

Why Automated Testing on The Mainframe Is a Strategy You Can't Refuse

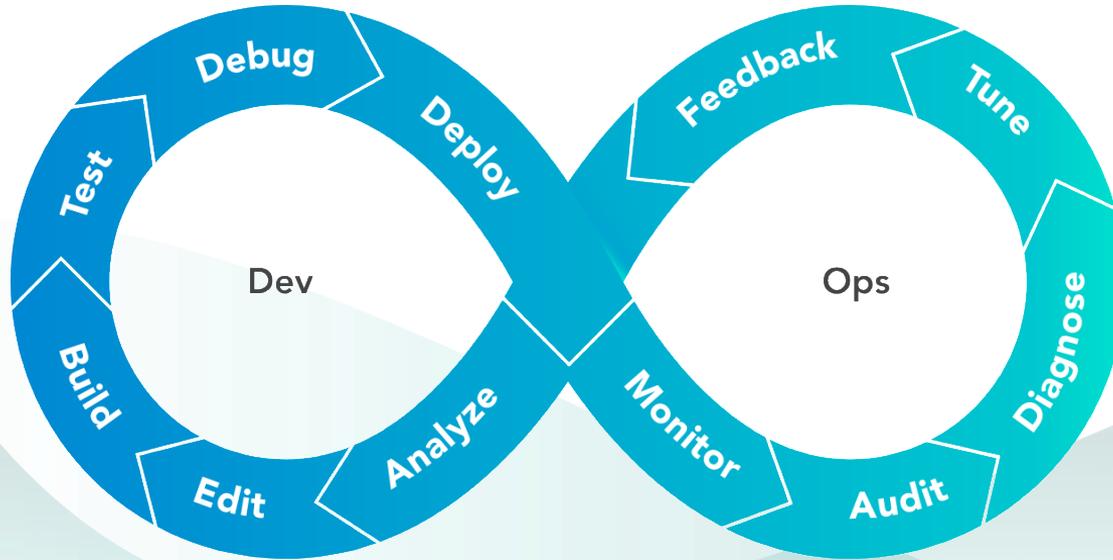
Steen Brahe, Product Manager

June, 04, 2020

Questions to be answered during the webcast

- Why is automated testing a key ingredient in accelerating innovation and keeping high quality?
- How do you adopt automated testing practices?
- What Automated Testing Solution do you need?

Why Automated Testing



Velocity

Deliver products faster

Quality

Ensure high quality with visibility

Efficiency

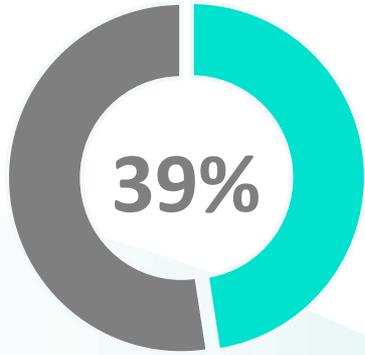
Reduce manual rework

Global Study on Test Automation Practices

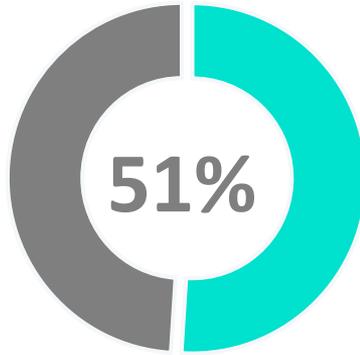


<https://resources.compuware.com/vanson-bourne-automated-testing-survey>

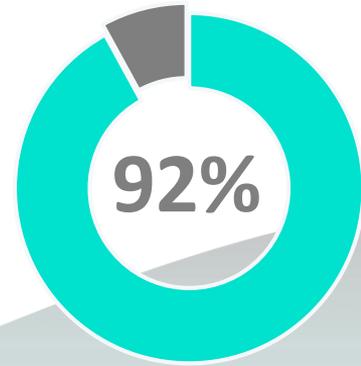
App Dev Managers: Manual Testing Is a Drain on Resources



say these processes
are costly and drain
budget



of development team's time
is spent on testing during release
of new mainframe application,
feature or functionality



