

SOFTWARE ENGINEERING IN PRACTICE

mare hofer

WHO IS TALKING?

- **MARC HOFER, SOFTWARE DEVELOPER**
- **SWITZERLAND: SWISSCOM, ZUEHLKE**
- **UK/INDIA: THOUGHTWORKS**
- **THOUGHTWORKS UNIVERSITY COACH**
- **CONTRACTOR @ POST (NEMO)**



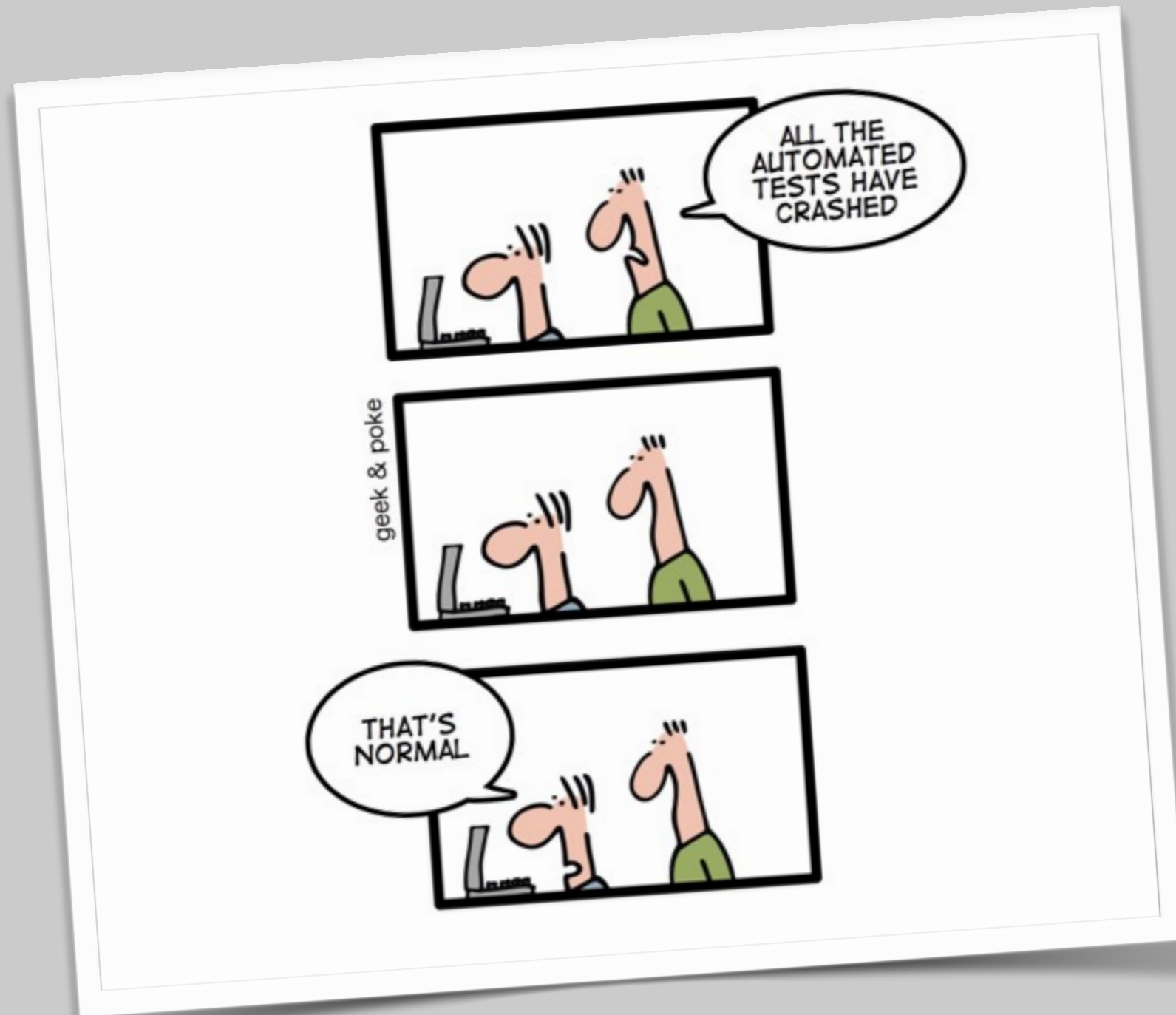
AUTOMATED TESTING & CONTINUOUS DELIVERY

AUTOMATED TESTING

... AND MY PERSONAL JOURNEY WITH TESTING AND CONTINUOUS DELIVERY

- **MOTIVATION FOR THIS TALK**
- **MY PERSONAL EXPERIENCE WITH TESTING**
- **EXPERIENCE FROM MY CURRENT PROJECT**
- **THE FUTURE OF TESTING?**
- **WHAT IS IN FOR YOU?**

MOTIVATION FOR THIS TALK



**“THIS IS GREAT. SURELY THERE AREN’T THAT MANY COMPANIES
WITH SUCH A HIGH DEGREE OF TEST AUTOMATION!”**

- anonymous client

MOTIVATION FOR THIS TALK



- TESTING IS STILL SEENS AS A SECOND CLASS CITIZEN (EVEN FROM DEVS!).
- A LOT OF LOW QUALITY SOFTWARE IS BUILT. HELLO SWITZERLAND?
- ORGANISATIONS STILL DON'T SEE TESTING AS A INVESTMENT.
- LACK OF LONGTIME INVESTMENTS DURING PROJECT PHASE AND HIGH COSTS IN THE LONG RUN.

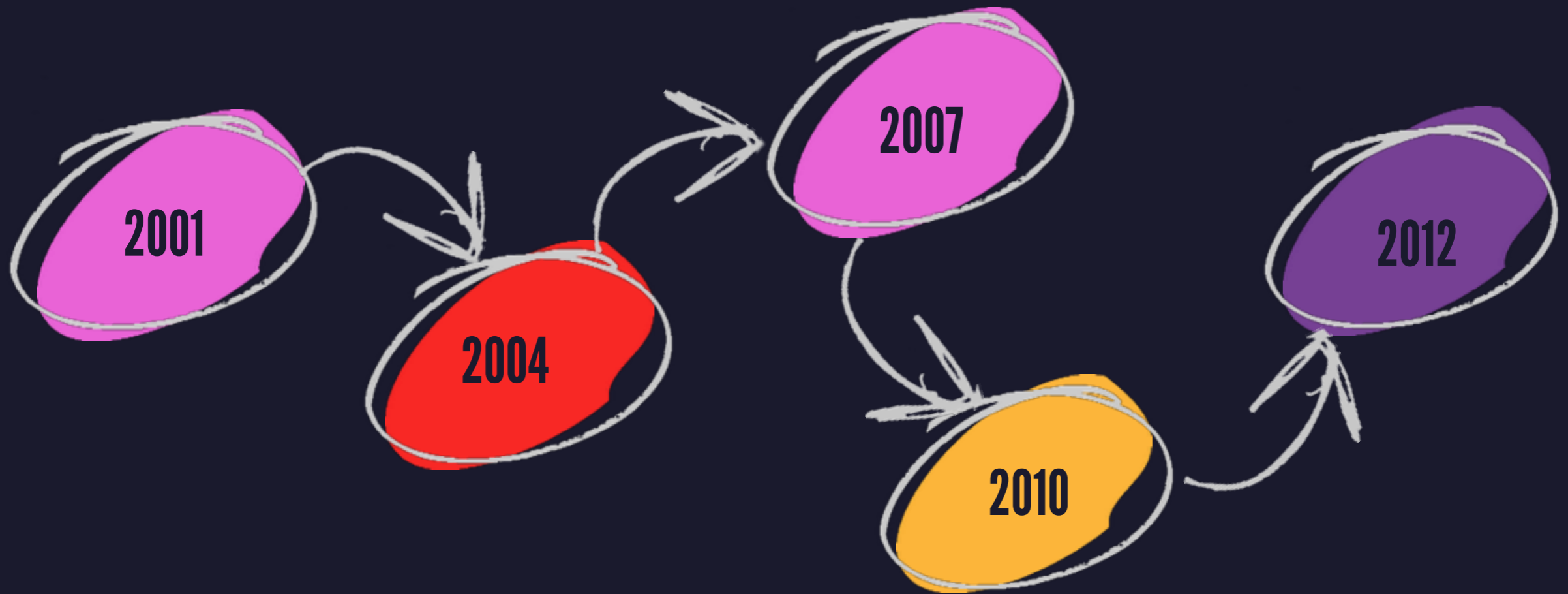
**“THIS IS GREAT. WE WISH WE WOULD HAVE
DONE IT THIS WAY FROM THE VERY BEGINNING!”**

