dynamicWEB®

User manual

Ecommerce performance

NLB AND SINGLE SERVER SCENARIOS

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English

LEGAL INFORMATION

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INTRODUCTION

What this document is about

This document contains performance numbers for the Ecommerce part of Dynamicweb in some typical scenarios. Numbers are provided for both standard and network load balancing setups.

Who this document is for

This document can serve as a guideline for choosing the proper hosting setup for your Dynamicweb Ecommerce solution.

1 ECOMMERCE PERFORMANCE

The purpose of the following document is to provide relevant performance data for the Ecommerce part of Dynamicweb.

Web performance in general is very dependent on the chosen design and the specific implementation of the website. This will often be a more important factor than the power of the hardware hosting the site.

The performance figures below are based on the public available Dynamicweb Wrap template solution using Dynamicweb version 8.6.0.2. This example site is built using best practices for implementation and design.

The Wrap site contains 50.000 products in the tests.

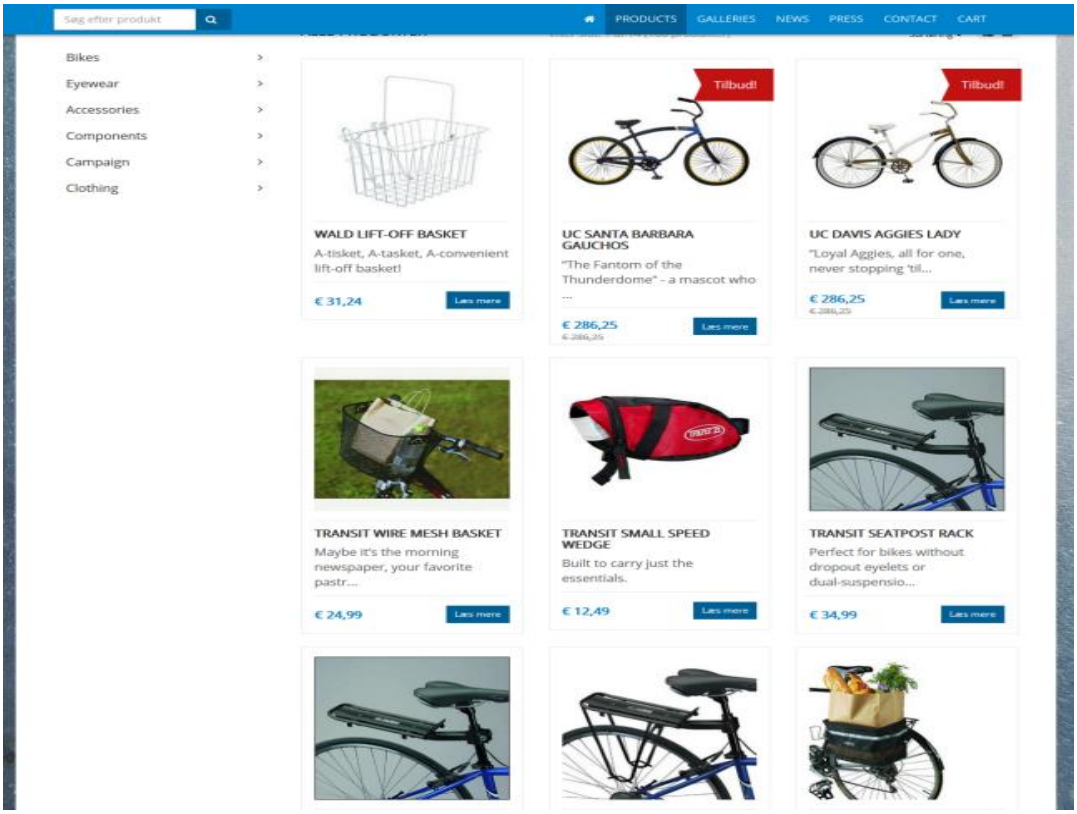
The hardware used in the tests are two *quad core Xeon E3-1230v2* servers with *16 GB RAM* running on *Windows Server 2012 and MSSQL 2012.*

Performance figures are provided for two setups. First setup is standard with 1 server taking care of both the SQL and the IIS. Second setup is NLB with 2 servers. Ordinarily a dedicated SQL is not needed since Dynamicweb is optimized for low database activity. Note that NLB requires Dynamicweb 8.6+

All testing is done using the Microsoft Visual Studio Ultimate Load and Stress testing tool. User behavior time is estimated by looking at click statistics for real life Dynamicweb solutions.

