



DASISH Web Annotator (DWAN)

Test Plan for Performance, Availability and Scalability

Test Plan Identifier

DWAN release 1.0 Test Plan for PAS version 0.9 (draft)

Introduction

Performance Testing is associated with a number of interchangeable names. The performance test can also be referred to as a stress test, load testing or volume testing and is the application of a process that verifies the ability of a system to handle varying degrees of concurrent users and system transactions. The Goals of performance testing are driven by a number of factors that could include business volumetric requirements and service level agreements (SLA) as well as perceived and actual performance risk. Understanding performance risk helps to prioritise the objectives and scope of the non functional testing. During testing varying degrees of user and system transactions (the performance test workload) are executed concurrently. User and system response times are measured and referenced against the Non Functional requirements. During performance testing, system components are monitored to verify the stability of the system under test and to identify points that require performance tuning.

Testing for availability means running an application for a planned period of time, collecting failure events and repair times, and comparing the availability percentage to the original service level agreement (SLA).

Scalability testing is an extension of performance testing. The purpose of scalability testing is to identify major workloads and mitigate bottlenecks that can impede the scalability of the application. Scalability testing is focused on understanding how an application scales as more load is applied to it. The goal is to understand at what point the application stops scaling and identify the reasons for this.

Features and Functions to Test

Performance

For the purposes of designing realistic test loads, a few assumptions will be made (once the system goes live and additional statistics are collected these assumptions can be refined):

- Assuming that one user generates 4 requests in one minute and there are normally 5 simultaneous users, the DWAN server must be able to provide an acceptable response time (1 second or less) for a sustained workload of 1200 requests/hour.
- In addition, the DWAN server should be able to handle spikes of up to 12000 requests/hour (using a Normal/Spike ratio of 10:1).

Therefore, the number of virtual users needed to simulate a normal workload would be **5** and a spike workload could be emulated with **50**.

PE1 - High

The load generator will be used to generate the background load using load increments of 5 virtual clients. Two client PCs will be used to probe the DWAN server being tested and measure response times (roundtrip times).

Note, before commencing a test run, the DWAN server under test will be “warmed up”. This will entail generating a test load for 10 minutes beforehand, thereby allowing the DWAN server to

prime itself (e.g. filling up buffers, swapping into memory relevant libraries etc.) and therefore generate more realistic response times.

PE2 - High

The load generator will be used to generate the background load using load increments of 50 virtual clients. Two client PCs will be used to probe the DWAN server being tested and measure response times (roundtrip times).

Availability

AV1 - High

The DWAN server availability will be measured to ensure that it meets the satiated requirements of:

- 95% (or better) uptime during core business hours (8.00am to 5.00pm UTC Mon-Fri)
- 90% (or better) uptime during non-core hours
- Mean time to repair (MTTR) 3 hour
- Maximum one 12 hour outage per month

Scalability

SC1 - High

The load generator will be used to generate the incremental load using load increments of 5 to 50 virtual clients with step 5. Two client PCs will be used to probe the DWAN server being tested and measure response times (roundtrip times) for each step value.

Features and Functions not to Test

Notable features and functions that will not be tested include:

- Since the system test environment is not an exact replica of the production environment, no attempt will be made to bring the system test server to its knees. It will therefore not be possible to predict the maximum load the production DWAN server can handle.
- No attempt will be made to gauge performance times from geographic locations outside of the Europe.

Test Deliverables

The following documents will be generated as a result of these testing activities:

- Test plan for Performance, Availability and Scalability (this document)
- Test log for each testing effort
- Automated test scripts and supporting test data

Under normal testing conditions, the incident reports would be produced in GitHub.

With the exception of the automated test scripts, all documents will be delivered as PDF documents.

Test Environment

Testing is performed on the client side with operating system Windows 7, Windows 8, Mac OS X or Linux. For testing of the browser plugin the latest Mozilla Firefox version (29 or later) is used. For the testing of the server API the Python programming environment with the unit testing framework and the package Requests 2.3.0 (<https://pypi.python.org/pypi/requests/>) is used. Also LoadUI 2.7.0 (<http://www.loadui.org/>) as load generator is used.