- developer

PERSONAL EXPERIENCE WITH TESTING



MY "TESTING JOURNEY"



2001



- **C/C++ CODEBASE**
- **NIGHTLY BUILD / FULL INTEGRATION ON WEEKENDS**
- **NO AUTOMATED TESTS**
- **NO REAL CONTINUOUS INTEGRATION**
- **WATERFALL WITH DEDICATED TESTING TEAM**

DEDICATED TESTTEAM



DEVELOPMENT TEAM



TEST TEAM

2004



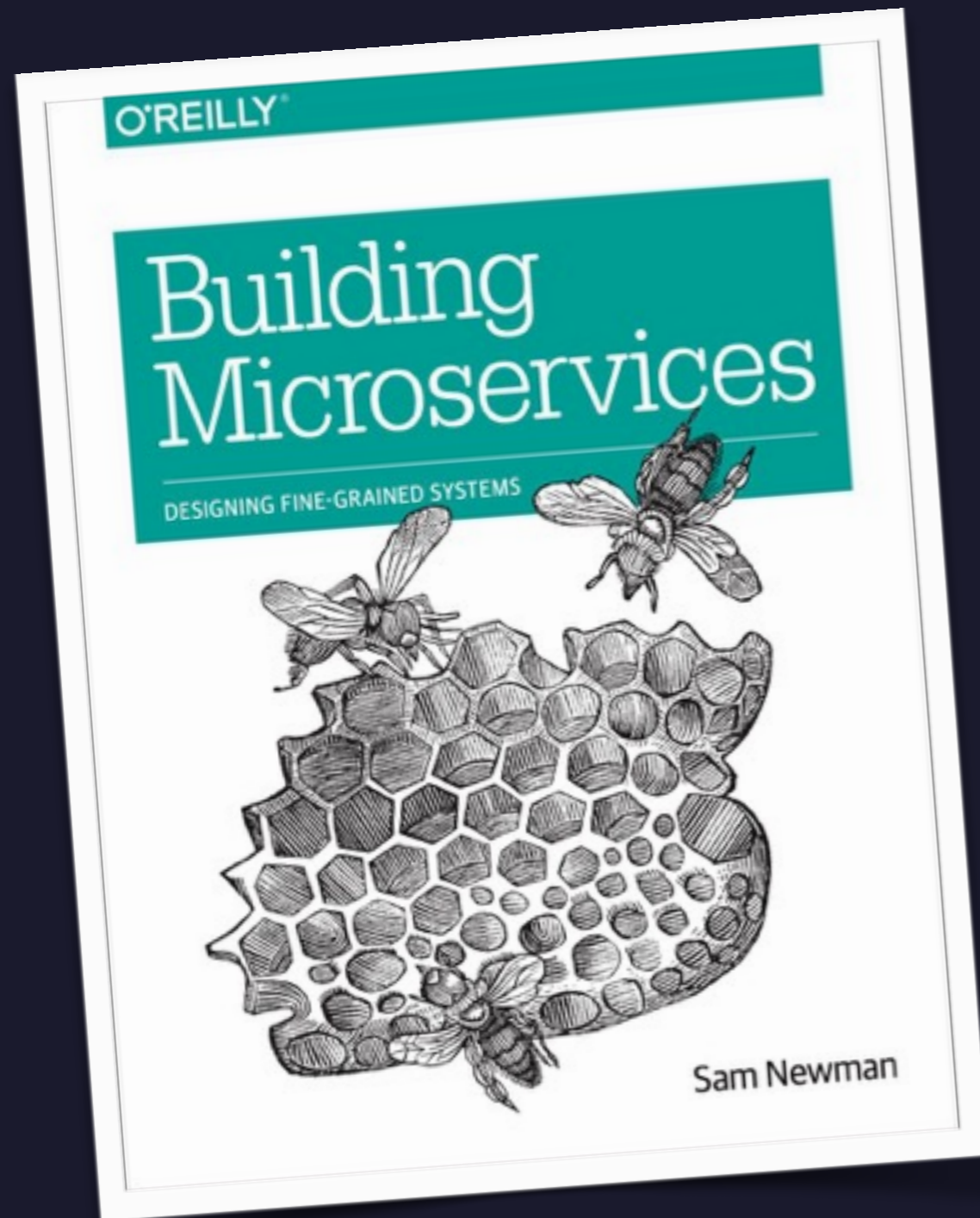
- **INTRODUCTION TO UNIT-TESTING
(WITH JUNIT)**
- **VERY LITTLE FOCUS ON SOFTWARE
TESTING OR SOFTWARE QUALITY IN
GENERAL**

2007



- **JAVA CODEBASE**
- **STARTED WITH UNIT-TESTING**
- **UNIT-TESTING WAS INTRODUCED BY DEVELOPERS FRESH FROM UNIVERSITY**
- **SLOWLY STARTED TO RUN TESTS ON THE BUILD SERVER**
- **A LITTLE BIT OF CONTINUOUS INTEGRATION**

MICROSERVICES?



- 53 SERVICES
- 450 MODULES

DEDICATED TESTING-TEAMS (PARTLY OUTSOURCED)



