



Case Study

Virtual Expo

Virtual Expo, a leader in online B2B exhibitions, used Varnish Plus Cloud to build and enhance their own in-house CDN

// Varnish Plus Cloud on AWS allows flexibility and permits getting started with low costs, which convinced internal Virtual Expo management and stakeholders to implement Varnish.

Background

A growing trend for companies across industries and verticals is to take back control of their own data and traffic. One of the most powerful ways to do this is to build one's own in-house CDN, putting control back into one's own hands over what type of content is delivered as well as how, to whom and from where.

Moving away from generic, one-size-fits-all content delivery has given many companies, including Virtual Expo, the freedom to move away from a single CDN strategy, improve content delivery performance, and always deliver content from the fastest server, closest to the end user.

The challenge

In 2013, Virtual Expo built its own in-house CDN solution, based on Varnish Cache. This DIY CDN consists of ten individual bare-metal SSD-backed servers rented from various web hosting companies across Europe, North America and Asia. Client routing is done at the DNS level using Cedexis's Openmix technology.

As the CDN matured, Virtual Expo found that response time was deemed too long for search engine crawlers. They looked at ways to improve response time by allowing stale content to be served, at the same time as storing as many objects as possible with very long time-to-live (TTL) figures (presently 45 days). This would be fine except that open source Varnish Cache loses its entire cache when restarting the daemon. Also, over time, the internal storage backend started to fragment, and performance began to deteriorate.

Virtual Expo wanted to achieve:

- Better performance through cache control policies
- Cache persistence across restarts
- Better storage for larger data sets to alleviate fragmentation and regain performance

Virtual Expo at a glance

Company

Virtual Expo is a leading global virtual trade show software platform, specializing in lead generation and promotion for companies across several verticals. Virtual Expo hosts permanent online exhibitions and generates over 8 million unique monthly users.

Challenge

Virtual Expo wanted to ensure greater stability for the in-house CDN solution they had developed in 2013 using Varnish Cache.

Varnish Plus solutions for Virtual Expo

With Varnish Plus Cloud, Virtual Expo could ensure cache persistence across restarts, which was key to ensuring consistent and fast performance. Using Massive Storage Engine allowed for much higher performance from much larger data sets than ever before (~15 million objects).

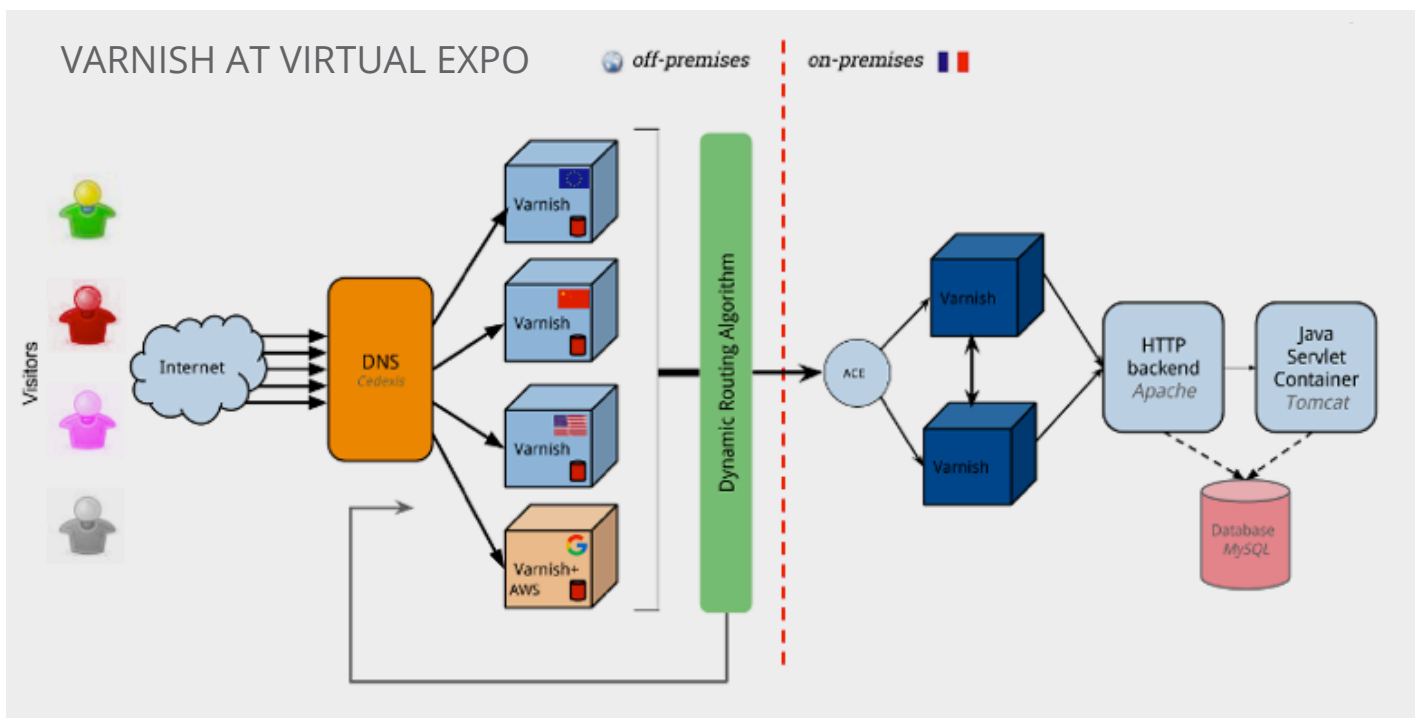
The solution

Flexibility leads to stability: Improving and maintaining in-house DIY CDN

Varnish Plus is a flexible solution for many performance-related issues, and making it even easier to adopt and get started with is Varnish Plus Cloud, which offers the ability to start using Varnish Plus components almost instantly at a per-hour licensing rate. This was exactly what Virtual Expo needed to build on their Varnish Cache-based CDN and to address their caching challenges.

Starting in December 2016, Virtual Expo launched a pilot program to run through October 2017 to discover whether the Amazon Web Services (AWS) offer, through EC2, giving them the ability to run storage-efficient Linux instances, and adopting Varnish Plus technology through AWS, Virtual Expo could benefit from Varnish Plus features.

Massive Storage Engine (MSE) was the key element that Virtual Expo needed to store around ~15M objects, which could take up to one month for everything to be cached. The ability to restore the cache on restart significantly improved efficiency and performance. MSE also performs better over time as it is specially designed to store such a huge quantity of objects, keeping performance at an optimal level without having to restart the varnishd instance.



Results

Pilot project

The Virtual Expo project began as a pilot program, during which time the company did extensive testing and validation.

In the process of implementing Varnish Plus Cloud, Virtual Expo has learned that the licensing scheme for Varnish Plus Cloud on AWS, which allows flexibility and permits getting started with low costs, played a major role in convincing internal Virtual Expo management and stakeholders to approve the project. Being able to cancel the project if needed, and having transparency into and predictability around costs, was essential.

Since the Varnish Plus AWS instance went live, Virtual Expo observed a dramatic reduction in page load time by Google Bot (~900ms -> ~150ms), which was the initial goal of the pilot. AWS EC2 and Varnish Plus Cloud have proven to be solid products, matching up closely with the immediate needs Virtual Expo had. Both products offer exceptional stability, running with an uptime of more than 100 days without incident - and reassurance that even in the event of a crash, MSE performs well with 15 million objects stored and recovers upon restart.

Once the pilot period ended in October 2017, Virtual Expo decided to keep Varnish Plus running on AWS thanks to these benefits and the peace of mind Varnish Plus Cloud and AWS offers.

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