1.1 B2C scenarios

Browsing products

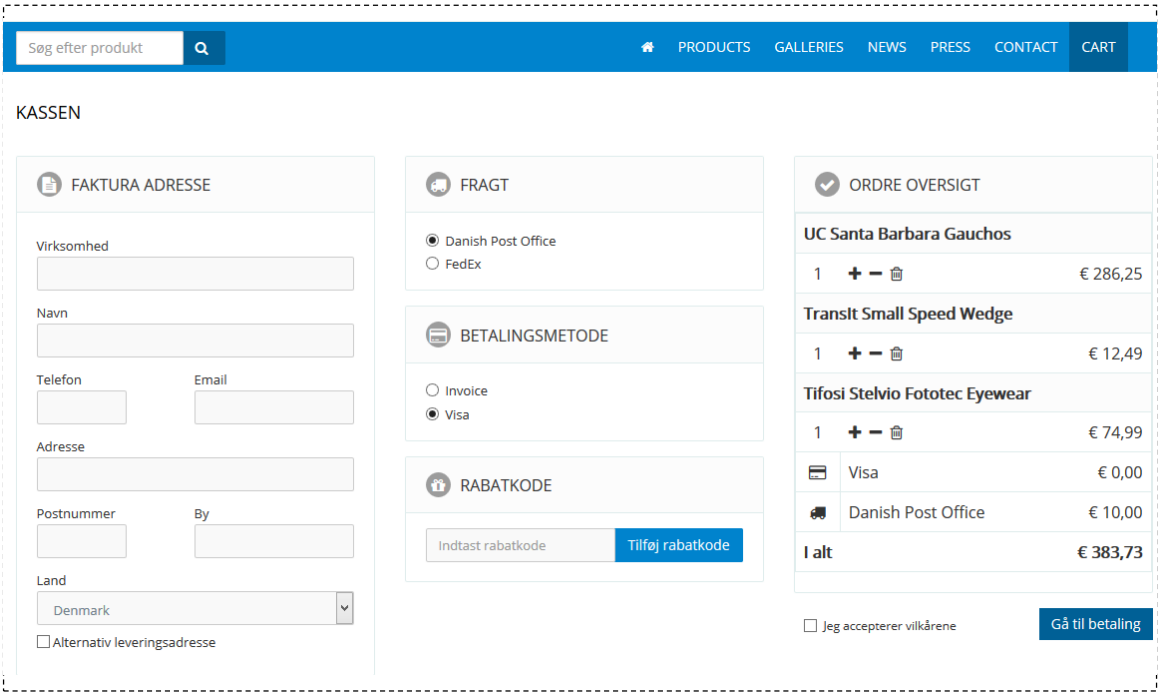


In this test the customer views a list of 12 products out of 160, switches to page two of the product list and finally looks at the detail page for a product. User behavior wait times are supplied below.

Single server (1 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
250 concurrent users.
View product list (10 sec.), change product page (10 sec.), view product detail (20 sec.)
60.000 page views / hour
Average page time 0.6 seconds

NLB (2 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
400 concurrent users.
View product list (10 sec.), change product page (10 sec.), view product detail (20 sec.)
90.000 page views / hour
Average page time 0.6 seconds

