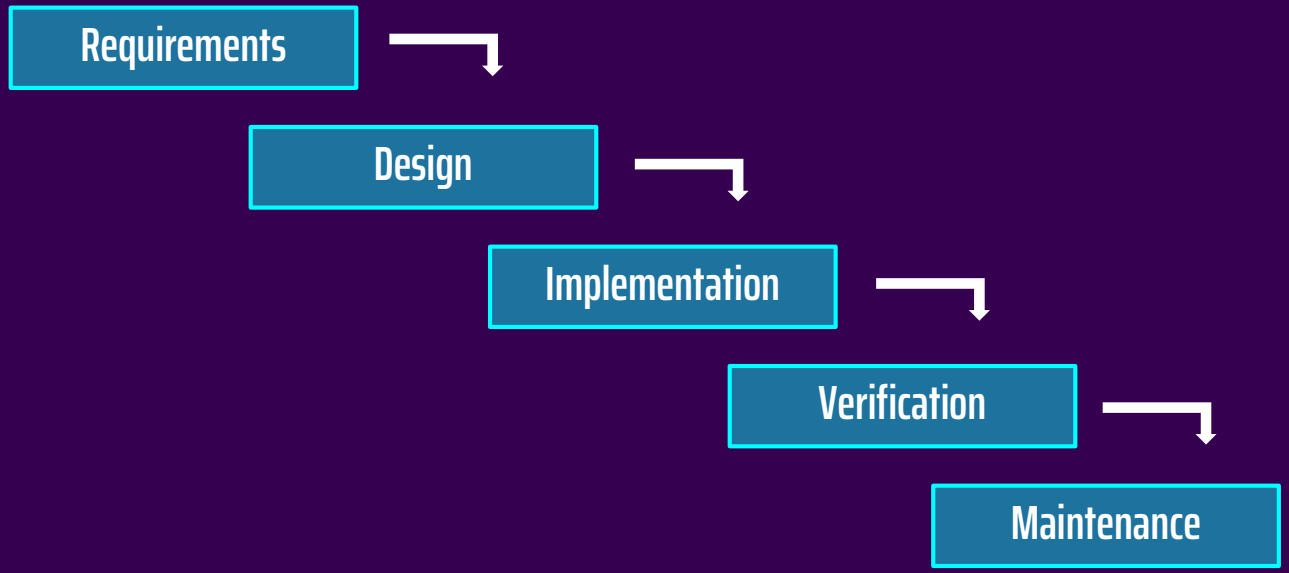
Tools

People

1 Process



Waterfall


Requirements
Design
Implementation
Verification
Maintenance

Waterfall

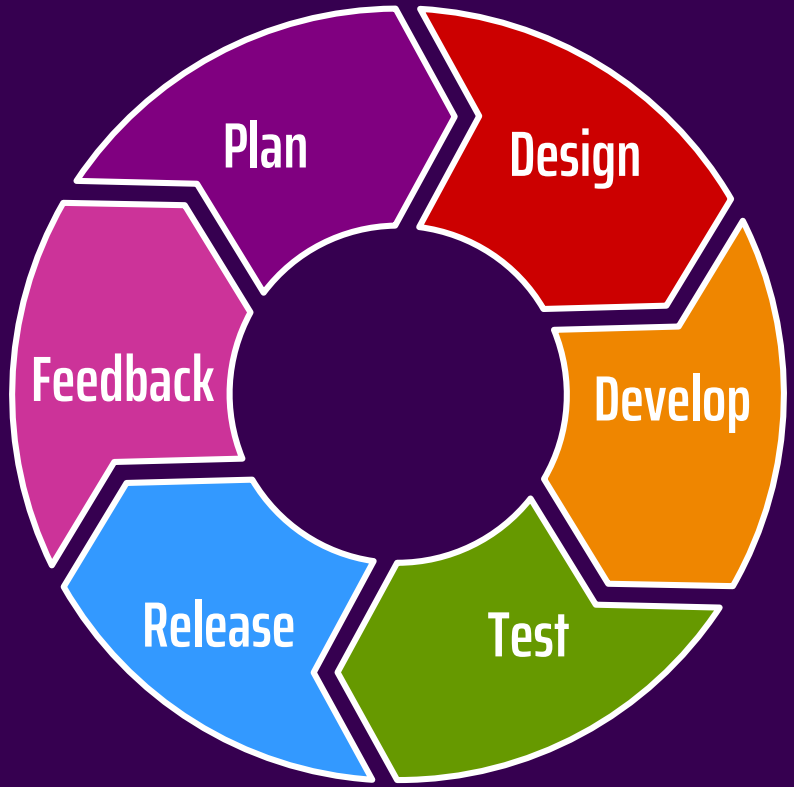
Pros

- Predicable
- Documentation
- Financial cost

