

# Visual Studio Test Professional

Eliminate the “no repro” bug...

## **Randy Pagels**

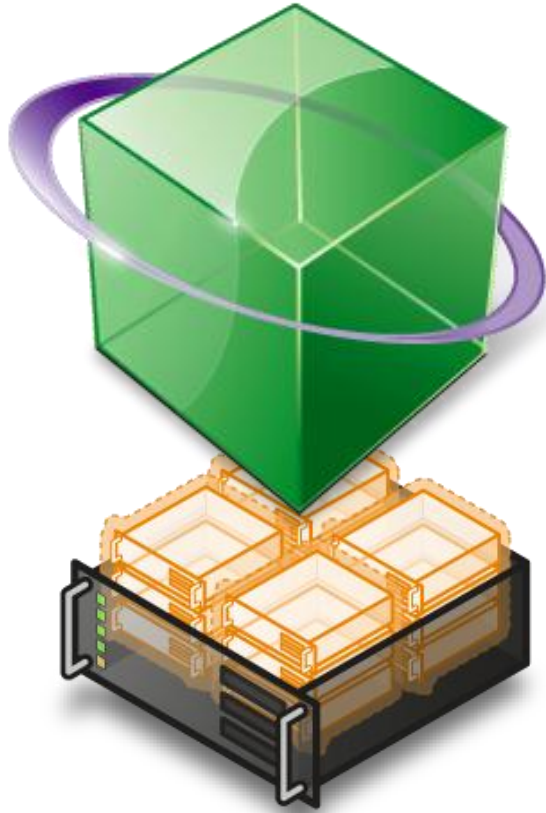
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# Agenda



- Test Planning
- Manual Testing
- Rich Bug Generation
- Automated Testing
- Exploratory Testing
- Lab Management
- Test Progress Reporting

# Have you heard any of these?

"my testers are spending too long testing the same thing"

"we have a changed requirement, what do I need to test?"

"developers and testers work in silos and don't communicate/speak the same language"

"tooling is expensive (time, licenses, people)"

"the developers say the defects are useless"

"when is my software ready to ship?"

# What if you could...

reduce the time it takes to determine the root cause of a bug

reduce the time it takes to verify the status of a reported bug fix

reduce the time it takes to isolate differences between the test and production environment