Making orders



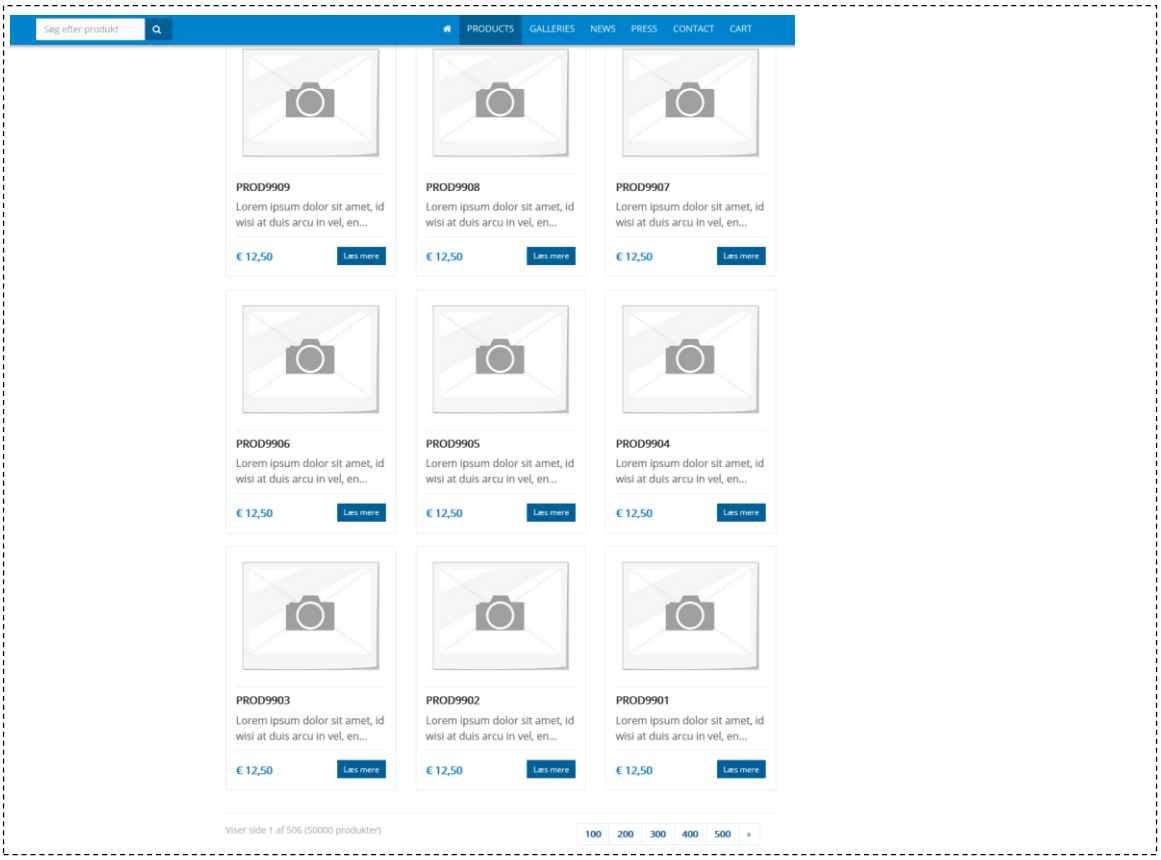
In this test the customer looks briefly at the details of a product, adds it to the basket and finally goes through the order flow making a purchase. User behavior wait times are supplied below.

Single server (1 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
150 concurrent users.
View product detail (5 sec.), add product to basket (10 sec.), complete order (40 sec.)
120 orders per minute.
Average page time 0.7 seconds

NLB (2 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
250 concurrent users.
View product detail (5 sec.), add product to basket (10 sec.), complete order (40 sec.)
180 orders per minute.
Average page time 0.7 seconds

