Microsoft
Web Application Stress Tool

JUGAT Meeting
12 Juni 2001

DI Siegfried GÖSCHL
IT Serv GmbH
siegfried.goeschl@itserv.at
The Motivation

- You have implemented a web-based application ?!
- You have to fulfill some performance criteria ?!
  - Fast enough for X users ?!
  - Still up and running with 2*X users ?!
  - Need more CPU and /or RAM for the box ?!
  - Tune the performance ?!
- You don’t have spare money ?!
  - 20.000 USD are not an option for performance check ?!
  - Don’t like virtual users valid for 24 hours ?!

Have a look at Microsoft Web Application Stress Tool !!
Some Definitions

**Load testing** is defined as testing the server or application in a way that is considered operationally normal with a normal-to-heavy number of concurrent users.

**Stress testing** is defined as testing the server or application in a way that is considered operationally abnormal.

**Performance testing** includes both load and stress testing to gauge how the Web site (application) performs.
Performance Testing

- Performance testing through load simulators
  - manually created scripts
  - capture & replay a session

- Analysing a web-application regarding to
  - response time
  - throughput
  - scalability
  - system resource consumption

- Detecting load induced failures
  - Race Conditions
  - Dead Locks
  - Weird Paths
## Available Load Simulators

<table>
<thead>
<tr>
<th>Company</th>
<th>Product</th>
<th>Virtual User</th>
<th>Price (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury Interactive</td>
<td>Loadrunner</td>
<td>&gt; 50</td>
<td>&gt; 40.000</td>
</tr>
<tr>
<td>RSW Software</td>
<td>E-Load</td>
<td>&gt; 100</td>
<td>&gt; 25.000</td>
</tr>
<tr>
<td>Segue Software</td>
<td>Silkperformer</td>
<td>&gt; 100</td>
<td>&gt; 25.000</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Web Stress Tool</td>
<td>Unlimited</td>
<td>0</td>
</tr>
</tbody>
</table>

*Source: Dr. Dobb’s Journal March 2001*
Microsoft Web Application Stress Tool

- Capture/Replay Tool for HTTP/HTTPS Requests
- Recording of tests using a browser
  - Internet Explorer 5.0
  - Netscape Navigator 4.X
- Test script stored in Access database
  - SQL queries possible
- Replaying of test script with configurable
  - server
  - test duration
  - number of virtual users
  - data transmission rate
Test Scenario for Enhydra Golfshop Demo

- Login
- Buy some practice balls (5 packages)
- Buy steel irons
- Buy basic putter
- Delete basic putter from shopping cart
- Provide personal data for purchase
- Logout
Testing Enhydra II

Welcome to the Enhydra e-commerce demonstration.

This "Golf Shop" application is a general example of what an on-line shopping experience can be. Depending on your requirements, your e-commerce application may also include items such as advertising, promotions, chat rooms, customer support, order tracking, credit checking, and processing, ability to talk to company representative, etc.

Please enter your Name and Password below, and click on the Tee off button to begin. If this is your first visit to the Golf Shop, click on the New Customer button below, to get your own customer name and password.

Please enter your username and password.
The server is too slow - what now ?!

- **OS Performance Monitor**
  - PERFMON for Windows NT
  - top/ktop for Linux

- **Java Source Code Profiler**
  - JProbe 2.8
  - Optimizelt
Profiling Enhydra with JProbe
WAS Advanced Features

- Page Groups
- Query String Editor
- Dynamic Input Parameter
  - sequential & random distribution of input parameter
- Windows Performance Counters
  - as implemented in PERFMON
- SSL Support
- HTTP message tracing
WAS Shortcomings

- No result verification possible
  - check application logfile
  - check HTTP result codes
  - check result size of pages
- No redirect to other server possible
  - different ports on one computer possible
- No graphical representation of performance data
  - EXCEL is not too bad after all
- Limited usage of user specific data
  - only username and password
Alternatives to WAS

- **HTTP Unit**
  - Roll your own tests in JAVA
  - Extensions available such as JUNIT-WEBAPP currently developed by Software Daten Service, Vienna

- **OpenSTA**
  - runs on Windows NT/2000
  - capture/replay available
  - scripting language support
  - CORBA based

- **JMeter**
  - JAVA/Swing application
  - much simpler than WAS
Conclusion

WAS is an easy to use tool for performance testing:

- no costs
- capturing a test scenario with a browser
- replaying a test scenario with hundreds of virtual users
- other tools needed for optimizing a slow server - „what you can‘t measure you can‘t optimize“
  - JProbe
  - Optimizelt
Questions !?
World Wide Web

- Unit Testing: [www.junit.org](http://www.junit.org)
- HTTPUnit: [www.sourceforge.net](http://www.sourceforge.net)
- OpenSTA: [www.opensta.org](http://www.opensta.org)
- JMeter: [http://jakarta.apache.org/jmeter](http://jakarta.apache.org/jmeter)
- Microsoft Web Application Stress Tool - [webtool.rte.microsoft.com](http://webtool.rte.microsoft.com)
- Optimizelt: [http://www.intuisys.com](http://www.intuisys.com)
- JProbe: [www.sitraka.com](http://www.sitraka.com)