enable users to easily run acceptance tests and track their results

reduce the time it takes to replicate a bug uncovered by user actions

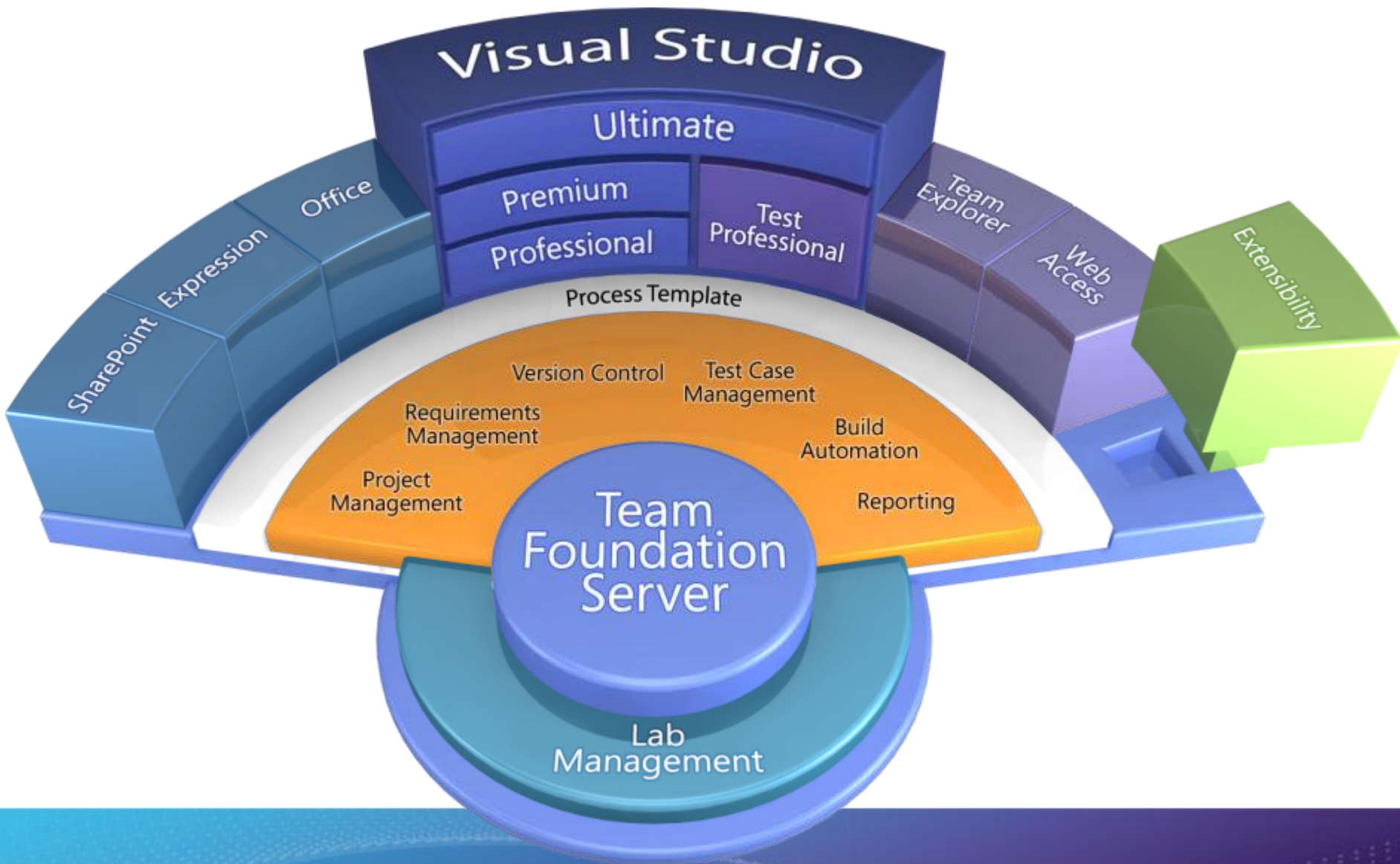
Welcome to the revolution

Its Time For Change

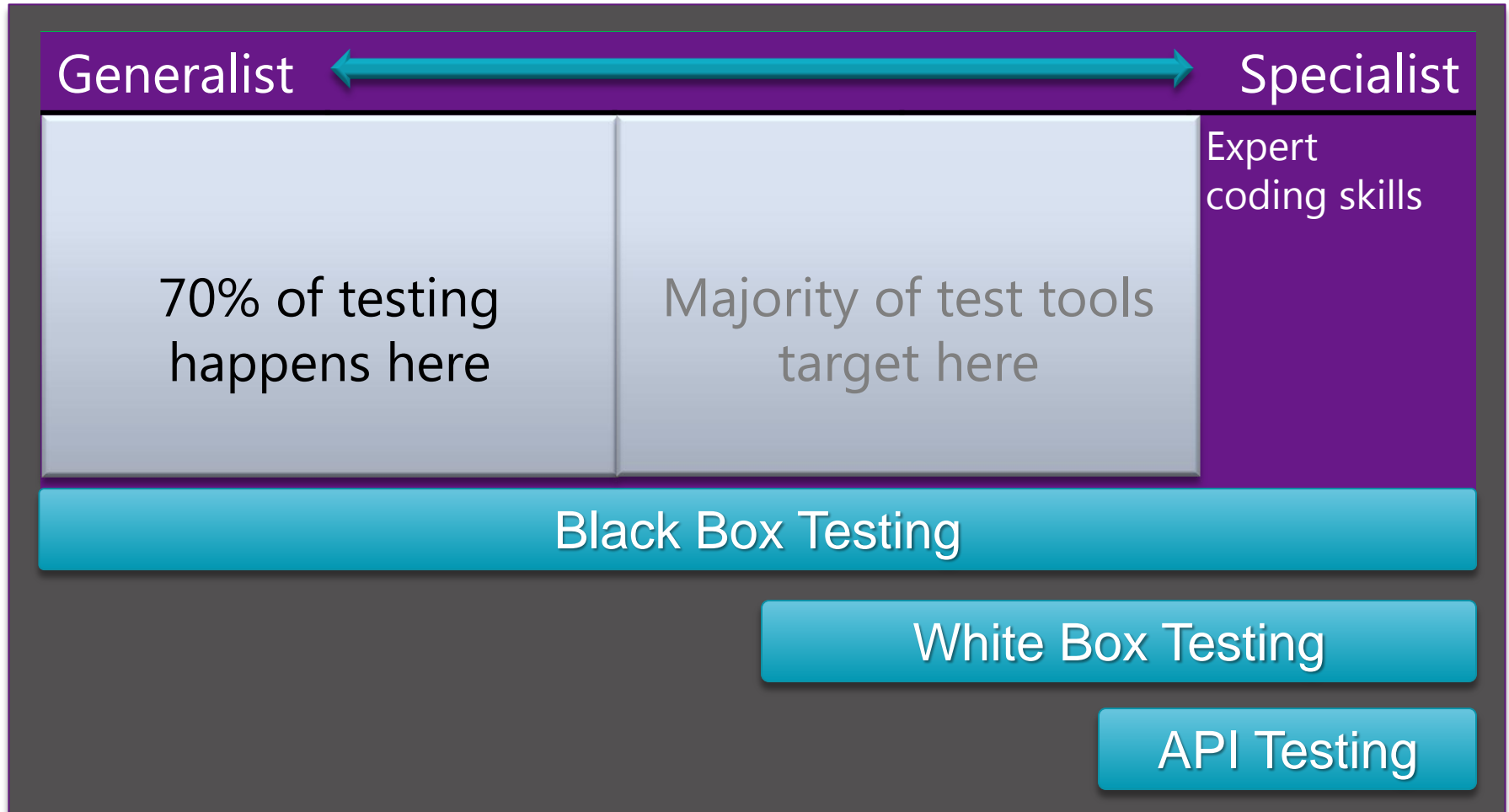
A 3D graphic featuring a sequence of spheres transitioning from white to blue, with a blue arrow pointing right, set against a background of a blue and purple wavy line.