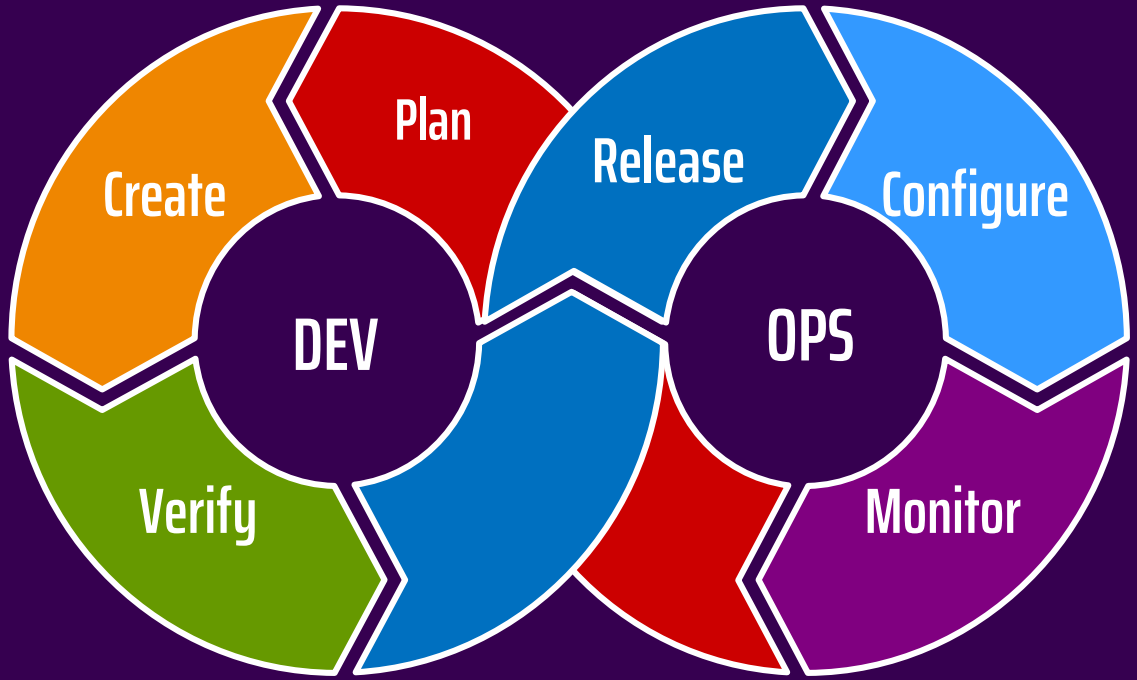
Cons

- Longer delivery time
- Lack of flexibility
- Customer satisfaction

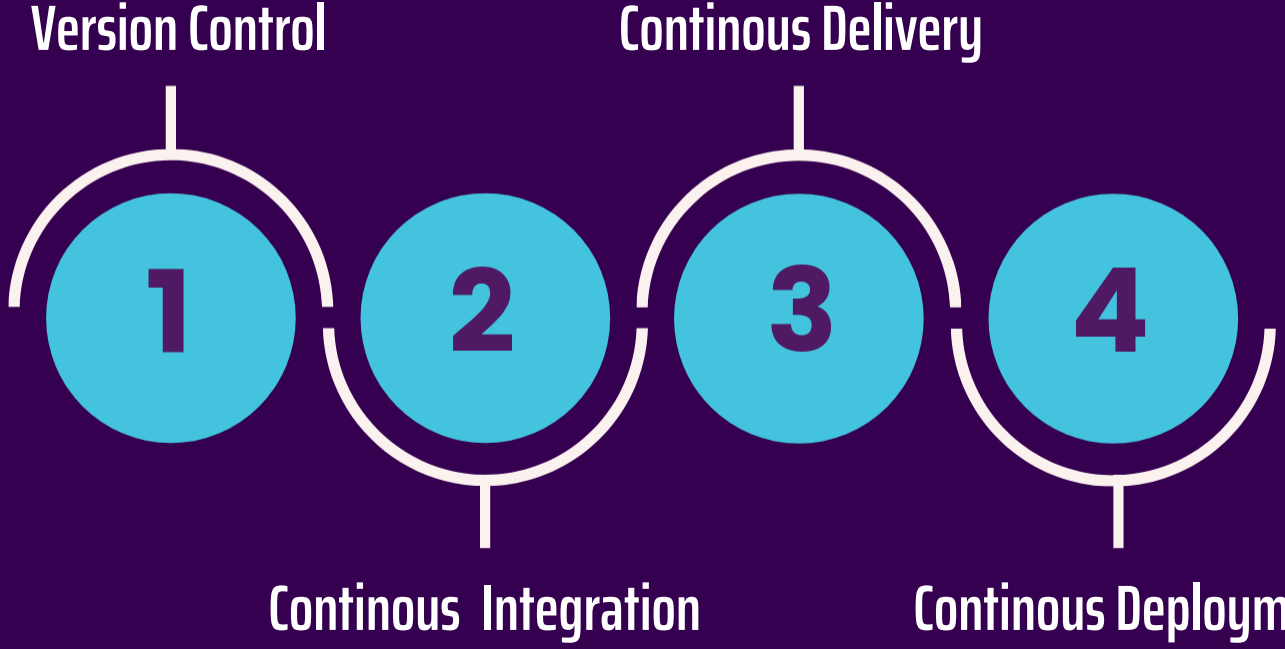
Agile



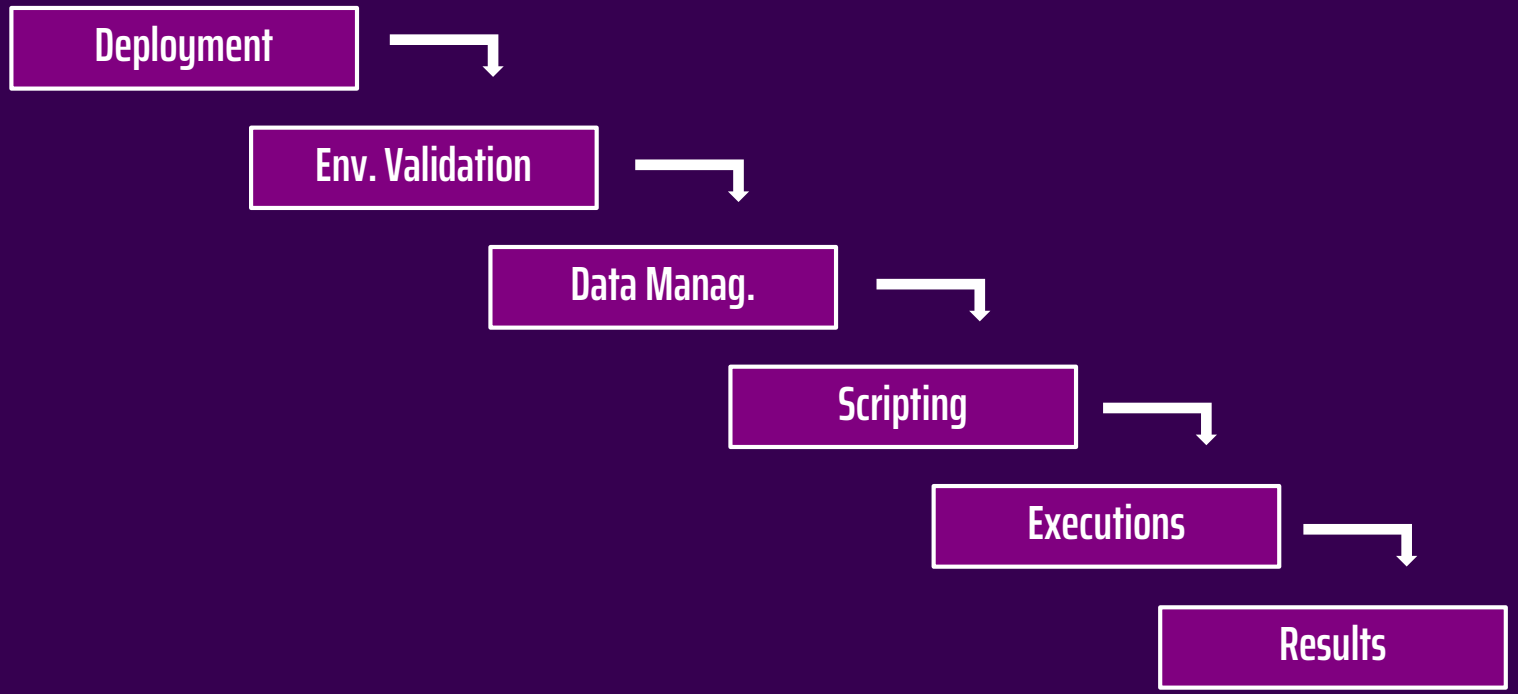
DevOps



DevOps Pipeline



Typical Testing Pipeline