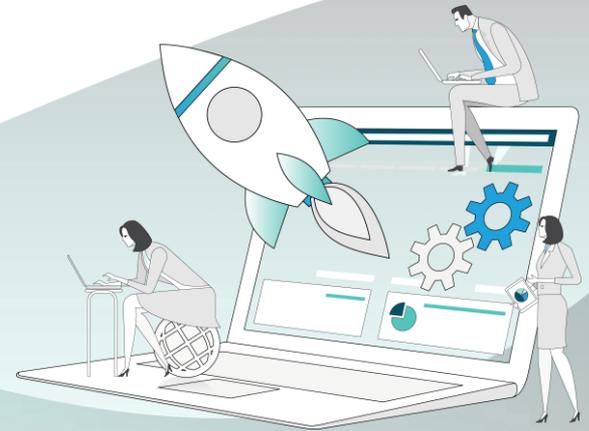
say that growing complexity of
cross-platform application
environments has increased
time spent testing code

"[Test Automation: The Key to Increasing Velocity, Quality and Efficiency](#),"
survey conducted by Vanson Bourne on behalf of Compuware, 2019

App Dev Managers: Challenges of Test Automation Are Holding Businesses Back

- **80%** say that unless they automate more test cases, bad code will inevitably make it into production
- **87%** believe automating mainframe test cases will be crucial to overcoming growing skills shortages
- **90%** say that increasing automated testing could be single most important factor to their success
- **Only 7%** of organizations automate execution of test cases on mainframe code

"Test Automation: The Key to Increasing Velocity, Quality and Efficiency,"
survey conducted by Vanson Bourne on behalf of Compuware, 2019



Experiences from "the wild"



<https://resources.compuware.com/forrester-tei-topaz-for-total-test-lp>

Customer Shared Experiences Before and After Using Topaz for Total Test

Key Drivers

- DevOps transformation
- Value stream mapping identified areas of opportunity
- Manual testing was slow and error prone

Pilot Results

- 6-month pilot
- Set aspirational target for 20% improvement in developer productivity
- Actual results: 233% increase in dev productivity
- 83% decrease in bugs
- Reduced time to setup unit tests by 80%

Business Results

- Enabled DevOps culture change
- Reenergized workforce
- More work with same resources
- Virtually bug free
- Payback of initial investment <3 months
- 4-month reduction in developer ramp up time to productivity

"The Total Economic Impact of Compuware Topaz for Total Test," a commissioned study conducted by Forrester Consulting on behalf of Compuware, September 2019

Actual Results

Figure 1

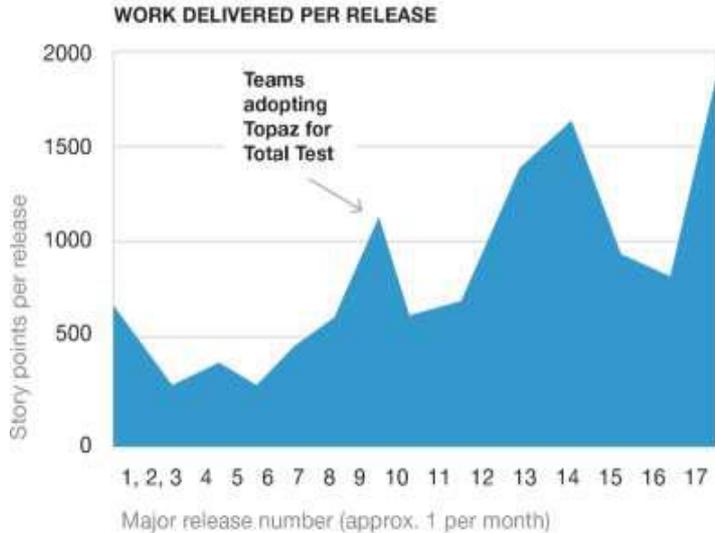
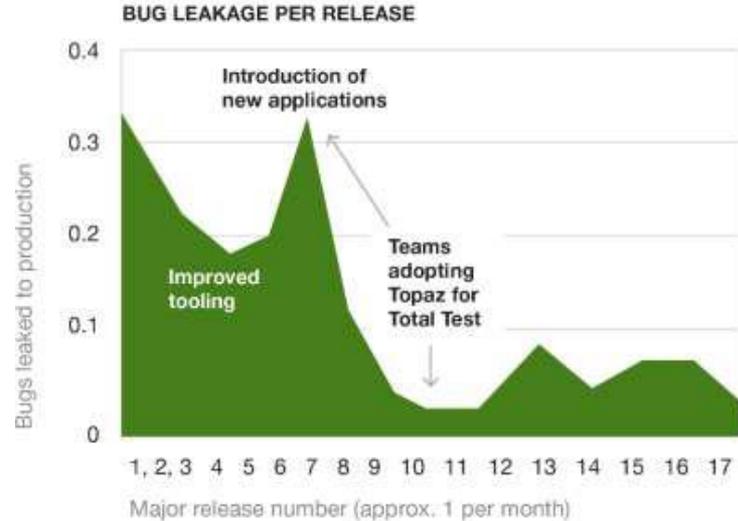