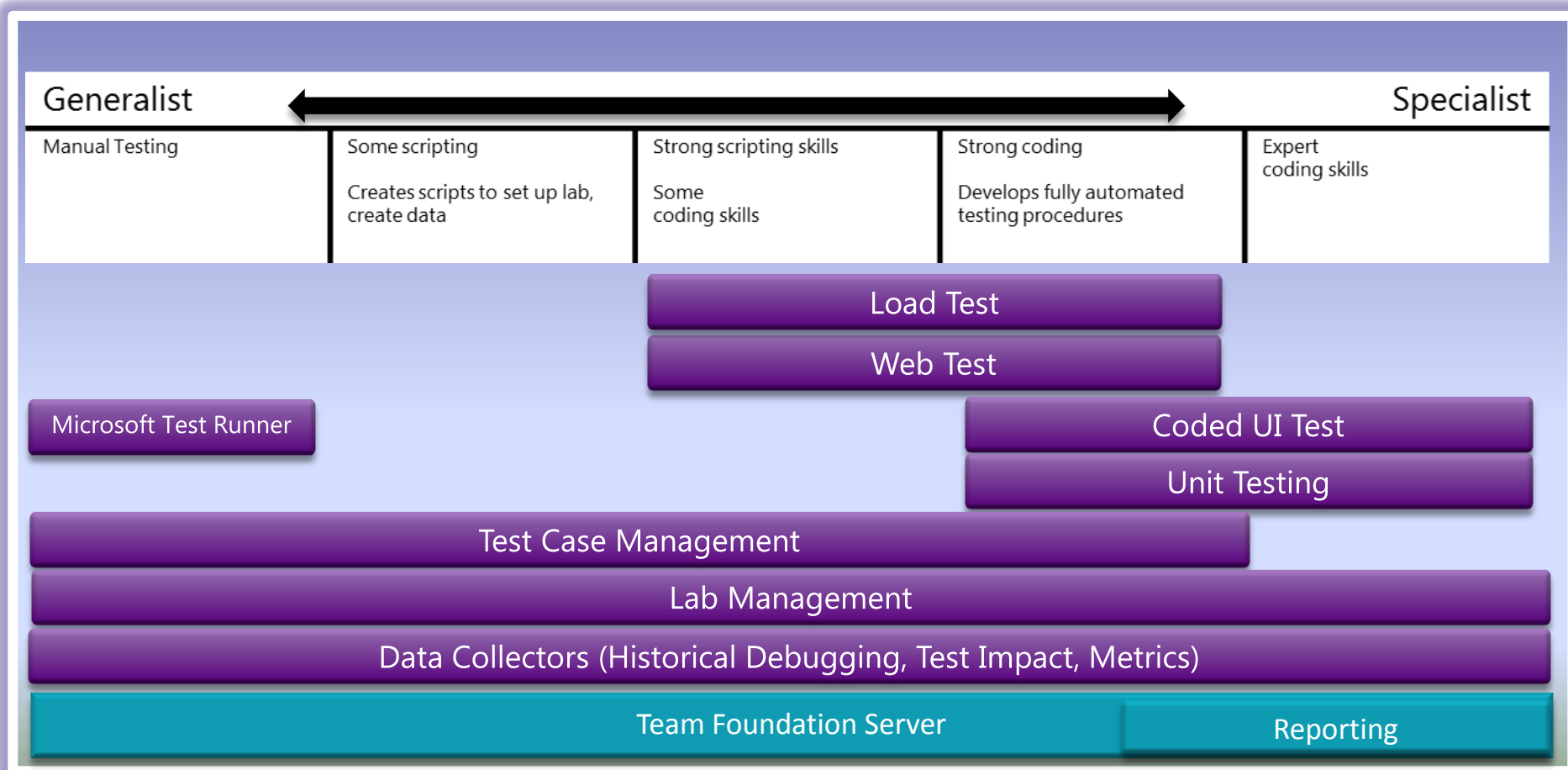
# Visual Studio 2010



# Where does testing happen?

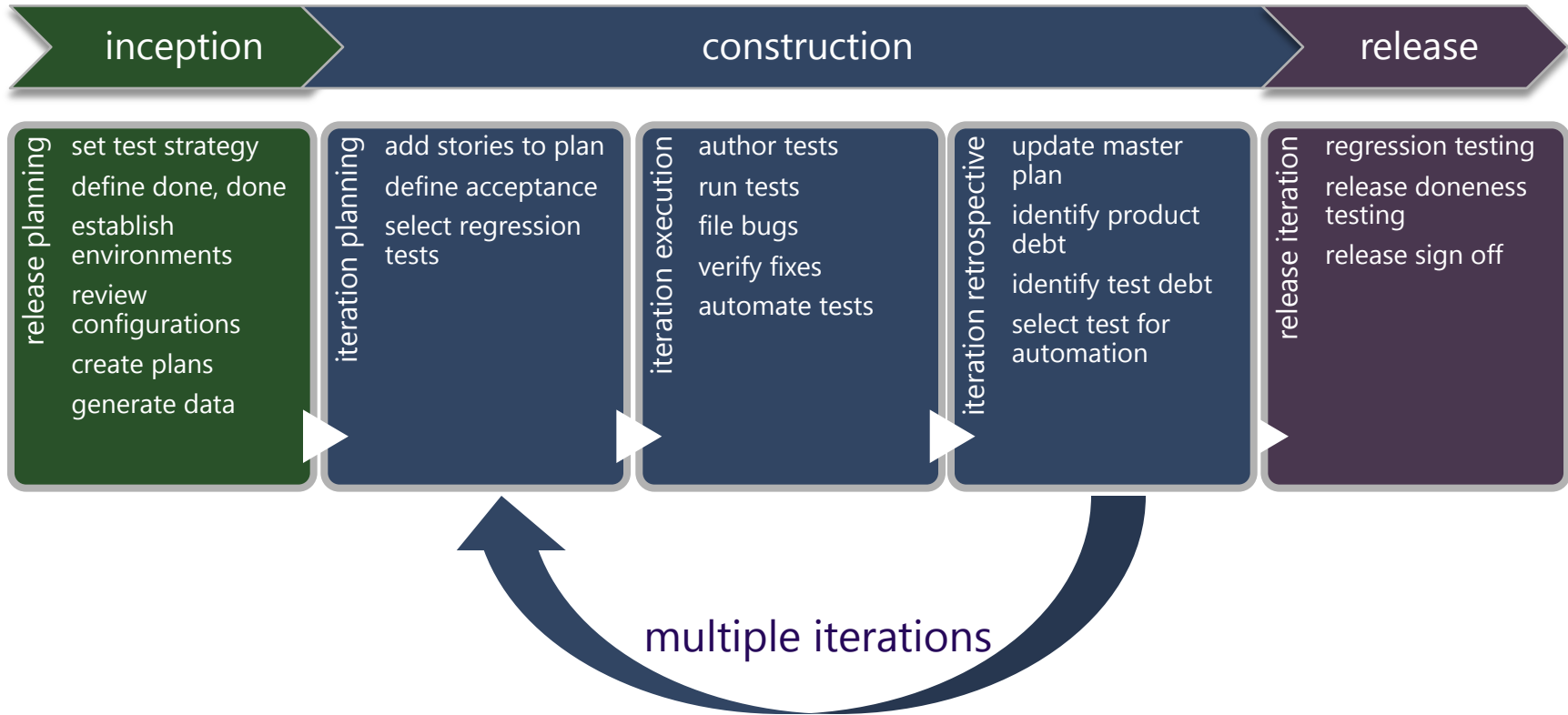


# Visual Studio 2010 Test Capabilities

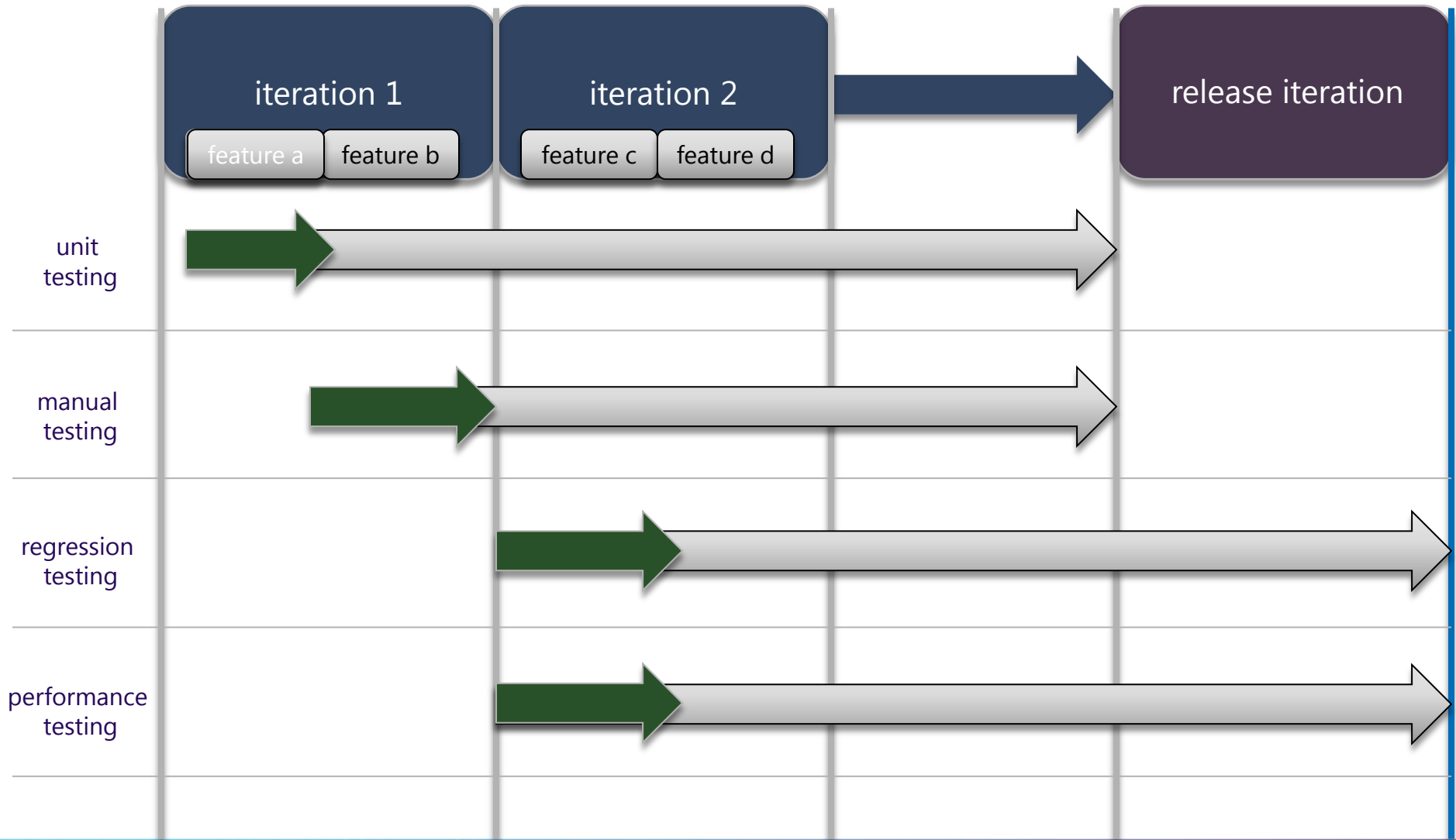




# What testers do



# Testing Strategy

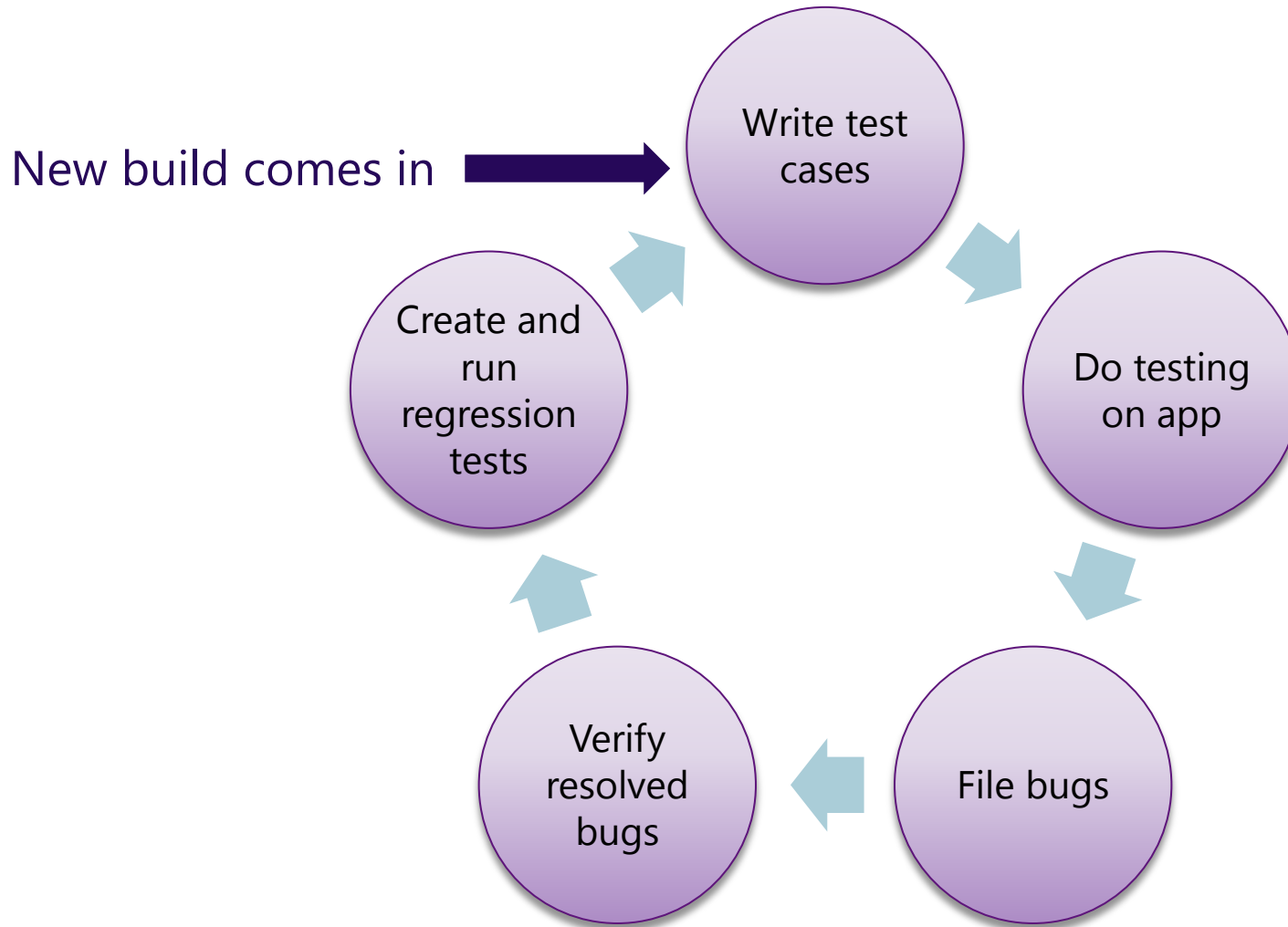


# Dev-Test Collaboration

- Unified toolset in Visual Studio 2010
- Testers focus on testing rather than collecting data
- Developers get exactly the data they need in the bugs
- Make the tester and developer **PRODUCTIVE**



# Typical Test Cycle



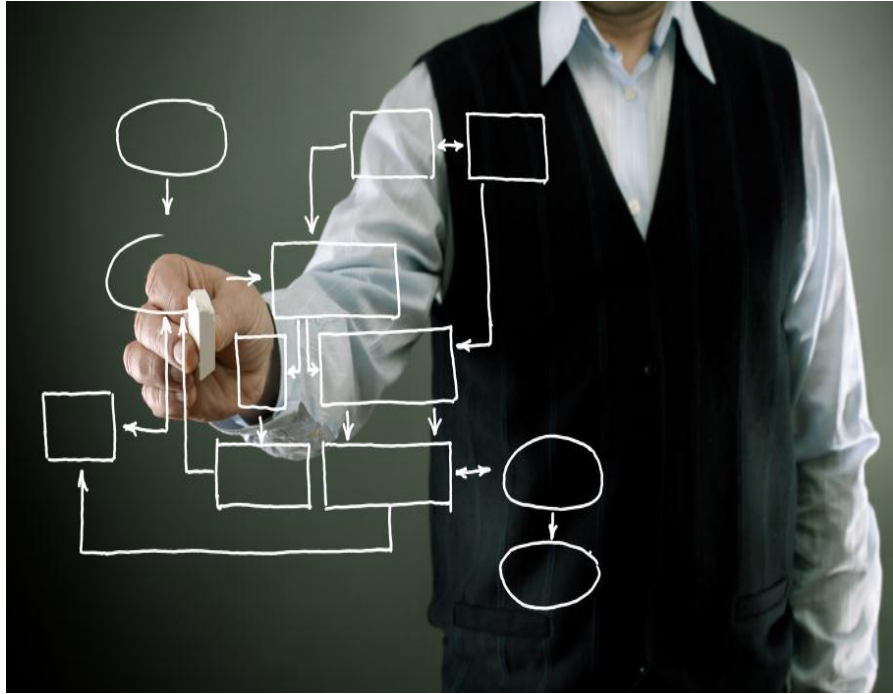
# 3 Primary Activities for Testers



- Test planning
- Test execution and bug filing
- Creation of regression tests




# Activity: Test Planning



- Test Plans
- Test Suites for Requirements
- Test Cases with Shared Steps
- Test Configurations
- Tracking Test Results