DEVELOPMENT TEAM



TEST TEAM



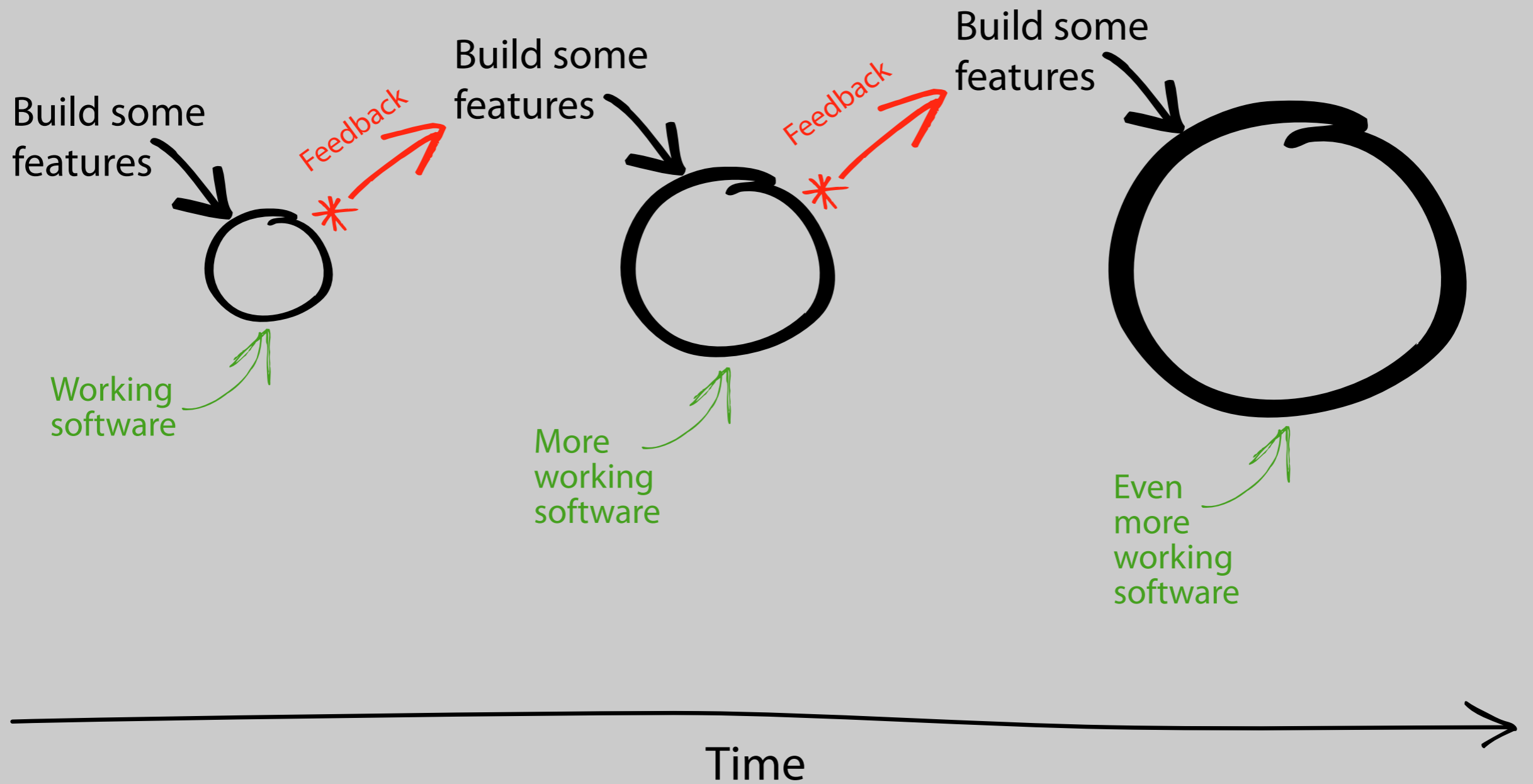
TEST TEAM (E.G. IN INDIA)

2010



- **FIRST CONTACT WITH SCRUM**
- **FIRST REAL NEED FOR AUTOMATED TESTING BECAUSE OF SHORTER DELIVERY CYCLES**
- **CONTINUOUS INTEGRATION SERVER RUNS TESTS AND QUALITY METRICS**
- **BUILD MONITOR / LAVA LAMP**
- **FIRST USAGE OF MOCKING FRAMEWORKS (E.G. MOCKITO)**

GROWING SOFTWARE

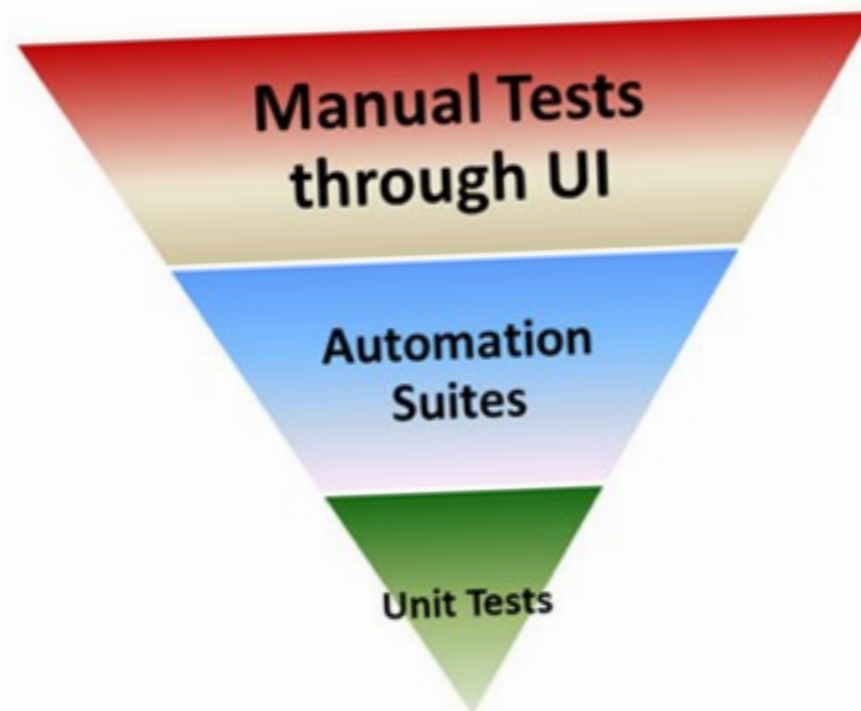


2012



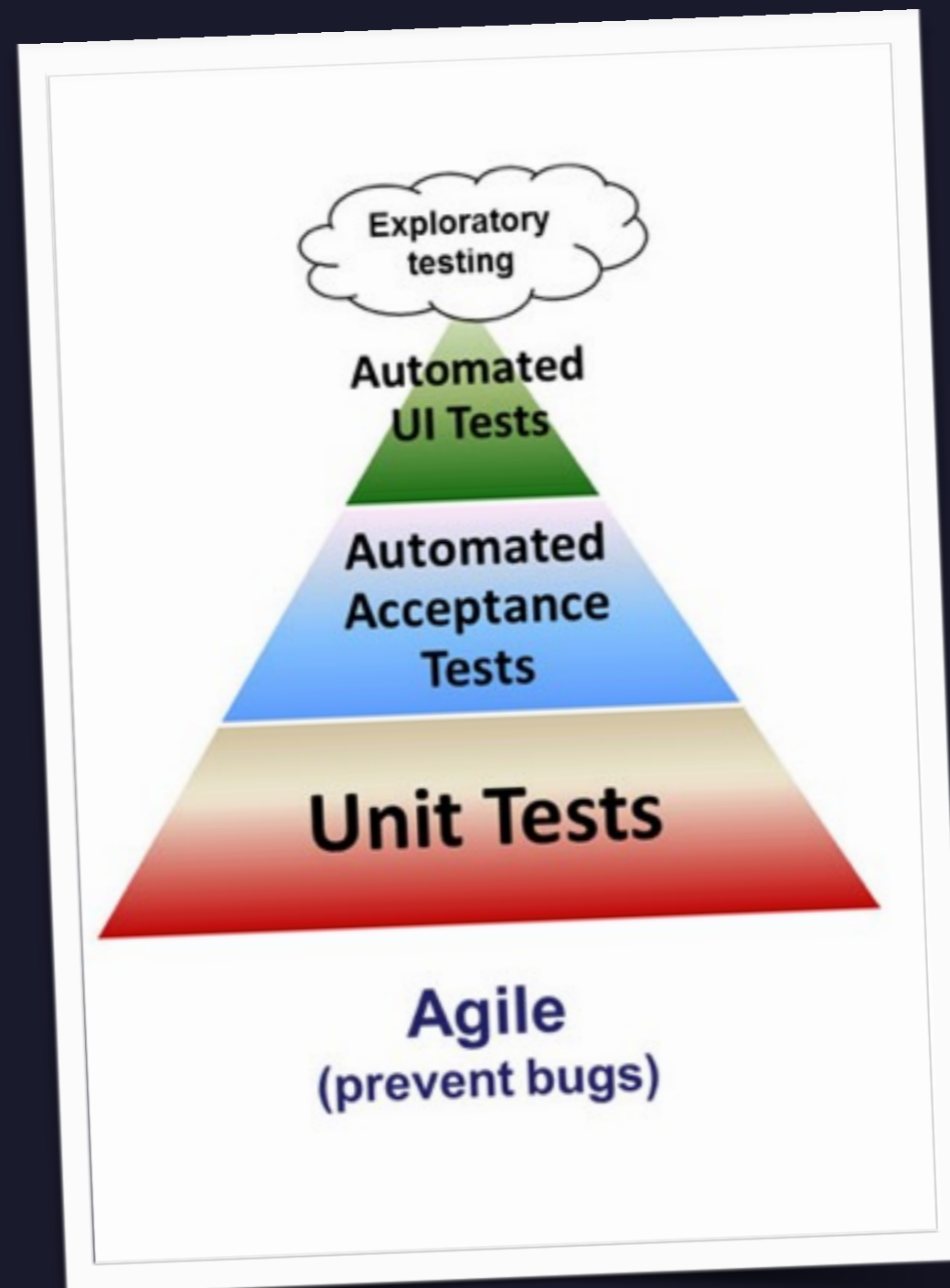
- **FULLY AGILE PROJECTS**
- **DIFFERENT LEVELS OF TESTING (TESTING PYRAMID)**
- **TDD (AND SOME BDD)**
- **BUILD PIPELINES, CONTINUOUS DELIVERY, BLUE-GREEN-DEPLOYMENTS, CANARY DEPLOYMENTS**
- **METRICS**
- **A/B-TESTING**
- **PERFORMANCE TESTING**

