aiCACHE

Customer Case Study

Industry:
Ecommerce Retail

Problem Statement

A traditional e-Commerce Web Site growing in popularity. Wide product selection, competitive pricing and excellent customer care were drive more customers to the site. Inventory was expanding to include wider range of products.

The site is rather traditional - a home page with special promotions and best selling products, product search, product "section fronts" for electronics, home improvement, health and beautify products and a number of other common product categories.

Traffic patterns were also common for this type of Web site - 97% of traffic was browsing products, reading descriptions, studying pictures, looking at similar products from different vendors.

The existing setup included a front-end web farm of 32 web servers, running Microsoft IIS Web servers. The custom ASP code connected to a number of clustered Microsoft SQL Databases, where product and user information was stored. There was also a smaller set of Web servers running a customer service application.

As holiday season was approaching, it became clear that site's capacity needed a boost to deal with likely spike in traffic during the busy season and with the "regular" traffic growth .

An engineering estimate was put together. Under consideration was growing the front-end and the back-end farms by about 2-fold.
Faced with rather steep price tag, the company studied alternatives and decided to have a trial of aiCache Web Site Accelerator.

aiCache configuration.

Total of 3 servers were allocated for aiCache, each dual-socket dual-core 64bit Intel-based served with 16GB of RAM.
aiCache was initially configured to cache output of ASP scripts for 10 seconds: product search, home page, category "section fronts" . The product display pages and product images were configured for 24hr caching.

A number of .js and .css files that were served off the farm - these were also configured for 1 day TTL.

An e-Commerce Web Site

Hosting infrastructure consists of redundant datacenters. Custom ASP front-end, all the products and customer information resides in a number of Microsoft SQL Databases.

Hardware footprint
60 servers at primary location, smaller number at secondary.

Product inventory:
18,000 SKUs in 28 different product categories.

aiCache HW:
2 dual-core 64bit Intel-based 1RU servers, with 16GB of RAM. The rest of configuration is set up using customer's existing standards: 64bit Linux distribution from a well-known vendor, complete with OS support, redundant hard drives with a RAID array. Redundant network connection.

The results.

As result of aiCache deployment, traffic to the origin server farm was reduced by 95%. The load on Web Servers was reduced to nearly zero. The number of open connections to the Database cluster has dropped to single digits.

All of cached pages showed remarkable improvement in response time, with average time-to-first-byte dropping from 3.2 seconds to about 4 milliseconds. The longest query of old - the product search saw the best improvement - from 4.7 seconds to the same 4 milliseconds.

After 3 weeks of having aiCache in the mix, front-ending user traffic, a decision was made to downsize IIS web farm to just 12 servers,down from 34, and to downsize the Database clusters setup by 4 servers. (Database was kept clustered for High Availability reasons).

In light of this remarkable reduction of load on origin servers and overall hosting infrastructure, the Customer saw an opportunity to add user comments and product reviews to the product pages, re-using some of the servers that were freed as a result of deployment of aiCache. Additional SKUs are being input into the system, not that there's no performance penalty for inventory expansion.

Additional benefits

aiCache's rich instrumentation was put to good use, allowing for real-time monitoring of user traffic , including SNMP integration.

On-the-fly reporting of most requested URLs is being used for "most-popular" product page and similar sections in category fronts.

aiCache's selective log suppression feature is also configured to not log auxiliary content on the log files, reducing both the size of the log file and processing time (the log files are extensively processed looking for the all important customer patterns).

Savings:

- **36 new servers at ~U$5000 per: U$180,000.**
- **OS licenses: about U$16K**
- **DB licenses: about U$12K**
- **Server install and setup charges: about U$12K**
- **re-purposing of 26 servers and OS licenses for other applications: U$95K (amortized)**

Total CapEx saved: more than U$320K.