# Test Planning Details

- Data drive test cases with different parameters
  - Refactor common shared steps in test cases
  - Link test cases and requirements to provide requirement traceability
  - Create dynamic test suites for changing selection criteria
  - Define various test configurations and share automation across those
- 

# Test Settings

- What information do we need?
  - For each type of test...
  - For each machine in a test environment...
- What is the overhead associated with collecting various pieces of information?
- Are there custom data diagnostic adapters we should invest in authoring?

# Diagnostic Data Adapters

- Video Capture
- Steps Performed
- System Info
- Network Emulation
- IntelliTrace™

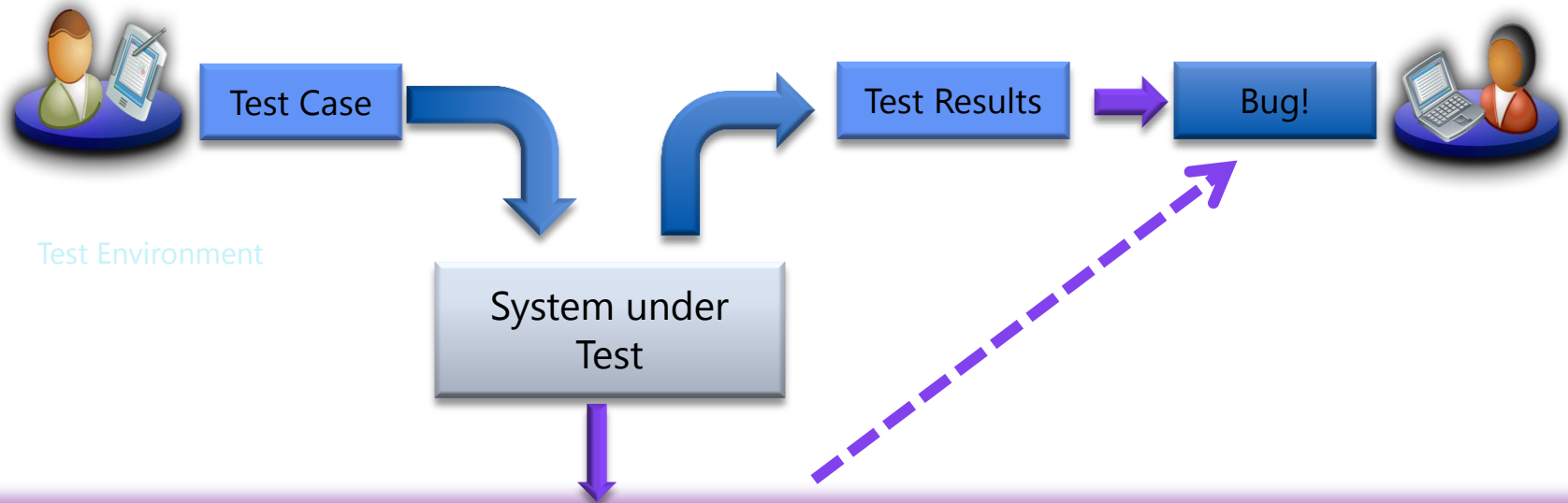


- Event Logs
- Test Impact Data
- Custom Data Collection
- System Info
- IntelliTrace™