TESTING PYRAMID



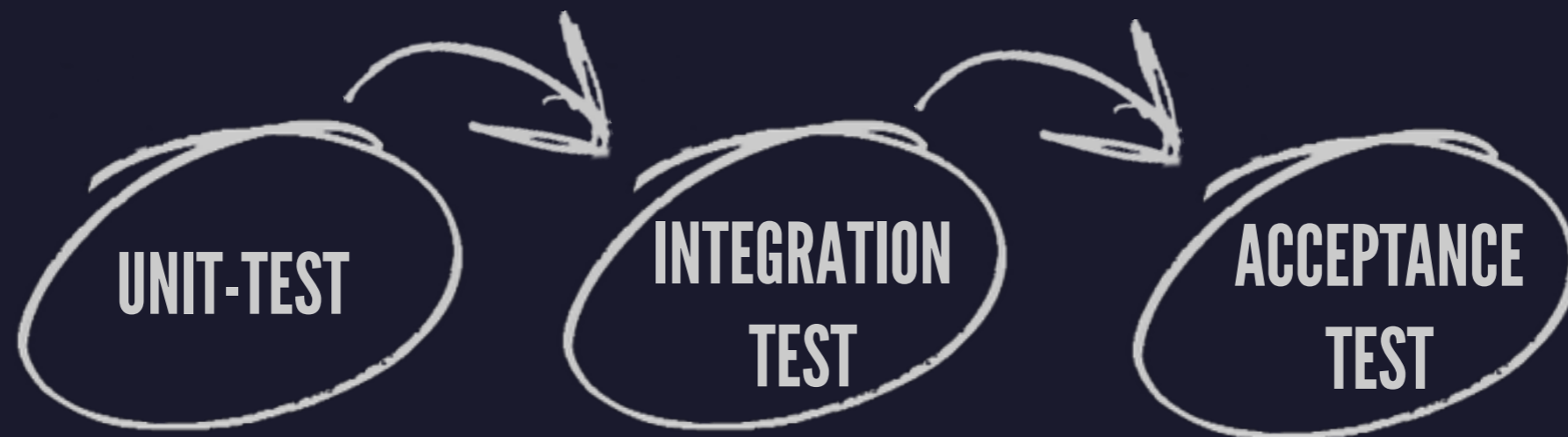
Traditional
(find bugs)

TESTING PYRAMID

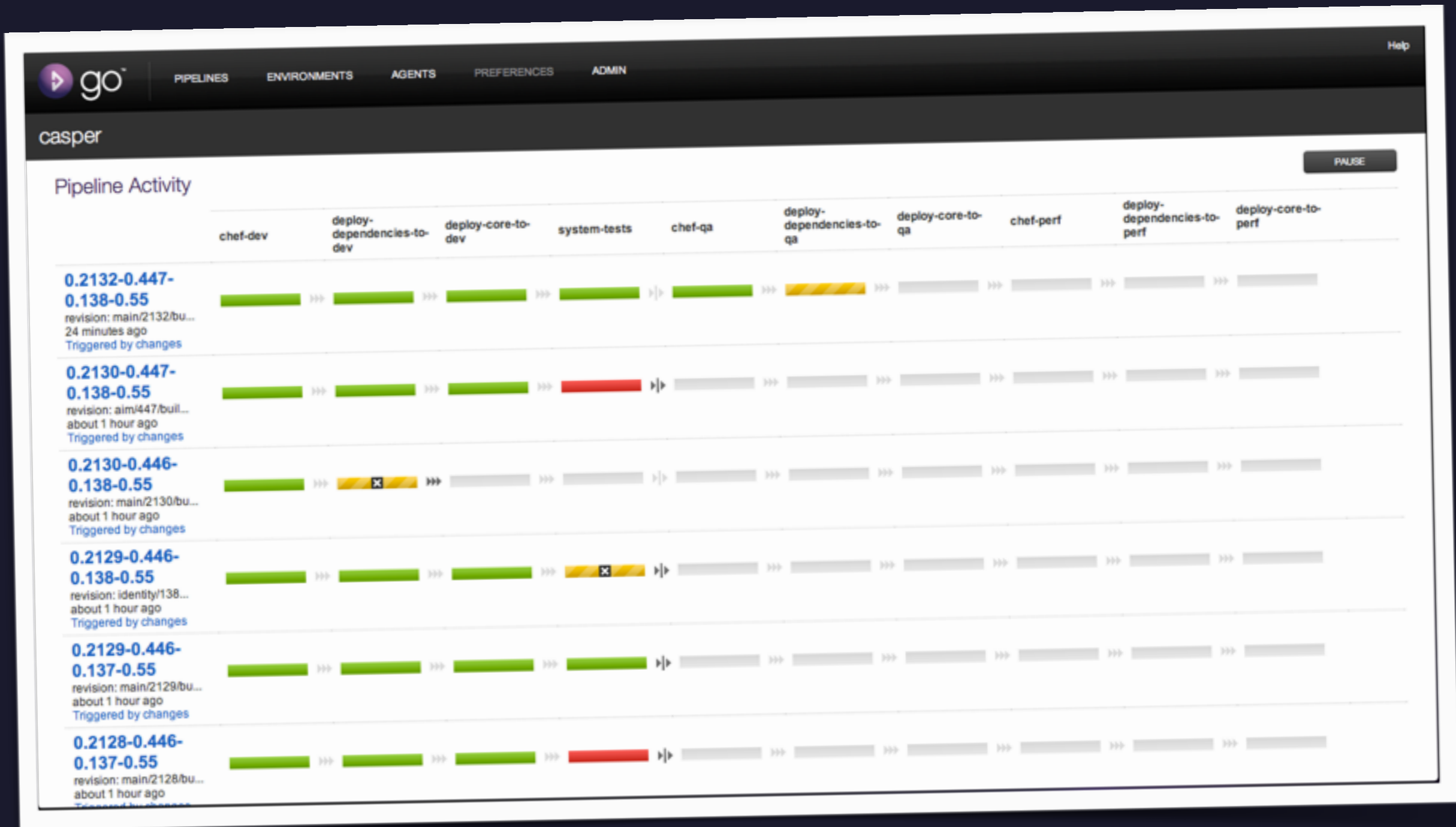


FEEDBACK LOOP !