Figure 2



Used conservative averages in the calculations

How do you get started?

How do you get started as an organization

- Start Small, Learn, Educate, Standardize, Expand
- Pick a small team that is motivated to learn and adopt test automation
- Measure velocity and bugs before adoption
- Team follows “How to get started as an Individual”
- Measure velocity and bugs after adoption
- Establish best practices and processes based on team experiences
- Establish a “Test Automation Knowledge Center”
- Expand to other teams
- Measure adoption

“Automated Testing is not just about CI/CD pipelines”, Manual execution of automated test cases is the first step and where most waste is removed.

How do you get started as an individual

1. Find a simple Batch program for first test case
2. Create, execute and modify test cases
3. When familiar with the tool, pick a more complex program and repeat 1-2
4. Use code coverage with test cases to make sure test coverage is sufficient
5. Get familiar with a Version Control Management system like Git and start to share test cases
6. Try setting up a Jenkins/XL Release / Azure Devops /... Pipeline to run the tests
7. Understand that there are several tools in the toolbox. Different problems need different tools.

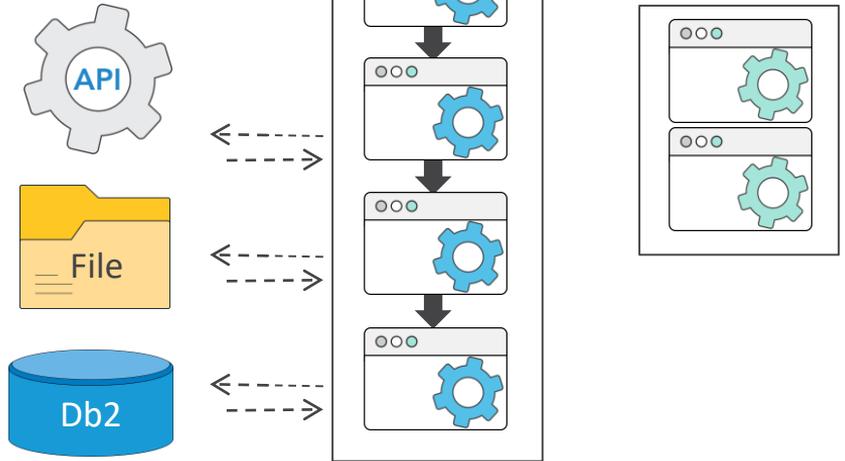
What Test Automation Solution Do You Need?