# Increasing Effectiveness

- *Provide developers with comprehensive technical details to analyse and fix defects*



## Data Collectors

Action  
Recording

Indexed  
Video

Screen  
Captures

Event Logs

System  
Information

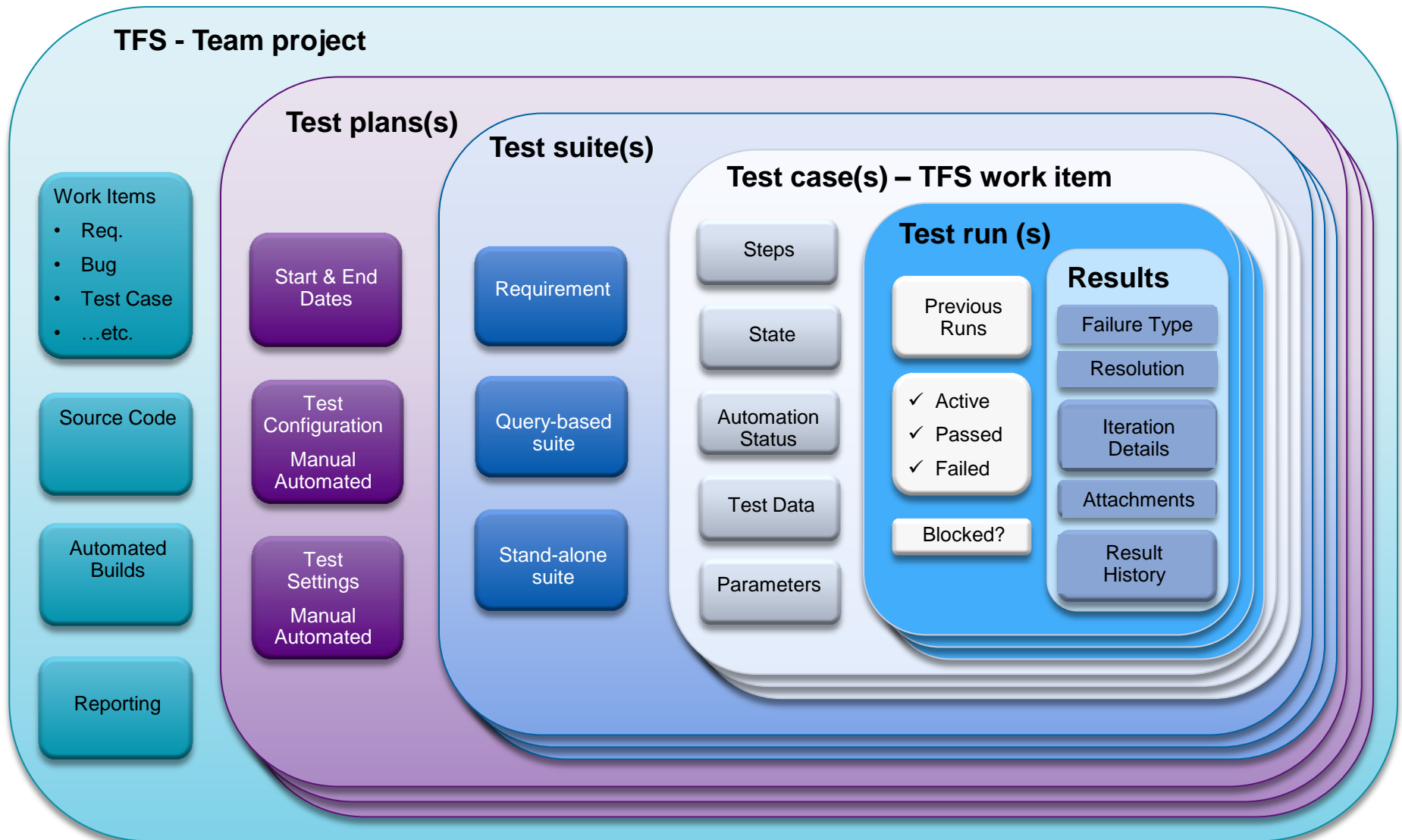
IntelliTrace  
Logs

Environment  
Snapshot

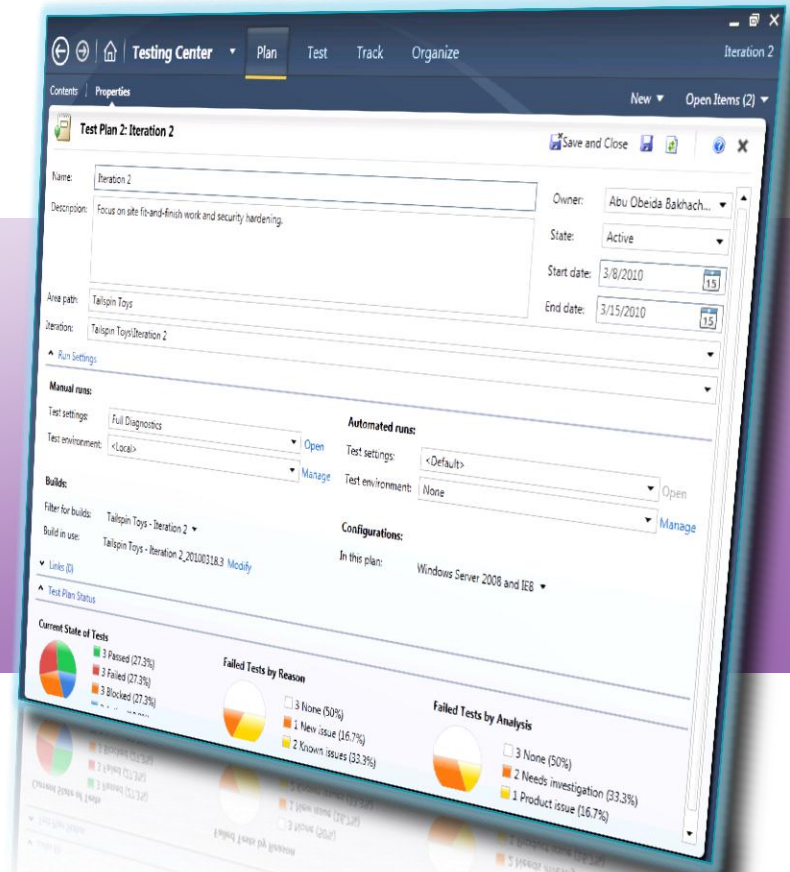
Custom  
...



# Anatomy of a Test Plan & Related Artifacts



# demo



## Test Planning & Setup

# Activity: Test Execution and Bug Filing

- Run test cases manually
- Fast Forward for Manual Testing
- File actionable bugs
- Verify fixed bugs
- Decide what to test on new build