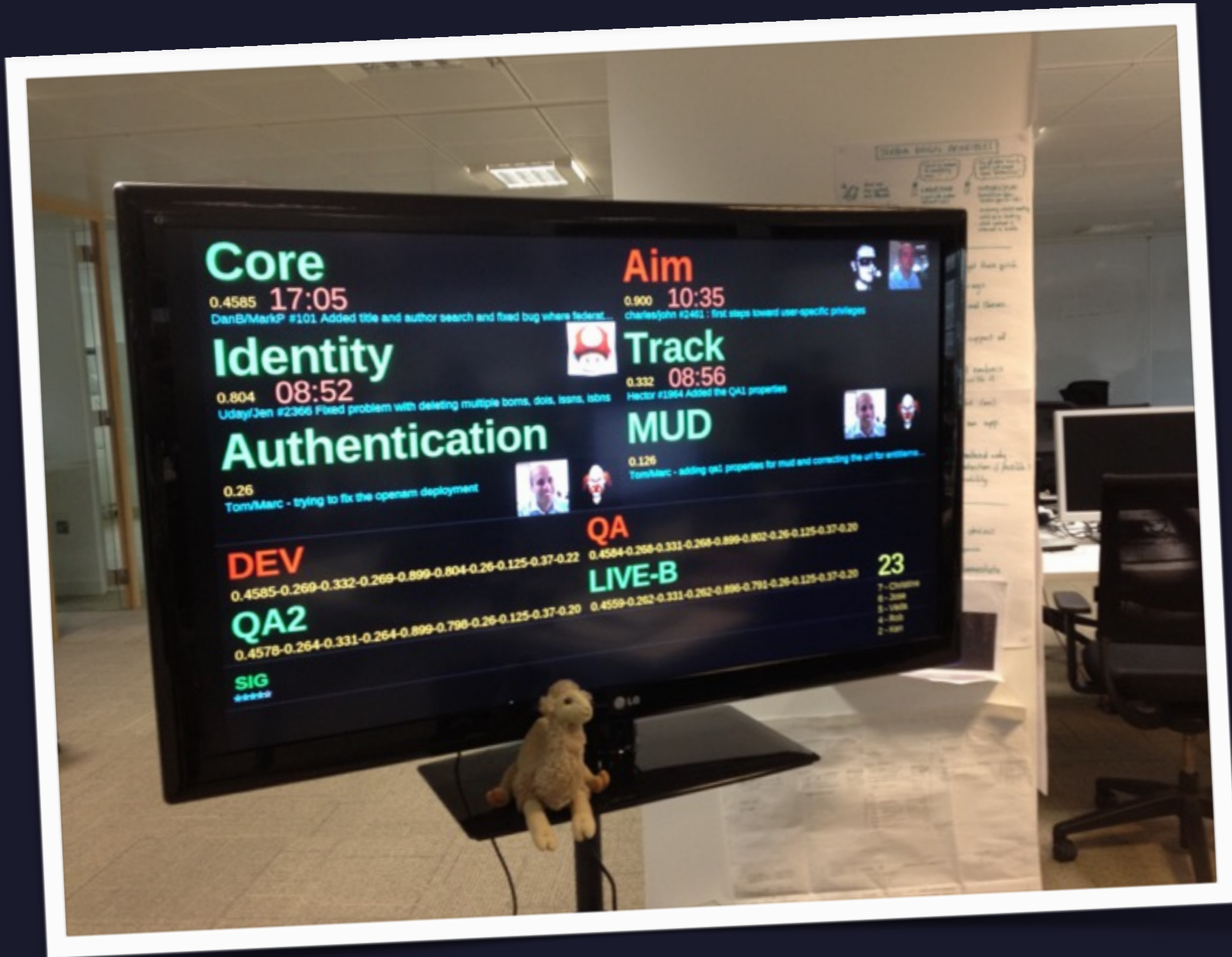
FEEDBACK LOOP !



BUILD/DEPLOYMENT PIPELINE



BUILD MONITOR



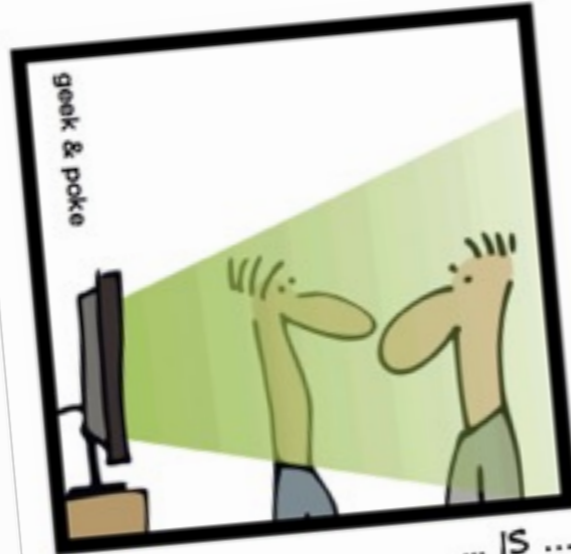
X-FUNCTIONAL TEAMS



CURRENT PROJECT



HAVING A GREEN HUDSON/JENKINS ...



... IS ...



... A GREAT EXPERIENCE

NEMO...





NEMO

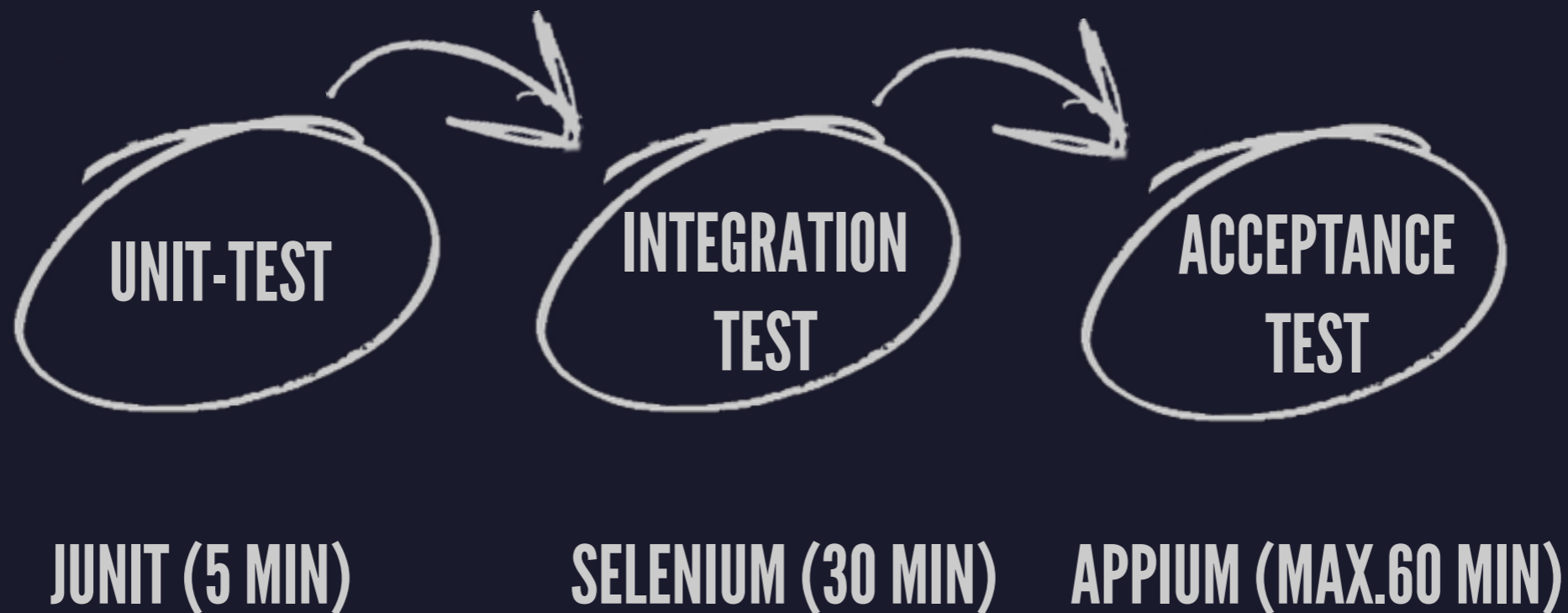


22 APPS



6 TEAMS

FEEDBACK LOOP !

