

Application Level Unit Testing – Oxymoron or a True Solution for Testing Apps

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Introduction

- Unit Testing
- Functional Testing

Is there anything in the middle ?

Credibility

- **Parasoft**
20 years on the market
of **Software Quality Solutions**
- **Personally**
Project Manager of Parasoft dotTEST

Agenda

- **Unit Testing**
 - Pros and cons
- **Functional Testing**
 - Pros and cons
- **Application Hosted Tests**
 - Comparison
 - Examples and demos

Unit Testing

Many people want to have...
Just a few do.

Why ?

Unit Testing Advantages

- **Fast execution**
- **Run everywhere**
- **Low level testing**

- **Strongly typed**
- **Easy to debug**
- **Cover corner cases**
- **Exceptional situations**

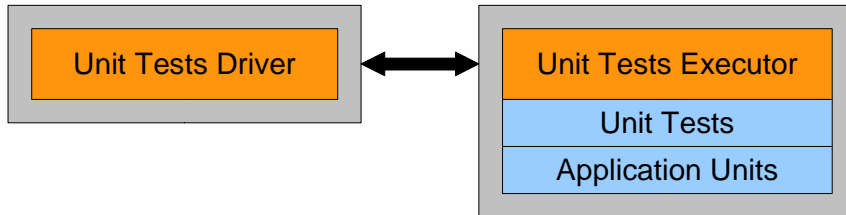
Unit Testing Drawbacks

- Units isolation – hard to achieve
- Complex dependencies initialization
- Not realistic tests

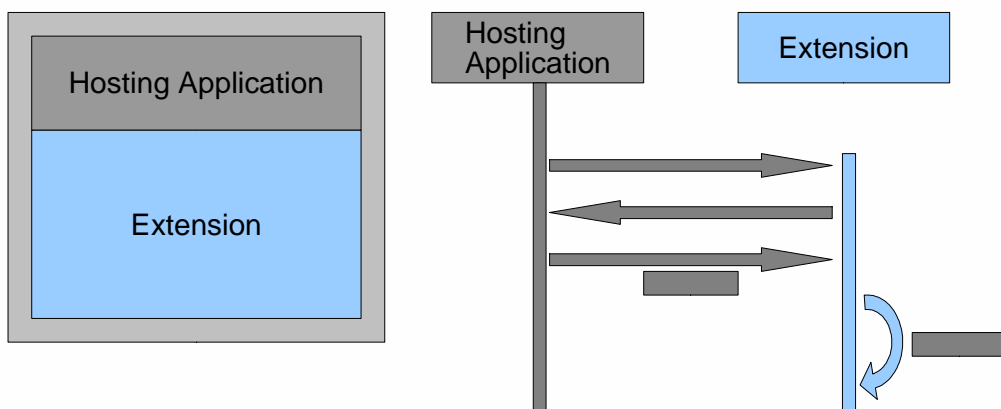
Unit Testable Code

- Not everything can be easily unit tested
 - Complex inputs
 - Complex output
 - Many dependencies
- Mature code not covered by tests
 - Design of testable units

Unit Tests



Testing Extensions Issue



How to test internals of the extension which depend on the host ?

Functional Tests

- **Graphical User Interface**
 - Record and Reply solutions
 - Scripts based solutions
- **Non-UI**
 - Testing Services
 - Testing Command Line

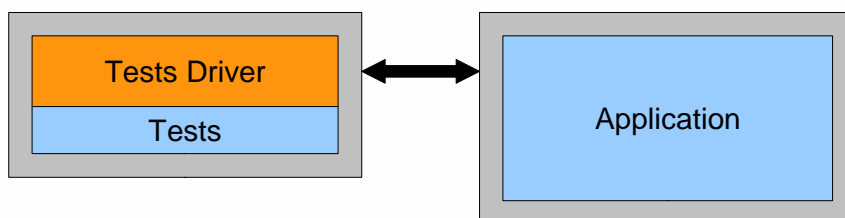
Functional Testing Advantages

- **Realistic tests**
- **Regressions map to functionality**
- **Maintained by QA**

Functional Testing Drawbacks

- Loosly coupled
- Can test interface only
 - Cannot test internals
- Slow
- Hard to debug

Functional Tests



Is there something between Unit Tests and Functional Tests ?

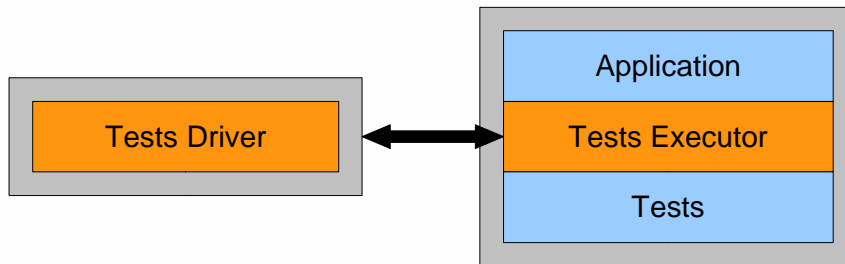
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Application Hosted Tests

- **Unit Tests**
- **Executed in process of the application**
- **Level of the application**

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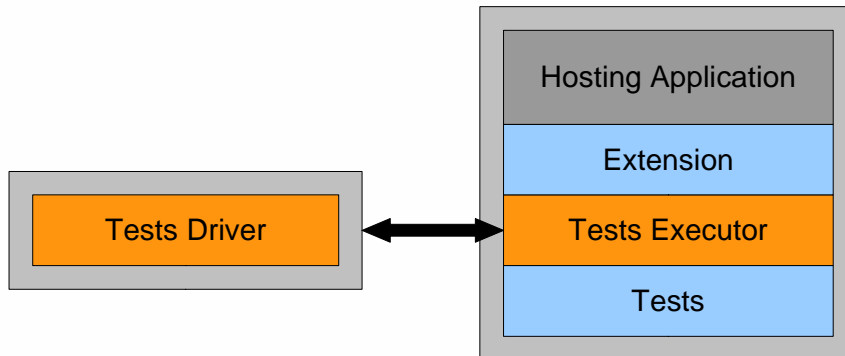
Application Hosted Tests



Application Hosted Tests Advantages

- Reusing modules initialization
- Reusing complex objects
- Testing application internals
- Strongly coupled
- Faster than functional tests
- Natural debugging

Testing Extensions - Solution



Solutions

- **Parasoft dotTEST – general for .NET**
- **Eclipse Plugin Tests**
- **Visual Studio IDE Tests**

Applications

- **Parasoft Products**
- **Paint.NET**
- **Parasoft's Customers**

Application Hosted Tests - Summary

- **Unit tests in context of Application**
- **Solves issues of unit testing**
- **Solves issues of application tests**
- **Suitable for regression testing**
- **Simple setup**

Questions ?

Thank you

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