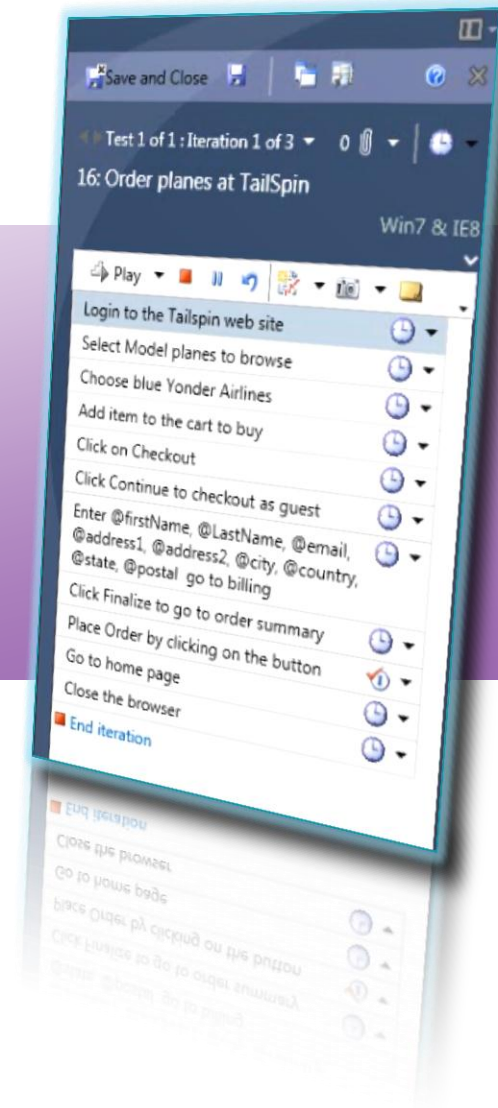


# Test Execution and Bug Filing

- Collect relevant data automatically to file rich actionable bugs
- Get list of fixed bugs to verify with corresponding test cases
- Figure out impacted tests to run based on code churn in build
- Do exploratory testing on app to find bugs faster

# demo

## Manual Test Execution





70%

of all functional testing  
is still done manually.

# Activity: Creation of Regression Tests



- Create a test case for a regression
- Automate functional tests
- Record actions or import action recording from test
- Easily repeatable
- Maintain it through the product cycle
- Run the test as part of the build-workflow

# demo

## Automate Regression Tests

- Coded UI Test



# Code UI Testing Best Practices

- Use the Coded UI Test Builder whenever possible.
- Do not modify the RecordedMethods.cs file directly.
- Do not modify the UIMap.designer.cs file directly.
- Create your test as a sequence of recorded methods.
- Create a new test method for each new page, form, or dialog box.
- When you create a method, use a meaningful method name instead of the default name.
- When possible, limit each recorded method to fewer than 10 actions.
- Create each assertion using the Coded UI Test Builder.
- If the user interface (UI) changes, re-record the test methods, or the assertion methods.

# Code UI - Playback.PlaybackSettings

- ContinueOnError
- DelayBetweenActions
- MatchExactHierarchy
- SearchTimeout
- SmartMatchOptions
  - TopLevelWindow
  - Control
  - None
- ThinkTimeMultiplier
- WaitForReadyTimeout

# Code UI - UITestControl.WaitForControl

- `WaitForControlReady()`
- `WaitForControlEnabled()`
- `WaitForControlExist()`
- `WaitForControlNotExist()`
- `WaitForControlPropertyEqual()`
- `WaitForControlPropertyNotEqual()`
- `WaitForControlCondition()`

# Automation Platform Support

Platform	Support	Notes
IE7/8 – HTML/AJAX	●	IE9 supported in SP1.
Windows Forms 2.0+	●	.NET Fx Controls fully supported, working on 3 <sup>rd</sup> party support.
WPF 3.5+	●	.NET Fx Controls fully supported, working on 3 <sup>rd</sup> party support.
SharePoint 2007 & 2010	●	See <a href="#">blog post</a> for more info.
FireFox – HTML/AJAX	●	Supported in Feature Pack 2 for FF 3.5 & 3.6.
Silverlight	●	Supported in Feature Pack 2 for Silverlight 4, in-browser apps.
Windows Win32	●	May work with some known issues, but not officially supported.
Dynamics (Ax)	●	Partially supported – see <a href="#">article</a> . Dynamics CRM web client is supported.
MFC	●	Partial support – <a href="#">known issues &amp; Workarounds</a>
Citrix/Terminal Services	●	The client (MTM or VS) need to be on the remote machine.
Office Client Apps	●	
IE 6/Chrome/Opera/Safari	●	Opportunity for partners to add this using the <a href="#">Extensibility support</a> . Docs and samples around extensibility are <a href="#">here</a> .
Flash/Java	●	
SAP	●	

●	Fully supported platform
●	Partial solution. Further work required in future to complete
●	Best efforts with known issues. Users can workaround these cases in the code. No major ongoing investment.
●	Currently no support but on the roadmap for future releases
●	Currently no support and none planned for now. Opportunity for partners to add this using the <a href="#">Extensibility support</a> . Docs and samples around extensibility are <a href="#">here</a> .
	For latest info refer to <a href="#">this article</a> .



# Exploratory Testing

What does  
exploratory  
testing mean  
to you?



# Exploratory testing

- Exploratory testing is NOT ad-hoc
- There ARE ways to track exploratory testing – choose the right metrics and measure using tools
- Exploratory testing NEED NOT create poorly documented bugs – use the right tools to file rich actionable bugs

*demo*

## Exploratory Testing



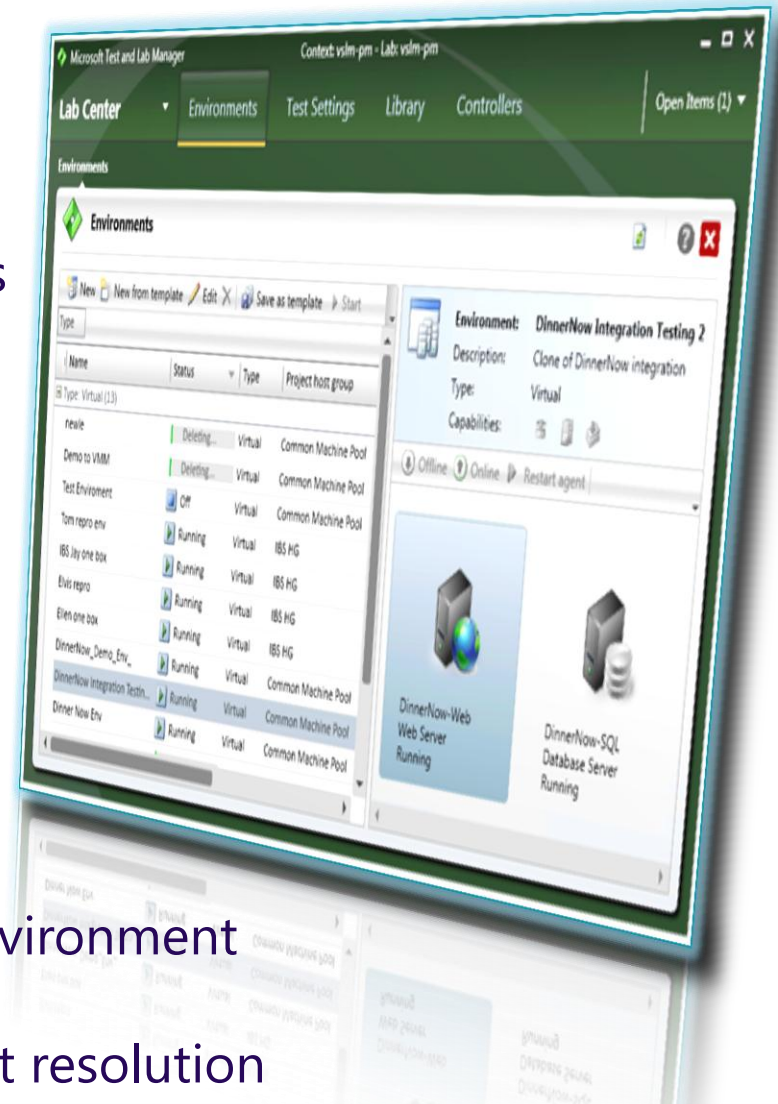
# Visual Studio Lab Management Highlights

## Benefits

- Simplifies environment setup
- Quickly create complex multi-machine environments
- Simplifies testing multiple configurations
- Enables reverting to baseline configuration
- Provides checkpoints to aid defect resolution
- Improves test hardware utilization lowering total cost of ownership
- Full integration with TFS

## Goals

- Virtualize test lab resources
- Lower technical requirements for test environment creation
- Enable environment recreation for defect resolution