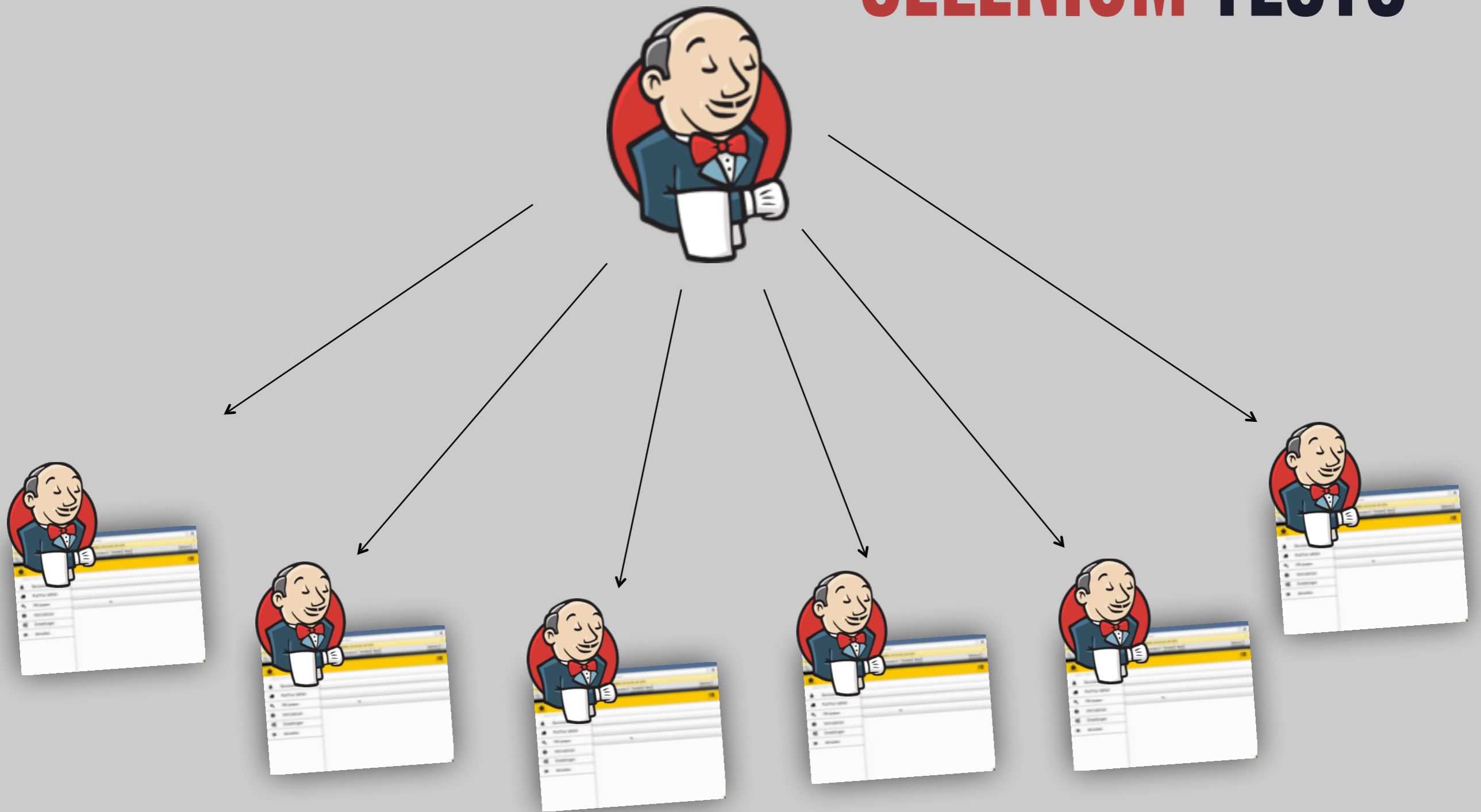


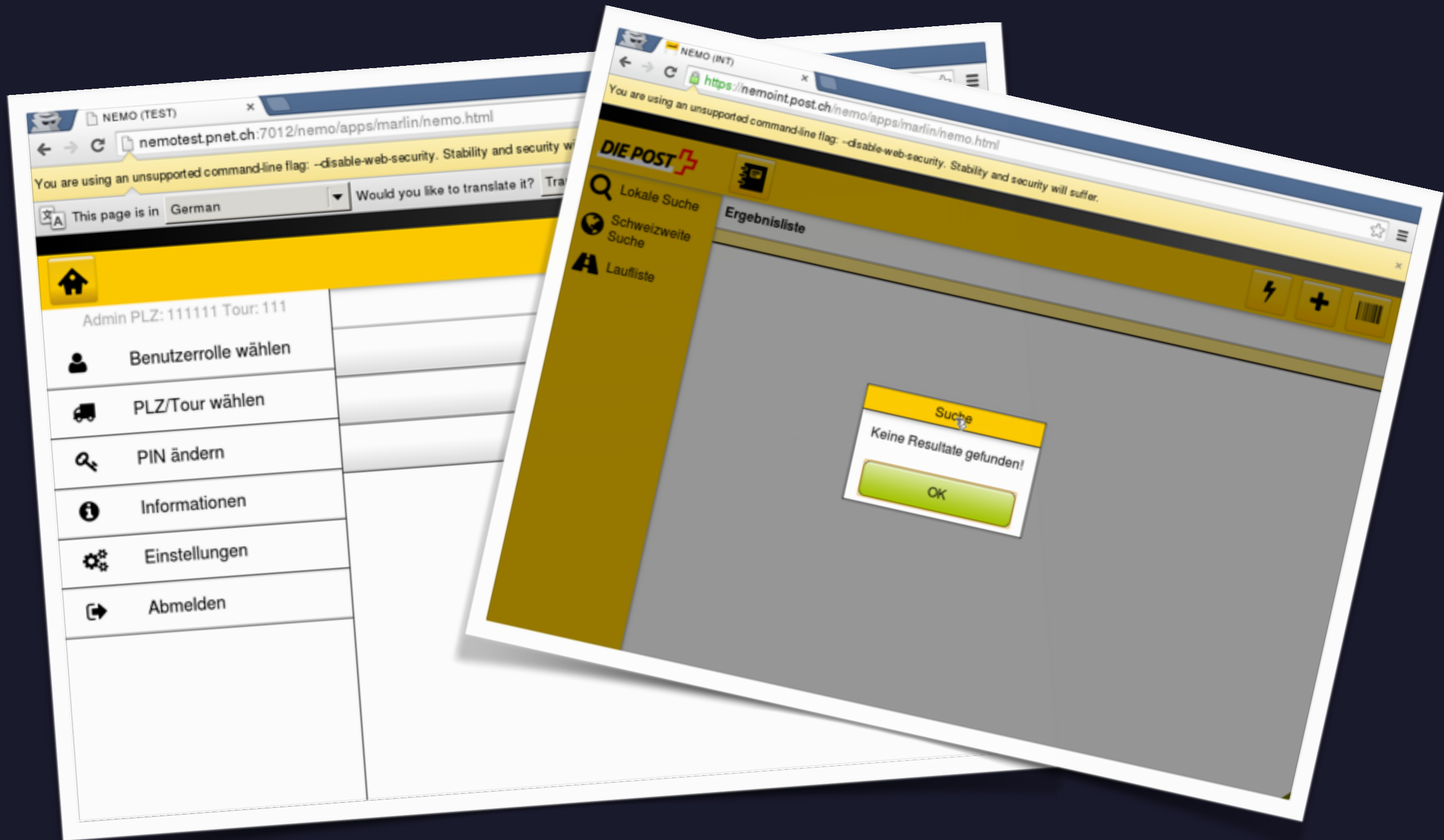
FEEDBACK LOOP !