What Developers and QA Need

Dev

Program A

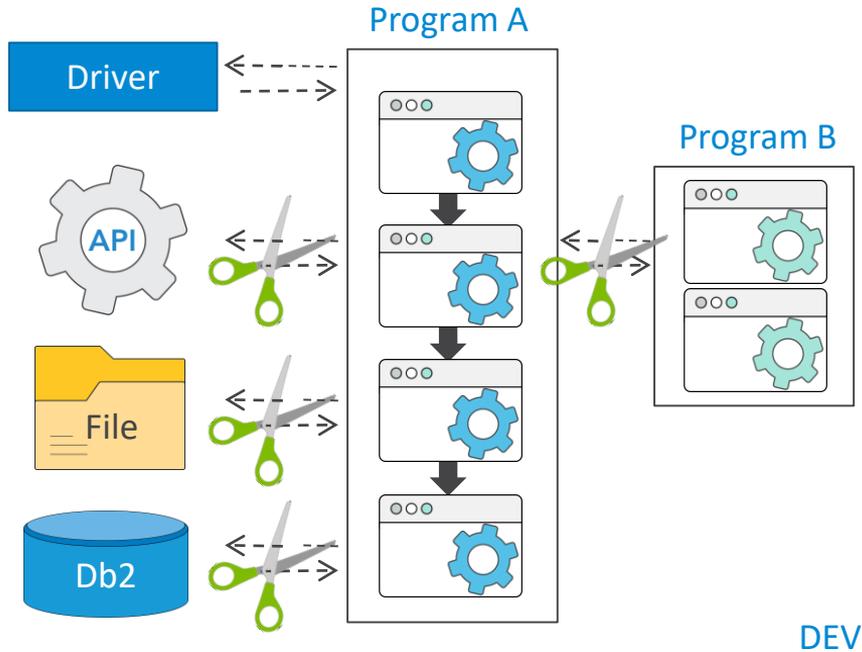
Program B



DEV

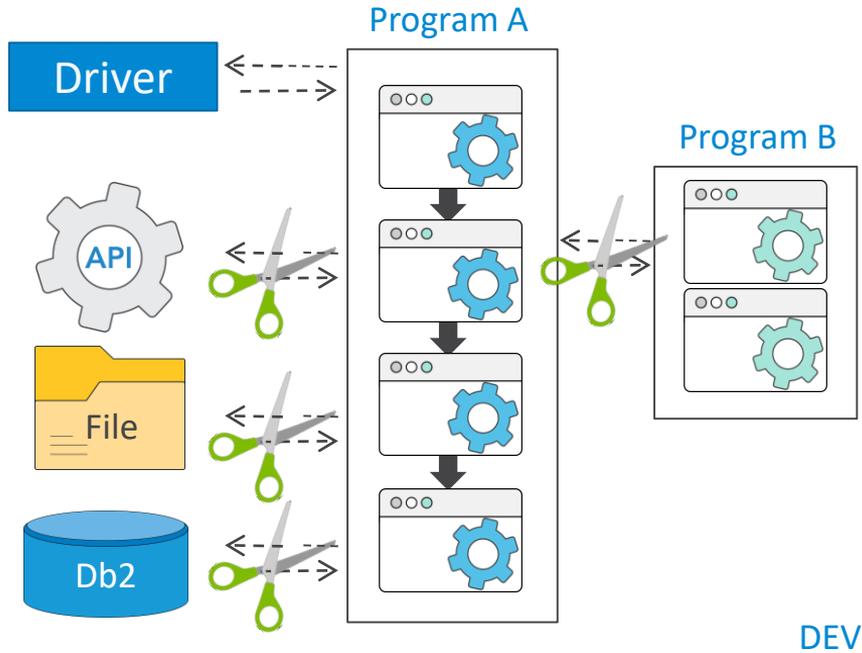
What Developers and QA Need