# In conclusion

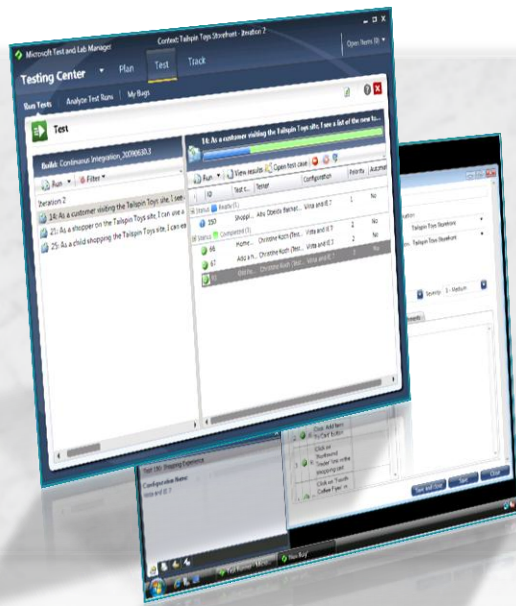


- Test planning
  - Dynamic test suites
  - Requirement traceability
- Test execution and bug filing
  - Actionable bug filing
  - Test prioritization
- Automation of regression tests
  - Coded UI tests
  - Reuse manual test artifacts



# Your Creativity Unleashed

- Save time, focus on high value tasks
  - *Fast Forward for Manual Testing*
  - *High quality bugs with single click*
  - *Create, manage, and execute test cases*

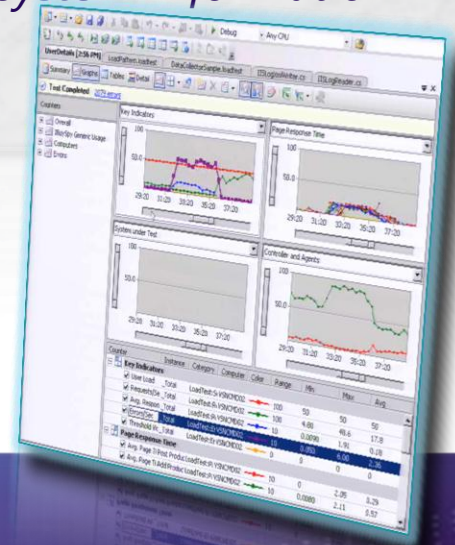
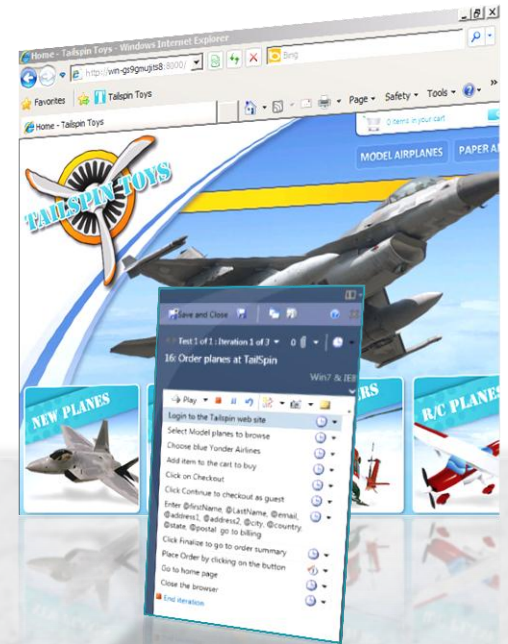


- Rich Modern Experience

- *Standalone testing suite*
- *Elegant Task focused UI*
- *Combined manual & fast forward for manual testing*
- *Capture still images, video, and system information*
- *Plan, Test, Track flow*

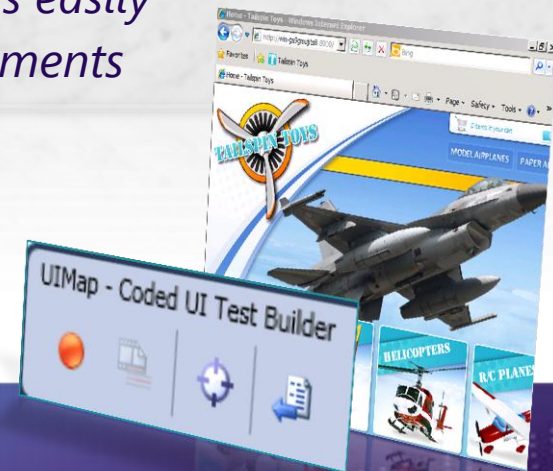
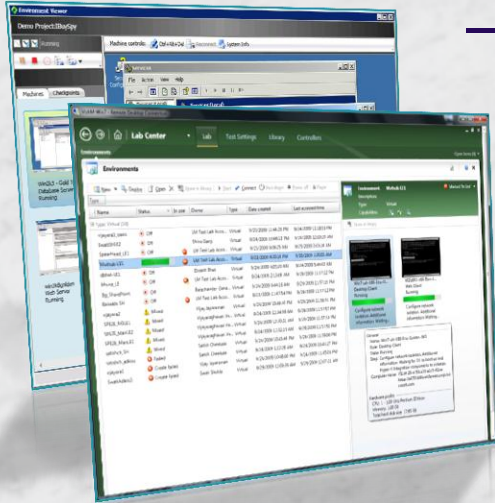
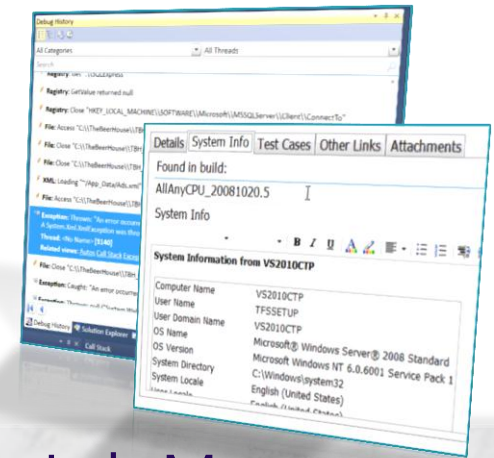
- Web Performance & Load Testing

- *Know your code is ready for the big time*
- *Measure performance under real time load conditions and ensure that your applications are ready for release*



# Quality code ensured

- No more "no repro" with Test Manager
  - *Integrated, Extensible Diagnostics*
  - *Actionable Rich Bugs, fix first time, every time*
  - *Intellitrace for historical debugging*
- Eliminate wasted cycles with Lab Management
  - *Test in "production like environments"*
  - *Automation of predictable build-deploy-test cycles*
  - *Optimized test hardware utilization*
  - *Simplified environment setup & deployment*
  - *Checkpoints and reverting to baseline configuration*
  - *Test across multiple configurations easily*
  - *Rapid Setup/Teardown of Environments*
- Test Automation with Coded UI Tests
  - *Reduce regressions during a team build*
  - *Familiar language & toolset support*
  - *Add assertions on properties*
  - *Convert test cases to code*





# Visit Team System Café for...

- Freshly brewed news
- Upcoming events
- Download links
- Practical tips to go
- Download Visual Studio 2010 Trials
  - <http://tinyurl.com/ycfbfyo>
- Get Started with Lab Management
  - <http://tinyurl.com/394nyfe>



<http://www.teamsystemcafe.net>

# **Microsoft<sup>®</sup>**

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# Appendix





## Test Plan 2: Iteration 2

Save and Close 🔄 🔍 ✖

Name:	<input type="text" value="Iteration 2"/>	Owner:	<input type="text" value="Abu Obeida Bakhach..."/>
Description:	<input style="height: 100px;" type="text" value="Focus on site fit-and-finish work and security hardening."/>	State:	<input type="text" value="Active"/>
Area path:	<input type="text" value="Tailspin Toys"/>	Start date:	<input type="text" value="3/8/2010"/> <span>15</span>
Iteration:	<input type="text" value="Tailspin Toys\Iteration 2"/>	End date:	<input type="text" value="3/15/2010"/> <span>15</span>