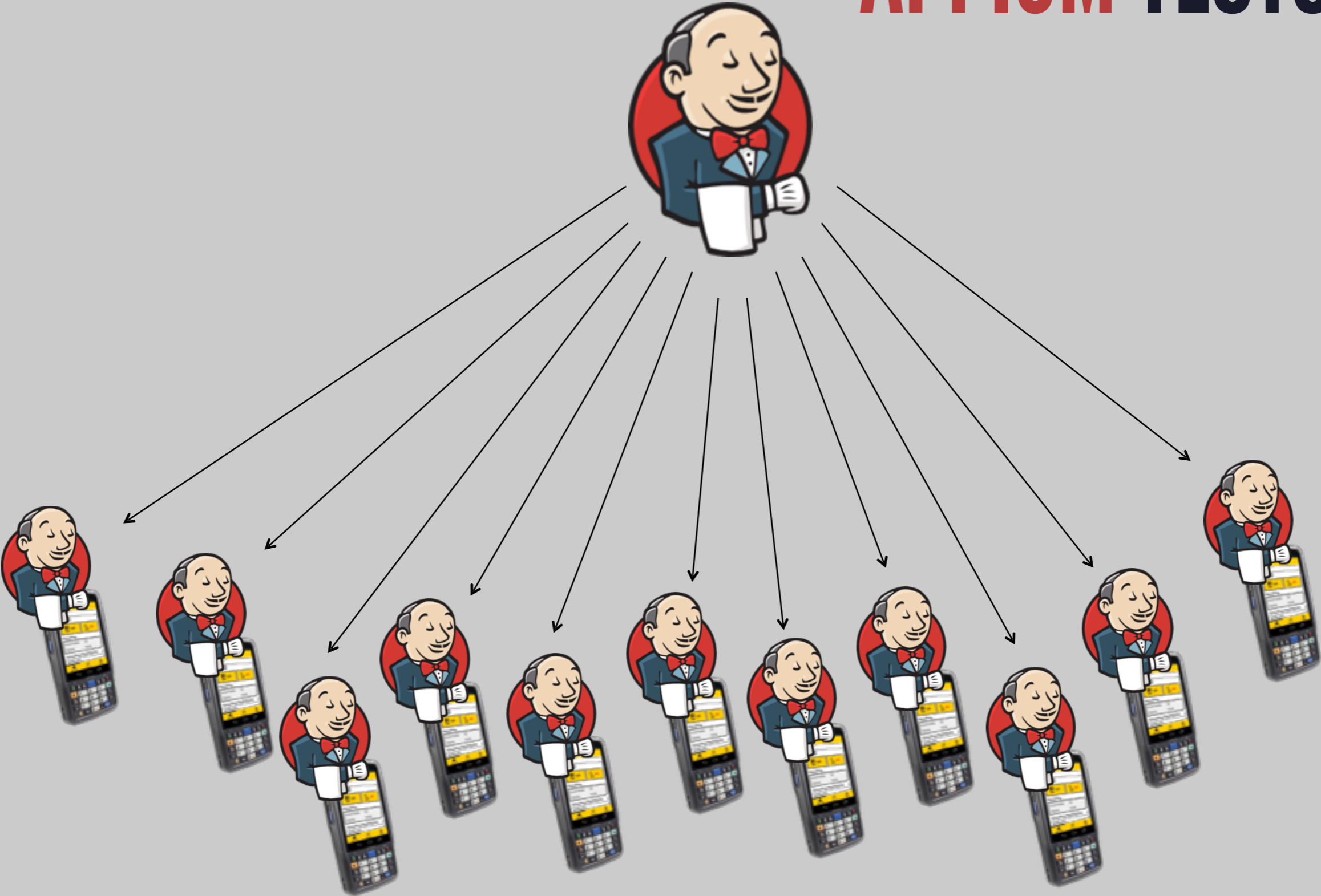
PARALLEL TESTING

SELENIUM TESTS





APPIUM TESTS







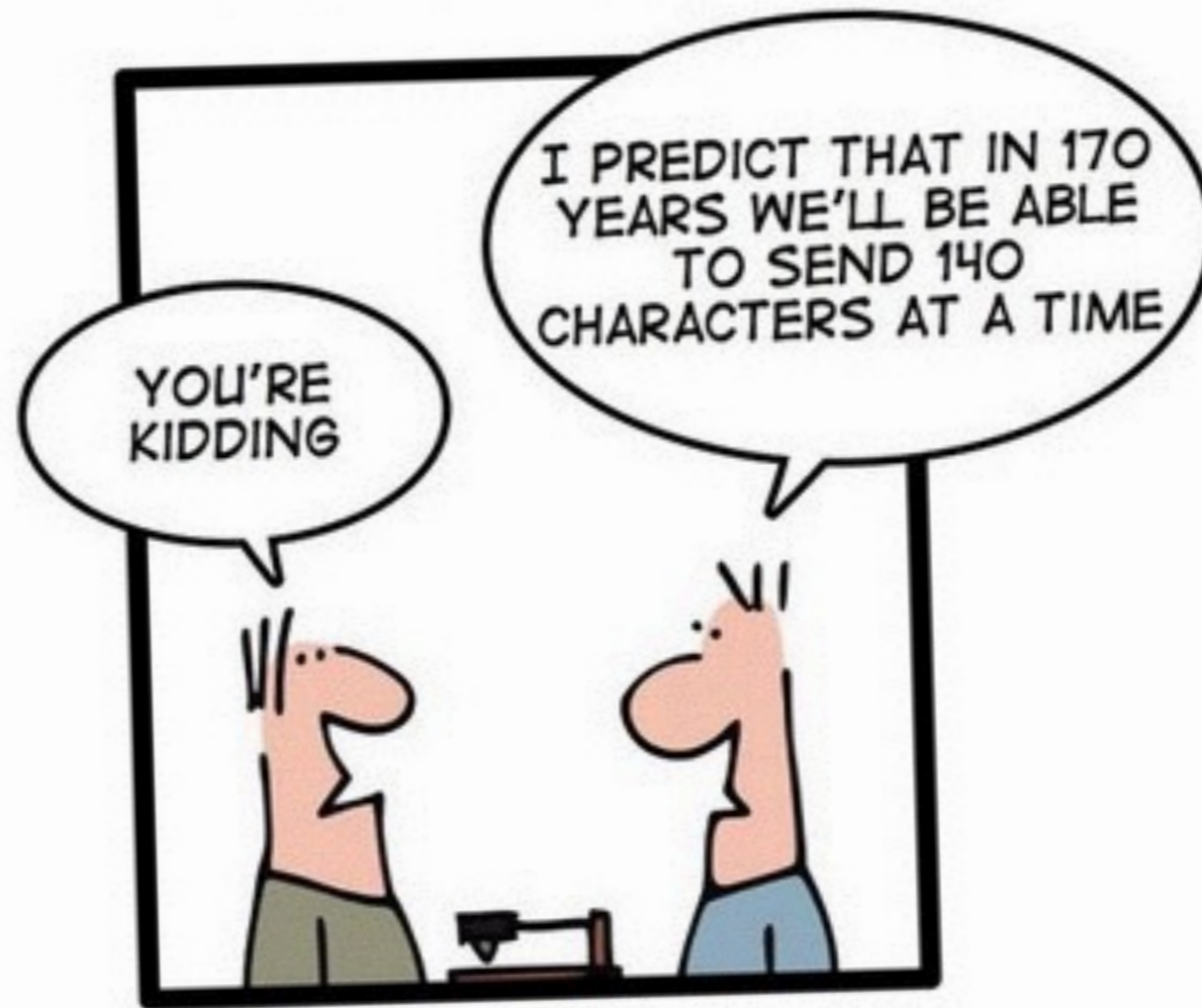
LEARNINGS

- **WRITE TESTS FROM THE START OF YOUR PROJECT (TDD)**
- **MOBILE TESTING IS DIFFERENT**
- **KEEP FEEDBACK LOOPS SHORT**
- **INVEST IN FUTURE STABILITY OF YOUR PRODUCT**



FUTURE OF TESTING

THE HISTORY OF COMMUNICATION



1836: THE FIRST TELEGRAPH WAS INVENTED

FUTURE OF TESTING

- **DEPLOYMENT CYCLES ARE GETTING SHORTER. COULD WE GO WITH LESS OR DIFFERENT KIND OF TESTS?**
- **TESTING IN PRODUCTION? MORE SEMANTIC MONITORING?**
- **MORE CANARY DEPLOYMENTS AND MORE METRICS INSTEAD OF MORE TESTS?**

EXPERIMENTS!!!!

A/B



A whiteboard with handwritten notes and diagrams. The notes are organized into sections with bullet points and arrows. There are also some small diagrams or flowcharts drawn on the board. The whiteboard is located in the background of the office.

A whiteboard with handwritten notes and diagrams. The notes are organized into sections with bullet points and arrows. There are also some small diagrams or flowcharts drawn on the board. The whiteboard is located in the background of the office.

A glass partition with many colorful sticky notes. The notes are in various colors (yellow, pink, blue, green) and are scattered across the glass. Some notes appear to be reminders or task lists. The glass partition is located in the background of the office.