Dev: Need Virtualized Environment and Data

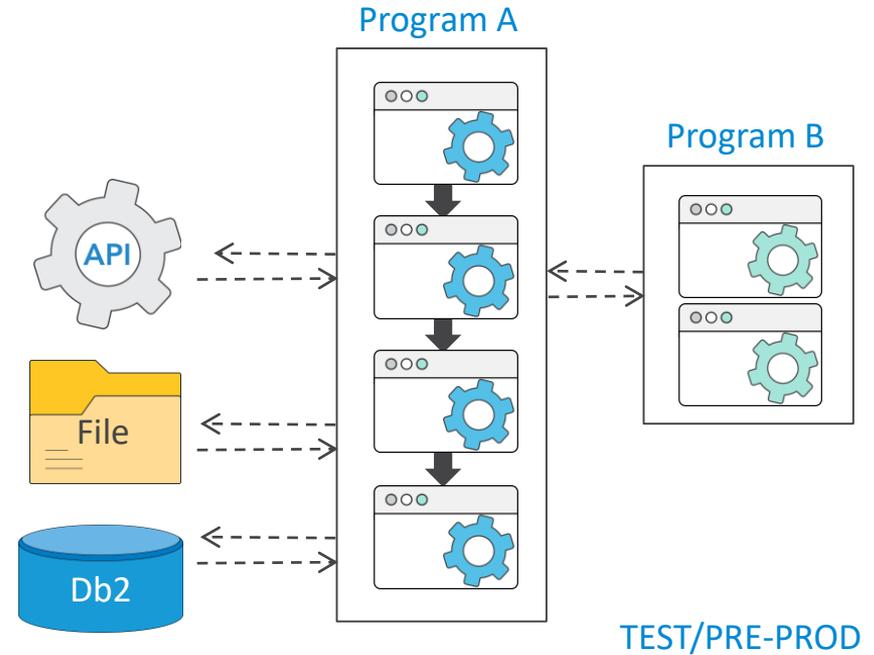


What Developers and QA Need

Dev: Need Virtualized Environment and Data

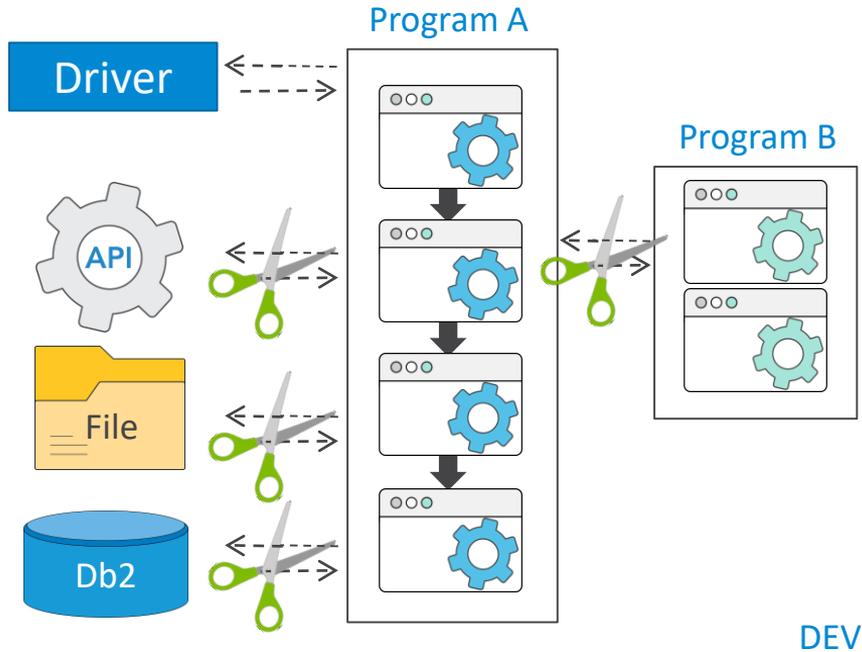