1.2 B2B scenarios

Many products

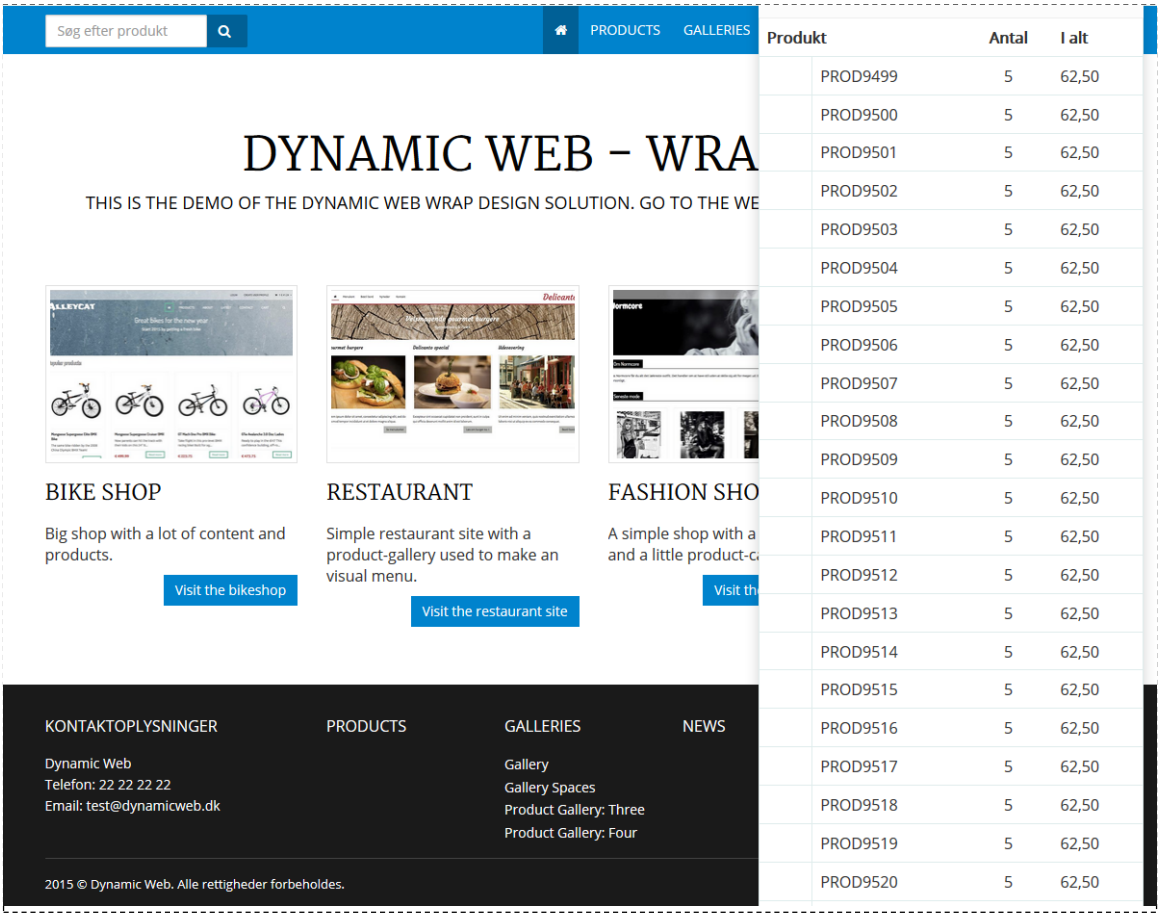


In this test the customer browses through a large collection of products. 400 different products out of a total of 50000 are displayed one hundred at a time. User behavior wait times are supplied below.

Single server (1 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
200 concurrent users
View 100 of 50.000 products (20 sec.), change product page 3 times (3x20 sec.)
25.000 page views / hour
Average page time 0.8 seconds

NLB (2 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
300 concurrent users
View 100 of 50.000 products (20 sec.), change product page 3 times (3x20 sec.)
40.000 page views / hour
Average page time 0.7 seconds

Large Orders



In this test the customer keeps adding products to the shopping cart up to the point of having 50 different products added. The Wrap site contains a mini cart as seen in the screenshot. This impacts performance negatively. User behavior wait times are supplied below.