MONTHLY DEPLOYMENTS

WEEKLY DEPLOYMENTS

DAILY DEPLOYMENTS

KEY CONCEPTS

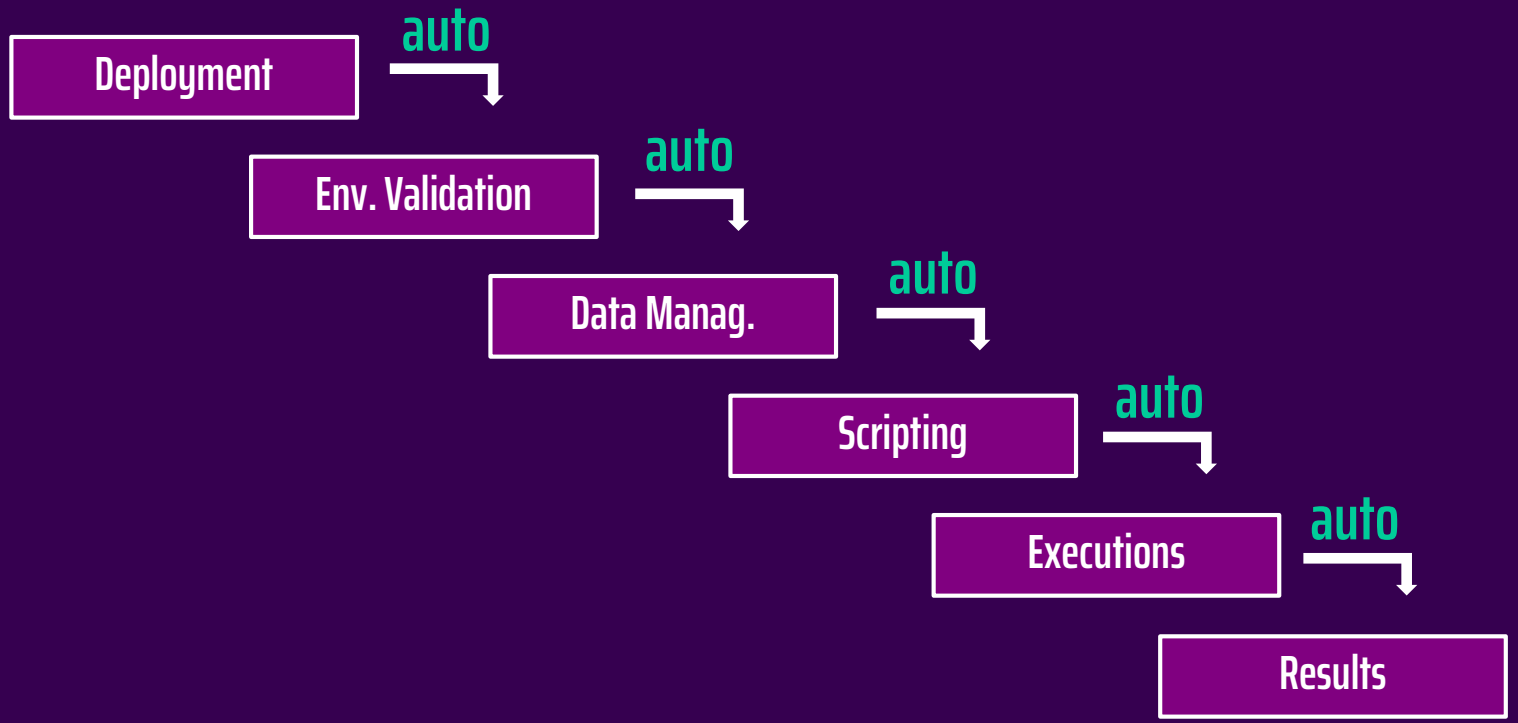
AUTOMATION

+

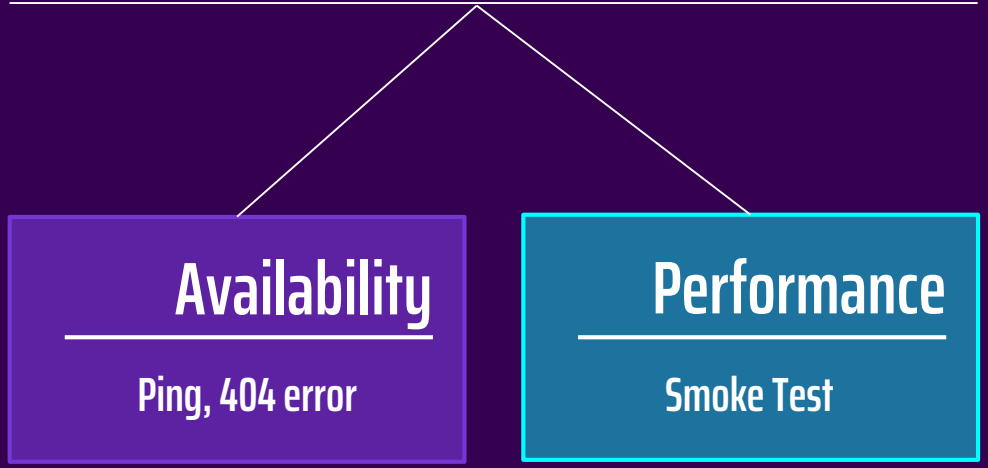
AI

AUTONOMOUS TESTING

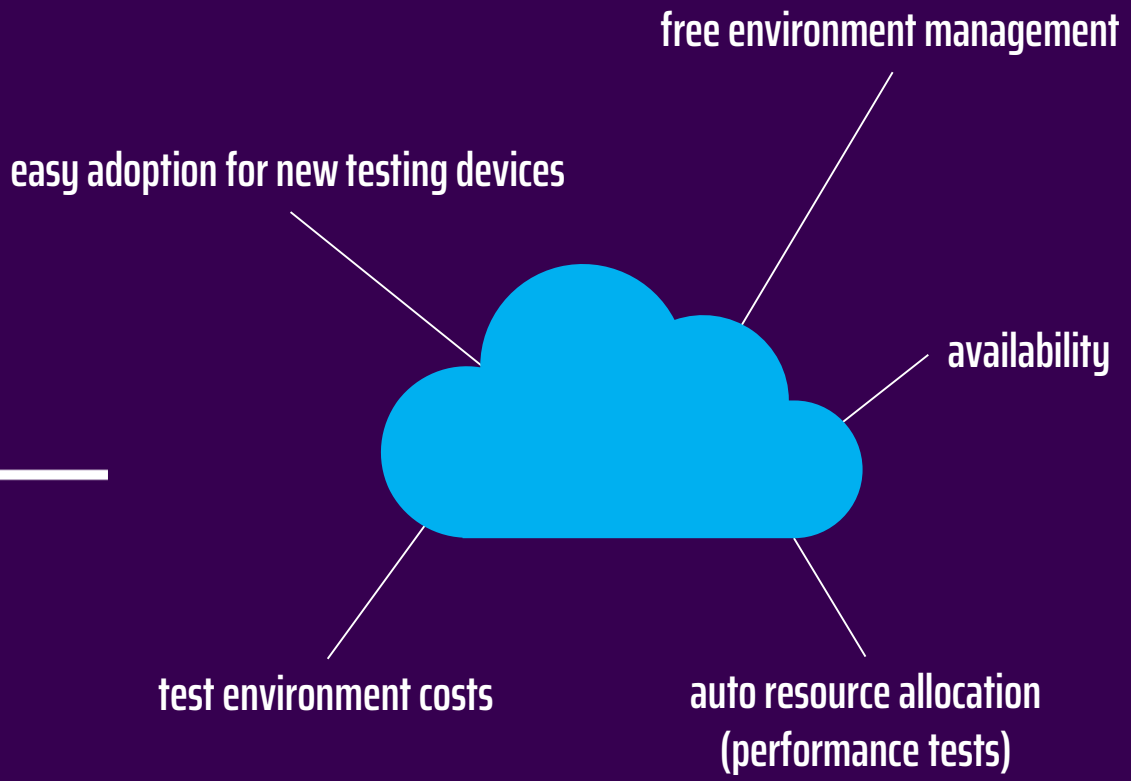
Automated Testing Pipeline