A whiteboard with handwritten notes. The notes are organized into sections with bullet points and arrows. There are also some small diagrams or flowcharts drawn on the board. The whiteboard is located in the background of the office.

“YOU BUILT IT, YOU RUN IT!”

- werner vogels (cto amazon)

FUTURE ROLE OF A TESTER?



WHAT IS IN FOR YOU?



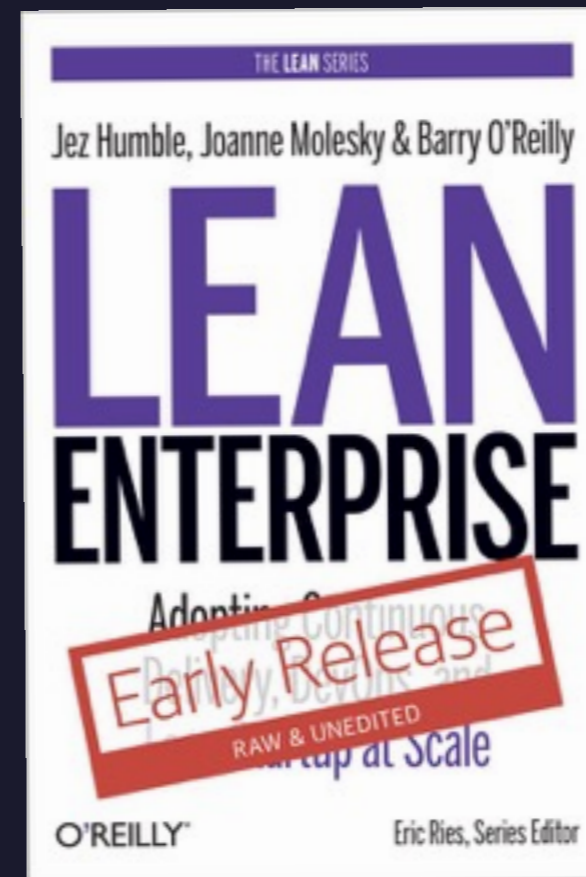
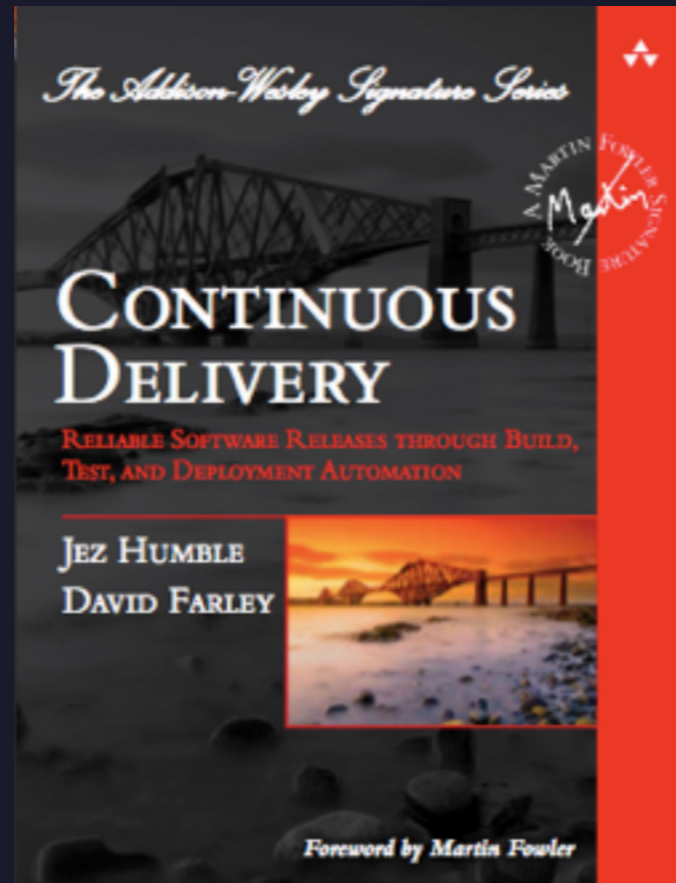
WHERE SHOULD YOU FOCUS?

- **PRACTICE TDD**
- **UNDERSTAND THE TESTING PYRAMID AND BUILD PIPELINES**
- **LEARN AND PRACTICE CONTINUOUS DELIVERY (ZERO DOWNTIME AND E.G. BLUE GREEN DEPLOYMENT).**

FRAMEWORKS & TOOLS

- **JUNIT, MOCKITO**
- **BDD E.G. WITH CUCUMBER**
- **SELENIUM TESTS**
- **BUILD PIPELINES: GO-CI, SNAP-CI**

CONTINUOUS DELIVERY & LEAN ENTERPRISE



OUR GOAL IS TO WRITE
BUG-FREE SOFTWARE.
I'LL PAY A TEN-DOLLAR
BONUS FOR EVERY BUG
YOU FIND AND FIX.



S. ADAMS E-mail: SCOTTADAMS@aol.com

YAHOO!
WE'RE
RICH



YES !!!
YES !!!
YES !!!



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I HOPE
THIS
DRIVES
THE RIGHT
BEHAVIOR.

I'M GONNA
WRITE ME A
NEW MINIVAN
THIS AFTER-
NOON!



GOOD DEVELOPERS ARE GREAT ... TESTERS!

THANKS FOR
LISTENING
m@re-hofer.ch