Single server (1 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
100 concurrent users.
Add 50 different products to cart with amount set to 5 (15 sec.)
10.000 Products added to Cart / hour
Average page time 1.2 seconds

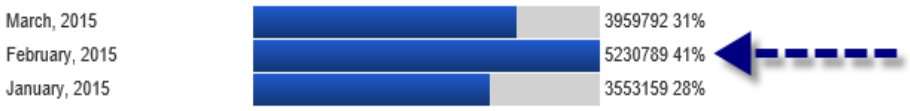
NLB (2 x Xeon E3-1230v2, 16 GB, Windows Server 2012, SQL 2012):
100 concurrent users.
Add 50 different products to cart with amount set to 5 (15 sec.)
10.000 Products added to Cart / hour
Average page time 0.7 seconds

1.3 How to use these numbers

When estimating the hardware needed to run a website the main thing to do is to find out what the peak load will be. Peak load happens during the hours where the traffic to the website is at a maximum, during the rush hours so to speak.

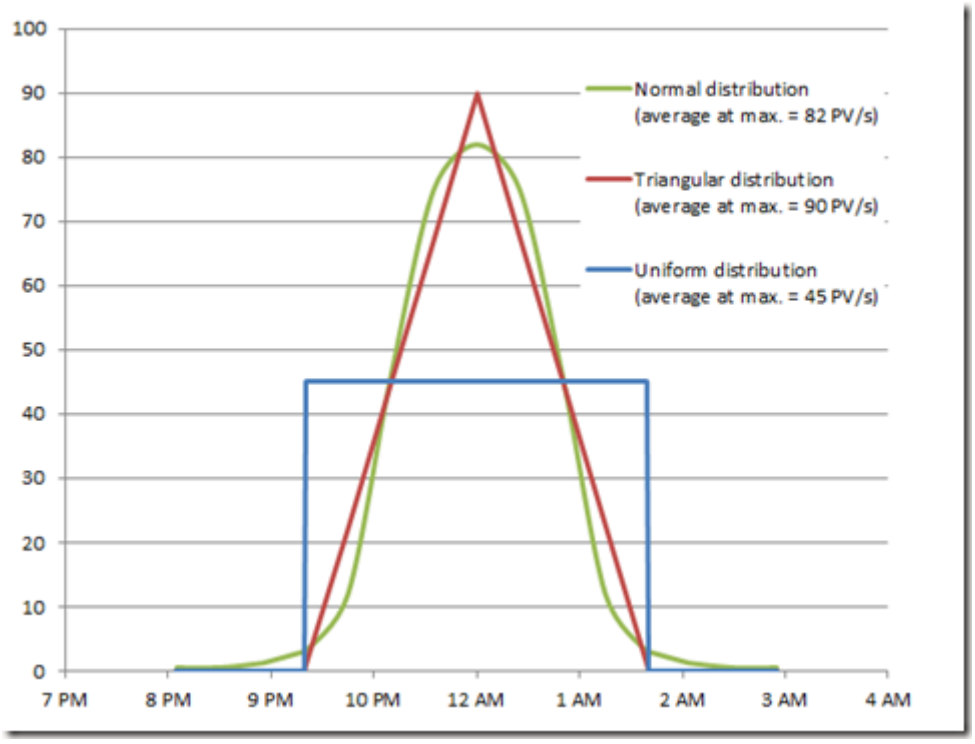
To get to the peak load figures we will need the average load first. Average page views per month can either be determined by looking at similar sites or at existing data.

If data for several months exists, choose the month with most page views. In the example data below February 2015 saw 5.23 million page views for this particular website



If we assume that the incoming traffic is distributed perfectly evenly day and night (not a very good assumption) we can easily calculate the mean page views per hour by doing some simple arithmetic. Page views per hour = 5.2 mill. Page views per month / 730 hours = approx. 7000 pages served per hour.

But most websites will not be hit evenly. The main part of the traffic will come from the websites own time zone and therefore follow a normal distribution that could look like this:



If we accept that half of all the website traffic occurs during a 4 hour daily period, the prime hours, then we will get a new formula: Page views per prime hour = 2.6 mill. Page views per month / 4*30 hours = approx. 20000 pages served per hour.

If we furthermore allow for a single hour to potentially be especially attractive for visitors (email marketing, external campaigns, etc.) It would probably be wise to dimension the hardware for serving 30000 pages per hour in the above example.

Going back to the numbers supplied in the scenarios above we can see that our example web site probably can do without NLB if the implementation is clean B2C.