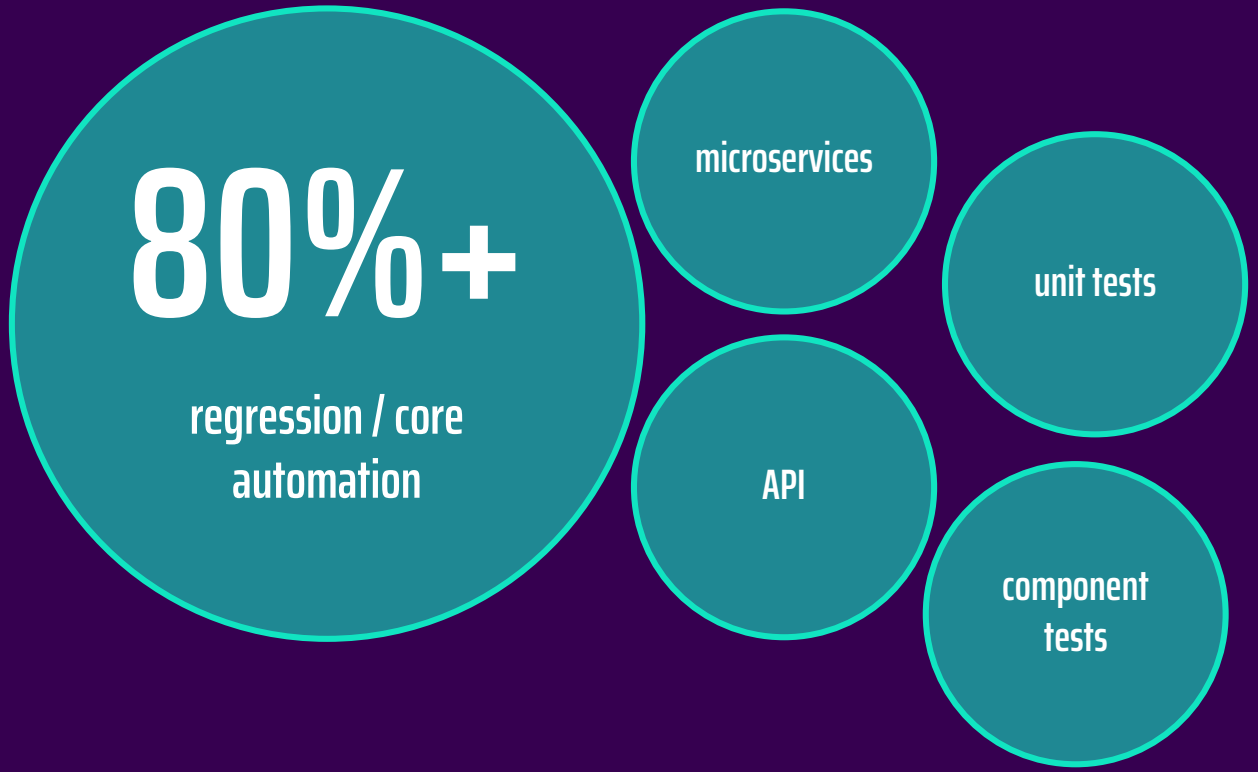
Environment Validation



Cloud Environments



Scripting Automation



black-box testing

Scripting Automation

80%+

regression / core automation

microservices

unit tests

API

component tests

The New Era of Scripting

Regression test cases up-to-date based on end user journey

NLP + ML to convert stories in scripts

AI for image recognition to create scripts

Test scripts auto-fixed after new code version deployed in test environments

Live Results Dashboards

- No more email reports: information on the fly!
- Passed vs Failed vs Blocked Test Cases
- Performance metrics: response times, resources usage, network, throughput, failures
- Tracking of defects
- Others: percentage of conclusion, allocation of environment

