Stress, Load, Volume, Performance, Benchmark & Baseline Testing at a Price You Can Afford!

Presentation by

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Washington School Information Processing Cooperative
The reason most people never find a 4 leaf clover is that they never look for one. Life is a lot like that.

Cordell Vail
Purpose of this Presentation

This presentation will help you learn how to find inexpensive testing tools that will give you predictable results.

This presentation is NOT intended to teach you how to do the testing.
The “Big Picture” Overview

- Know Where To Start
- Uniformity
- Definition Of Terms
  - Stress Testing
  - Load Testing
  - Volume Testing
  - Performance Testing
  - Benchmark Testing
  - Baseline Testing
The “Big Picture” Overview (cont)

- Know the testing objective
- Know the testing environment
- Only buy what you need
- Know how you are going to test
- Trusting the test results
- Possible solutions
- Can we trust market share
- Testing tool comparisons
In testing we would all do well to follow Stephen Covey’s advice:

“Begin with the end in mind”

USE A TEST PLAN!
Uniformity
We need to define terms to eliminate confusion

- Stress
- Load
- Volume
- Performance
- Benchmark
- Baseline
Uniformity

It is not so important how you define testing terms as it is that everyone in your organization use the same definitions
Stress Testing

Tests the server – Peak volume over a short span of time
Load Testing

Tests the database – Largest load the database can handle at one time
Volume Testing

Tests the server & the database – Heavy volumes of data over time (combination of Stress Testing and Load Testing over time)
Performance Testing

Tests user response time

With web applications this is normally the main consideration
Benchmark Testing

Compares your testing standards to the same testing standards in other similar organizations in the industry
Baseline Testing

Setting testing standards to be used as a starting point for comparison later within your own organization
Identity the Target of the Test

Will the tool need to test:

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>Multithreading</th>
</tr>
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<tbody>
<tr>
<td>Concurrent users</td>
<td>Disk capacity</td>
</tr>
<tr>
<td>Multiple platforms</td>
<td>Faults</td>
</tr>
<tr>
<td>Multiple browsers</td>
<td>Memory</td>
</tr>
<tr>
<td>Users per server</td>
<td>User response</td>
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</tbody>
</table>
Know the Testing Environment

- Number of client workstations
- Connectivity to servers
- Database availability
- Production copy of application
- Application and web servers
- Bandwidth and LAN
- Test tools to monitor results
Our Testing Environment

NOTE: The Client Server and the 2 Web Servers are HP Proliant BL 20 PG2 Dual 3GH Xeon with 2GB Ram
To find an economical tool you must know what your testing needs are.

Each tool is very different.

You are not going to pay $200 and get a tool that will do what an $85,000 tool will do!
Consider Team Composition

- **Developers**
  - Source Code Analysis
  - Cyclomatic Complexity
  - Memory Leaks

- **Test Engineers**
  - Error Handling
  - Fault Injection
  - User Response Time

- **System Engineers**
  - Bandwidth Restriction
  - Server Performance
  - Multithreading

The members of your testing team will be able to help determine what tests need to be done with which testing tool.
Know Now How You are Going to Test It

Stress Test $\rightarrow$ Stress Attack Point(s) $\rightarrow$ Stress Failure

- **Targets**: Load, Limit, Breakpoint, Torture, Duration, Synchronization, Fault Injection

- ** Causes**: Buffer, cache, Async pattern, p\(\text{invokes}\), Resource leak, Data corruption, Unhandled exception, Race condition\(\text{\backslash deadlock}\)

This example taken from a presentation at the Seattle SASQAG meeting 21 Apr 2005 by Keith Stobie. Diagram created by Reji John. Both work at Microsoft. (Used with permission)
With a new testing tool, how do you know your results are accurate or even valid unless you have something to compare against
How big is this equipment?
Tusting the Test Results

How big is it?
Possible Solutions

#1 - Test the tool on an existing application and web server where you already know what the test results should be
#2 - Test with more than one testing tool and compare the results

Is that feasible with the cost of the tools on the market today?
Can We Trust Market Share

93% of the market share is controlled by 7 vendors all charging very high prices
Market Share

Source:
Affordable Testing Tools

We decided to look at that “OTHER” 7% mostly because of price
Testing Tool Comparison Links

http://www.vcaa.com/testengineer/links.htm
http://www.testingfaqs.org/t-load.html
http://hammerhead.sourceforge.net/
http://opensource.testing.org/performance.php
http://www.grove.co.uk/Tool_Info/Choosing_Tools.html
http://www.softwaregatest.com/gatweb1.html#LOAD
http://www.sqa-test.com/toolpage.html
http://www.webservices.org/index.php/ws/content/view/full/102
http://opensource.testing.org/performance.php
http://sourceforge.net/projects/dieseltest/

NOTE:  See our comparison list on the session CD handout
Testing Tool Vendor Links

Here are links to those 7 larger vendors that are holding 93% of the market share

www.radview.com/products/WebLOAD.asp
www.quotium.com/qpro_overview_load_testing.html
www.empirix.com/default.asp?action=article&ID=418
www.compuware.com/products/qacenter/performance.htm

Check the Prices out for yourself!
Testing Tool Findings

**TestMaker – PushToTest:** FREE
http://www.pushtotest.com/Downloads/

**WAST – Microsoft:** FREE

**LoadTester – AppPerfect:** FREE
http://www.appperfect.com/products/devsuite/lt.html
Testing Tool Findings (cont)

**Site Tester 1 – Pilot:** $29
http://www.pilotltd.com/eng/index.html

**Portent Supreme – Loadtesting.com:** $279
www.loadtesting.com

**WAPT - Logasoft:** $299
http://www.loadtestingtool.com
## Testing Tool Findings (cont)

<table>
<thead>
<tr>
<th>Webserver Stress Tool 7 – Paessler:</th>
<th>$625</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.paessler.com">www.paessler.com</a></td>
<td></td>
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</tbody>
</table>

**HOLODECK - SISE:** $1,500

http://www.sisecure.com/ holodeck/ learn.shtml

**NOTE:** Holodeck is a fault injection tool - not a normal virtual user testing tool
Other Options

Testing Onshore Outsourcing

Online Hosted Services
http://servers.aplus.net/loadbalance.html
http://www.webpartner.com/products/st_main.html
http://www.keynote.com/
http://www.webmetrics.com/loadtesting.html

NOTE: Hosted or online testing may be available free from your ISP
The Authors

Joe Towns brings to the presentation a developer’s perspective. He has eighteen years experience as a software developer, systems engineer, and supervisor.

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Cordell Vail brings to the presentation a test engineer’s perspective. He is a Certified Software Test Engineer and Certified School Business Specialist with 9 years experience in manual and automated testing. Cordell has made several presentations on “Improving Testing Processes” at both local and national conferences.

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Credits

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