Dev/QA

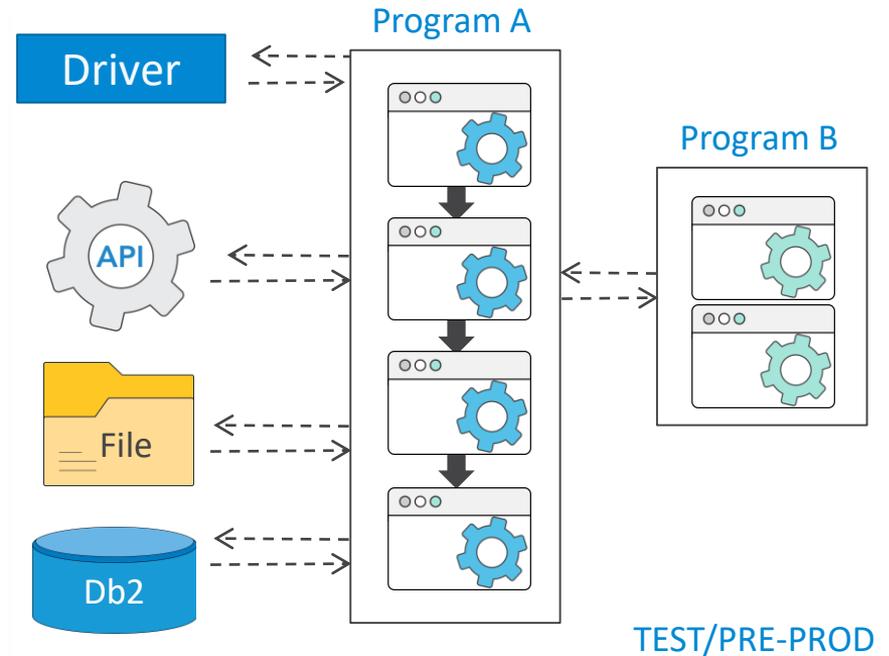


What Developers and QA Need

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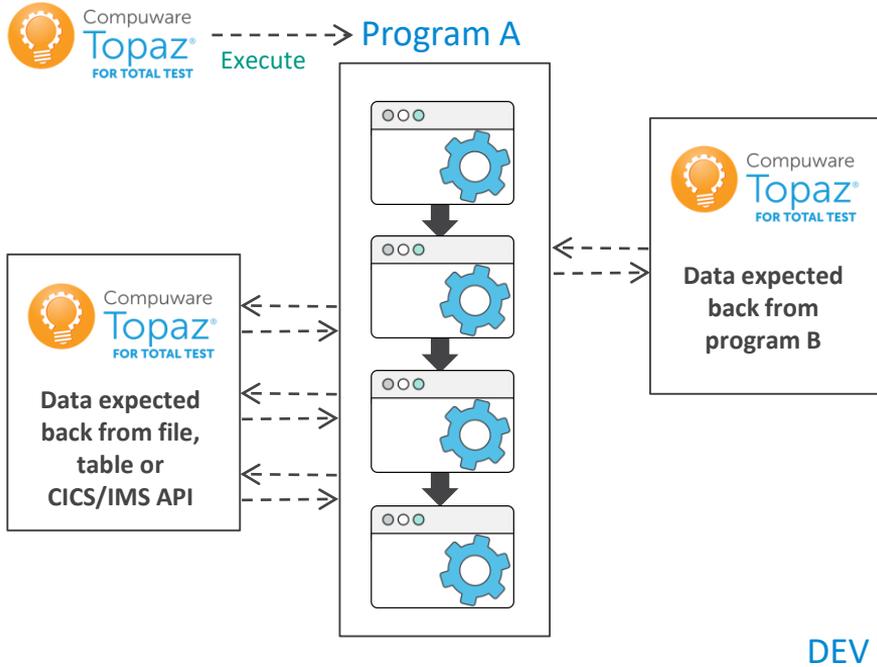