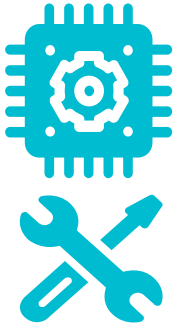
NICE TO HAVE

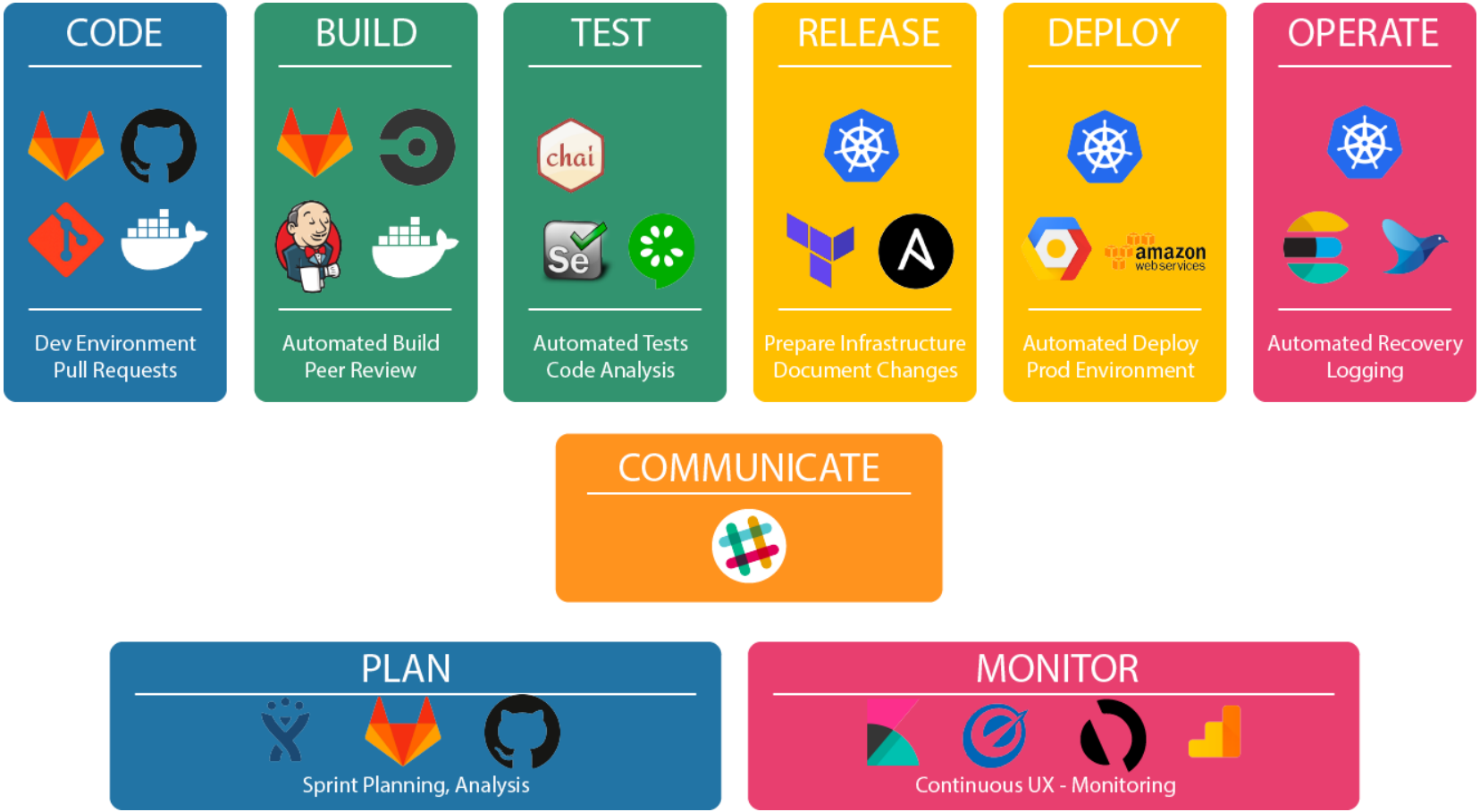
Security

Performance

MUST TO HAVE

2 Technologies & Tool




CODE
Dev Environment
Pull Requests
BUILD
Automated Build
Peer Review
TEST
chai
Automated Tests
Code Analysis
RELEASE
Prepare Infrastructure
Document Changes
DEPLOY
amazon
web services
Automated Deploy
Prod Environment
OPERATE
Automated Recovery
Logging
COMMUNICATE
PLAN
Sprint Planning, Analysis
MONITOR
Continuous UX - Monitoring