^ **Run Settings**

**Manual runs:**

Test settings:  [Open](#)  
 Test environment:  [Manage](#)

**Automated runs:**

Test settings:  [Open](#)  
 Test environment:  [Manage](#)

**Builds:**

Filter for builds:  ▼  
 Build in use:  [Modify](#)

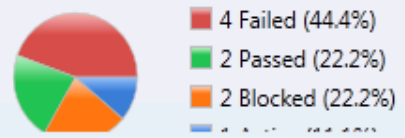
**Configurations:**

In this plan:  ▼

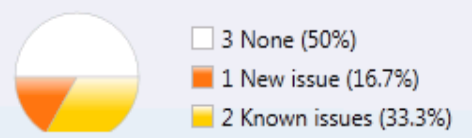
▼ **Links (0)**

^ **Test Plan Status**

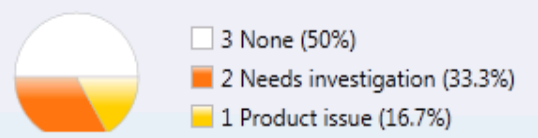
**Current State of Tests**



**Failed Tests by Reason**



**Failed Tests by Analysis**





### Contents



New Add requirements

#### Iteration 2

- 7: As a customer I should be able to remove iter
- 8: As a customer I should have to enter a strong
- 9: As a customer I should be able to see images
- End-to-end tests**



### Test suite: End-to-end tests

Default configurations (1): Windows Server 2008 and IEB

State: In progress

Open Add New Assign Configurations Order

Drag a column header here to group by that column.

Order	ID	Title	Priority	Confi...	Teste
1	45	Simple end-to-end check out test	2	1	Abu C
2	46	Exploratory Testing around website	2	1	Abu C
3	48	Confirm that cart updates correctly with same item.	1	1	Abu C



### Test Case 45: Simple end-to-end check out test

Save and Close



Title: Simple end-to-end check out test

#### Status

Assigned To: Abu Obeida Bakhach (Dev)

State: Design

Priority: 2

Automation Status: Not Automated

#### Classification

Area: Tailspin Toys

Iteration: Tailspin Toys\Iteration 2

- Steps
- Summary
- Tested User Stories
- All Links
- Attachments
- Associated Automation

Insert step
 Insert shared steps
 Insert parameter

Action	Expected Result
1. Open http://WIN-GS9GMUJITS8:8000	
2. Click Model Airplanes	
3. Click Fourth Coffee Flyer	
4. Click Add to Cart	

#### Parameter Values:

Delete iteration
 Rename parameter
 Delete parameter

NewQuantity	NewTotal	First	Last	Email	Address	City	Country
5	\$250.00	Michael	Affronti	Michael@Contoso.c...	One Microsoft Way	Redmond	USA
300	\$15,000.00	Chris	Barry	Chris@Tailspin.com	Two Tailspin Trail	Springfield	USA



- Play
- Open http://WIN-GS9GMUJITS8:8000
  - Click Model Airplanes
  - Click Fourth Coffee Flyer
  - Click Add to Cart
  - Change quantity to @NewQuantity
  - Verify new total
  - Click Checkout
  - Enter @First, @Last, @Email, @Address, @City, @Country, @State, @PostalCode
    - First = Michael
    - Last = Affronti
    - Email = Michael@Contoso.com
    - Address = One Microsoft Way
    - City = Redmond
    - Country = USA
    - State = Washington
    - PostalCode = 98052

5 of 8 parameter(s) bound
  - Click Review Order
  - Click Place Order
  - Confirm order page has receipt #
  - Close Browser
- End iteration and move to next

Home - Tailspin Toys - Windows Internet Explorer

http://win-gs9gmujits8:8000/C

Currently Recording

Home - Tailspin Toys

5 items in your cart

MODEL AIRPLANES PAPER

TAILSPIN TOYS

First: Michael  
Last: Affronti  
Email: Michael@Contoso.com  
Address: One Microsoft Way  
Address 2:  
City: Redmond  
Country and State: USA  
Select State  
Postal Code:

REVIEW ORDER

NEW PLANES  
ROCKETS  
HELICOPTERS  
R/C PLANES

Pass or Fail each step

Data bind parameters to fields on screen

Validation checkpoint



Save and Close

Test 1 of 1 : Iteration 1 of 4

45\*: Simple end-to-end check out test

Windows Se

Play

Resume

1. Open http://WIN-GS9C...UITS8:8000
2. Click Model
3. Click Fourth
4. Click Add to
5. Change quantity to @NewQuantity
6. Verify new total
7. Click Checkout
8. Enter @First, @Last, @Email, @Address, @Country, @State, @PostalCode
9. Click Review Order
10. Click Place Order
11. Confirm order page has receipt #
  - Expected - Receipt # should appear at order confirmation page
  - Screenshot1(TC45Iteration1Step11).
  - Total incorrect!
12. Close Browser

End iteration and move to next

Paused 00:01:07

Home - Tailspin Toys - Windows Internet Explorer

New Bug\*

Title: Total incorrect!

Status

Assigned To: Abu Obeida Bakhach (Dev)

State: Active

Reason: New

Resolved Reason:

Classification

Area: Tailspin Toys

Iteration: Tailspin Toys\Iteration 2

Planning

Stack Rank: Priority: 2 Severity: 3 - Medium

Details System Info Test Cases All Links Attachments

Steps to Reproduce:

Segoe UI 2 B I U

5/17/2011 1:28:18 PM Bug filed on "Simple end-to-end check out test"

Step no.	Result	Title
1	None	Open http://WIN-GS9C...UITS8:8000
2	None	Click Model Airplanes
3	None	Click Fourth Coffee Flyer
4	None	Click Add to Cart
5	None	Change quantity to @NewQuantity
6	None	Verify new total Expected result: Total should say @NewTc
7	None	Click Checkout

History:

B I U

Save and close Save Close

Bug Form auto-filled with step results & step attachments

Save and Close

Test 1 of 1 : Iteration 1 of 4

45\*: Simple end-to-end check out test

Windows Se

Play

Resume

- Open http://
- Click Model
- Click Fourth
- Click Add to
- Change quantity to @NewQuantity
- Verify new total
- Click Checkout
- Enter @First, @Last, @Email, @Address, @Country, @State, @PostalCode
- Click Review Order
- Click Place Order
- Confirm order page has receipt #
 

Expected - Receipt # should appear at order confirmation page

Screenshot1(TC45Iteration1Step11)

Total incorrect!
- Close Browser

End iteration and move to next

Paused 00:01:07

Home - Tailspin Toys - Windows Internet Explorer

New Bug\*

Title: Total incorrect!

Status

Assigned To: Abu Obeida Bakhach (Dev)

State: Active

Reason: New

Resolved Reason:

Classification

Area: Tailspin Toys

Found in Build: Tailspin Toys - Iteration 2\_20100318.3

Integrated in Build:

Stack Rank: Priority: 2 Severity: 3 - Medium

Details System Info Test Cases All Links Attachments

System Info

Segoe UI 2

**System Information from WIN-GS9GMUJITS8**

User Name	abuobe
Computer Name	WIN-GS9GMUJITS8
User Domain Name	WIN-GS9GMUJITS8
OS Name	Microsoft® Windows Server® 2008 Standard
OS Version	Microsoft Windows NT 6.0.6002 Service Pack 2
System Directory	C:\Windows\system32
System Locale	English (United States)
User Locale	English (United States)
Total Physical Memory	4094 MB
Available Physical Memory	2044 MB

Found in Build & System Info auto-filled

Save and close Save Close