Dev/QA: Need Real Environment and Data

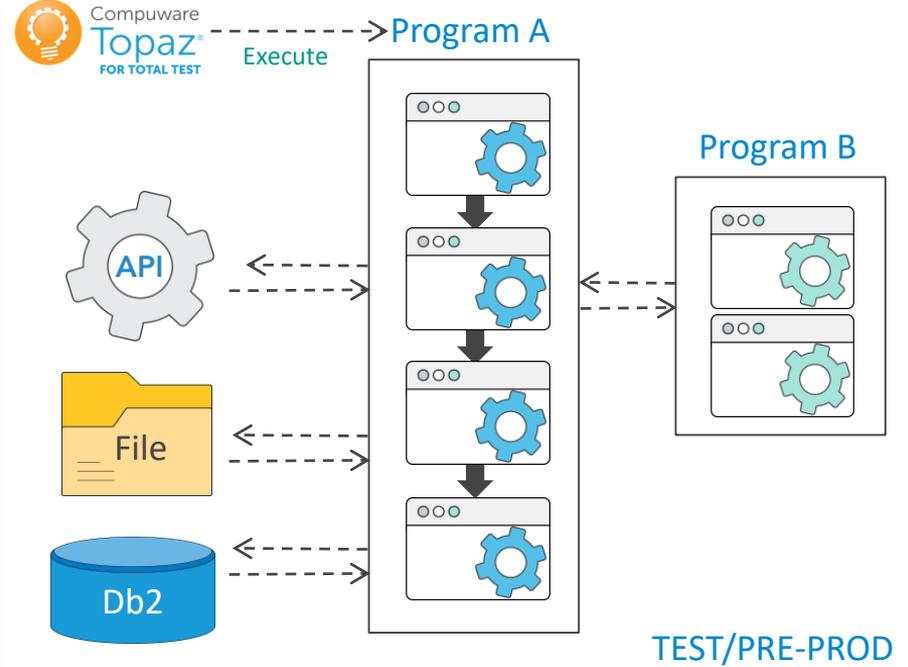


Topaz for Total Test

Dev: Need Virtualized Environment and Data

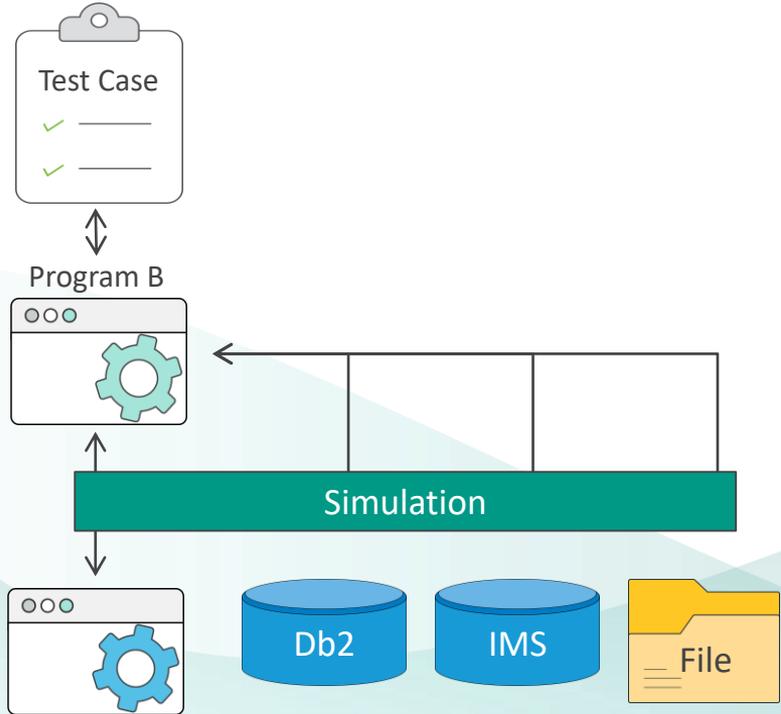


Dev/QA: Need Real Environment and Data

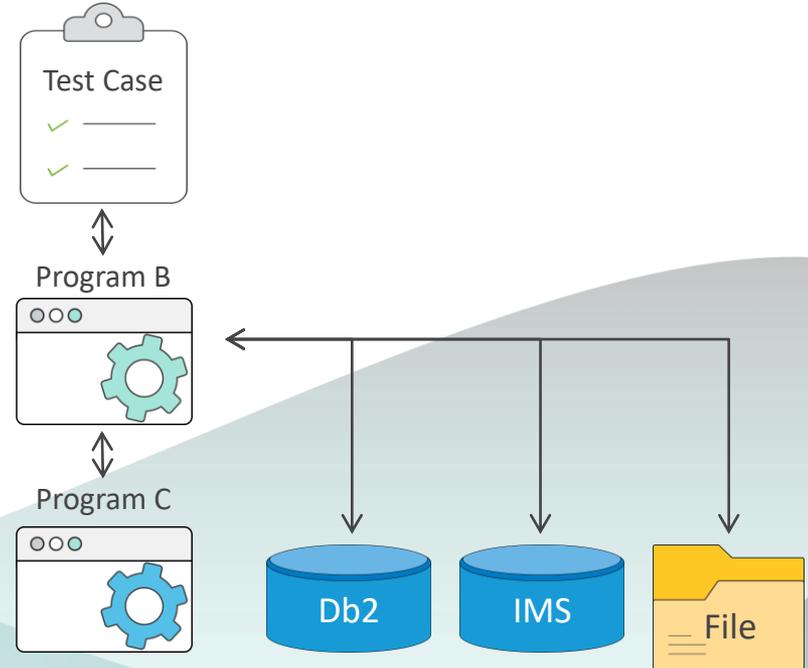


Concepts

Virtualized



Non-Virtualized



Benefits

Virtualized

- Independent
 - Other developers
 - Administrators
- Repeatable
- No interference
 - Non-destructible
 - Non-destructive
- Portability
- Control of execution
- Quick feedback
- Ideal for unit testing
- Improve velocity