3 People

TESTERS Vs THE REST

THE RELATIONSHIPS BETWEEN TESTERS AND EVERYONE ELSE IN THE PROJECT TEAM HAS BEEN REVOLUTIONALISED THROUGH AGILE

PRE-AGILE

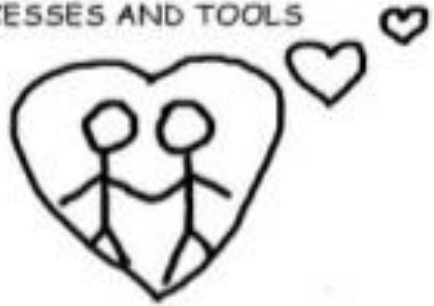
AGES AGO

WILD WEST

UNTIL RECENTLY

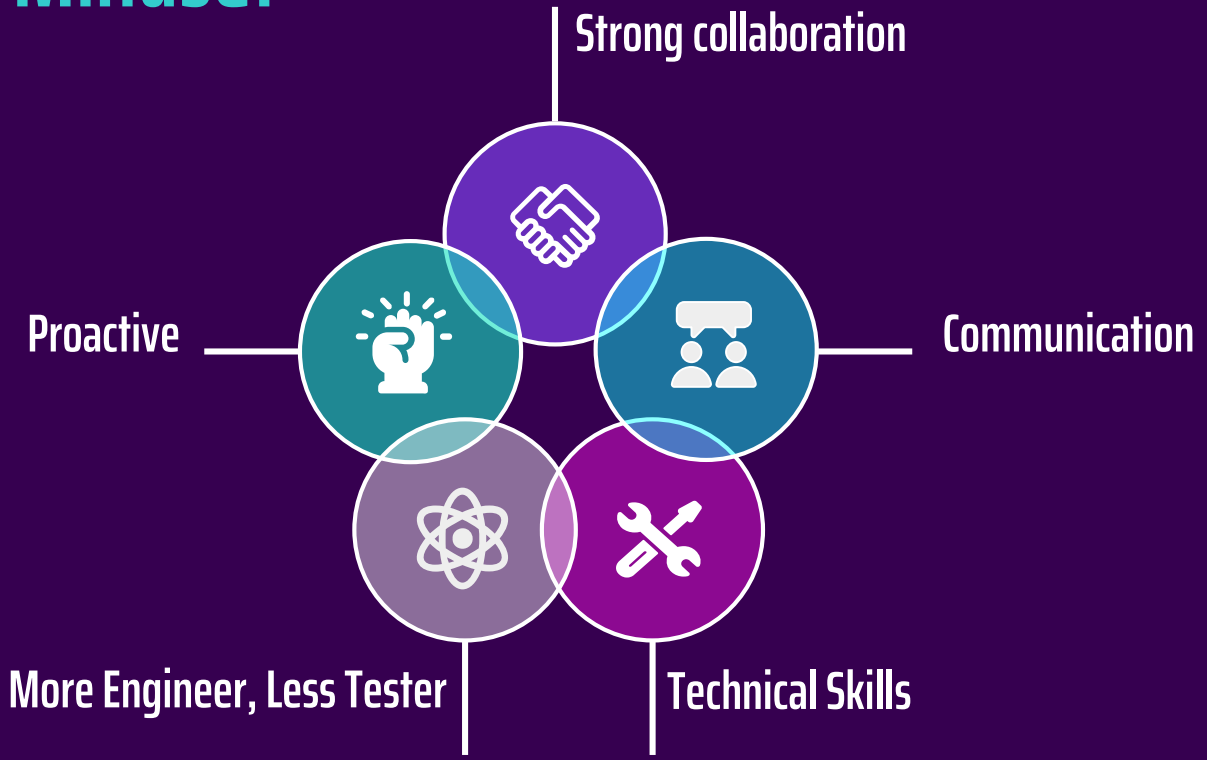
POST-AGILE

THEN AGILE CAME ALONG. NOW INDIVIDUALS AND INTERACTIONS ARE MORE IMPORTANT THAN PROCESSES AND TOOLS



AG

Change of Mindset



Reactive

Wait definition of DEV/PM/PO

Proactive

- Influence in planning sessions to define architecture of final product
- Production load monitoring to calibrate regression scenarios – Workload Model
- Real end-user monitoring to check their navigation behavior -> suggestion of new test scenarios to cover
- Automation of Data Management using AI

What can we conclude?

Software Testing in Digital Transformation

- The world requires more solution in shorter period – ‘liquid’ times
- More risks of bugs – software testing is essencial more than ever
- Autonomous Testing is the key concept
- It’s not only about technical skills and technologies – need to change your mindset
- It is just the beggining of the digital transformation!

Questions?

thank you

Find me in Linkedin

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