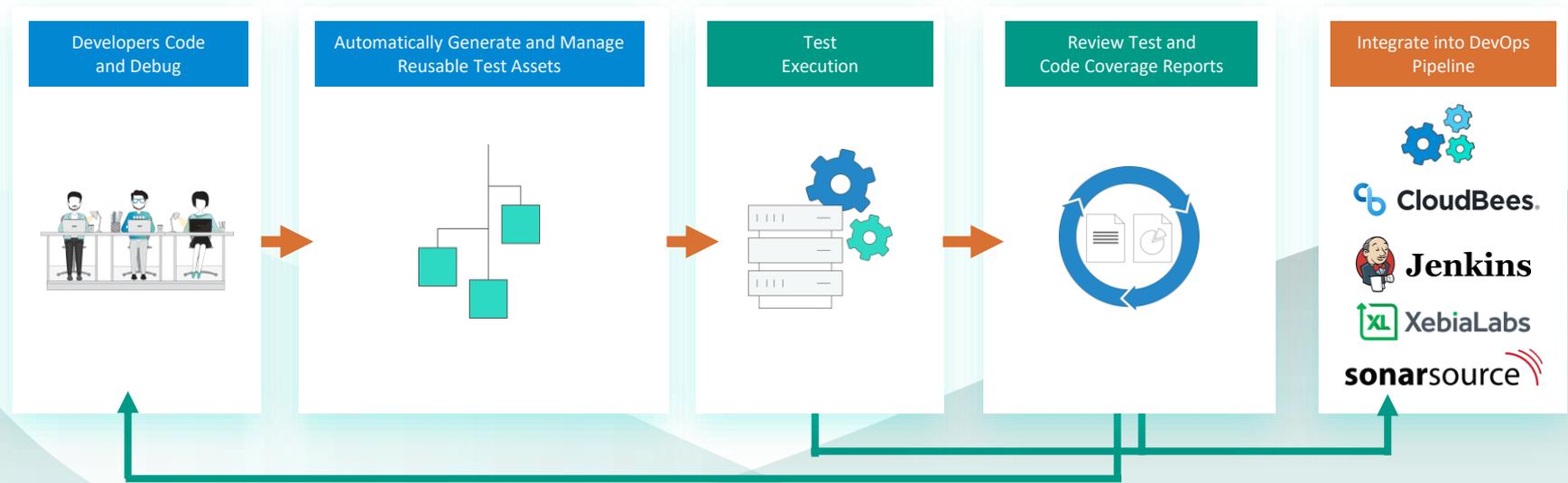
Non-virtualized

- Wider scope of tests
- More realistic test scenarios (Does it really work?)
- Test side effects
 - On environment
 - On other programs
- Interdependence/collaboration between programs
- Ideal for higher-level testing: Functional, component and requirements
- Improve quality

DevOps Pipeline Integration

Test Creation

Test Execution



Demo

Summary

- Automated testing enables business **agility** by improving **velocity and quality** of delivering software
- 90% of mainframe development managers believe automated testing is the most significant key to success.
- Developer efficiency has been measured to increase with a factor 3 while number of bugs decreased with 83% and a ROI of nearly 500%.
- Start Small, Learn, Educate, Standardize, Expand
- Compuware provides a very powerful and flexible test automation solution for mainframe applications that fits into most organizations needs.

Questions & References

- For more information,
 - Topaz for Total Test
 - <https://www.compuware.com/topaz-for-total-test-automation/>
 - Best practices guide:
 - https://devops.api.compuware.com/guidelines/ttt/ttt_best_practices.html#unit-functional-and-integration-testing
 - Vanson Bourne global study
 - <https://resources.compuware.com/vanson-bourne-automated-testing-survey>
 - Forrester Total Economic Impact report:
 - https://resources.compuware.com/forrester_tei_topaz_for_total_test_lp

